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The Global Innovation Index 2014

The Human Factor in Innovation

Confederation of Indian Industry

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The Global Innovation Index 2014

The Human Factor in Innovation

Soumitra Dutta, Bruno Lanvin, and **Sacha Wunsch-Vincent**
Editors

Confederation of
Indian Industry

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The terms 'country', 'economy', and 'nation' as used in this report do not in all cases refer to a territorial entity that is a state as understood by international law and practice. The terms cover well-defined, geographically self-contained economic areas that may not be states but for which statistical data are maintained on a separate and independent basis.

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Contents

Preface: Releasing the Global Innovation Index 2014: Nurturing the Essential Human Factor in Innovation v
By Soumitra Dutta, Cornell University; Bruno Lanvin, INSEAD; and Francis Gurry, World Intellectual Property Organization

Foreword: The Human Factor: The Fundamental Driver of Innovation vii
By Chandrajit Banerjee, Director General, Confederation of Indian Industry

Foreword: The Connected Human Factor: The Heart of Innovation ix
By Osman Sultan, Chief Executive Officer, du

Foreword: Human-Centric Innovation xi
By Ken Hu, Deputy Chairman, Huawei

Contributors to the Report xiii

Advisory Board to the Global Innovation Index xv

Executive Summary xvii

RANKINGS

Global Innovation Index 2014 Rankings xxiv

CHAPTERS

Chapter 1: The Global Innovation Index 2014: Nurturing New Sources of Growth by Developing the Human Factor in Innovation 3
By Soumitra Dutta, Rafael Escalona Reynoso, and Alexandra L. Bernard, Cornell University; Bruno Lanvin, INSEAD; and Sacha Wunsch-Vincent, WIPO

Annex 1: The Global Innovation Index Conceptual Framework 41

Annex 2: Adjustments to the Global Innovation Index Framework and Year-on-Year Comparability of Results 53

Annex 3: Joint Research Centre Statistical Audit of the 2014 Global Innovation Index 55
By Michaela Saisana and Andrea Saltelli, European Commission Joint Research Centre (Ispra, Italy)

Chapter 2: The Human Factor in Innovation 69
By Martin Schaaper, UNESCO Institute for Statistics

Chapter 3: Educating Innovators and Entrepreneurs 77
By Richard Scott and Stéphan Vincent-Lancrin, OECD Directorate for Education and Skills

Chapter 4: Higher Education in India: Growth with Challenges 85
By Naushad Forbes, Confederation of Indian Industry and Forbes Marshall Ltd

Chapter 5: Innovative Activities and Skills 93
By Leonid Gokhberg and Valentina Poliakova, National Research University – Higher School of Economics, Russian Federation

Chapter 6: The United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge-Based Economy 101
By Ahmad Bin Byat and Osman Sultan, du

Chapter 7: Retaining Top Innovators: An Essential Element of Competitiveness for Developing Countries 113
By David R. Walwyn, Department of Engineering and T echnology Management, University of Pretoria; and Sibusiso Sibisi, Council for Scientific and Industrial Research, South Africa

Chapter 8: The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco 123
By Nour-Eddine Boukharouaa, Moroccan Industrial and Commercial Property Office (OMPIC), chapter coordinator; Marwan Berrada, Ministry in Charge of Moroccans Living Abroad and Migration Affairs; Abdelhak Chaibi, Association R&D Morocco; Salma Dinia, National Centre for Scientific and Technical Research (CNRST); Abdesselam El Ftouh, Hassan II Foundation for Moroccans Living Abroad; Adil El Maliki, Karima Farah, and Ilham Bennani, Moroccan Industrial and Commercial Property Office (OMPIC); Omar Elyoussoufi Attou, Ministry of Higher Education, Scientific Research and Executive Training; and Yassine Ouardirhi, Ministry of Industry, Trade, Investment and the Digital Economy

APPENDICES

Appendix I: Country/Economy Profiles 135

Appendix II: Data Tables 283

Appendix III: Sources and Definitions 371

Appendix IV: Technical Notes 387

Appendix V: About the Authors 393

Releasing the Global Innovation Index 2014: Nurturing the Essential Human Factor in Innovation

©WIPO, 2013. Photo by Emmanuel Berrod.

We are pleased to present the Global Innovation Index (GII) 2014. This year, the theme of the report is the 'Human Factor in Innovation'. The GII 2014, in its 7th edition, is again co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO, a specialized agency of the United Nations).

The GII recognizes the key role of innovation as a driver of economic growth and well-being. It aims to capture the multi-dimensional facets of innovation and to be applicable to developed and emerging economies alike. In doing so, it helps policy makers and business leaders move beyond one-dimensional innovation metrics towards a more holistic analysis of innovation drivers and outcomes.

Over the last seven years, the GII has established itself as a leading reference on innovation. When launching this same report last year, United Nations Secretary-General Ban Ki-moon stressed that the GII is a 'unique tool for refining innovation policies … for providing an accurate picture on the role of science, technology and innovation in sustainable development', and for assessing where more efforts are urgently needed.

We like to think of the GII as a 'tool for action' for decision makers with the goal of improving countries' innovation performances. Numerous workshops in different countries have brought innovation actors together around the GII results with the aim of improving data availability, boosting the country's innovation performance, and designing fresh policy actions that are targeted for effective impact. These exchanges on the ground also generate feedback that, in turn, improves the GII.

The theme of this year's GII, the 'Human Factor in Innovation', explores the role of the individuals and teams behind the innovation process. Statistically capturing this human contribution to innovation is a daunting challenge. Even more complex are the challenges faced by all those who try to properly nurture the human factor in innovation.

Great efforts have been made to foster the availability of scientists and engineers in the developed and the developing world alike. But important gaps remain between rich and poor countries. Top talents continue to be scarce, and they cluster and grow around top infrastructure and institutions. Still, the availability and mobility of human capital worldwide has changed for the better in the past two decades, and with it the geography of innovation.

Workers with advanced degrees are an essential starting point for innovation. Yet their existence does not guarantee scientific or technological breakthroughs or other forms of non-technological or social innovations. Creative and critical thinking, and the appetite for taking risks and thinking entrepreneurially, often matter at least as much as technical qualifications. In addition, innovation is spurred by having favourable conditions in which actors and society are open to new approaches.

Putting the right environment in place that will nurture, promote, and enable the human factor behind business and social innovation is a complex task, but a critical one. There are many strands of action in the field of education, training, and skill formation; in collaboration; in the diffusion of knowledge; and in other areas, as described in this report. A particularly interesting issue concerns implementing new policies to help developing and developed countries retain, involve, or attract talent, sometimes by involving their skilled diaspora abroad in national innovation activities. A few developing countries have put these approaches into practice, generating lessons that can be refined and applied elsewhere.

This year the changes to the GII innovation framework are less numerous than in recent years. This is a sign of the increased stability of the measurement framework. At the same time, the journey to more effective innovation measurement is far from over. The GII team continually tests the model for relevance to better reflect an improved understanding of innovation. Thus the GII is both a user of novel innovation metrics and an effective 'demandeur' for further measurement exercises.

We hope that the collective efforts of all members and users of the GII project will continue to pave the way for better innovation policies around the world. We thank our Knowledge Partners in 2014, the Confederation of Indian Industry, du, and Huawei as well as our Advisory Board Members for their support.

Soumitra Dutta
Dean, Samuel Curtis Johnson Graduate School of Management, Cornell University

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Executive Director, European Competitiveness Initiative, INSEAD

The Human Factor: The Fundamental Driver of Innovation

The fundamental driver behind any innovation process is the human factor associated with it. We observe that some nations take the lead in innovation capability over others. A major factor for this disparity of innovation prowess is the quality of human capital linked to the innovation activities carried out in these nations. Other factors, such as technology and capital, also influence the innovation process; these directly correlate with the human factor. Hence nurturing human capital at all levels and in all sections of society can be crucial for developing the foundation for innovation.

Across the world, talented human capital is formed in two primary ways. First, each nation creates the infrastructure (by creating schools and colleges and other academic/R&D institutions) to enhance the knowledge of its population in various technological and non-technological fields of study by providing both basic and advanced teaching and R&D facilities. Second, a nation attracts talented human capital from other parts of the world by providing suitable incentives, and then grooms and employs these workers in various innovation activities. The nation that can nurture and attract the best talent becomes the innovation trendsetter. For example, the United States of America has successfully built its innovation ecosystem by attracting the best brains in the world. US universities have been exceptionally effective in their quest to engage some of the most prominent people in the world, and have simultaneously created an ecosystem for entrepreneurs who have been able to establish some of the globe's biggest organizations. The crux of this success has always been the people who have been able to find the right kind of incentives in the US system that allow them to pursue their innovation dream.

In today's world, innovation is a subject of great importance because it stimulates sustainable growth in a highly competitive market. Scholars across the world are studying innovation in great detail and trying to determine the different parameters that influence its behaviour. Actors such as institutions, industry, academia, and government, along with factors such as R&D, funding, incubation, mentoring, infrastructure, markets, and businesses, have all been identified as crucial to any innovation ecosystem. But at the heart of all innovation lies the human factor, identified as its soul and purpose. The message is very clear: in order to build an innovation-driven nation we need to educate our people well, and to provide them enough resources and incentives to chase their dreams. Innovation will follow. India, with its billon plus population—the youngest population in terms of the number of people below the age of 30—is in a position to create unprecedented opportunities domestically as well as globally to drive future innovations. But this can happen only if India can drive its human capital effectively towards a knowledge economy.

The theme of the current edition of Global Innovation Index is very apt. It tries to capture the nuances of the human factor that is responsible for innovation and growth. The different chapters of this report illustrate how human capital influences innovation trends and how nations in the developing world struggle to innovate to their full potential by providing inadequate infrastructure for education. Chapter 4, for example, presents the case of India, which now has an opportunity to make its education system into a source of high-quality graduates in areas such as engineering, basic sciences, and liberal arts; these highly qualified workers will contribute to India's innovative capacity.

I thank the entire GII team and all other Knowledge Partners in this report for coming up once again with this wonderful edition. I feel humble to have been part of this report for last few years and hope that this edition of the GII, like all previous editions, may strengthen the tools of policy makers across the world to enable them to make the right decisions for stimulating innovation.

Thank you.

Chandrajit Banerjee
Director General
Confederation of Indian Industry

The Connected Human Factor: The Heart of Innovation

Throughout the last decade, the United Arab Emirates (UAE) has made great strides in diversifying its economy, enabling it to establish its next growth chapter through its strategic plan, Vision 2021. The vision calls for the UAE to transform its economy into one where growth is driven by both knowledge and innovation. And with Dubai winning the right to host Expo 2020 and its ambition of becoming the global capital of the Islamic economy, the UAE is on the fast track to achieving its objectives.

It is without a doubt that this year's theme, the 'Human Factor in Innovation', is at the centre of the UAE government's Vision 2021 of becoming a knowledge-based economy. A core pillar of this vision is to actively embed digital solutions in everyday lives to guarantee efficient connectedness among citizens, researchers, entrepreneurs, businesses, and government. Connectivity and broadband have become essential requirements for human well-being, and the people of the UAE are continuously and increasingly inspired by the vision of the nation's leadership as the country progresses towards a 'smart' future. The UAE's Smart Government and Dubai's Smart City initiatives will pave the way for some of the most innovative digital applications available, which in turn will further enable the human factor through better, faster, and smarter communication and knowledge diffusion. That is what a smart city is all about—creating a better life for people in a happier, more connected world.

We at du are proud to play an active role in supporting the achievement of the UAE's vision by accelerating innovation and helping to make it accessible to everyone. Connected innovation—in particular the benefits of connectedness for the human factor in innovation—is at the heart of du and the company's aspirations.

We are working extensively with our partners to create citizen-centric services, smart devices, and connected ecosystems that will benefit our whole community. These solutions are not only in line with the national vision, but will also become the showcase for international cities aspiring to become digital-enabled. They will empower and facilitate creativity, business acumen, interaction, and the lives of all UAE residents and tourists.

As a key player in the UAE's economy, we are working hand-in-hand with national and international players to ensure that the country's innovation ecosystem is conducive for the next evolution as described in Vision 2021. We have a dream of connected innovation and want to share it with everyone. We owe it to our leaders, our citizens, our customers, our employees, and ourselves to ensure that the country can enjoy the benefits of a knowledge-based economy, powered by connectedness. The GII 2014 report provides tools that we, and every economy wanting to enhance its innovation capacity, can use.

Osman Sultan
Chief Executive Officer
du

Human-Centric Innovation: Inspired Talent Is the Engine of Innovation

Humans have always improved life through innovation. From the discovery of fire to electricity, the Internet and beyond, new thinking is fundamental to social progress and economic growth. At its most effective, innovation is an inherently human endeavour. Successful innovation happens when people with skills, experience, and capabilities come together to understand or predict, and then address, other people's challenges. Talent, like capital and technology, is a key success factor for innovation. Inspiring potential talent will drive innovation and growth.

Education is a fundamental element in innovation and access to both basic and vocational education is key to talent development. Countries should invest more in education, building the human infrastructure to drive innovation and growth. It is equally important for industries and businesses to get involved in enhancing education systems. Advances in information and communication technologies (ICT) in recent years played a crucial role in transforming traditional education and making it more accessible, affordable, and effective globally. To support this, Huawei developed Telecom Seeds for the Future, a programme to develop local ICT talent, promote understanding and interest in ICTs, and develop participation in the digital community. Through this programme we have established 16 training centres where over 10,000 ICT students worldwide have been trained.

Businesses should build platforms for talent to thrive. Solid education sets the foundation for talent's future growth but is only the beginning. Professional practices in businesses and organizations are more important in cultivating talent. At the same time, success of talent brings business success. That is why Huawei is building a global platform for talented people to work and innovate together, share the value created, and realize their dreams.

Under Huawei's talent pyramid model, young professionals can grow on either our management or subject expert tracks. We encourage innovation by electing our most exceptional thinkers as prestigious Huawei Fellows and our layered reward model with tangible and intangible benefits enables high-performing employees to share in short-term monetary returns as well as long-term incentives. We also tailor policies and training to best suit different cultures and talent types, and we help employees better understand and live our core corporate values.

Global innovation needs global talent. To be successful in business today, when capital, goods, talent, and knowledge move quickly around the world, we need to treat global markets as a single market, building global value chains that integrate the world's best resources. By doing this, local innovation is promoted and used globally, making local innovation truly valuable in the global ecosystem. Huawei has put this theory into practice by integrating the world's top resources. Our 16 R&D centres in resource-rich locations, 28 joint-innovation centres, and more than 40 professional competency centres transform our global value chain into a larger global innovation platform that enables customers worldwide to access innovations from all over the world in the shortest time possible.

We are proud to be a Knowledge Partner for the Global Innovation Index in 2014 and explore the role and highlight the importance of human capital in fostering innovation. Like many institutions around the world, we are focused on finding and sharing best practice and developing and nurturing our most important resource, our people. The 2014 GII report will further the discussions needed among people so we can learn from each other and create an open and effective innovation environment. For Huawei, our commitment helps us deliver a major objective—to enable better connected people, societies, and countries, and ultimately a better connected world.

Ken Hu
Deputy Chairman
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PwC Global entertainment and media outlook 2013-2017, **www.pwc.com/outlook**

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In 2011, an Advisory Board was set up to provide advice on the research underlying the Global Innovation Index (GII), generate synergies at its stages of development, and assist with the dissemination of its messages and results. The Advisory Board is a select group of leading international practitioners and experts with unique knowledge and skills in the realm of innovation. Its members, while coming from diverse geographical and institutional backgrounds (international organizations, the public sector, non-governmental organizations, business, and academia), participate in their personal capacity. We are grateful for the time and support provided by the Advisory Board members.

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Executive Summary

The Global Innovation Index (GII) 2014 covers 143 economies around the world and uses 81 indicators across a range of themes. Thus, the GII 2014 presents us with a rich dataset to analyse for global innovation trends. The theme for this year's GII is the 'Human Factor in Innovation'. The importance of both individual and collective efforts of creators and scientists in the innovation process has been well documented in the literature. The results of the GII provide additional evidence of this significance.

This report presents chapters that discuss different aspects of the index and the theme, followed by appendices that provide the data from individual data tables for each indicator, a profile for each of the countries/economies covered this year, detailed information about the sources and definitions of each indicator, and technical notes about the composition of the index.

Below we provide a summary of the chapters.

Chapter 1, 'The Global Innovation Index 2014: Nurturing New Sources of Growth by Developing the Human Factor in Innovation' written by Soumitra Dutta, Rafael Escalona Reynoso, and Alexandra L. Bernard from Cornell University; Bruno Lanvin from INSEAD; and Sacha Wunsch-Vincent from WIPO, introduces the theme of the human factor and discusses the results of this year's rankings. The material below summarizes the key findings from the chapter:

- The need to gather more knowledge of, and a better understanding of, the role that the human factor—along with technology and capital—plays in innovation is critical. Statistically and analytically capturing this contribution and nurturing it through adequate education, training, and motivation in schools, universities, businesses, civil society, and the government itself is a challenge.
- As of 2013, a fall in the growth of public R&D support coupled with the continued hesitancy of company R&D expenditures seems to be leading to slower overall growth of total R&D expenditures worldwide; this is the case especially in high-income countries. If indeed future-oriented policies aimed at stimulating innovation and new sources of growth are not widely pursued, hopes for sustained global growth could be dashed.
- The top 10 economies in the GII 2014 edition are Switzerland, the United Kingdom (UK), Sweden, Finland, the Netherlands, the United States of America (USA), Singapore, Denmark, Luxembourg, and Hong Kong (China). Nine of these economies were already in the GII top 10 in 2013; Ireland, which was 10th in 2013, dropped to 11th this year, and Luxembourg climbed up into the top 10 from 12th position in 2013.
- The GII 2014 confirms the continued existence of global innovation divides even within income groups. All top 25 economies are in the high-income group. China and Malaysia are the only upper-middle income countries getting closer to these ranks.
- Sub-Saharan Africa is the region that sees the most significant improvement in GII rankings in 2014. Thirty-three countries make up the region in the GII. Of these 33, 17 climb in the rankings this year, three remain in the same position, two new countries are added, and the remaining 11 exhibit a drop in rank.
- Regional trends in the GII 2014 show some interesting new aspects. The BRICS economies show signs of divergence, with China improving at a significantly faster pace than its BRICS counterparts and India slipping back. If China continues to improve at this pace, it would not be a surprise to see it move from its current 29th position to within the top 25 within a few years. The divergence of India from the rest of the BRICS economies is the result of the challenges it faces in integrating its efforts along the

different dimensions of innovation to sustain a high level of innovation success.

In **Chapter 2,** 'The Human Factor in Innovation', Martin Schaaper from the UNESCO Institute for Statistics analyses and discusses major global trends related to the presence of skilled labour in countries. In particular, he makes the following points:

- The more developed the region, the higher the percentage of the population that have completed tertiary education.
- More and more students are enrolling in tertiary education.
- On tertiary enrolment, again the richer regions are far ahead of the poorer regions, in particular Sub-Saharan Africa.
- The regions with the highest numbers of people with tertiary education and with the highest enrolment ratios in higher education are also those with the most researchers as a proportion of the total population.
- Economies that are catching up are more dependent on technology transfer than they are on original R&D.
- R&D is generally unprofitable in countries with low levels of human capital.
- A very relevant factor for innovation is the movement of highly skilled people, whether they are students or experienced professionals.
- Economies at the lowest levels of development may be trapped in a vicious circle: low economic development does not offer a context that provides enough incentives for young people to pursue higher education, and without a skilled population, economies will not grow.
- More information is needed about the demand for skills by employers and the supply of these skills by highly educated people.

The chapter also provides some region-specific statistics:

- The two regions with the highest numbers of people with a tertiary education and with the highest enrolment ratios in higher education are also the two regions with the most researchers as a proportion of the total population: North America and Western Europe and Central and Eastern Europe
- The highest growth rates in enrolment in tertiary education are in Asia, with the exception of Central Asia, where the gross enrolment ratio even decreased after 2007.
- This region is dominated by China, which has not only been extensively expanding its higher education system, but has enlarged its research system even more.
- The magnitude of the global emigration rate of highly skilled persons from Africa is striking: it is estimated at 10.6% (9.7% for migration to OECD countries), compared with other regions of origin and the world average of 5.4% (4.3% to OECD countries).
- The leading countries of origin among immigrants with a highest degree in science and engineering are China and India.

Chapter 3, 'Educating Innovators and Entrepreneurs' written by Richard Scott and Stéphan Vincent-Lancrin from the OECD Directorate for Education and Skills, discusses the necessity of education and skills for successful innovation. The chapter offers some region-specific observations:

- Countries range from those with comparatively low test scores and high interest in science (e.g., Mexico) to those with comparatively high scores and low interest (e.g., Finland), but a few do have relatively high scores and high interest (e.g., Japan).
- Even in many Asian economies, where education systems have typically been associated with traditional learning models and a narrow focus on STEM subjects, there are signs of new efforts to emphasize creativity and critical thinking in national curricula.

The chapter concludes:

- Improving skills is one of the most important ways to raise innovation, productivity, and economic growth, and to improve social welfare and equality.
- Education systems that narrowly focus on test-based academic performance and numbers of students enrolled in science and technology subjects are not necessarily those that will produce young people with the creativity, critical thinking, and communication skills that innovative societies require.
- Analysis of PISA scores highlight a negative correlation between national-level student test scores in science and interest in science, but certain teaching

activities are able to improve scientific knowledge without undermining the development of other skills.

- Graduates of tertiary arts programmes are among the most likely to contribute to product or service innovation.
- Evidence of the effectiveness of school-level entrepreneurship education programmes is mixed; more work is needed to determine the successful elements of this type of intervention.
- Although many countries are addressing the kinds of skills needed for innovation in their curricula, school assessment methods may provide a barrier to their development.

Chapter 4, 'Higher Education in India: Growth with Challenges' written by Naushad Forbes from the Confederation of Indian Industry and Forbes Marshall Ltd, describes the characteristics of the higher education system in India. In particular, he makes the following points:

- Higher education has grown very rapidly in India over the last 30 years.
- Most of the growth has occurred primarily in professional fields, especially engineering and management.
- The growth has occurred in teaching rather than in research, with public research in India highly concentrated in autonomous research institutes instead of universities.
- Most of the growth has been in private institutes rather than public ones.
- Because the most dramatic growth has been in professional education such as engineering and management, the humanities and social sciences have been neglected.
- India now faces the following challenges: the need to ensure quality, to build graduate education and research universities, to provide equity of access, and to build excellent liberal arts universities.
- More useful measures have taken the form of various schemes to entice Indians with PhDs who are working overseas to come back home.

Chapter 5, 'Innovative Activities and Skills' written by Leonid Gokhberg and Valentina Poliakova from the National Research University – Higher School of Economics, Russian Federation, posits that successful innovation requires the population to obtain a higher level of education, to be more creative, and to boost their ability to perceive essential achievements in science, technology, and innovation (STI) and implement those in daily practices.

Further, the chapter explains:

- Groups of the population that do not participate in the implementation and consumption of innovation because of the specificities of their jobs and/or their quality of life are at risk of being left behind by social exclusion and subsequent backwardness.
- Discrepancies between perception and impact assessments correlate with an economy's position on a transition curve towards a post-industrial, innovation-based economic model.
- The larger the shares of innovating companies and allied employment, the more operational the population's function as producers of innovation.
- Children have become a strong factor affecting technology diffusion, a fact explained by its deepening penetration into the contemporary lifestyle.
- As shown by the surveys, four types of survey respondents can be distinguished according to their attitude towards technological novelties: 'admirers' (9%), those who respond 'positively' (65%), those who respond 'indifferently' (16%), and those who respond 'negatively' (5%).
- The innovative potential of an individual is not an instinctive feature, and essential skills for innovation can be learned.
- National education systems are motivated to transform formal curricula and teaching techniques and to promote life-long learning aimed at supporting the innovative patterns of a population's behaviour and attitudes.
- There is a need to modernize education systems so that they will ensure the development of knowledge, innovative skills, and personal qualities (such as entrepreneurship, tolerance, self-confidence, leadership, creativity, activeness, and risk propensity) from early childhood.
- Popularizing innovation and allied novel practices aimed at upgrading competences and developing an innovation-friendly environment are also important components of boosting competitiveness.

Chapter 6, 'United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge Based Economy' written by Ahmad Bin Byat and Osman Sultan from du, discusses the United Arab Emirates' (UAE's) path towards transformation into an innovative economy. The authors find three pillars of innovation in the UAE: human capital, financial capital, and technological capital. Innovation occurs at the intersection of these three, and policy in the country is aimed at enhancing these pillars.

The chapter explains:

- Telecommunications infrastructure and services are the backbone of a knowledge-based economy. Aside from this, the telecommunications sector in the UAE also has a key role to play in promoting innovation and in supporting the country's evolution towards a knowledge-based economy.
- To further the aim of the UAE's Vision 2021, the UAE has invested significantly in education and capability development, setting the foundation for long-term competitiveness.
- The UAE is actively working to promote innovation through policies and targeted initiatives aimed at developing human capital while addressing the requirements of financial and technological capital.
- The UAE currently boasts one of the most advanced education systems in the Middle East and North Africa (MENA) region, thanks to continuous investments across all education levels.
- The UAE's budget allocation to education represents more than 20% of its total government budget, higher than the benchmark average of 13%.
- The key imperative going forward is to develop the deep technical skills that are required for disruptive innovations, as opposed to generalist skills.
- Attracting foreign talent is an important aspect of establishing and maintaining an innovative environment.
- Immigrants constituted 96% of the total UAE workforce in 2013 and 99.5% of the nation's 4 million private-sector employees. The UAE government is also encouraging the local population, which has been more drawn towards working in the public sector, to join the private sector to develop their skill sets.
- One other essential element of a successful ecosystem of innovation is the encouraging and fostering of young entrepreneurs. One of the most effective ways to do this is through mentoring, and the UAE is emerging as one of the best places for entrepreneurship to thrive.
- The UAE government's R&D efforts are targeted at specific sectors to solve its market needs and key socioeconomic challenges.
- Fostering an innovation ecosystem requires ensuring adequate early-stage funding, venture capital, and growth equity.
- Cultural barriers to innovation—such as fear of failure and an aversion to taking risks—can present serious difficulties, yet are starting to diminish in the UAE.

In **Chapter 7,** 'Retaining Top Innovators: An Essential Element of Competitiveness for Developing Countries', David R. Walwyn from the Department of Engineering and Technology Management, University of Pretoria, and Sibusiso Sibisi from the Council for Scientific and Industrial Research, South Africa, posit that the mobility of talented people is critical to a system's capacity for learning, adapting, and innovating. They explain:

- A small number of researchers and innovators account for a major proportion of the overall output.
- The most productive innovators are also the most mobile.
- The retention of this cohort of innovators is a neglected but important policy objective for developing countries.
- Talented innovators tend to cluster in the same places, even at the same institutions.
- Leading researchers and entrepreneurs are more likely to pursue their careers in the USA or the UK.
- The migration of innovators from developing to developed countries is also evident in statistics on inventions, where it has been shown that inventors in developed countries such as the USA and Switzerland are more likely to be immigrants than natives.
- The capacity of some countries to attract and support higher levels of extraordinary talent, allowing it to develop and flourish, is a consequence of many factors that include funding, facilities, international migration, strong local networks and clustering, and the 'Sanger factor'.

- Developing countries should pursue priorities other than the provision of research and innovation infrastructure necessary to retain the elite cohort.

Chapter 8, 'The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco' co-written by a collection of authors from the Moroccan Industrial and Commercial Property Office (OMPIC), R&D Maroc, several Moroccan ministries, the National Centre for Scientific and Technical Research, and the Hassan II Foundation for Moroccans Living Abroad, describes the Moroccans living abroad and the mobilization of the country's highly educated workforce. The chapter considers following points in detail:

- The mobilization of a highly educated workforce is an important part of international migration strategies.
- The lack of qualified human resources in a globalized and competitive market place that requires knowledge and know-how generates new reasons for Morocco's population to be mobile.
- The feminization of the group of Moroccans Living Abroad (MLAs) has continued, with the migration of single women reflecting the evolving emancipation of women in Moroccan society.
- Highly skilled Moroccans (those with a tertiary or graduate degree) make up 15% of the Moroccan Diaspora.
- The share of persons with a university diploma is twice as high among the MLAs as it is among the domestic Moroccan population.
- Identifying the skilled members of the Diaspora who contribute actively to innovation is extremely difficult because the data are often simply not available.
- Of the patent applications published under the PCT (Patent Cooperation Treaty), 876 have been filed by MLA inventors at international locations in the 16 years from 1995 through 2011.
- An analysis of patents issued under the PCT enables the identification of patents by inventors who belong to the Moroccan Diaspora, which can serve as a proxy for determining MLA inventors.
- MLAs constitute a scientific potential of creativity and innovation for Morocco through mobilization programmes of the Moroccan Diaspora skills.
- There has been a steady return of migrants of working age in the last decade. Of those who returned to Morocco, 81% are under 54 years old, and more than two-thirds have their own businesses.
- To get those working abroad to return home, the following is recommended:
  - » considering specific return campaigns centred around major technology projects,
  - » mobilizing these human resources in a targeted manner and earmarking these projects, and
  - » creating the conditions and environment favorable to the contribution of professionals who are now abroad to further the development of innovation in Morocco.

Rankings

Global Innovation Index rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.74
Switzerland	64.78	**1**	HI	**1**	EUR	**1**	0.95	6	
United Kingdom	62.37	2	HI	2	EUR	2	0.83	29	
Sweden	62.29	3	HI	3	EUR	3	0.85	22	
Finland	60.67	4	HI	4	EUR	4	0.80	41	
Netherlands	60.59	5	HI	5	EUR	5	0.91	12	
United States of America	60.09	6	HI	6	NAC	**1**	0.77	57	
Singapore	59.24	7	HI	7	SEAO	**1**	0.61	110	
Denmark	57.52	8	HI	8	EUR	6	0.76	61	
Luxembourg	56.86	9	HI	9	EUR	7	0.93	9	
Hong Kong (China)	56.82	10	HI	10	SEAO	2	0.66	99	
Ireland	56.67	11	HI	11	EUR	8	0.79	47	
Canada	56.13	12	HI	12	NAC	2	0.69	86	
Germany	56.02	13	HI	13	EUR	9	0.86	19	
Norway	55.59	14	HI	14	EUR	10	0.78	51	
Israel	55.46	15	HI	15	NAWA	**1**	0.79	42	
Korea, Republic of	55.27	16	HI	16	SEAO	3	0.78	54	
Australia	55.01	17	HI	17	SEAO	4	0.70	81	
New Zealand	54.52	18	HI	18	SEAO	5	0.75	66	
Iceland	54.05	19	HI	19	EUR	11	0.90	13	
Austria	53.41	20	HI	20	EUR	12	0.74	69	
Japan	52.41	21	HI	21	SEAO	6	0.69	88	
France	52.18	22	HI	22	EUR	13	0.75	64	
Belgium	51.69	23	HI	23	EUR	14	0.78	55	
Estonia	51.54	24	HI	24	EUR	15	0.81	34	
Malta	50.44	25	HI	25	EUR	16	0.99	3	
Czech Republic	50.22	26	HI	26	EUR	17	0.87	18	
Spain	49.27	27	HI	27	EUR	18	0.76	60	
Slovenia	47.23	28	HI	28	EUR	19	0.78	53	
China	46.57	29	UM	**1**	SEAO	7	1.03	2	
Cyprus	45.82	30	HI	29	NAWA	2	0.77	56	
Italy	45.65	31	HI	30	EUR	20	0.78	52	
Portugal	45.63	32	HI	31	EUR	21	0.74	73	
Malaysia	45.60	33	UM	2	SEAO	8	0.74	72	
Latvia	44.81	34	HI	32	EUR	22	0.82	32	
Hungary	44.61	35	UM	3	EUR	23	0.90	15	
United Arab Emirates	43.25	36	HI	33	NAWA	3	0.54	127	
Slovakia	41.89	37	HI	34	EUR	24	0.79	45	
Saudi Arabia	41.61	38	HI	35	NAWA	4	0.74	70	
Lithuania	41.00	39	HI	36	EUR	25	0.68	89	
Mauritius	40.94	40	UM	4	SSF	**1**	0.75	65	
Barbados	40.78	41	HI	37	LCN	**1**	0.69	87	
Croatia	40.75	42	HI	38	EUR	26	0.81	36	
Moldova, Republic of	40.74	43	LM	**1**	EUR	27	1.07	1	
Bulgaria	40.74	44	UM	5	EUR	28	0.84	25	
Poland	40.64	45	HI	39	EUR	29	0.72	76	
Chile	40.64	46	HI	40	LCN	2	0.68	92	
Qatar	40.31	47	HI	41	NAWA	5	0.60	114	
Thailand	39.28	48	UM	6	SEAO	9	0.76	62	
Russian Federation	39.14	49	HI	42	EUR	30	0.79	49	
Greece	38.95	50	HI	43	EUR	31	0.70	85	
Seychelles	38.56	51	UM	7	SSF	2	0.74	74	
Panama	38.30	52	UM	8	LCN	3	0.85	20	
South Africa	38.25	53	UM	9	SSF	3	0.68	93	
Turkey	38.20	54	UM	10	NAWA	6	0.93	11	
Romania	38.08	55	UM	11	EUR	32	0.84	24	
Mongolia	37.52	56	LM	2	SEAO	10	0.68	94	
Costa Rica	37.30	57	UM	12	LCN	4	0.81	38	
Belarus	37.10	58	UM	13	EUR	33	0.83	27	
Montenegro	37.01	59	UM	14	EUR	34	0.62	106	
TFYR of Macedonia	36.93	60	UM	15	EUR	35	0.70	82	
Brazil	36.29	61	UM	16	LCN	5	0.74	71	
Bahrain	36.26	62	HI	44	NAWA	7	0.60	117	
Ukraine	36.26	63	LM	3	EUR	36	0.90	14	
Jordan	36.21	64	UM	17	NAWA	8	0.80	40	
Armenia	36.06	65	LM	4	NAWA	9	0.83	28	
Mexico	36.02	66	UM	18	LCN	6	0.71	79	
Serbia	35.89	67	UM	19	EUR	37	0.79	46	
Colombia	35.50	68	UM	20	LCN	7	0.63	102	
Kuwait	35.19	69	HI	45	NAWA	10	0.78	50	
Argentina	35.13	70	UM	21	LCN	8	0.79	43	
Viet Nam	34.89	71	LM	5	SEAO	11	0.95	5	
Uruguay	34.76	72	HI	46	LCN	9	0.73	75	

Global Innovation Index rankings *(continued)*

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.74
Peru	34.73	73	UM	22	LCN	10	0.62	107	
Georgia	34.53	74	LM	6	NAWA	11	0.68	90	
Oman	33.87	75	HI	47	NAWA	12	0.58	121	
India	33.70	76	LM	7	CSA	**1**	0.82	31	
Lebanon	33.60	77	UM	23	NAWA	13	0.59	119	
Tunisia	32.94	78	UM	24	NAWA	14	0.66	98	
Kazakhstan	32.75	79	UM	25	CSA	2	0.59	118	
Guyana	32.48	80	LM	8	LCN	11	0.74	68	
Bosnia and Herzegovina	32.43	81	UM	26	EUR	38	0.65	101	
Jamaica	32.41	82	UM	27	LCN	12	0.65	100	
Dominican Republic	32.29	83	UM	28	LCN	13	0.85	21	
Morocco	32.24	84	LM	9	NAWA	15	0.70	83	
Kenya	31.85	85	LI	**1**	SSF	4	0.84	26	
Bhutan	31.83	86	LM	10	CSA	3	0.60	112	
Indonesia	31.81	87	LM	11	SEAO	12	0.96	4	
Brunei Darussalam	31.67	88	HI	48	SEAO	13	0.43	139	
Paraguay	31.59	89	LM	12	LCN	14	0.75	63	
Trinidad and Tobago	31.56	90	HI	49	LCN	15	0.63	103	
Uganda	31.14	91	LI	2	SSF	5	0.71	77	
Botswana	30.87	92	UM	29	SSF	6	0.50	133	
Guatemala	30.75	93	LM	13	LCN	16	0.68	95	
Albania	30.47	94	UM	30	EUR	39	0.50	131	
Fiji	30.39	95	UM	31	SEAO	14	0.34	141	
Ghana	30.26	96	LM	14	SSF	7	0.81	37	
Cabo Verde	30.09	97	LM	15	SSF	8	0.55	126	
Senegal	30.06	98	LM	16	SSF	9	0.85	23	
Egypt	30.03	99	LM	17	NAWA	16	0.76	59	
Philippines	29.87	100	LM	18	SEAO	15	0.81	35	
Azerbaijan	29.60	101	UM	32	NAWA	17	0.58	120	
Rwanda	29.31	102	LI	3	SSF	10	0.46	137	
El Salvador	29.08	103	LM	19	LCN	17	0.60	116	
Gambia	29.03	104	LI	4	SSF	11	0.76	58	
Sri Lanka	28.98	105	LM	20	CSA	4	0.87	17	
Cambodia	28.66	106	LI	5	SEAO	16	0.74	**67**	
Mozambique	28.52	107	LI	6	SSF	12	0.57	124	
Namibia	28.47	108	UM	33	SSF	13	0.55	125	
Burkina Faso	28.18	109	LI	7	SSF	14	0.71	78	
Nigeria	27.79	110	LM	21	SSF	15	0.94	8	
Bolivia, Plurinational State of	27.76	111	LM	22	LCN	18	0.70	84	
Kyrgyzstan	27.75	112	LI	8	CSA	5	0.46	136	
Malawi	27.61	113	LI	9	SSF	16	0.67	96	
Cameroon	27.52	114	LM	23	SSF	17	0.80	39	
Ecuador	27.50	115	UM	34	LCN	19	0.63	104	
Côte d'Ivoire	27.02	116	LM	24	SSF	18	0.93	10	
Lesotho	27.01	117	LM	25	SSF	19	0.40	140	
Honduras	26.73	118	LM	26	LCN	20	0.53	128	
Mali	26.18	119	LI	10	SSF	20	0.83	30	
Iran, Islamic Republic of	26.14	120	UM	35	CSA	6	0.57	122	
Zambia	25.76	121	LM	27	SSF	21	0.79	44	
Venezuela, Bolivarian Republic of	25.66	122	UM	36	LCN	21	0.95	7	
Tanzania, United Republic of	25.60	123	LI	11	SSF	22	0.60	113	
Madagascar	25.50	124	LI	12	SSF	23	0.62	105	
Nicaragua	25.47	125	LM	28	LCN	22	0.53	129	
Ethiopia	25.36	126	LI	13	SSF	24	0.67	97	
Swaziland	25.33	127	LM	29	SSF	25	0.57	123	
Uzbekistan	25.20	128	LM	30	CSA	7	0.61	108	
Bangladesh	24.35	129	LI	14	CSA	8	0.68	91	
Zimbabwe	24.31	130	LI	15	SSF	26	0.79	48	
Niger	24.27	131	LI	16	SSF	27	0.50	132	
Benin	24.21	132	LI	17	SSF	28	0.60	115	
Algeria	24.20	133	UM	37	NAWA	18	0.53	130	
Pakistan	24.00	134	LM	31	CSA	9	0.89	16	
Angola	23.82	135	UM	38	SSF	29	0.82	33	
Nepal	23.79	136	LI	18	CSA	10	0.49	134	
Tajikistan	23.73	137	LI	19	CSA	11	0.45	138	
Burundi	22.43	138	LI	20	SSF	30	0.46	135	
Guinea	20.25	139	LI	21	SSF	31	0.61	109	
Myanmar	19.64	140	LI	22	SEAO	17	0.71	80	
Yemen	19.53	141	LM	32	NAWA	19	0.60	111	
Togo	17.65	142	LI	23	SSF	32	0.25	142	
Sudan	12.66	143	LM	33	SSF	33	0.09		

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

Chapters

The Global Innovation Index 2014: Nurturing New Sources of Growth by Developing the Human Factor in Innovation

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The global economic recovery is now more sustained and broad-based than it was when we released the Global Innovation Index (GII) last year. The challenge today is to overcome a number of remaining obstacles and to spur sustainable growth and employment throughout the world.

New sources of growth for a stronger global economy

The global economy is on a stronger footing in 2014 than it was in the years directly following the crisis. Policy makers have rather effectively addressed urgent short-term financial pressures. Considering all factors, and because of progress being made in many advanced economies, economic growth is now more balanced across emerging markets and high-income countries, and the confidence of the private sector and investors, although still fragile, is generally on the rise.

Differences remain, however, regarding the speed of recovery among high-income economies. The United States of America (USA) is leading, and Europe and Japan are also returning to positive growth. Although the growth prospects in fast-developing emerging economies remain modest by historical standards, they are still significantly positive. Although risks remain, the possibility of a major set-back to the recovery is diminished. The projections of leading economic institutions for 2015 are positive, and better than for 2014.

This generally optimistic perspective is mitigated by high unemployment and the certainty that all countries share the need to sustain the growth momentum. Indeed, potential economic output and current productivity levels are far lower than the growth trajectory that had been anticipated before the economic crisis.

The basic dilemma concerning the sources of future growth raised in last year's GII is ever more topical: On the one hand, governments feel constrained by the little room they have for fiscal stimulus and public investment while firms are still facing an uncertain economic environment. On the other hand, investment and future-oriented pro-growth policies are needed to avoid a generalized low-growth scenario and to spur employment. The importance of innovation and entrepreneurship cannot be overemphasized in this context.

Innovation expenditures: Resilient but in need of renewed attention

Over the last few years, this report and others cautioned that the economic crisis might have a lasting effect on innovation, slowing future growth levers that would be greatly needed. Governments were urged to compensate, where necessary, for shortfalls in private innovation expenditures. Stimulus packages included a number of future-oriented policies geared to innovation, such as infrastructure projects, investments in research and development (R&D), and green technologies.

This approach has borne fruit: The marked dip in business R&D spending in 2009 caused by the economic crisis was efficiently compensated for by public R&D investments and other policies (see Box 1). Government support of R&D and a renewed pick-up of business R&D ensured the healthy growth of innovation expenditure during 2010–12. Initially, advanced economies also preserved expenditures on education in the aftermath of the crisis. In terms of the global use of intellectual property (IP), the recovery has so far also been swift and broad-based. After 2009, patent applications worldwide experienced solid growth. The latest figures point to 9.2% patent filing growth in 2012, the strongest rate in nearly two decades, with China now topping the ranking of patents filed since 2011. Even if, as the GII often emphasizes, innovation cannot be reduced to investments in R&D and patents, these are encouraging signs.

Yet the fact that innovation expenditures will continue to grow cannot be taken for granted.

First, as of 2013, a fall in the growth of public R&D support

Box 1: Global R&D spending: Strong post-crisis recovery between 2010 and 2012; growth slowing since

Research and development (R&D) expenditures of firms dropped significantly in 2009 as a result of the economic crisis. This dip was efficiently mitigated by the public R&D investments that were taken by many economies in the following three years.

The recovery of business R&D spending in 2010 was quick, reaching 3% growth at the global level,[1] and, although the data are still incomplete, 4.5% in 2011.[2] In high-income countries of the Organisation for Economic Co-operation and Development (OECD), business R&D grew by 0.6% in 2010 and 4.8% in 2011, but it slowed again in 2012, reaching only 3.6% in that year.[3] R&D spending among the top 1,000 spenders globally reached an all-time high of US$638 billion in 2013, an increase of 5.8% from the previous year—but this growth is already significantly lower than it was in 2011 and 2012.[4]

Total economy-wide R&D spending—private and public R&D combined—also overcame the dip seen in 2009, and was followed by a constant growth of over 3% in 2010 and 2011.[5] Total R&D increased in most high-income countries as well, growing by 1.3% in 2010, 4% in 2011, and a lower 3% in 2012.[6] The slower growth seen in 2012 had already been influenced by weakening public R&D expenditures in high-income countries, in particular in higher education institutions and the government sector.[7] This growth slowdown in 2012 was encountered in the majority of high-income countries in the OECD, except a few such as the United States of America (USA). In some high-income countries—such as Spain, Finland, Portugal, Canada, the United Kingdom (UK), and Italy—overall R&D spending actually declined in 2012.

For 2013 and 2014, unofficial estimates point to a further slowdown in global R&D spending growth.[8]. The main drivers of this slowdown in growth are the declining support of public R&D caused by fiscal consolidation and the end of stimulus packages coupled with the hesitant growth of company R&D expenditures.

To be sure, the majority of countries for which data are available continue to show positive R&D expenditure growth in 2013 and 2014. Yet strong R&D spending growth in 2013 and 2014 is expected to take place mostly in Asia, in particular in China, the Republic of Korea, and India. Anticipated R&D spending growth in absolute terms or as a share of GDP in top R&D spending high-income countries such as the USA and Japan, as well as the UK and other European economies, is expected to be flat or much or much reduced when compared with 2011 or 2012, the latter of which had often already seen slower growth.

In sum, business and total R&D spending are both now significantly above pre-crisis levels in some economies; in others they are below those levels, and some economies have been unaffected (see Tables 1.1 and 1.2 on facing page). A large number of Eastern European countries, other large European economies such as France and Germany, some high-income Asian economies such as the Republic of Korea, and emerging economies such as China and the Russian Federation have experienced no aggregate fall in their R&D spending as a result of the crisis. Some economies have seen important dips in R&D spending during the crisis but also experienced an important recovery (e.g., Estonia and the Netherlands); some (e.g., Israel) have seen a more timid recovery. The USA and Singapore, for instance, have recently returned to their pre-crisis levels for combined public and private R&D. And some high-income economies, such as Spain, Finland, and Portugal, as well as the UK and Japan, continue to exhibit R&D spending below their pre-crisis levels.

Note

Notes and references for this box appear at the end of the chapter.

(Continued)

coupled with the continued hesitancy of company R&D expenditures seems to be leading to slower overall growth of total R&D expenditures worldwide; this is the case especially in high-income countries (see Box 1). In many advanced countries, fiscal consolidation also seems to have negatively affected public spending on education since 2010. Second, although governments have effectively included a significant number of future innovation-related growth projects in stimulus packages in 2009, support for such efforts seems to have lost momentum in some countries.

There is a distinct danger that such trends could extend across various parts of the world. If indeed future-oriented policies aimed at stimulating innovation and new sources of growth are not widely pursued, hopes for sustained global growth could be dashed.

In many respects, however, the global innovation landscape is more active and inclusive than ever: In addition to higher levels of expenditures on innovation, we also see signs that the number and geographical spread of students, researchers, and entrepreneurs are rising. If appropriately empowered, the more abundant and diverse skills and talent available worldwide to drive innovation can prove exceptionally effective.

The human factor in innovation

This year's theme, the 'Human Factor in Innovation,' explores the role of individual innovators and creators in the innovation process. This choice of theme stems from the growing interest that firms and governments have shown in identifying

Box 1: Global R&D spending: Strong post-crisis recovery between 2010 and 2012; growth slowing since *(cont'd.)*

Table 1.1: Business enterprise expenditure on R&D (BERD): Crisis and recovery compared

Countries with no fall in BERD during the crisis that have expanded since

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
Poland	100	105	111	136	202
Slovenia	100	103	124	160	185[p]
Hungary	100	118	125	138	152
Ireland	100	115	115	116	121
France	100	102	105	108	110[p]
Russian Federation	100	110	100	102	103

BERD above pre-crisis levels in 2012

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
Estonia	100	98	129	261	227[p]
Slovakia	100	93	130	127	174
Netherlands	100	93	98	127	134[p]
Czech Republic	100	96	104	119	131[p]
Belgium	100	97	105	115	114[p]
Germany	100	97	100	107	108
Austria	100	96	101	103	107[p]
Israel	100	96	96	102	105
Romania	100	102	94	98	104
Norway	100	98	95	100	104
United States of America	100	96	94	97	103[p]
Italy	100	99	101	102	101[p]

BERD below pre-crisis levels in 2012

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
United Kingdom	100	96	96	102	98[p]
Denmark	100	104	97	95	95[p]
Canada	100	98	92	92	91[p]
Sweden	100	89	86	89	89
Portugal	100	100	96	92	88[p]
Spain	100	94	93	91	88
Finland	100	94	93	95	85
Luxembourg	100	97	77	77	77

Source: OECD MSTI, January 2014; data used: Business enterprise expenditure on R&D (BERD) at constant 2005 PPP$, Index = 2008.

Note: p = provisional data.

Table 1.2: Gross domestic expenditure on R&D (GERD): Crisis and recovery compared

Countries with no fall in BERD during the crisis that have expanded since

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
China	100	126	144	165	192
Poland	100	113	128	140	168
Slovenia	100	103	118	140	155[p]
Republic of Korea	100	106	119	133	146
Czech Republic	100	100	106	126	143[p]
Hungary	100	108	110	116	122
Chile	100	108	116	n/a	n/a
Argentina	100	114	130	148	n/a
Turkey	100	111	121	134	n/a
Belgium	100	100	106	114	115[p]
Ireland	100	109	108	109	113
Germany	100	100	103	110	111
Russian Federation	100	111	104	105	111
France	100	104	104	106	107[p]
Denmark	100	105	101	101	101[p]

GERD above pre-crisis levels in 2012

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
Estonia	100	95	111	179	171[p]
Netherlands	100	99	103	113	119[p]
Austria	100	98	103	104	108[p]
Israel	100	96	96	100	103
Slovakia	100	97	132	147	181
Norway	100	101	99	102	105
United States of America	100	99	99	101	105[p]
Singapore	100	83	88	101	n/a

GERD below pre-crisis levels in 2012

	CRISIS		RECOVERY		
	2008	2009	2010	2011	2012
Italy	100	99	101	100	99[p]
Sweden	100	93	93	95	97
Japan	100	91	93	96	97
United Kingdom	100	99	98	99	96[p]
Canada	100	100	97	96	94[p]
Portugal	100	106	105	99	94[p]
Finland	100	97	100	100	92
Spain	100	99	99	96	91
Romania	100	76	73	82	80
Luxembourg	100	99	89	n/a	n/a

Source: OECD MSTI, January 2014, data used: Gross domestic expenditure on R&D (GERD) at constant 2005 PPP$, Index = 2008..

Note: p = provisional data.

and energizing innovative individuals and teams. To point out relevant strategies and policies in this regard, it is important to learn more about what happens at the intersection of people, technology, financing, policy, and institutions. The need to gather more knowledge of, and a better understanding of, the role that the human factor—along with technology and capital—plays in innovation is critical. Statistically and analytically capturing this contribution and nurturing it through adequate education, training, and motivation in schools, universities, businesses, civil society, and the government itself is a challenge. The rich collection of chapters presented in this report provides a glimpse of how and which of these human aspects are affecting the innovation performance of nations globally.

Undoubtedly human capital plays a central role in the inception, the implementation, and the inter-organizational, national, and international diffusion of innovation. As outlined in Chapter 2 by Martin Schaaper and Chapter 3 by Richard Scott and Stéphan Vincent-Lancrin, improving skills is one of the most important ways to raise innovation, productivity, and economic growth and to improve social welfare and equality.

Indeed, modern growth theory treats human capital formation as a central element and driver of the technical and innovative progress necessary for growth as the economic literature demonstrates. Becker (1964) was one of the first economic and social theorists to recognize human capital as a set of skills that increase the productivity of the worker within firms and—ultimately—the overall production process of nations.[1] Although its role in production processes may be difficult to outline, human capital can be thought of as the stock of knowledge or skills positively impacting economic output. Expanding on this notion, Nelson and Phelps suggest that 'educated people make good innovators';[2] thus education speeds the process of technological diffusion. Lucas distinguishes between two sources of human capital accumulation: education and experience (learning-by-doing).[3] Aghion and Howitt attest that differences in growth between nations and regions can be attributed in great part to differences in the levels of human capital and to their capacity to retain, attract, and expand these endogenously.[4] Nelson and Phelps and the Schumpeterian growth literature describe economic growth as being driven by the stock of human capital, which in turn affects a country's ability to innovate or catch-up with more advanced and innovation-efficient economies. Current research and practical case studies at the national and regional level continue to empirically test and validate these new growth theories.

According to the OECD's *Oslo Manual:*

> the most significant innovation capability is the knowledge accumulated by the firm, which is mainly embedded in human resources, but also in procedures, routines and other characteristics of the firm. Innovation capabilities, as well as technological capabilities, are the result of learning processes, which are conscious and purposeful, costly and time-consuming, non-linear and path-dependent and cumulative.[5]

Innovations, therefore, emerge from the complex thinking, acting, and interacting of people going about their everyday work under certain framework conditions. In this context, it is particularly important that the traditional technology and product-oriented perspective on innovation evolves into a more holistic one in which the key role of people and their working conditions is acknowledged.[6] Moreover, there is also a demand side to innovation. As expressed in Chapter 5 by Leonid Gokhberg and Valentina Poliakova, successful innovations rely also on the various actors in society—for example, consumers, the government, and others—that will ultimately be the recipients and users of these innovations. Thus the human factor in innovation does not stop at the supply side but reaches far into how innovations are received, accepted, and diffused.

Globalization has altered the mobility of people across geographic and cultural boundaries, and thus has also contributed to promote these paradigm shifts. As underlined by Lanvin and Evans,

> Today's economy benefits from being global and mobile. … Mobility has been redefined. Ideas, know-how, and innovative and entrepreneurial people routinely cross borders and generate value locally and globally; projects involve people collaborating across different continents, all of whom are living outside their respective countries of birth. The engine of this global and mobile world is talent.[7]

Yet, as pointed out in Chapter 6, contributed by Ahmad Bin Byat and Osman Sultan, a key imperative going forward in the development of this mobile talent is also to advance in it the deep technical skills that are required for disruptive innovations.

While cross-border mobility and willingness to relocate abroad are possible with lower immigration and emigration barriers, nations—like corporations—now have to compete for talent. Inter-country and regional economic and demographic differences also stimulate labour flows; so do comparative gaps in real wage rates and differences in labour force age profiles.[8] On the other hand, many barriers still exist; these limit the ways in which migrations by workers could benefit both their

countries of origin and their countries of destination.[9] Yet mobility of talent remains critical for learning, adapting, and innovating within any regional systems of innovation.

Economists have made important progress in better understanding the causes and consequences of skilled-worker migrations. Recent research has shown that close to 75% of migrant inventors from low- and middle-income countries reside in the USA. China and India clearly stand out as the two largest middle-income countries of origin, followed by Russia, Turkey, Iran, Romania, and Mexico.[10] Chapter 8 of this report, by Nour-Eddine Boukharouaa and co-authors, introduces the particular case of the Moroccan Diaspora, which is mainly located in France (32%), Spain (20%), Italy (12%), and other European countries, Arab countries (6%), the USA and Canada (together 3%), and some African and Asian countries. At the same time, countries are busily at work reversing the so-called brain drain and keen to help emerging economies to retain, involve, or attract talent, sometimes by simply involving their skilled diaspora abroad.

These diaspora networks, however, have changed the way in which highly skilled mobility is understood and examined by economists and policy makers.[11] They have altered the traditional brain drain migration outflow into a brain gain skills circulation by turning the loss of human resources into a remote-although-accessible asset of expanded networks.[12] This shifted the traditional emphasis on embedded knowledge of potential returnees (a human capital approach) to a connectionist approach where social capital, including technical and institutional links, is crucial. These diaspora networks are then perceived by firms and governments as the latest bridge institutions connecting developing economy insiders, with their risk-mitigating knowledge and connections, to outsiders in command of technical know-how and investment capital—all essential elements of innovation.[13]

Nonetheless, reverse migration trends are beginning to intensify.[14] Many countries are luring returnee immigrants as a group of highly trained and qualified people with valuable managerial experience and entrepreneurial skills who simultaneously possess local market knowledge and access to networks in the host country.[15] Chapter 7 of this report, by David Walwyn and Sibusiso Sibisi, explores in more detail some of the elements behind the capacity to attract and support higher levels of 'extraordinary' talent drawn from the example of South Africa. Such elements include, among other factors, adequate levels of funding, state-of-the-art facilities, international migration, strong local networks and clustering, as well as the 'Sanger factor'—the idea that success breeds success.

There is strong evidence of the positive impact of diasporas on portfolio investments and foreign direct investment (FDI).[16] Moreover, supported by government policies and economic liberalization, dynamic reverse migration can convert brain drain into an inward talent flow.[17] But today's reality is that only a remarkably small number of countries have actually ignited return migration or successfully implicated their diaspora in innovation activities or the crafting of innovation policies at home.

Understanding in more detail the human aspects behind innovation is essential for the design of policies that help promote the virtuous cycles that lead towards higher economic development and richer innovation-prone environments locally.

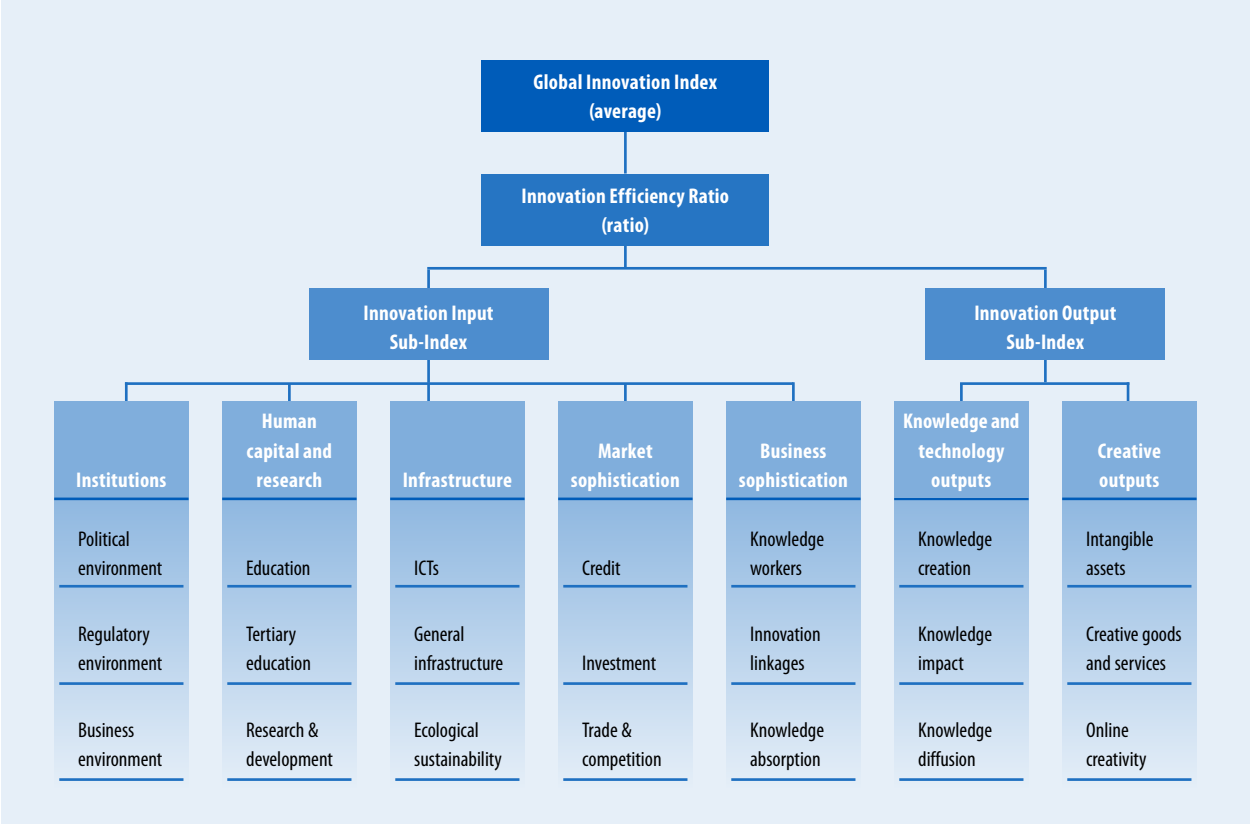
The GII conceptual framework

As in previous years, the GII relies on two sub-indices—the Innovation Input Sub-Index and the Innovation Output Sub-Index—each built around pillars. Four overall measures are calculated: the GII, the Input and Output Sub-Indices, and the Innovation Efficiency Ratio (Figure 1).

- **The Innovation Input Sub-Index:** Five input pillars capture elements of the national economy that enable innovative activities: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication.
- **The Innovation Output Sub-Index:** Innovation outputs are the results of innovative activities within the economy. There are two output pillars: (6) Knowledge and technology outputs and (7) Creative outputs.
- **The overall GII score** is the simple average of the Input and Output Sub-Indices.
- **The Innovation Efficiency Ratio** is the ratio of the Output Sub-Index over the Input Sub-Index. It shows how much innovation output a given country is getting for its inputs.

Each pillar is divided into three sub-pillars and each sub-pillar is composed of individual indicators, for a total of 81 indicators. Further details on the GII framework and the indicators used are provided in Annex 1. This year the GII model includes 143 economies, representing 92.9% of the world's population

Figure 1: Framework of the Global Innovation Index 2014



and 98.3% of the world's GDP (in current US dollars).

Global Innovation Index 2014: Main findings

The 143 economies and 81 indicators presented in the GII 2014 cover a range of themes, presenting us with a rich dataset to analyse global innovation trends. However, it is important to note that the GII model has evolved over the last editions. Each year the variables included in the GII computation are reviewed and updated to provide the best snapshot of global innovation (more details of these changes to the framework are provided in Annex 2). Thus care needs to be exercised when analysing year-on-year changes in GII ranks.

Stability at the top

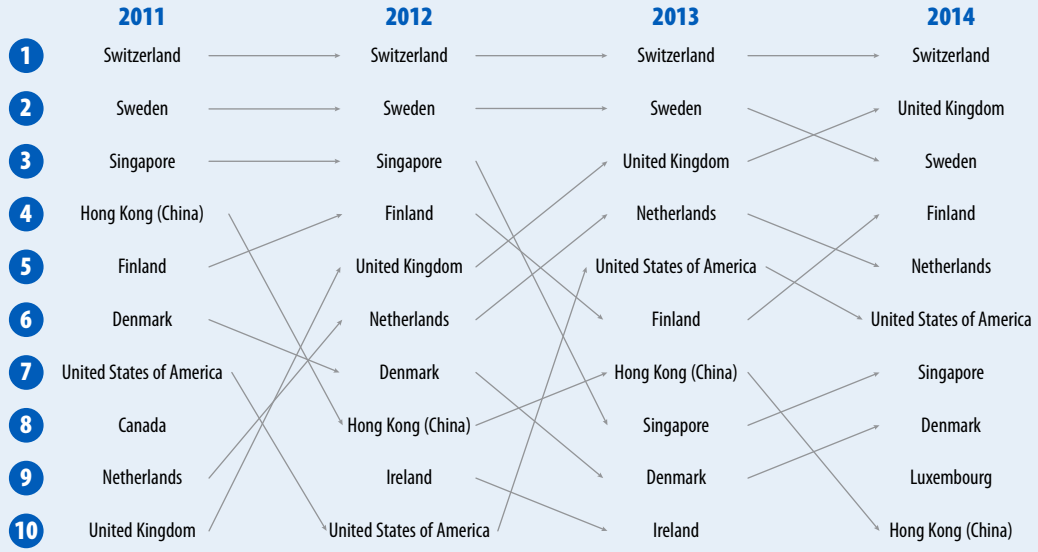
As expected, there is relative stability in the top 10: Switzerland leads again in 2014, the United Kingdom (UK) takes the second spot, and Finland makes it into the top 5. The USA (6th) declines by one spot this year.

Except for one change, the top 10 ranked economies in the GII 2014 remain the same as in 2013. Luxembourg (ranked 12th in 2013) enters the top 10 at 9th position, pushing Ireland just over to 11th position in 2014 (down from rank 10 in 2013). The top 10 economies in 2014 are listed below; Figure 2 shows movement in the top 10 ranked economies over the last four years:

1. Switzerland
2. United Kingdom (UK)
3. Sweden
4. Finland
5. Netherlands
6. United States of America (USA)
7. Singapore
8. Denmark
9. Luxembourg
10. Hong Kong (China)

At first glance, these economies from around the world appear to have high income as a common factor explaining their dominance. However, several other high-income economies rank lower and struggle to break into the top tier. The answer lies in the GII model, which reflects the fact that innovation is a multi-faceted phenomenon with several input drivers and different output results. These innovation leaders are remarkable in consistently scoring high on most dimensions of the GII model. For example, top-ranked Switzerland secures a spot among the top 25 in

Figure 2: Movement in the top 10 of the GII



all pillars and sub-pillars with only four exceptions. Leadership from both business and government is essential for innovation excellence, and with the right approach, even a large economy such as the USA can be among the top innovators.

Other high-income countries inching towards the top tier performers include the Republic of Korea (21st in 2012, 18th in 2013, 16th in 2014) and Japan (25th in 2012, 22nd in 2013, 21st in 2014); both economies can attribute their ascent to improved rankings on the Output Sub-Index. Consequently they are closing the gap between Inputs and Outputs and improving their Innovation Efficiency Ratios.

Global innovation divides persist

The GII 2014 confirms the continued existence of global innovation divides (Box 2). Despite the increased globalization of R&D, the literature has noted that the actual production of high-quality scientific research papers over the last three decades is spiky and geographically concentrated in only a few centres of excellence.[18] The world's leading cities for the production of scientific papers at the highest levels have remained essentially the same for the past three decades.[19] The GII takes a more holistic view of innovation, which includes several factors other than R&D spending and scientific publications, but GII findings show that even with such a broader view, sharp divides in innovation results remain widespread—across and within income groups and geographical regions.

The three top-ranked lower-middle-income and low-income countries are, respectively, the Republic of Moldova (43rd in 2014; 45th in 2013), Mongolia (56th; 72nd), and Ukraine (63rd; 71st); and Kenya (85th; 99th), Uganda (91st; 89th), and Rwanda (102nd; 112th). The average GII score (on a scale of 100) for high-income countries is 48.83 (50.11 in 2013) as compared with 29.53 (29.83) and 25.62 (26.43) for low-middle-income and low-income countries, respectively. The average GII scores for Northern America (58.11) and Europe (47.23) are significantly higher than those for other regions such as Northern Africa and Western Asia (35.73) and Latin America and the Caribbean (32.85). Innovation divides also exist within and between world regions. Europe shows significant differences in ranks and GII scores across nations—examples are Finland (ranked 4th; score of 60.67), Spain (27th; 49.27), and Portugal (32nd; 45.63).

Although some limited movement has been seen across divides (see Box 2 for a more detailed analysis), the changes are slow and innovation divides are likely to persist. While less-developed nations continue to progress, they are often unable to keep pace with improvements being made by more wealthy nations. The

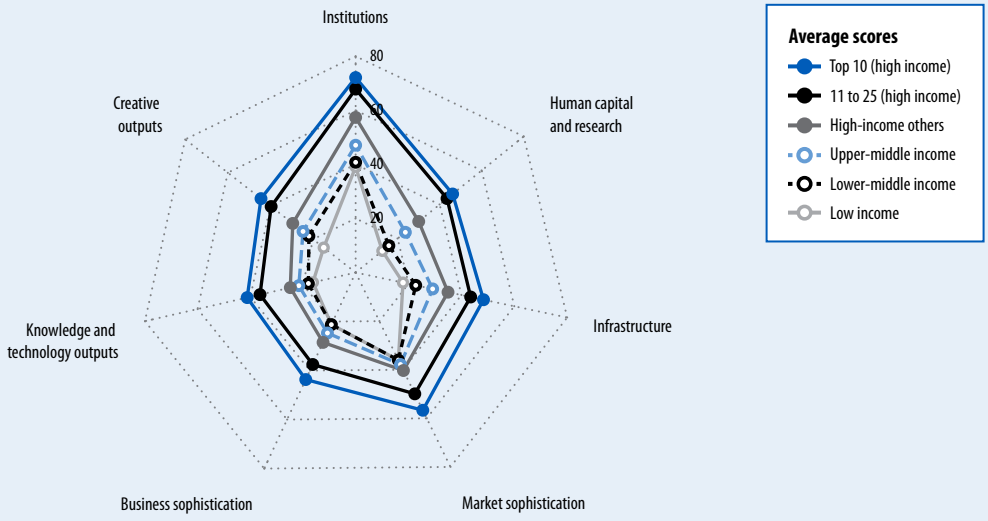
Box 2: The innovation divide persists

A persistent trait of the GII rankings has been the stability identified at the top (see Box 2 of Chapter 1 in the GII 2013). In 2014, Switzerland remains the indisputable leader for the fourth consecutive year. Among the top 10 and top 25, rankings have changed but the list of economies remains unaltered. Once again, all top 25 are exclusively high-income economies. The sole change in the top 10 this year is Luxembourg (9th) moving in and Ireland (11th) moving out. The fact that, at least since the GII began four years ago, the top 25 economies have all shared the characteristic of high income suggests the presence of an innovation divide, where the leaders remain uncontested and most major ranking moves occur only in lower tiers.

There is a clear distance between the top ranked economies and their followers. Figure 2.1 shows the average scores for three tiers of high-income economies (top 10, 15 through 25, and the remaining high-income economies), and the upper- and lower-middle-income and low-income economies. The top 10 economies exhibit clear strengths over the second tier high-income economies in all areas, and particularly the three areas where the divide between these two tiers has increased since 2013: Infrastructure (information and communication technologies, general infrastructure, and ecological sustainability), Business sophistication (knowledge workers, innovation linkages, and knowledge absorption), and Creative outputs (Intangible assets, creative goods and services, and online creativity).

The widest divide among all groups is between the second tier and the third tier in high-income economy groups. Although the third tier appears to be performing marginally better in Infrastructure, Market sophistication, and Creative outputs, the divide is mostly attributable to a worse performance from the second tier. The divide between the third tier high-income group and the upper-middle-income group remains nearly unchanged in all pillars. The gap between high-income and middle-income performances is the largest in Institutions (20.62 points) and Human capital and research (17.22 points). However, the divide between these two continues to narrow in Market (10.94 points), Business sophistication (12.10 points), and Knowledge and technology outputs (12.63 points). Although the individual pillar scores for economies in either of these income groups are virtually indistinguishable, the group of upper-middle-income countries has not yet been able to move closer to the group of top 25 innovators. The only two non–high-income economies that have

Figure 2.1: The persistent innovation divide: Stability among the top 10 and top 25



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

(Continued)

Box 2: The innovation divide persists *(cont'd.)*

managed to do so are China (29th) and Malaysia (33rd).

Between the lower-income groups the divide remains much less apparent. The lower-middle and low-income economies perform almost identically in four out of the seven pillars: Institutions, (2.12 points), Market (0.03 points) and Business sophistication (0.02 points), and Knowledge and technology outputs (2.14 points). This does not mean that economies at the lower levels of income are not making substantial changes in rank. On the contrary, the largest combined number of economies that changed their GII ranking this year—a total of 52—are found at these income levels. This is because the scores of many of these economies are very similar, especially for those countries in positions 76 to 100 (a span of 3.83 points) and 101 to 125 (4.13 points), which suggests that small improvements to low-income economies' scores can have considerable impacts on their respective rankings.

When ranking regions from highest to lowest based on average GII score, the order is as follows: Northern America (58.11), Europe (47.23), South East Asia and Oceania (41.72), Northern Africa and Western Asia (35.73), Latin America and the Caribbean (32.85), Central and Southern Asia (27.48), and Sub-Saharan Africa (27.45).[1] The regional innovation divide between nations is largest between Northern America and Europe (10.88 points) and smallest between Central and Southern Asia and Sub-Saharan Africa (0.03). The gap between the other nations is, on average, around 4.94 points.

When comparing average scores on the pillar level, the innovation divide between regions is the largest in the Human capital and research pillar (with a span of 41.04 points between Northern America and Sub-Saharan Africa), and the smallest in the Creative outputs pillar (with a span of 26.04 points between Northern America and Central and Southern Asia). The gap between the first and second strongest performing regions (Northern America and Europe, respectively) is the largest in Market sophistication (25.40) and narrows significantly in Creative outputs (3.55).

Note

1 The regional groups are based on the United Nations classification.

benefits of legacy investments in human capital and the institutional context are difficult to replicate rapidly. For example, investments in the educational infrastructure in many low-income countries may take years to show results in terms of skilled graduates and even more time to yield tangible innovative outputs. This raises the pressure and the need for nations on the wrong side of the divide to accelerate their progress in driving innovation. Across the globe, however, some positive news is starting to register on that front, as discussed next.

Sub-Saharan Africa: A region of innovation learners

Sub-Saharan Africa now has more countries that are innovation learners. Over 2013, five African economies—Burkina Faso, Gambia, Malawi, Mozambique, and Rwanda—became part of the group of economies defined as 'innovation learners' (economies that perform at least 10% higher than expected for their level of GDP; see Box 4 for more details), and the Sub-Saharan African region now makes up nearly 50% of the innovation learner economies. These five economies demonstrate rising levels of innovation, particularly in the areas of human capital and research (collectively improving in their ranking on this pillar by 71 places) and market sophistication (collectively improving by 148 places). By and large, Sub-Saharan Africa has seen the most significant improvement of all regions in the GII rankings, with Côte d'Ivoire showing the biggest improvement (20 places) and Mauritius taking the leading regional position (40th, an improvement of 13 places from 53rd in 2013.).

Many Sub-Saharan African countries are fostering innovation through the implementation of various initiatives and programmes. For example, the government of Rwanda launched the Rwanda Innovation Endowment Fund (RIEF) to fund R&D to foster innovative areas such as agriculture, manufacturing, ICTs, and energy, in partnership with the United Nations Economic Commission for Africa (UNECA) and One UN Rwanda.[20] In other examples, Gambia has grown its ICT infrastructure and innovative services through various initiatives, and Gambia's Ministry of Trade, Industry, Regional Integration and Employment has also launched an innovation grant as part of the Social Development Fund in order to commercialize local projects.[21] Regional examples of projects that foster innovation include the Children and Community Initiative for Development (CAID) and the Africa Youth Panel (AYP), which

have rolled out a range of capacity building initiatives for youth in the Sub-Saharan Africa. Although a direct link between these programs and the GII rankings is not formally demonstrated here, these policy initiatives show commitment to innovation at the right policy levels.

The BRICS economies: Trajectories may be diverging

In prior editions of the GII,[22] we posited the inherent innovation challenge for middle-income economies, including the BRICS countries. We described how middle-income economies need to adopt a comprehensive knowledge-based growth strategy to integrate their efforts along the different dimensions of the GII framework and sustain a high level of innovation success.

Among the BRICS (Brazil, Russia, India, China, and South Africa), four improved their positions (Brazil by three places to reach the 61st rank, the Russian Federation by 13 places to reach 49th, China by six places to reach 29th, and South Africa by five places to reach 53rd). India, on the other hand, has continued to slip by a further 10 places, dropping to 76th position this year. The progress of China and the Russian Federation in the rankings is among the most notable of all countries; China's ranking is now comparable to that of many high-income economies.

Most of the BRICS economies are also showing other signs of progress. All of them, with the exception of South Africa, qualify as 'efficient innovators' this year, meaning that they have innovation efficiency scores (calculated as total innovation outputs over total innovation inputs) greater than or equal to the average (0.74). When a subset of GII indicators related to the quality of innovation is considered,[23] three BRICS economies (China, Brazil, and India) top the group of middle-income countries.

Alone among the BRICS, China seems on track to enter the top 25 in the GII. China ranks 2nd in innovation efficiency in 2014 on a global basis and is improving steadily along many dimensions of the GII. The country enjoys an impressive 2nd position in the Knowledge and technology outputs pillar and shows decent improvements in the Creative outputs pillar, ranking 1st in Creative goods exports. However, there is room for significant improvement in the Institutions pillar.

While all of the other BRICS economies have their own strengths and weaknesses, they are not yet showing the kind of accelerated and holistic improvements that are necessary to propel them into the top ranks of the GII. India, in particular, faces various challenges, education being one of the most acute. As pointed out in Chapter 4 by Naushad Forbes, 'Higher education has grown very rapidly in India over the last 30 years.' He explains that such rapid growth, concentrated in private rather than public institutions and focused on only a few professional fields, has given the rise to four crucial challenges: the need to (1) ensure quality, (2) build graduate education and research universities, (3) provide equity of access, and (4) build excellent liberal arts universities. Addressing these aspects may allow India to re-align its trajectory with the rest of the BRICS. If India does not start to focus on these challenges and on improving its innovation output, the country is likely continue to drop in the rankings and become less innovation efficient.

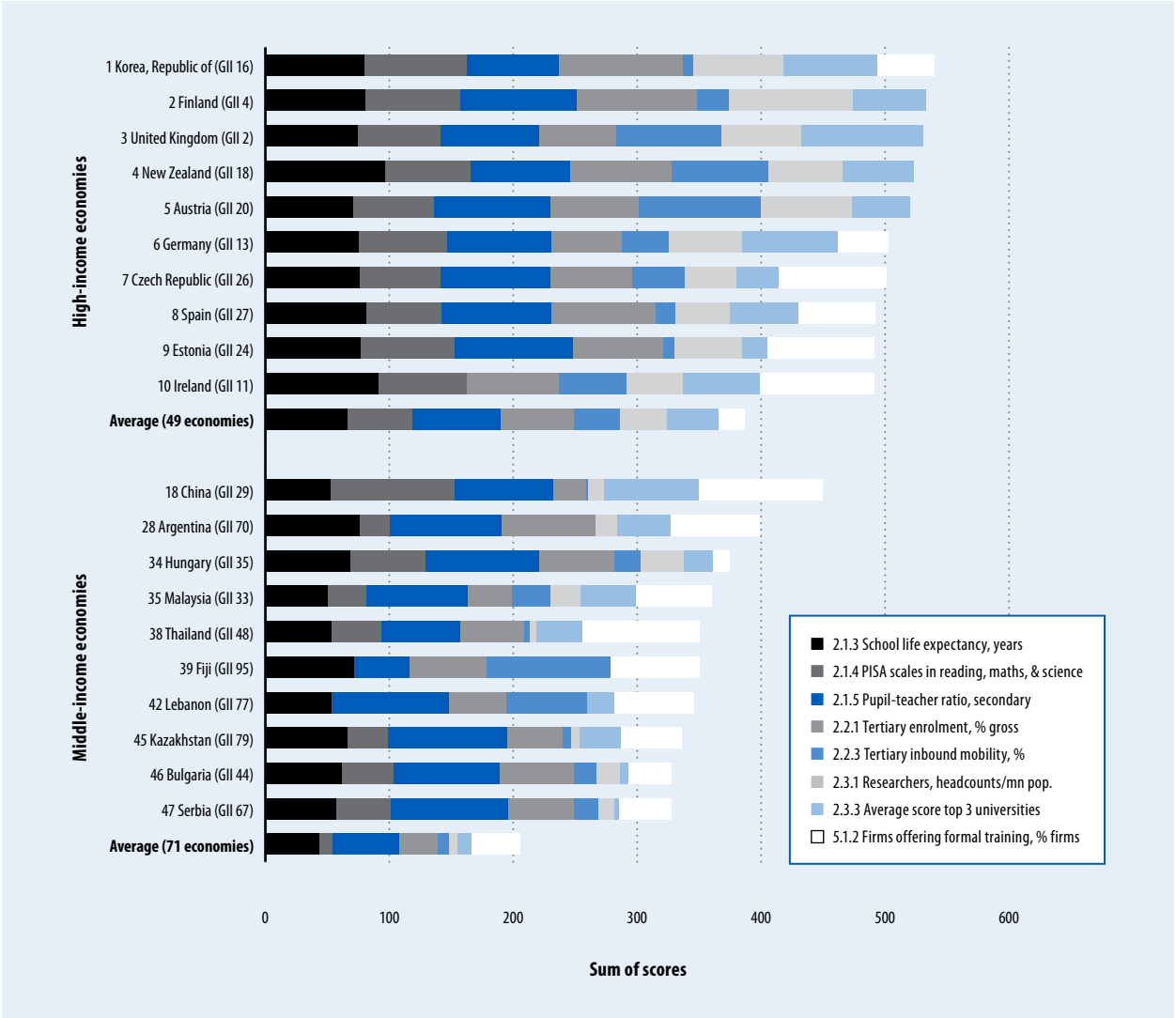
The human factor: The essential spark to innovation

Attempting to measure the entire spectrum of human factors behind innovation would be an impossible task. However, the GII framework offers a number of indicators that provide valuable evidence of the human factor (see Figure 3), such as school life expectancy (2.1.3); PISA scales in reading, mathematics, and science (2.1.4); pupil-teacher ratio (2.1.5); tertiary enrolment (2.2.1); tertiary inbound mobility (2.2.3), researchers (2.3.1); average score of the top 3 universities (2.3.3); and firms offering formal training (5.1.2).

According to the sum of their scores on this subset of indicators, the bottom 10 economies by income group include mostly underperforming economies (economies performing at levels below expected according to their level of development) in addition to economies performing only on par with expectations. However, the number of the economies classified as underperformers decreases as the income group moves from high to low income. For example, 7 out the 10 poorest performing high-income economies are underperformers, 4 out of the bottom 10 middle-income economies are underperformers, and 2 out of the bottom 10 low-income economies are underperformers. This indicates that higher-income economies are more reliant on the human factor to improve innovation performance.

The top performers within the high-income economies for the above subset of human factor–related variables are the Republic of Korea, Finland, and the UK. China takes the top position among the middle-income countries.

Figure 3: Education as a human aspect of innovation: Top 10 high- and top 10 middle-income economies



Notes: Numbers to the left of the economy name are the rank of education as a human aspect of innovation. Numbers in parentheses to the right of the economy name are the overall GII rank. Economies are classified by income according to the World Bank Income Group Classification (July 2013). Upper- and lower-middle income categories were grouped together as middle-income economies.

Discussion of results: The world's top innovators

The following section describes and analyses the salient features of the GII 2014 results for the global leaders in each index and the best performers in light of their income level.[24] A short discussion of the rankings at the regional level follows.[25]

Tables 1 through 3 present the rankings of all economies included in the GII 2014 for the GII and the Input and Output Sub-Indices.

The top 10 in the Global Innovation Index

The top 10 economies in the GII 2014 edition are Switzerland, the UK, Sweden, Finland, the Netherlands, the USA, Singapore, Denmark, Luxembourg, and Hong Kong (China). Nine of these economies were already in the GII top 10 in 2013; Ireland, which was in the top 10 in 2013, dropped to 11th place this year, and Luxembourg climbed up into the top 10 from 12th position in 2013.

Switzerland maintains its 2011, 2012, and 2013 position as number 1 in the GII, as well as its 2012 and 2013 1st place position in the Innovation Output Sub-Index and in Knowledge and technology outputs and its 2nd place in Creative outputs. It achieves a spot among the top 25 in all pillars and sub-pillars with only four exceptions: sub-pillars Education (where it ranks 52nd); Knowledge absorption (47th), Business environment (32nd),

Table 1: Global Innovation Index rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.74
Switzerland	64.78	**1**	HI	**1**	EUR	**1**	0.95	6	
United Kingdom	62.37	2	HI	2	EUR	2	0.83	29	
Sweden	62.29	3	HI	3	EUR	3	0.85	22	
Finland	60.67	4	HI	4	EUR	4	0.80	41	
Netherlands	60.59	5	HI	5	EUR	5	0.91	12	
United States of America	60.09	6	HI	6	NAC	**1**	0.77	57	
Singapore	59.24	7	HI	7	SEAO	**1**	0.61	110	
Denmark	57.52	8	HI	8	EUR	6	0.76	61	
Luxembourg	56.86	9	HI	9	EUR	7	0.93	9	
Hong Kong (China)	56.82	10	HI	10	SEAO	2	0.66	99	
Ireland	56.67	11	HI	11	EUR	8	0.79	47	
Canada	56.13	12	HI	12	NAC	2	0.69	86	
Germany	56.02	13	HI	13	EUR	9	0.86	19	
Norway	55.59	14	HI	14	EUR	10	0.78	51	
Israel	55.46	15	HI	15	NAWA	**1**	0.79	42	
Korea, Republic of	55.27	16	HI	16	SEAO	3	0.78	54	
Australia	55.01	17	HI	17	SEAO	4	0.70	81	
New Zealand	54.52	18	HI	18	SEAO	5	0.75	66	
Iceland	54.05	19	HI	19	EUR	11	0.90	13	
Austria	53.41	20	HI	20	EUR	12	0.74	69	
Japan	52.41	21	HI	21	SEAO	6	0.69	88	
France	52.18	22	HI	22	EUR	13	0.75	64	
Belgium	51.69	23	HI	23	EUR	14	0.78	55	
Estonia	51.54	24	HI	24	EUR	15	0.81	34	
Malta	50.44	25	HI	25	EUR	16	0.99	3	
Czech Republic	50.22	26	HI	26	EUR	17	0.87	18	
Spain	49.27	27	HI	27	EUR	18	0.76	60	
Slovenia	47.23	28	HI	28	EUR	19	0.78	53	
China	46.57	29	UM	**1**	SEAO	7	1.03	2	
Cyprus	45.82	30	HI	29	NAWA	2	0.77	56	
Italy	45.65	31	HI	30	EUR	20	0.78	52	
Portugal	45.63	32	HI	31	EUR	21	0.74	73	
Malaysia	45.60	33	UM	2	SEAO	8	0.74	72	
Latvia	44.81	34	HI	32	EUR	22	0.82	32	
Hungary	44.61	35	UM	3	EUR	23	0.90	15	
United Arab Emirates	43.25	36	HI	33	NAWA	3	0.54	127	
Slovakia	41.89	37	HI	34	EUR	24	0.79	45	
Saudi Arabia	41.61	38	HI	35	NAWA	4	0.74	70	
Lithuania	41.00	39	HI	36	EUR	25	0.68	89	
Mauritius	40.94	40	UM	4	SSF	**1**	0.75	65	
Barbados	40.78	41	HI	37	LCN	**1**	0.69	87	
Croatia	40.75	42	HI	38	EUR	26	0.81	36	
Moldova, Republic of	40.74	43	LM	**1**	EUR	27	1.07	1	
Bulgaria	40.74	44	UM	5	EUR	28	0.84	25	
Poland	40.64	45	HI	39	EUR	29	0.72	76	
Chile	40.64	46	HI	40	LCN	2	0.68	92	
Qatar	40.31	47	HI	41	NAWA	5	0.60	114	
Thailand	39.28	48	UM	6	SEAO	9	0.76	62	
Russian Federation	39.14	49	HI	42	EUR	30	0.79	49	
Greece	38.95	50	HI	43	EUR	31	0.70	85	
Seychelles	38.56	51	UM	7	SSF	2	0.74	74	
Panama	38.30	52	UM	8	LCN	3	0.85	20	
South Africa	38.25	53	UM	9	SSF	3	0.68	93	
Turkey	38.20	54	UM	10	NAWA	6	0.93	11	
Romania	38.08	55	UM	11	EUR	32	0.84	24	
Mongolia	37.52	56	LM	2	SEAO	10	0.68	94	
Costa Rica	37.30	57	UM	12	LCN	4	0.81	38	
Belarus	37.10	58	UM	13	EUR	33	0.83	27	
Montenegro	37.01	59	UM	14	EUR	34	0.62	106	
TFYR of Macedonia	36.93	60	UM	15	EUR	35	0.70	82	
Brazil	36.29	61	UM	16	LCN	5	0.74	71	
Bahrain	36.26	62	HI	44	NAWA	7	0.60	117	
Ukraine	36.26	63	LM	3	EUR	36	0.90	14	
Jordan	36.21	64	UM	17	NAWA	8	0.80	40	
Armenia	36.06	65	LM	4	NAWA	9	0.83	28	
Mexico	36.02	66	UM	18	LCN	6	0.71	79	
Serbia	35.89	67	UM	19	EUR	37	0.79	46	
Colombia	35.50	68	UM	20	LCN	7	0.63	102	
Kuwait	35.19	69	HI	45	NAWA	10	0.78	50	
Argentina	35.13	70	UM	21	LCN	8	0.79	43	
Viet Nam	34.89	71	LM	5	SEAO	11	0.95	5	
Uruguay	34.76	72	HI	46	LCN	9	0.73	75	

Table 1: Global Innovation Index rankings *(continued)*

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.74
Peru	34.73	73	UM	22	LCN	10	0.62	107	
Georgia	34.53	74	LM	6	NAWA	11	0.68	90	
Oman	33.87	75	HI	47	NAWA	12	0.58	121	
India	33.70	76	LM	7	CSA	**1**	0.82	31	
Lebanon	33.60	77	UM	23	NAWA	13	0.59	119	
Tunisia	32.94	78	UM	24	NAWA	14	0.66	98	
Kazakhstan	32.75	79	UM	25	CSA	2	0.59	118	
Guyana	32.48	80	LM	8	LCN	11	0.74	68	
Bosnia and Herzegovina	32.43	81	UM	26	EUR	38	0.65	101	
Jamaica	32.41	82	UM	27	LCN	12	0.65	100	
Dominican Republic	32.29	83	UM	28	LCN	13	0.85	21	
Morocco	32.24	84	LM	9	NAWA	15	0.70	83	
Kenya	31.85	85	LI	**1**	SSF	4	0.84	26	
Bhutan	31.83	86	LM	10	CSA	3	0.60	112	
Indonesia	31.81	87	LM	11	SEAO	12	0.96	4	
Brunei Darussalam	31.67	88	HI	48	SEAO	13	0.43	139	
Paraguay	31.59	89	LM	12	LCN	14	0.75	63	
Trinidad and Tobago	31.56	90	HI	49	LCN	15	0.63	103	
Uganda	31.14	91	LI	2	SSF	5	0.71	77	
Botswana	30.87	92	UM	29	SSF	6	0.50	133	
Guatemala	30.75	93	LM	13	LCN	16	0.68	95	
Albania	30.47	94	UM	30	EUR	39	0.50	131	
Fiji	30.39	95	UM	31	SEAO	14	0.34	141	
Ghana	30.26	96	LM	14	SSF	7	0.81	37	
Cabo Verde	30.09	97	LM	15	SSF	8	0.55	126	
Senegal	30.06	98	LM	16	SSF	9	0.85	23	
Egypt	30.03	99	LM	17	NAWA	16	0.76	59	
Philippines	29.87	100	LM	18	SEAO	15	0.81	35	
Azerbaijan	29.60	101	UM	32	NAWA	17	0.58	120	
Rwanda	29.31	102	LI	3	SSF	10	0.46	137	
El Salvador	29.08	103	LM	19	LCN	17	0.60	116	
Gambia	29.03	104	LI	4	SSF	11	0.76	58	
Sri Lanka	28.98	105	LM	20	CSA	4	0.87	17	
Cambodia	28.66	106	LI	5	SEAO	16	0.74	**67**	
Mozambique	28.52	107	LI	6	SSF	12	0.57	124	
Namibia	28.47	108	UM	33	SSF	13	0.55	125	
Burkina Faso	28.18	109	LI	7	SSF	14	0.71	78	
Nigeria	27.79	110	LM	21	SSF	15	0.94	8	
Bolivia, Plurinational State of	27.76	111	LM	22	LCN	18	0.70	84	
Kyrgyzstan	27.75	112	LI	8	CSA	5	0.46	136	
Malawi	27.61	113	LI	9	SSF	16	0.67	96	
Cameroon	27.52	114	LM	23	SSF	17	0.80	39	
Ecuador	27.50	115	UM	34	LCN	19	0.63	104	
Côte d'Ivoire	27.02	116	LM	24	SSF	18	0.93	10	
Lesotho	27.01	117	LM	25	SSF	19	0.40	140	
Honduras	26.73	118	LM	26	LCN	20	0.53	128	
Mali	26.18	119	LI	10	SSF	20	0.83	30	
Iran, Islamic Republic of	26.14	120	UM	35	CSA	6	0.57	122	
Zambia	25.76	121	LM	27	SSF	21	0.79	44	
Venezuela, Bolivarian Republic of	25.66	122	UM	36	LCN	21	0.95	7	
Tanzania, United Republic of	25.60	123	LI	11	SSF	22	0.60	113	
Madagascar	25.50	124	LI	12	SSF	23	0.62	105	
Nicaragua	25.47	125	LM	28	LCN	22	0.53	129	
Ethiopia	25.36	126	LI	13	SSF	24	0.67	97	
Swaziland	25.33	127	LM	29	SSF	25	0.57	123	
Uzbekistan	25.20	128	LM	30	CSA	7	0.61	108	
Bangladesh	24.35	129	LI	14	CSA	8	0.68	91	
Zimbabwe	24.31	130	LI	15	SSF	26	0.79	48	
Niger	24.27	131	LI	16	SSF	27	0.50	132	
Benin	24.21	132	LI	17	SSF	28	0.60	115	
Algeria	24.20	133	UM	37	NAWA	18	0.53	130	
Pakistan	24.00	134	LM	31	CSA	9	0.89	16	
Angola	23.82	135	UM	38	SSF	29	0.82	33	
Nepal	23.79	136	LI	18	CSA	10	0.49	134	
Tajikistan	23.73	137	LI	19	CSA	11	0.45	138	
Burundi	22.43	138	LI	20	SSF	30	0.46	135	
Guinea	20.25	139	LI	21	SSF	31	0.61	109	
Myanmar	19.64	140	LI	22	SEAO	17	0.71	80	
Yemen	19.53	141	LM	32	NAWA	19	0.60	111	
Togo	17.65	142	LI	23	SSF	32	0.25	142	
Sudan	12.66	143	LM	33	SSF	33	0.09		

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

Table 2: Innovation Input Sub-Index rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Median: 40.29
Singapore	73.60	**1**	HI	**1**	SEAO	**1**	
Hong Kong (China)	68.57	2	HI	2	SEAO	2	
United Kingdom	68.21	3	HI	3	EUR	**1**	
United States of America	67.92	4	HI	4	NAC	**1**	
Finland	67.53	5	HI	5	EUR	2	
Sweden	67.46	6	HI	6	EUR	3	
Switzerland	66.44	7	HI	7	EUR	4	
Canada	66.27	8	HI	8	NAC	2	
Denmark	65.52	9	HI	9	EUR	5	
Australia	64.57	10	HI	10	SEAO	3	
Netherlands	63.46	11	HI	11	EUR	6	
Ireland	63.31	12	HI	12	EUR	7	
New Zealand	62.47	13	HI	13	SEAO	4	
Norway	62.37	14	HI	14	EUR	8	
Japan	62.21	15	HI	15	SEAO	5	
Korea, Republic of	62.17	16	HI	16	SEAO	6	
Israel	61.80	17	HI	17	NAWA	**1**	
Austria	61.33	18	HI	18	EUR	9	
Germany	60.31	19	HI	19	EUR	10	
France	59.51	20	HI	20	EUR	11	
Luxembourg	58.78	21	HI	21	EUR	12	
Belgium	58.23	22	HI	22	EUR	13	
Estonia	56.81	23	HI	23	EUR	14	
Iceland	56.77	24	HI	24	EUR	15	
United Arab Emirates	56.23	25	HI	25	NAWA	2	
Spain	55.94	26	HI	26	EUR	16	
Czech Republic	53.59	27	HI	27	EUR	17	
Slovenia	53.07	28	HI	28	EUR	18	
Portugal	52.56	29	HI	29	EUR	19	
Malaysia	52.46	30	UM	**1**	SEAO	7	
Cyprus	51.73	31	HI	30	NAWA	3	
Italy	51.21	32	HI	31	EUR	20	
Malta	50.57	33	HI	32	EUR	21	
Qatar	50.38	34	HI	33	NAWA	4	
Latvia	49.21	35	HI	34	EUR	22	
Lithuania	48.73	36	HI	35	EUR	23	
Chile	48.44	37	HI	36	LCN	**1**	
Barbados	48.32	38	HI	37	LCN	2	
Saudi Arabia	47.85	39	HI	38	NAWA	5	
Poland	47.31	40	HI	39	EUR	24	
Hungary	47.04	41	UM	2	EUR	25	
Mauritius	46.89	42	UM	3	SSF	**1**	
Slovakia	46.75	43	HI	40	EUR	26	
Greece	45.94	44	HI	41	EUR	27	
China	45.79	45	UM	4	SEAO	8	
Montenegro	45.61	46	UM	5	EUR	28	
South Africa	45.60	47	UM	6	SSF	2	
Bahrain	45.45	48	HI	42	NAWA	6	
Fiji	45.21	49	UM	7	SEAO	9	
Croatia	45.10	50	HI	43	EUR	29	
Mongolia	44.76	51	LM	**1**	SEAO	10	
Thailand	44.75	52	UM	8	SEAO	11	
Seychelles	44.45	53	UM	9	SSF	3	
Bulgaria	44.34	54	UM	10	EUR	30	
Brunei Darussalam	44.30	55	HI	44	SEAO	12	
Russian Federation	43.77	56	HI	45	EUR	31	
TFYR of Macedonia	43.45	57	UM	11	EUR	32	
Colombia	43.45	58	UM	12	LCN	3	
Oman	42.82	59	HI	46	NAWA	7	
Peru	42.82	60	UM	13	LCN	4	
Lebanon	42.22	61	UM	14	NAWA	8	
Mexico	42.19	62	UM	15	LCN	5	
Brazil	41.74	63	UM	16	LCN	6	
Panama	41.40	64	UM	17	LCN	7	
Romania	41.36	65	UM	18	EUR	33	
Costa Rica	41.30	66	UM	19	LCN	8	
Botswana	41.20	67	UM	20	SSF	4	
Georgia	41.10	68	LM	2	NAWA	9	
Kazakhstan	41.10	69	UM	21	CSA	**1**	
Belarus	40.51	70	UM	22	EUR	34	
Albania	40.51	71	UM	23	EUR	35	
Jordan	40.29	72	UM	24	NAWA	10	

Table 2: Innovation Input Sub-Index rankings *(continued)*

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Median: 40.29
Uruguay	40.26	73	HI	47	LCN	9	
Rwanda	40.19	74	LI	**1**	SSF	5	
Serbia	40.06	75	UM	25	EUR	36	
Bhutan	39.76	76	LM	3	CSA	2	
Tunisia	39.75	77	UM	26	NAWA	11	
Turkey	39.66	78	UM	27	NAWA	12	
Kuwait	39.44	79	HI	48	NAWA	13	
Moldova, Republic of	39.42	80	LM	4	EUR	37	
Armenia	39.39	81	LM	5	NAWA	14	
Bosnia and Herzegovina	39.36	82	UM	28	EUR	38	
Argentina	39.18	83	UM	29	LCN	10	
Jamaica	39.17	84	UM	30	LCN	11	
Cabo Verde	38.89	85	LM	6	SSF	6	
Trinidad and Tobago	38.64	86	HI	49	LCN	12	
Lesotho	38.58	87	LM	7	SSF	7	
Ukraine	38.15	88	LM	8	EUR	39	
Morocco	37.99	89	LM	9	NAWA	15	
Kyrgyzstan	37.92	90	LI	2	CSA	3	
Azerbaijan	37.35	91	UM	31	NAWA	16	
Guyana	37.28	92	LM	10	LCN	13	
India	36.97	93	LM	11	CSA	4	
Guatemala	36.69	94	LM	12	LCN	14	
Namibia	36.67	95	UM	32	SSF	8	
Mozambique	36.42	96	LI	3	SSF	9	
El Salvador	36.42	97	LM	13	LCN	15	
Uganda	36.32	98	LI	4	SSF	10	
Paraguay	36.01	99	LM	14	LCN	16	
Viet Nam	35.75	100	LM	15	SEAO	13	
Dominican Republic	34.95	101	UM	33	LCN	17	
Honduras	34.84	102	LM	16	LCN	18	
Kenya	34.69	103	LI	5	SSF	11	
Egypt	34.05	104	LM	17	NAWA	17	
Ecuador	33.71	105	UM	34	LCN	19	
Ghana	33.50	106	LM	18	SSF	12	
Iran, Islamic Republic of	33.24	107	UM	35	CSA	5	
Nicaragua	33.22	108	LM	19	LCN	20	
Malawi	32.97	109	LI	6	SSF	13	
Philippines	32.93	110	LM	20	SEAO	14	
Gambia	32.92	111	LI	7	SSF	14	
Burkina Faso	32.87	112	LI	8	SSF	15	
Cambodia	32.85	113	LI	9	SEAO	15	
Tajikistan	32.82	114	LI	10	CSA	6	
Bolivia, Plurinational State of	32.74	115	LM	21	LCN	21	
Senegal	32.56	116	LM	22	SSF	16	
Indonesia	32.42	117	LM	23	SEAO	16	
Niger	32.35	118	LI	11	SSF	17	
Swaziland	32.21	119	LM	24	SSF	18	
Tanzania, United Republic of	31.98	120	LI	12	SSF	19	
Nepal	31.83	121	LI	13	CSA	7	
Algeria	31.65	122	UM	36	NAWA	18	
Madagascar	31.41	123	LI	14	SSF	20	
Uzbekistan	31.26	124	LM	25	CSA	8	
Sri Lanka	30.92	125	LM	26	CSA	9	
Burundi	30.63	126	LI	15	SSF	21	
Cameroon	30.59	127	LM	27	SSF	22	
Ethiopia	30.36	128	LI	16	SSF	23	
Benin	30.28	129	LI	17	SSF	24	
Bangladesh	29.00	130	LI	18	CSA	10	
Zambia	28.74	131	LM	28	SSF	25	
Mali	28.65	132	LI	19	SSF	26	
Nigeria	28.63	133	LM	29	SSF	27	
Togo	28.31	134	LI	20	SSF	28	
Côte d'Ivoire	28.01	135	LM	30	SSF	29	
Zimbabwe	27.18	136	LI	21	SSF	30	
Venezuela, Bolivarian Republic of	26.32	137	UM	37	LCN	22	
Angola	26.21	138	UM	38	SSF	31	
Pakistan	25.44	139	LM	31	CSA	11	
Guinea	25.14	140	LI	22	SSF	32	
Yemen	24.36	141	LM	32	NAWA	19	
Sudan	23.20	142	LM	33	SSF	33	
Myanmar	23.03	143	LI	23	SEAO	17	

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

Table 3: Innovation Output Sub-Index rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Median: 29.27
Switzerland	63.11	**1**	HI	**1**	EUR	**1**	
Netherlands	57.73	2	HI	2	EUR	2	
Sweden	57.13	3	HI	3	EUR	3	
United Kingdom	56.52	4	HI	4	EUR	4	
Luxembourg	54.94	5	HI	5	EUR	5	
Finland	53.82	6	HI	6	EUR	6	
United States of America	52.27	7	HI	7	NAC	**1**	
Germany	51.74	8	HI	8	EUR	7	
Iceland	51.33	9	HI	9	EUR	8	
Malta	50.31	10	HI	10	EUR	9	
Ireland	50.04	11	HI	11	EUR	10	
Denmark	49.52	12	HI	12	EUR	11	
Israel	49.11	13	HI	13	NAWA	**1**	
Norway	48.82	14	HI	14	EUR	12	
Korea, Republic of	48.37	15	HI	15	SEAO	**1**	
China	47.35	16	UM	**1**	SEAO	2	
Czech Republic	46.85	17	HI	16	EUR	13	
New Zealand	46.57	18	HI	17	SEAO	3	
Estonia	46.27	19	HI	18	EUR	14	
Canada	45.99	20	HI	19	NAC	2	
Austria	45.49	21	HI	20	EUR	15	
Australia	45.46	22	HI	21	SEAO	4	
Belgium	45.15	23	HI	22	EUR	16	
Hong Kong (China)	45.08	24	HI	23	SEAO	5	
Singapore	44.88	25	HI	24	SEAO	6	
France	44.85	26	HI	25	EUR	17	
Japan	42.61	27	HI	26	SEAO	7	
Spain	42.60	28	HI	27	EUR	18	
Hungary	42.18	29	UM	2	EUR	19	
Moldova, Republic of	42.06	30	LM	**1**	EUR	20	
Slovenia	41.38	31	HI	28	EUR	21	
Latvia	40.41	32	HI	29	EUR	22	
Italy	40.09	33	HI	30	EUR	23	
Cyprus	39.92	34	HI	31	NAWA	2	
Malaysia	38.74	35	UM	3	SEAO	8	
Portugal	38.70	36	HI	32	EUR	24	
Bulgaria	37.13	37	UM	4	EUR	25	
Slovakia	37.02	38	HI	33	EUR	26	
Turkey	36.74	39	UM	5	NAWA	3	
Croatia	36.40	40	HI	34	EUR	27	
Saudi Arabia	35.37	41	HI	35	NAWA	4	
Panama	35.20	42	UM	6	LCN	**1**	
Mauritius	34.99	43	UM	7	SSF	**1**	
Romania	34.80	44	UM	8	EUR	28	
Russian Federation	34.50	45	HI	36	EUR	29	
Ukraine	34.37	46	LM	2	EUR	30	
Viet Nam	34.02	47	LM	3	SEAO	9	
Poland	33.98	48	HI	37	EUR	31	
Thailand	33.81	49	UM	9	SEAO	10	
Belarus	33.68	50	UM	10	EUR	32	
Costa Rica	33.31	51	UM	11	LCN	2	
Lithuania	33.27	52	HI	38	EUR	33	
Barbados	33.24	53	HI	39	LCN	3	
Chile	32.84	54	HI	40	LCN	4	
Armenia	32.73	55	LM	4	NAWA	5	
Seychelles	32.68	56	UM	12	SSF	2	
Jordan	32.13	57	UM	13	NAWA	6	
Greece	31.95	58	HI	41	EUR	34	
Serbia	31.73	59	UM	14	EUR	35	
Indonesia	31.20	60	LM	5	SEAO	11	
Argentina	31.07	61	UM	15	LCN	5	
Kuwait	30.94	62	HI	42	NAWA	7	
South Africa	30.90	63	UM	16	SSF	3	
Brazil	30.84	64	UM	17	LCN	6	
India	30.42	65	LM	6	CSA	**1**	
TFYR of Macedonia	30.42	66	UM	18	EUR	36	
Mongolia	30.28	67	LM	7	SEAO	12	
United Arab Emirates	30.27	68	HI	43	NAWA	8	
Qatar	30.24	69	HI	44	NAWA	9	
Mexico	29.86	70	UM	19	LCN	7	
Dominican Republic	29.64	71	UM	20	LCN	8	
Uruguay	29.27	72	HI	45	LCN	9	

Table 3: Innovation Output Sub-Index rankings *(continued)*

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Median: 29.27
Kenya	29.01	73	LI	1	SSF	4	
Montenegro	28.41	74	UM	21	EUR	37	
Georgia	27.95	75	LM	8	NAWA	10	
Guyana	27.67	76	LM	9	LCN	10	
Colombia	27.55	77	UM	22	LCN	11	
Senegal	27.55	78	LM	10	SSF	5	
Paraguay	27.18	79	LM	11	LCN	12	
Bahrain	27.08	80	HI	46	NAWA	11	
Sri Lanka	27.04	81	LM	12	CSA	2	
Ghana	27.03	82	LM	13	SSF	6	
Nigeria	26.95	83	LM	14	SSF	7	
Philippines	26.80	84	LM	15	SEAO	13	
Peru	26.65	85	UM	23	LCN	13	
Morocco	26.49	86	LM	16	NAWA	12	
Tunisia	26.14	87	UM	24	NAWA	13	
Côte d'Ivoire	26.04	88	LM	17	SSF	8	
Egypt	26.01	89	LM	18	NAWA	14	
Uganda	25.96	90	LI	2	SSF	9	
Jamaica	25.65	91	UM	25	LCN	14	
Bosnia and Herzegovina	25.51	92	UM	26	EUR	38	
Gambia	25.15	93	LI	3	SSF	10	
Venezuela, Bolivarian Republic of	24.99	94	UM	27	LCN	15	
Lebanon	24.98	95	UM	28	NAWA	15	
Oman	24.92	96	HI	47	NAWA	16	
Guatemala	24.82	97	LM	19	LCN	16	
Trinidad and Tobago	24.49	98	HI	48	LCN	17	
Cambodia	24.46	99	LI	4	SEAO	14	
Cameroon	24.46	100	LM	20	SSF	11	
Kazakhstan	24.40	101	UM	29	CSA	3	
Bhutan	23.89	102	LM	21	CSA	4	
Mali	23.71	103	LI	5	SSF	12	
Burkina Faso	23.49	104	LI	6	SSF	13	
Zambia	22.79	105	LM	22	SSF	14	
Bolivia, Plurinational State of	22.78	106	LM	23	LCN	18	
Pakistan	22.57	107	LM	24	CSA	5	
Malawi	22.25	108	LI	7	SSF	15	
Azerbaijan	21.84	109	UM	30	NAWA	17	
El Salvador	21.73	110	LM	25	LCN	19	
Zimbabwe	21.45	111	LI	8	SSF	16	
Angola	21.44	112	UM	31	SSF	17	
Ecuador	21.28	113	UM	32	LCN	20	
Cabo Verde	21.28	114	LM	26	SSF	18	
Mozambique	20.61	115	LI	9	SSF	19	
Botswana	20.54	116	UM	33	SSF	20	
Albania	20.43	117	UM	34	EUR	39	
Ethiopia	20.35	118	LI	10	SSF	21	
Namibia	20.28	119	UM	35	SSF	22	
Bangladesh	19.70	120	LI	11	CSA	6	
Madagascar	19.58	121	LI	12	SSF	23	
Tanzania, United Republic of	19.21	122	LI	13	SSF	24	
Uzbekistan	19.14	123	LM	27	CSA	7	
Brunei Darussalam	19.04	124	HI	49	SEAO	15	
Iran, Islamic Republic of	19.04	125	UM	36	CSA	8	
Honduras	18.62	126	LM	28	LCN	21	
Swaziland	18.45	127	LM	29	SSF	25	
Rwanda	18.43	128	LI	14	SSF	26	
Benin	18.13	129	LI	15	SSF	27	
Nicaragua	17.72	130	LM	30	LCN	22	
Kyrgyzstan	17.58	131	LI	16	CSA	9	
Algeria	16.74	132	UM	37	NAWA	18	
Myanmar	16.25	133	LI	17	SEAO	16	
Niger	16.20	134	LI	18	SSF	28	
Nepal	15.74	135	LI	19	CSA	10	
Fiji	15.56	136	UM	38	SEAO	17	
Lesotho	15.45	137	LM	31	SSF	29	
Guinea	15.35	138	LI	20	SSF	30	
Yemen	14.70	139	LM	32	NAWA	19	
Tajikistan	14.65	140	LI	21	CSA	11	
Burundi	14.23	141	LI	22	SSF	31	
Togo	6.98	142	LI	23	SSF	32	
Sudan	2.11	143	LM	33	SSF	33	

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

and General infrastructure (29th). A knowledge-based economy of 8.0 million people with one of the highest GDP per capita in the world (PPP$46,430.1), its high Innovation Efficiency Ratio (6th highest of all economies in the index, and 1st among the GII top 10) allows Switzerland to translate its robust innovation capabilities into high-level innovation outputs. In addition, Switzerland is one of the five economies at the efficient frontier (see Annex 3).

The runner-up, the **United Kingdom** (UK) has gradually improved its ranking over time, from 3rd place in 2013 (up from 5th in 2012 and 10th in 2011), and comes 3rd in inputs and 4th in outputs. The UK places within the top 25 in all pillars and sub-pillars with only three exceptions: sub-pillars General infrastructure (60th), Intangible assets (40th), and Knowledge absorption (29th). With roughly six times the population of Sweden and eight times that of Switzerland, these results are commendable. Relative weaknesses are in the growth of its labour productivity (102nd) and the level of gross capital formation over GDP (132nd). Other indicators pointed out as weaknesses in the 2013 findings have since shown improvement, including its level of FDI net inflows (improving significantly this year, by 37 positions) and market access conditions to foreign markets for non-agricultural exports (improving by five positions), a result of the country's economic recovery. In addition, the UK is one of the five economies at the efficient frontier.

Sweden occupies 3rd place in 2014 (down from the runner-up position it held for the last four years), although it continues to lead among the Nordic countries. It ranks 3rd in outputs, and its drop to 6th place in inputs this year is the main reason for its fall to 3rd position. Sweden does particularly well in the sub-pillar Research and development: its number of researchers (6th), gross expenditure on R&D (4th), and average score of the top 3 QS university rankings (14th) are all good showings. It also ranks 3rd in Knowledge and technology outputs because of its high number of PCT resident patent applications (5th) and royalties and license fee receipts (7th). In addition, Sweden is one of the five economies at the efficient frontier.

Finland is ranked 4th in the GII this year (6th in 2013), 5th in the Input Sub-Index, and 6th in the Output Sub-Index. It achieves positions among the top 25 in all pillars (1st place in Institutions and Human capital and researchers), 16 out of 21 sub-pillars (1st place in Political environment), and 56 out of the 79 indicators with available data. Its weakest showing is in Market sophistication, which, although still respectable, is slowly declining at 22nd position. At the indicator level, Finland achieves 1st place in government effectiveness; press freedom; the number of researchers; communications, computer and information services exports; ICTs and business model creation; and ICTs and organizational model creation. Some of its major weaknesses (measured in percent ranks to take account of missing values) are in gross capital formation (102nd), the growth rate of GDP per person employed (87th), FDI inflows (121st), and intensity of local competition (83rd). In addition, Finland is one of the five economies at the efficient frontier.

The Netherlands is ranked 5th, down from 4th in 2013, yet still higher than in previous years. Similar to 2013, it ranks 2nd in outputs, yet 11th in inputs (down slightly from 10th in 2013), and drastically improves its innovation efficiency by 14 positions to 12th (2nd after Switzerland among the GII top 10). The country achieves leading positions (within the top 25) on all pillars, 16 of the 21 sub-pillars, and 55 out of 78 indicators with data, including 1st place in online e-participation and 2nd place in both press freedom and country-code top-level domains. Its major weakness are in Tertiary education (although progress was made again this year—the Netherlands ranks 59th, up from 61st in 2013) and in General infrastructure (48th, down from 29th in 2013).

The United States of America (USA) is ranked 6th, down from 5th in 2013, and leads the rankings in Northern America, coming in 4th in inputs and 7th in outputs. The USA occupies 1st place in the Market sophistication sub-pillar and has leading positions (within the top 25) for all pillars and in 16 of the 21 sub-pillars, ranking 1st in Investment. It is also 1st out of 11 of the 77 indicators with data, including cost of redundancy dismissal, government's online service, total value of stocks traded, venture capital deals, number of GMAT test takers, domestic resident patent applications, citable documents H index, computer software spending, royalty and license fee receipts, generic top-level domains, and video uploads on YouTube. Some areas of concern persist, however. In Tertiary education, where it ranks 41st, the USA continues to be the victim of its own success: the high level of its academic institutions leads to a 3rd position in tertiary enrolment, but to relatively low levels of student exchange with the rest of the world (where the USA ranks 49th). The level of tertiary graduates in science and engineering is also low (84th), although it has seen improvements in its weaker

areas, including Ecological sustainability (58th, up from 74th in 2013) and Intangible assets (72nd, up from 86th in 2013).

Singapore is ranked 7th, up one position from 2013, and is one of the five economies at the efficient frontier as well as the leading economy in Asia. It shows strength across the board in the Input Sub-Index, where it takes 1st place: Business sophistication (1st), Human capital and research (2nd), Infrastructure (2nd), Market sophistication (4th), and Institutions (6th). But it ranks only 25th in the Output Sub-Index, a result of its 13th place in Knowledge and technology outputs and 33rd place in Creative outputs. As a result, Singapore has the lowest efficiency ratio of the top 10 (110th—albeit an improvement from 121st in 2013). And Singapore has the lowest efficiency ratio of the top 10. Singapore has a leading position (within the top 25) in 6 out of 7 pillars (including 1st in Business sophistication) and 16 out of 21 sub-pillars, ranking 1st in 3 of them: Regulatory environment, Business environment, and Knowledge absorption. Singapore performs less well in government expenditure on education (111th), communications, computer and information services exports (96th), domestic resident trademark applications (82nd), and printing and publishing output (73rd).

Denmark is ranked 8th, up one position from 9th place in 2013. The strength of this country of 5.6 million people lies in its solid performance in both the Input Sub-Index (at 9th place) and the Output Sub-Index (12th). It achieves a leading position (within the top 25) in all pillars and in 13 out of 21 sub-pillars, with strengths in the cost of redundancy dismissal (1st), domestic credit to private sector (2nd), government effectiveness (3rd), government expenditure on education (3rd), the number of researchers (3rd), the number of scientific and technical articles (3rd), and country-code top-level domains (3rd). Denmark experience several steep drops in 2014, resulting in the country's main weaknesses: its FDI net inflows (128th, 61st in 2013), GERD financed by abroad (53rd, 41st in 2013), high-tech imports less re-imports (70th, 37th in 2013), and printing and publishing manufactures (44th, 9th in 2013).

Luxembourg is ranked 9th in 2014 (up three places from 2013), the first time it has made its way into the top 10, with a strong performance in outputs (5th) and innovation efficiency (9th). Its pillar rankings of 2nd in Business sophistication (7th in 2013) and 16th in Knowledge and technology outputs (43rd in 2013) played a major role in achieving its place in the top 10. Its biggest strengths lie in the Creative outputs pillar, where it ranks 1st in four indicators: Madrid system trademark applications, cultural and creative services exports, national feature films produced, and generic top-level domains. Luxembourg's weaknesses remain in the cost of redundancy dismissal, tertiary enrolment, average QS university ranking top 3, ease of getting credit, ease of protecting investors, total value of stocks traded, market access to foreign markets for non-agricultural exports, high-tech imports less re-imports, growth rate of GDP per worker, and high- and medium-high-tech manufactures.

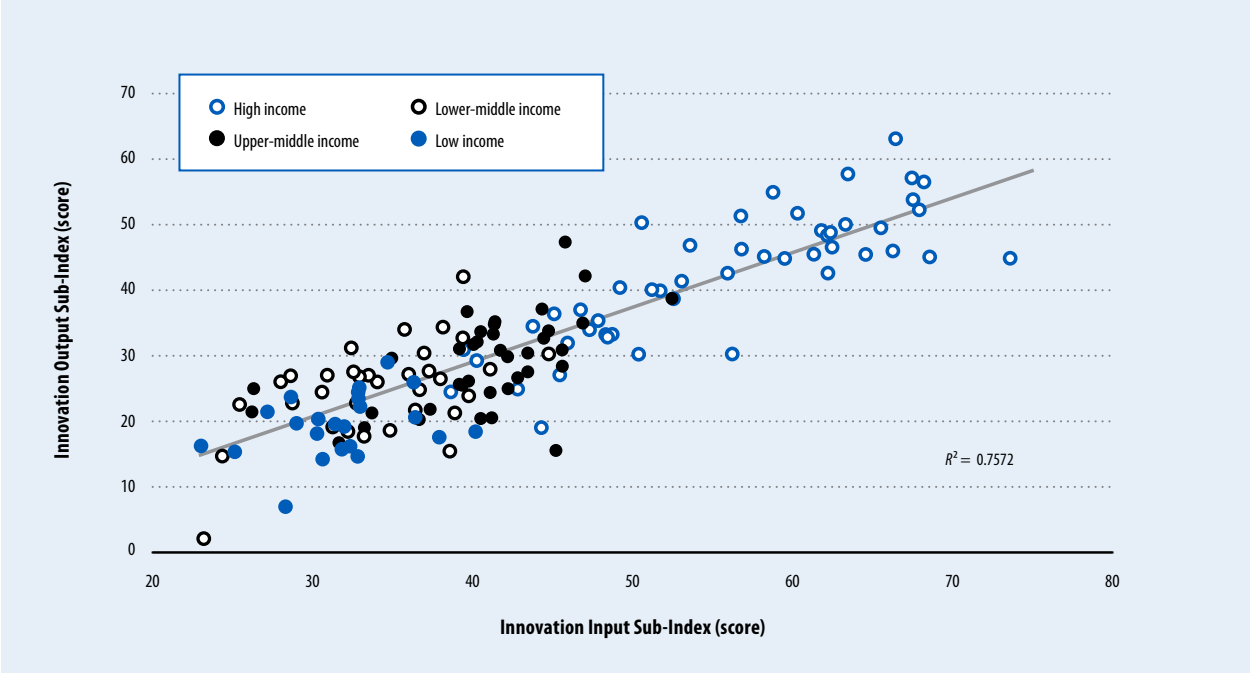
Hong Kong (China) is ranked 10th this year, down three positions from 7th in 2013 and losing the lead among Asian economies to Singapore. With a population of 7.2 million and a GDP per capita of PPP$52,722.0, its major leverage comes from the Input Sub-Index, where it ranks 2nd after Singapore. The economy takes 1st place in Infrastructure, 3rd in Market sophistication (coming after the USA and the UK), and includes top positions in the Ecological sustainability, Credit, and Knowledge absorption sub-pillars. On the input side, its relative weakness is in Human capital and research (although still a very good 23rd position). Its less good showing in the Output Sub-Index, where it ranks 24th (down from 15th in 2013), is the result of a worsening position in the key Knowledge and technology outputs pillar (45th this year); this is, however, compensated for by a 6th place in Creative outputs. At the indicator level, Hong Kong (China) achieves 1st place in 10 indicators. Its major weaknesses are in the Knowledge diffusion sub-pillar (80th), with poor performances in high-tech exports less re-exports (101st) and communication, computer and information services exports (103rd). Other areas of concern are the Education sub-pillar (57th), with weaknesses in government expenditure on education (97th), government expenditure per pupil in secondary education (70th), and pupil-teacher ratio in secondary education (75th).

The top 10 in the Innovation Input Sub-Index

The Innovation Input Sub-Index considers the elements of an economy that enable innovative activity through five pillars. The top 10 economies in the Innovation Input Sub-Index are Singapore, Hong Kong (China), the UK, the USA, Finland, Sweden, Switzerland, Canada, Demark, and Australia. Canada and Australia are the only economies in this group that are not also in the GII top 10.

Canada is ranked 12th, down from 11th in 2013. It ranks 8th

Figure 4: Innovation Output Sub-Index vs. Innovation Input Sub-Index



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

overall in the Input Sub-Index, with top 10 rankings on the Institutions pillar (7th)—linked to its strong performance (2nd) in the Business environment sub-pillar—and the Market sophistication pillar (5th), the result of a robust performance in the Investment (4th) and Trade and competition (5th) sub-pillars.

Australia is ranked 17th, up two positions from 19th in 2013. It ranks 10th overall in the Input Sub-Index, with top 10 rankings on three pillars: Human capital and research (7th), Infrastructure (7th), and Market sophistication (10th). Its strengths are in the Tertiary education (7th), Research and development (8th), ICTs (9th), General infrastructure (9th), and Trade and competition (1st) sub-pillars. The effects of the government's new venture capital grants are evident in the improvement of the number of venture capital deals entered into, an indicator that shows an improvement of three places (from 26th to 23rd place). The results within the Creative goods and services sub-pillar are mixed, with two strengths and two weaknesses. Australia's weak variables include cultural and creative services exports (52nd) and national feature films produced (49th); the country's strengths include global entertainment and media output (3rd) as well as printing and publishing output (5th).

The top 10 in the Innovation Output Sub-Index

The Innovation Output Sub-Index variables provide information on elements that are the result of innovation within an economy. Although scores on the Input and Output Sub-Indices might differ substantially, leading to important shifts in rankings from one sub-index to the other for particular countries, the data confirm that efforts made to improve enabling environments are rewarded with increased innovation outputs (Figure 4).

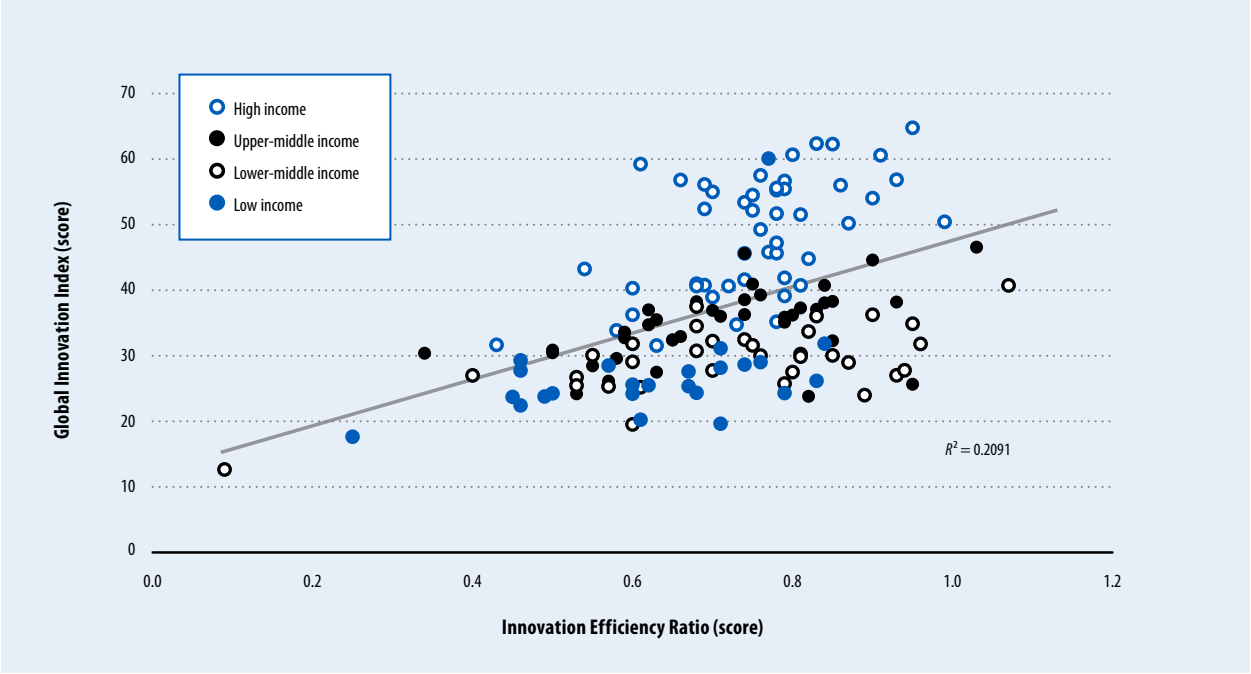
The top 10 countries in the Innovation Output Sub-Index are Switzerland, the Netherlands, Sweden, the UK, Luxembourg, Finland, the USA, Germany, Iceland, and Malta. The USA enters the list this year (ranked 12th in 2013), while Israel (among the top 10 in 2013) drops to 13th place. Seven of these countries are in the GII top 10; their profiles are discussed there.

Table 4: Ten best-ranked economies by income group (rank)

	Global Innovation Index	Innovation Input Sub-index	Innovation Output Sub-index	Innovation Efficiency Ratio
High-income economies (45 in total)				
1	**Switzerland (1)**	Singapore (1)	**Switzerland (1)**	Malta (3)
2	**United Kingdom (2)**	Hong Kong (China) (2)	Netherlands (2)	**Switzerland (6)**
3	**Sweden (3)**	**United Kingdom (3)**	**Sweden (3)**	Luxembourg (9)
4	**Finland (4)**	**United States of America (4)**	**United Kingdom (4)**	Netherlands (12)
5	Netherlands (5)	**Finland (5)**	Luxembourg (5)	Iceland (13)
6	**United States of America (6)**	**Sweden (6)**	**Finland (6)**	Czech Republic (18)
7	Singapore (7)	**Switzerland (7)**	**United States of America (7)**	Germany (19)
8	Denmark (8)	Canada (8)	Germany (8)	**Sweden (22)**
9	Luxembourg (9)	Denmark (9)	Iceland (9)	**United Kingdom (29)**
10	Hong Kong (China) (10)	Australia (10)	Malta (10)	Latvia (32)
Upper-middle-income economies (40 in total)				
1	**China (29)**	Malaysia (30)	**China (16)**	**China (2)**
2	Malaysia (33)	**Hungary (41)**	**Hungary (29)**	Venezuela, Bolivarian Republic of (7)
3	**Hungary (35)**	**Mauritius (42)**	Malaysia (35)	Turkey (11)
4	**Mauritius (40)**	**China (45)**	**Bulgaria (37)**	**Hungary (15)**
5	**Bulgaria (44)**	Montenegro (46)	Turkey (39)	Panama (20)
6	Thailand (48)	South Africa (47)	Panama (42)	Dominican Republic (21)
7	Seychelles (51)	Fiji (49)	**Mauritius (43)**	Romania (24)
8	Panama (52)	Thailand (52)	Romania (44)	**Bulgaria (25)**
9	South Africa (53)	Seychelles (53)	Thailand (49)	Belarus (27)
10	Turkey (54)	**Bulgaria (54)**	Belarus (50)	Angola (33)
Lower-middle-income economies (36 in total)				
1	**Moldova, Republic of (43)**	**Mongolia (51)**	**Moldova, Republic of (30)**	**Moldova, Republic of (1)**
2	**Mongolia (56)**	**Georgia (68)**	**Ukraine (46)**	Indonesia (4)
3	**Ukraine (63)**	Bhutan (76)	Viet Nam (47)	Viet Nam (5)
4	**Armenia (65)**	**Moldova, Republic of (80)**	**Armenia (55)**	Nigeria (8)
5	Viet Nam (71)	**Armenia (81)**	Indonesia (60)	Côte d'Ivoire (10)
6	**Georgia (74)**	Cabo Verde (85)	India (65)	**Ukraine (14)**
7	India (76)	Lesotho (87)	**Mongolia (67)**	Pakistan (16)
8	**Guyana (80)**	**Ukraine (88)**	**Georgia (75)**	Sri Lanka (17)
9	Morocco (84)	Morocco (89)	**Guyana (76)**	Senegal (23)
10	Bhutan (86)	**Guyana (92)**	Senegal (78)	**Armenia (28)**
Low-income economies (21 in total)				
1	**Kenya (85)**	Rwanda (74)	**Kenya (73)**	**Kenya (26)**
2	**Uganda (91)**	Kyrgyzstan (90)	**Uganda (90)**	Mali (30)
3	Rwanda (102)	**Mozambique (96)**	**Gambia (93)**	Zimbabwe (48)
4	**Gambia (104)**	**Uganda (98)**	**Cambodia (99)**	**Gambia (58)**
5	**Cambodia (106)**	**Kenya (103)**	Mali (103)	**Cambodia (67)**
6	**Mozambique (107)**	**Malawi (109)**	**Burkina Faso (104)**	**Uganda (77)**
7	**Burkina Faso (109)**	**Gambia (111)**	**Malawi (108)**	**Burkina Faso (78)**
8	Kyrgyzstan (112)	**Burkina Faso (112)**	Zimbabwe (111)	Myanmar (80)
9	**Malawi (113)**	**Cambodia (113)**	**Mozambique (115)**	Bangladesh (91)
10	Mali (119)	Tajikistan (114)	Ethiopia (118)	**Malawi (96)**

Note: Economies with top 10 positions in the GII, the Input Sub-Index, and the Output Sub-Index within their income group are highlighted in bold.

Figure 5: Global Innovation Index vs. Innovation Efficiency Ratio



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

Iceland is ranked 19th in the GII, down six positions from 13th in 2013. This Nordic country of 0.3 million people ranks 24th in the Input Sub-Index and 9th in the Output Sub-Index. On the output side, a 36th position in Knowledge and technology outputs is explained by some difficulty in translating good levels of patenting and scientific publications into high- and medium-high-tech output (82nd) and knowledge diffusion (120th). The main leverage on the output side comes from its 1st place in Creative outputs, where Iceland shows strengths in all sub-pillars and most indicators, particularly in online creativity (1st).

Germany is ranked 13th in the GII, up two places from its 2012 and 2013 position. As has been the case for the past three years, Germany's relative strength lies in the Output Sub-Index (8th), although it ranks a respectable 19th in the Input Sub-Index and shows a balanced profile, with pillar rankings ranging from 11th to 25th, and all sub-pillars ranking among the top 50. Germany's output strengths are attributable to its 1st place in the citable documents H index and 5th position in both domestic resident patent applications and country-code top-level domains.

Malta is ranked 25th in the GII this year, down one place from 2013 with a drop of five places from its 5th place in the Output Sub-Index in 2013 to 10th place in 2014. With a rank of 33rd in the Input Sub-Index, explained in great measure by relative weakness in Human capital and research (49th) and Market sophistication (65th), it achieves one of the highest efficiency ratios (ranked 3rd). Malta ranks 18th in Knowledge and technology outputs and 8th in Creative outputs.

Learning to innovate: Top performers by income group

Identifying the underlying conditions of a country and comparing performances among peers is the key to a good understanding of the implications of a country's ranking on the GII. This report attempts to abide by this underlying principle by assessing results on the basis of the development stages of countries.

Table 4 shows the 10 best performers in each index by income group. The top 28 positions in

the GII are taken by high-income economies, three fewer than in 2013. Switzerland, the UK, Sweden, Finland, and the USA are among the high-income top 10 on the three main indices, while Switzerland, Luxembourg, and Malta are the only economies also in the high-income top 10 in the efficiency ratio.

Among the upper-middle-income 10 best performers, only three remain from 2013: China (29th), Malaysia (33rd), and Bulgaria (44th). Hungary (35th), Mauritius (40th), Thailand (48th), Seychelles (51st), Panama (52nd), South Africa (53rd), and Turkey (54th) enter the list this year, displacing Costa Rica (57th), Montenegro (59th), Romania (55th), and the Former Yugoslav Republic of Macedonia (60th), as well as Latvia, Lithuania, and Chile (these latter three were reclassified as high-income countries during 2013). China, Hungary, Mauritius, and Bulgaria are among the 10 best performers in the three indices; of these, China, Hungary, and Bulgaria also make it to the upper-middle-income top 10 in the efficiency ratio.

The same analysis for lower-middle-income countries shows that eight of the top 10 countries from 2013 remain in the top 10 this year, with Morocco (84th) and Bhutan (86th) displacing Indonesia (87th) and Guatemala (93rd). The Republic of Moldova (43rd), Mongolia (56th), Ukraine (63rd), Armenia (65th), Georgia (74th), and Guyana (80th) are among the top 10 in the three indices; of these, the Republic of Moldova, Ukraine, and Armenia are the only countries with top 10 positions in the efficiency ratio as well.

Among low-income countries, nine out of 10 economies remain in the top 10, with Gambia (104th) displacing Tajikistan (137th). Those showing above-par performances in the three indices are Kenya (85th), Uganda (91st), Gambia (104th), Cambodia (106th), Mozambique (107th), Burkina Faso (109th), and Malawi (113th); all of them, with the exception of Mozambique, are in the low-income top 10 on efficiency.

Doing more with less: The Innovation Efficiency Ratio

While the GII is calculated as the average of its Input and Output Sub-Indices, the Innovation Efficiency Ratio is calculated as the ratio of the Output over the Input Sub-Index. The relationship between the GII rankings and the efficiency ratios is slightly positive, as expected, implying that more efficient countries achieve, on average, better GII scores (Figure 5).

The efficiency ratio is designed to be independent from countries' stages of development, and indeed, the data reflect this. That said, the analysis by income group for efficiency ratios is particularly crucial, because economies might reach a relatively high efficiency ratio as a result of particularly low input scores. Efficiency ratios must be analysed jointly with GII, Input, and Output scores, and with development stages of the economies in mind. Efficiency ratios are reported next to the GII scores for this reason (Table 1).

The 10 countries with the highest Innovation Efficiency Ratios are countries that are particularly good at surmounting relative weaknesses on their Input Sub-Indices with relatively robust output results, with GII rankings ranging from 1st to 122nd: the Republic of Moldova (43rd), China (29th), Malta (25th), Indonesia (87th), Viet Nam (71st), Switzerland (1st), the Bolivarian Republic of Venezuela (122nd), Nigeria (110th), Luxembourg (9th), and Côte d'Ivoire (116th).

Three of the top 10 most efficient economies are high-income economies: Malta, Switzerland, and Luxembourg. Within this group of high-income economies, European countries take up the first 20 positions, with the exception of Israel (14th) and Kuwait (18th). The USA and Canada are ranked 25th and 37th, respectively. In the high-income group, 36.7% have better rankings in outputs than they do in inputs.

Among upper-middle-income countries, China and the Bolivarian Republic of Venezuela are in the top 10. China, Hungary, Bulgaria, and Malaysia make it to the top 40 globally in outputs, surmounting lower capabilities (except for Malaysia, which ranks 30th in inputs and 35th in outputs). In this income group, 39.5% of countries have better rankings in outputs than in inputs.

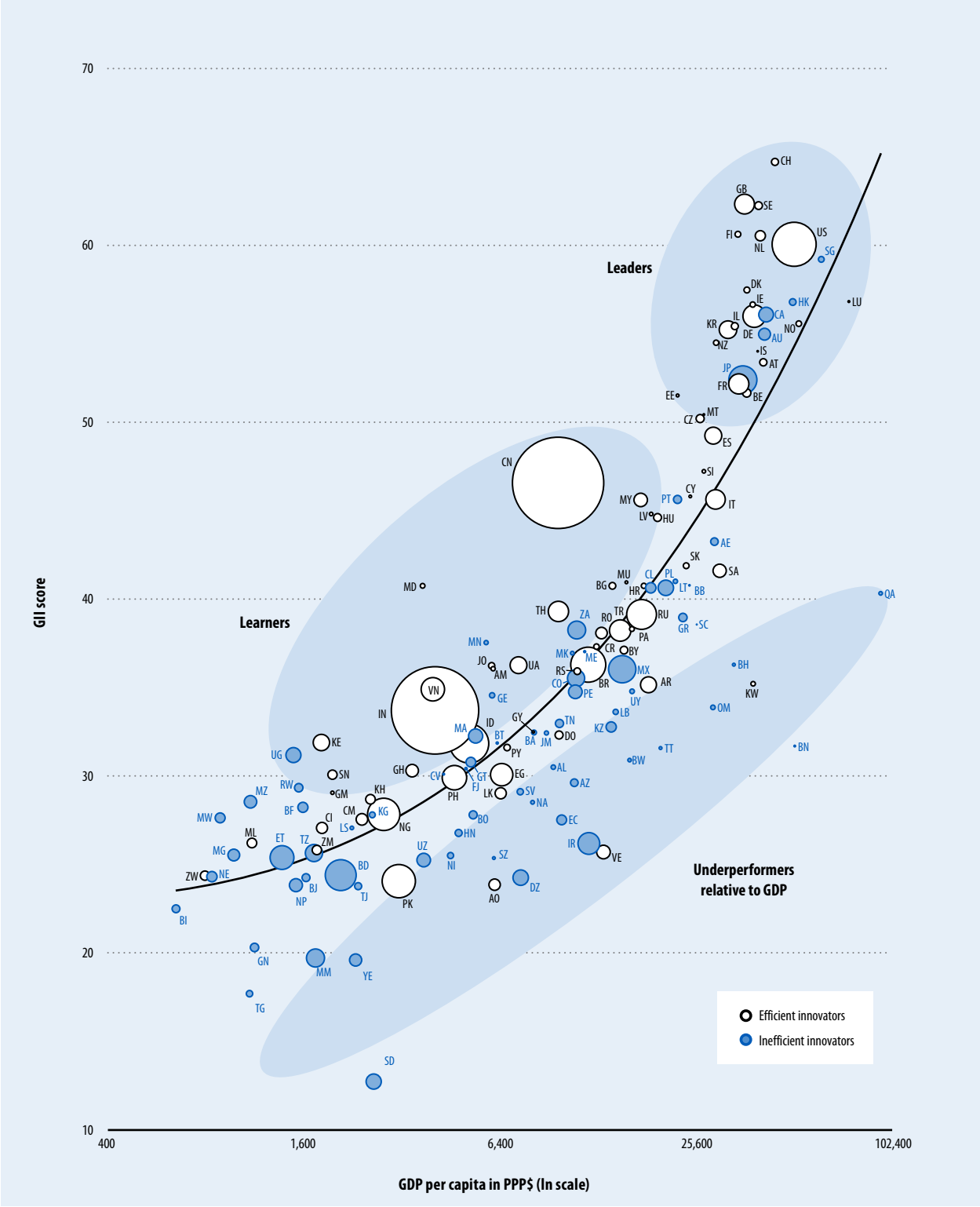
Among lower-middle-income countries, the Republic of Moldova, Indonesia, Viet Nam, Nigeria, and Côte d'Ivoire are among the global top 10. The Republic of Moldova, Viet Nam, and Ukraine are in the global top 50 in outputs, with lower positions in inputs. Within this income group, 63.6% of countries have better rankings in outputs than in inputs. No low-income countries are in the top 10 innovation efficiency rankings.

Leaders and learners: The reward of leveraging strengths and addressing weaknesses

Figure 6 illustrates the above findings by presenting the GII scores plotted against GDP per capita in PPP$ (in natural logs). When countries' stages of development are considered, the GII results can be interpreted in a new light.

The economies that appear close to the trend line show results that are in accordance with what is expected

Figure 6: GII scores and GDP per capita in PPP$ (bubbles sized by population)



Note: 'Efficient innovators' are countries/economies with Innovation Efficiency ratios ≥ 0.74; 'Inefficient innovators' have ratios < 0.74; the trend line is a polynomial of degree three with intercept ($R^2 = 0.7163$).

Figure 6: GII scores and GDP per capita in PPP$ (bubbles sized by population): ISO-2 Country Codes

Code	Country
AE	United Arab Emirates
AL	Albania
AM	Armenia
AO	Angola
AR	Argentina
AT	Austria
AU	Australia
AZ	Azerbaijan
BA	Bosnia and Herzegovina
BB	Barbados
BD	Bangladesh
BE	Belgium
BF	Burkina Faso
BG	Bulgaria
BH	Bahrain
BI	Burundi
BJ	Benin
BN	Brunei Darussalam
BO	Bolivia, Plurinational St.
BR	Brazil
BT	Bhutan
BW	Botswana
BY	Belarus
CA	Canada
CH	Switzerland
CI	Côte d'Ivoire
CL	Chile
CM	Cameroon
CN	China
CO	Colombia
CR	Costa Rica
CV	Cabo Verde
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
DO	Dominican Republic
DZ	Algeria
EC	Ecuador
EE	Estonia
EG	Egypt
ES	Spain
ET	Ethiopia
FI	Finland
FJ	Fiji
FR	France
GB	United Kingdom
GE	Georgia
GH	Ghana
GM	Gambia
GN	Guinea
GR	Greece
GT	Guatemala
GY	Guyana
HK	Hong Kong (China)
HN	Honduras
HR	Croatia
HU	Hungary
ID	Indonesia
IE	Ireland
IL	Israel
IN	India
IR	Iran, Islamic Rep.
IS	Iceland
IT	Italy
JM	Jamaica
JO	Jordan
JP	Japan
KE	Kenya
KG	Kyrgyzstan
KH	Cambodia
KR	Korea, Rep.
KW	Kuwait
KZ	Kazakhstan
LB	Lebanon
LK	Sri Lanka
LS	Lesotho
LT	Lithuania
LU	Luxembourg
LV	Latvia
MA	Morocco
MD	Moldova, Rep.
ME	Montenegro
MG	Madagascar
MK	TFYR of Macedonia
ML	Mali
MM	Myanmar
MN	Mongolia
MT	Malta
MU	Mauritius
MW	Malawi
MX	Mexico
MY	Malaysia
MZ	Mozambique
NA	Namibia
NE	Niger
NG	Nigeria
NI	Nicaragua
NL	Netherlands
NO	Norway
NP	Nepal
NZ	New Zealand
OM	Oman
PA	Panama
PE	Peru
PH	Philippines
PK	Pakistan
PL	Poland
PT	Portugal
PY	Paraguay
QA	Qatar
RO	Romania
RS	Serbia
RU	Russian Federation
RW	Rwanda
SA	Saudi Arabia
SC	Seychelles
SD	Sudan
SE	Sweden
SG	Singapore
SI	Slovenia
SK	Slovakia
SN	Senegal
SV	El Salvador
SZ	Swaziland
TG	Togo
TH	Thailand
TJ	Tajikistan
TN	Tunisia
TR	Turkey
TT	Trinidad and Tobago
TZ	Tanzania, United Rep.
UA	Ukraine
UG	Uganda
US	United States of America
UY	Uruguay
UZ	Uzbekistan
VE	Venezuela, Bolivarian Rep.
VN	Viet Nam
YE	Yemen
ZA	South Africa
ZM	Zambia
ZW	Zimbabwe

from their level of development.[26] A majority of economies are in this category. The farther up and above the trend line a country appears, the better its innovation performance compared with that of its peers at the same stage of development. White bubbles in the figure correspond to the efficient innovators (a majority of them are situated above the trend line), while the blue bubbles represent those countries in the lower half of the Innovation Efficiency Ratio.

- Among the innovation leaders we find the top 25 countries already discussed above and in Box 2: they are the same economies as in 2013, all with GII scores above 50. They have succeeded in creating well-linked innovation ecosystems where investments in human capital thrive in fertile and stable innovation infrastructures to create impressive levels of innovation outputs.[27]
- The group of innovation learners (to the left of the diagram) includes 12 high- and middle-income countries: the Republic of Moldova, China, Mongolia, Viet Nam, India, Jordan, Armenia, Senegal, Malaysia, Thailand, Ukraine, and Georgia (these countries appear 10% or more above the trend line, and are listed here in order of distance). They demonstrate rising levels of innovation results because of improvements made to institutional frameworks, a skilled labour force with expanded tertiary education, better innovation infrastructures, a deeper integration with global credit investment and trade markets, and a sophisticated business community—even if progress on these dimensions is not uniform across their economies. Among low-income countries, Kenya, Uganda, Mozambique, Rwanda, Malawi, Gambia, and Burkina Faso (all from the Sub-Saharan African region) display above-par performances.

The paradox of plenty: High GII rankings and below-par performances

Nine high-income economies, 21 middle-income economies, and 4 low-income economies show relative weaknesses in their innovation ecosystems when compared with countries of similar income levels (scores that are 10% or more below the trend line).

In the Middle East, with the exception of the United Arab Emirates, the resource-rich economies of the Gulf Cooperation Council (GCC) are in this group: Qatar, Oman, Kuwait, Saudi Arabia, and Bahrain. Other high-income economies included here are Brunei Darussalam, Trinidad and Tobago, Greece, and Uruguay.

Although the scaling by GDP of a few indicators (required for comparability across countries) penalizes these relatively wealthy countries, they often exhibit relative shortcomings in important areas in which this effect does not prevail, such as Institutions, Market sophistication, and Business sophistication.

These countries, however, are uniquely positioned to do better in the years to come. Many of them have been diversifying towards innovation-rich sectors already. But several of these countries are resource-rich in oil, gas, or some other natural resource, and their resource-extracting activities tend to crowd out investment in other productive sectors and hinder innovation. This phenomenon—reminiscent of what has been called the 'resource curse' or the 'paradox of plenty'—has been well documented historically and across regions, and is noted by the GII.

The middle-income innovation challenge: The need for knowledge-based growth strategies

Middle-income countries with below-par performances, beginning with the farthest from the trend line, include Sudan, the Bolivarian Republic of Venezuela, the Islamic Republic of Iran, Botswana, Algeria, Ecuador, Angola, Seychelles, Argentina, Azerbaijan, Yemen, Swaziland, Kazakhstan, Lebanon, Namibia, Albania, Nicaragua, El Salvador, Pakistan, Uzbekistan, and Honduras.

In previous editions, the GII posited that countries might develop their innovation capabilities and results following an innovation transition model in four stages, briefly sketched here.[28]

- **Stage 1:** A critical level must be reached in all input areas for innovation activities to take off.
- **Stage 2:** Innovation results increase from improvements in institutions, tertiary education, infrastructure, and market and business sophistication.
- **Stage 3:** Input rankings improve with an innovation hysteresis effect that explains the steepness of the trend line, as illustrated in Figure 6. Innovation learners are found in stages 2 and 3.
- **Stage 4:** For innovation leaders, innovation capabilities and results stabilize at a higher level.

The remarkable stability of the top 25 and the steepness of the trend line between these top 25 and their middle-income followers is a phenomenon reflecting an inability of middle-income countries to compete with both high-skill economies

Box 3: Top-scoring middle-income economies narrowing the gap on innovation quality

Not all innovation inputs and outputs have the same impact on actual innovation. Where possible, introducing metrics on the quality of innovation inputs and outputs is desirable (see Box 3 in the GII 2013). Three indicators of innovation quality are used in the GII to overcome the traditional quantity-focused innovation metrics: (1) an indicator measuring the performance of a country's universities (2.3.3, QS university ranking average score of top 3 universities); one measuring the international scope of domestic inventions (5.2.5, Patent families filed in at least three offices); and, finally, one assessing the extent to which scientific publications emanating from one country are cited (6.1.5, Citable documents H index).

Figure 3.1 was constructed by summing the scores of these three indicators to show the best-performing high- and middle-income economies in these innovation quality variables.

In terms of the innovation quality indicators, the United States of America (USA) holds the top place within the high-income group (as compared to its 6th place in the overall GII rankings). The USA keeps its leadership across these quality indicators for the second year in a row because, in part, of its top score in the citable documents H index and its 2nd place in the QS university ranking average. Japan reaches the 2nd spot in this innovation quality list, a rise from 4th position in 2013 and in striking difference to its lower overall GII ranking of 21st. In achieving this position, Japan is helped by its 1st position in patent families filed in at least three offices, its 6th position in the citable documents H index, and its 7th position in the QS university ranking average score. France (22nd in the overall GII) and the Republic of Korea (16th) are similar to Japan in that they score far better in innovation quality indicators than in the overall GII rankings. France remains in 6th place in the high-income economies group because of an overall good performance in the quality indicators, particularly with the 4th largest number of citable documents. The Republic of Korea retains its 10th position with the 2nd highest number of inventions with international scope, in addition to good university scores and a higher than average number of citable documents. Although Germany does not make it into the overall GII top 10, it ranks 3rd in the quality indicators,

(Continued)

to the right and low-cost economies to the left (see Figure 6).

To address this situation, knowledge-based growth strategies are required to encourage innovation and creativity through a supportive ecosystem. To reach that goal, these middle-income economies must closely monitor the quality of their innovation inputs and outputs as yet another tool to achieve innovation competitiveness. We find that a few middle-income countries perform particularly well on innovation quality (see Box 3). Other adjustments made to the GII framework point in the same direction (Annex 2 includes a table summarizing adjustments made this year).

Regional rankings

This section discusses regional and sub-regional trends, with snapshots for some of the economies leading in the rankings. The two countries in the Northern America region are examined earlier: The USA's rankings are discussed in the section on 'The top 10 in the Global Innovation Index' and Canada's rankings are discussed in the section on 'The top 10 in the Innovation Input Sub-Index.' The other six regions are each considered here. Table 5 presents a heatmap with the scores for the top 10, along with average scores by income and regional groups. To put the discussion of rankings further into perspective, Figure 7 presents, for each region, bars representing the median pillar scores (second quartile) as well as the range of scores determined by the first and second quartile; regions are presented in decreasing order of their average GII rankings (except for the EU, which is placed at the end).

Some observations are noteworthy. For example, the great dispersion seen in South East Asia and Oceania in the first three pillars is greatly reduced in Business sophistication and Creative outputs; even if it is still lagging in overall GII rankings, the group of Sub-Saharan African countries achieve a better median score than the median Central and Southern Asian countries in three pillars; and the median score in South East Asia and Oceania is above that of Europe in Market and Business sophistication. Although Human capital and research, Infrastructure, and Knowledge and technology outputs present the expected shape, Institutions, Market sophistication, Business sophistication, and Creative outputs present the greatest dispersion in median scores compared to the GII. Knowledge and technology outputs is now less dispersed, a result of catching up by Northern Africa and West Asia, Latin America and the Caribbean, Central and Southern Asia, and Sub-Saharan Africa.

Box 3: Top-scoring middle-income economies narrowing the gap on innovation quality *(cont'd.)*

primarily because it has the highest rank for citable scientific publications.

Top 10 middle-income economies

Because of a change in income group status from middle income to high income, Chile and the Russian Federation dropped out of the top 10 middle-income economies in this chart this year. The list of top 10 middle-income economies with the highest scores in quality indicators continues to be led by China, which ranks 29th in the GII and 21st in quality indicators (29th/21st). China's top scores in two of the three innovation quality variables—the QS university average ranking `and the citable documents H index—result in its continued leadership among the middle-income countries in terms of innovation quality indicators.

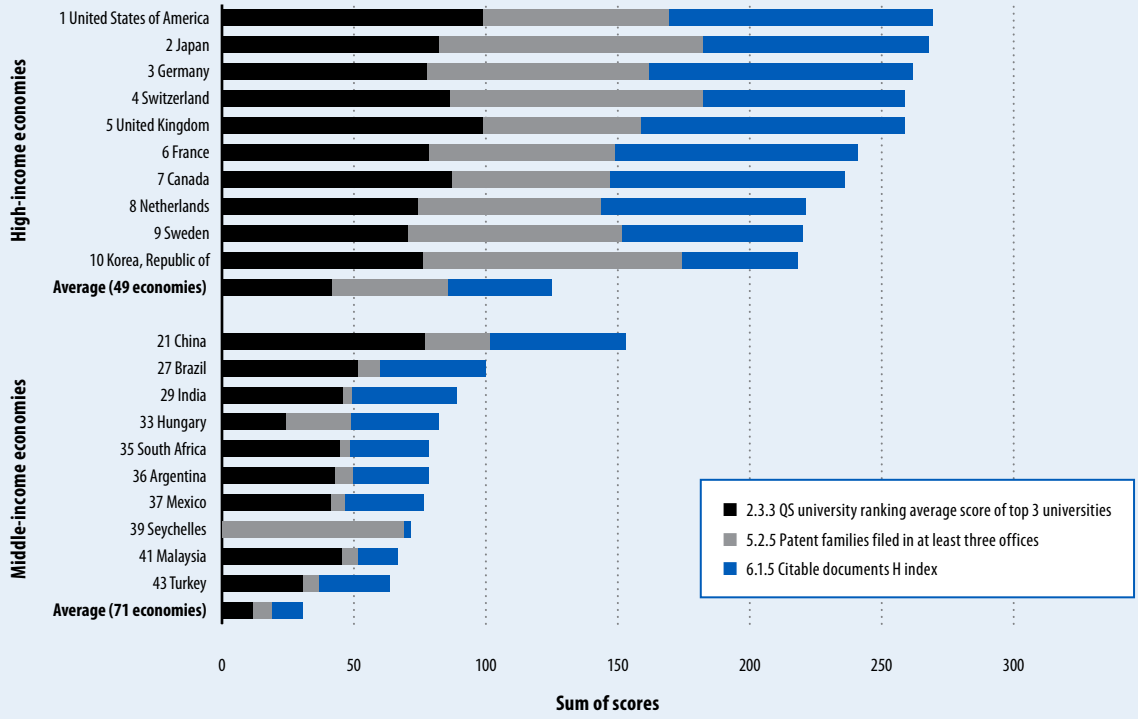
Apart from the Russian Federation, which left the middle-income category, the remaining BRICS economies are in the top 10 on innovation quality. India (76th/29th) is the only BRICS country that moved down in overall GII rank and yet managed to move up one position on quality in the middle-income group.

South Africa (53rd/35th) improved in the quality indicators by one place, primarily because of its jump in the ranking of patent families filed in at least three offices—from 81st place in GII 2013 to 53rd place this year.

Unlike the high-income economies—which display a more balanced quality indicator score portfolio—the majority in the middle-income economy group rely more heavily on the QS university ranking average to boost their overall quality scores, while performing less well in patent families filed in at least three offices. Both China and Brazil highlight this point. The gap between high-income and middle-income average performance is the largest in patents (36.7 points), followed by university scores (30.1 points), then citable documents (28.0 points).

Although neither Chile nor the Russian Federation made it to the list of top 10 in their new high-income category, both still display a much better sum of scores in these three quality indicators than the majority of the top 10 middle-income countries.

Figure 3.1: Metrics for quality of innovation: Top 10 high- and top 10 middle-income economies



Notes: Numbers to the left of the economy name are the innovation quality rank. Economies are classified by income according to the World Bank Income Group Classification (July 2013). Upper- and lower-middle income categories were grouped together as middle-income economies.

Table 5: Heatmap for GII top 10 economies and regional and income group averages (1–100)

Country/Economy	GII	Institutions	Human capital and research	Infrastructure	Market sophistication	Business sophistication	Input	Knowledge and technology outputs	Creative outputs	Output	Efficiency
Switzerland	64.78	87.64	56.66	58.97	74.75	54.20	66.44	60.89	65.33	63.11	0.95
United Kingdom	62.37	88.59	60.29	60.57	81.43	50.18	68.21	56.42	56.62	56.52	0.83
Sweden	62.29	89.75	61.89	63.59	68.19	53.86	67.46	58.83	55.43	57.13	0.85
Finland	60.67	95.28	66.51	59.69	61.36	54.79	67.53	54.24	53.41	53.82	0.80
Netherlands	60.59	93.29	50.45	58.66	63.57	51.31	63.46	53.76	61.70	57.73	0.91
United States of America	60.09	86.21	58.34	57.55	83.78	53.70	67.92	58.10	46.45	52.27	0.77
Singapore	59.24	92.76	64.86	65.56	78.15	66.67	73.60	46.68	43.07	44.88	0.61
Denmark	57.52	93.65	61.48	59.11	67.78	45.60	65.52	46.65	52.39	49.52	0.76
Luxembourg	56.86	82.95	47.17	53.39	49.65	60.76	58.78	45.80	64.09	54.94	0.93
Hong Kong (China)	56.82	91.42	49.47	67.38	79.71	54.85	68.57	33.31	56.84	45.08	0.66
Average	**36.9**	**62.51**	**31.02**	**37.09**	**50.16**	**33.32**	**42.82**	**29.15**	**32.82**	**30.99**	**0.71**
Region											
Northern America	58.11	89.47	57.35	57.98	79.83	50.83	67.09	50.89	47.38	49.13	0.73
Europe	47.23	75.78	44.16	47.14	54.43	39.97	52.30	40.52	43.82	42.17	0.80
South East Asia and Oceania	41.72	65.19	38.73	43.13	57.94	38.49	48.70	33.69	35.78	34.74	0.73
Northern Africa and Western Asia	35.73	61.92	32.06	38.57	48.49	30.43	42.29	26.49	31.86	29.17	0.69
Latin America and the Caribbean	32.85	55.95	24.96	33.44	45.95	32.68	38.59	22.69	31.52	27.11	0.70
Central and Southern Asia	27.48	48.64	22.14	31.12	45.14	21.27	33.66	21.24	21.34	21.29	0.64
Sub-Saharan Africa	27.45	53.14	16.31	24.43	44.75	27.82	33.29	20.55	22.66	21.61	0.65
Income level											
High income	48.83	79.49	46.81	50.37	58.25	42.96	55.58	39.58	44.58	42.08	0.75
Upper-middle income	34.76	58.87	29.58	36.41	47.30	30.85	40.60	26.95	30.87	28.91	0.71
Lower-middle income	29.53	50.98	19.76	28.41	45.01	26.56	34.14	22.41	27.43	24.92	0.73
Low income	25.62	48.86	15.89	22.40	45.04	26.54	31.74	20.27	18.73	19.50	0.62

Worst — Average — Best

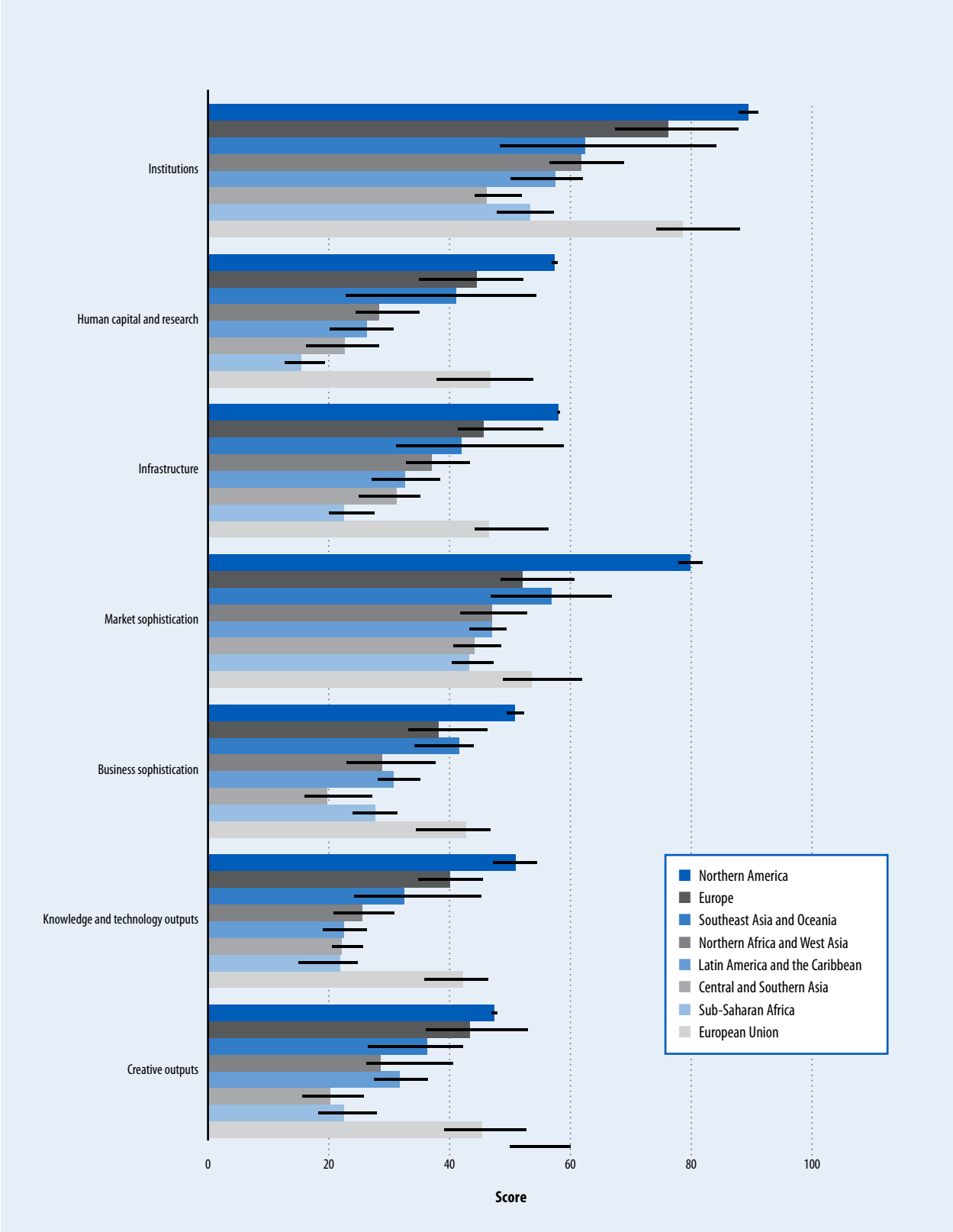
Note: Darker shadings indicate better performances. Countries/economies are classified according to the World Bank Income Group and the United Nations Regional Classifications (July 2012 and 11 February 2013, respectively)

Sub-Saharan Africa (33 countries)

As pointed out in this report's main findings, a large group of the innovation learner economies are from Sub-Saharan Africa. Since the first edition of this report, only two Sub-Saharan African countries have reached positions in the upper half of the GII rankings: Mauritius has been in the top half since 2011 and is 40th in 2014 (up from 54rd in 2013); and South Africa, which has been in the top half of the rankings in all previous editions of the GII, is 53rd in 2014 (up from 58th in 2013). This year, however, a new Sub-Saharan African county has been included in the GII rankings: Seychelles, 51st in its first year in the index, is the third Sub-Saharan African country to be placed in the upper half of the GII rankings. In addition, six countries from this region are ranked among the top 100: Kenya, Uganda, Botswana, Ghana, Cabo Verde, and Senegal.

The remaining 24 countries in this region can be found at the bottom of the rankings (100 or lower); 13 of them have improved since

Figure 7: Median scores by regional group and by pillar



Note: The bars show median scores (second quartiles); the lines show the range of scores between the first and third quartiles.

Box 4: Sub-Saharan Africa: A region of innovation learners

Sub-Saharan Africa is the region that sees the most significant improvement in GII rankings in 2014. Thirty-three countries make up the region in the GII. Of these 33, 17 climb in the rankings this year, three remain in the same position, two new countries are added, and the remaining 11 exhibit a drop in ranking. Three countries—Mauritius (40th), Seychelles (51st), and South Africa (53th)—are in the upper half of the overall GII rankings.

This year, Rwanda (102nd), Gambia (104th), Mozambique (107th), Burkina Faso (109th), and Malawi (113th) join Kenya, Uganda, and Senegal among the Sub-Saharan countries referred to as 'innovation learners' (see Figure 6). This is an increase of five countries—an achievement when considering that the average GDP per capita of each of these five nations is below PPP$2,000. The region now makes up nearly 50% of the innovation learner economies in this year's rankings. With respect to innovation efficiency, Senegal, Kenya, and Gambia stand out among economies that are innovation learners. With efficiency ratios (ERs) of 0.85, 0.84, and 0.76, respectively, these perform above much larger economies such as India (ER 0.82), Thailand (ER 0.76), and Georgia (ER 0.68).

Figure 4.1 compares the scores of four of Sub-Saharan Africa countries (Mauritius, South Africa, Kenya, and Nigeria) with the average scores for all Sub-Sahara African countries, the average scores for upper-middle-income countries, and the average scores for high-income countries for all pillars and indices. The low-income country grouping includes half of the countries in Sub-Sahara Africa; on average, their scores are very close, which is why that income grouping is not shown separately in the graph.

Mauritius, one of the innovation learners, climbs 13 places, from 53rd to 40th rank. It performs above the upper-middle income group average score in GII ranking (40th), the Input Sub-Index (42nd), the Output Sub-index (43rd), Infrastructure (67th), Market sophistication (20th), and Creative outputs (31st). Its greatest strength is in Institutions (27th), where it performs above the average score of the high-income group. It remains below the average of the upper-middle income group in Human capital and research (80th), yet is closing the gap in both Business sophistication (80th) and Knowledge and technology outputs (72nd).

South Africa (improves by five places, moving up from 58th to 53rd) and also places above the upper-middle-income group average score in the three indices: GII (53rd), Input (47th), and Output (63rd). Its relatively strong pillars are Institutions (44th), Knowledge and technology outputs (62nd), Business sophistication (68th), and Creative outputs (70th). However, its greatest strength is in the Market sophistication pillar (18th), with a score that is above the average performance of high-income economies. Its performance is below par in Infrastructure (84th) and Human capital and research (70th).

Kenya, another one of Sub-Saharan Africa's innovation learners, improves by 14 places, rising from 99th to 85th in the rankings. It has scores in all three indices that are above those of the low-income group: GII (85th), Input (103rd), and Output (73rd). Its greatest strengths are in Institutions (97th), where it performs even above the level of

(Continued)

2013. Kenya, Uganda, Mozambique, Rwanda, Senegal, Malawi, Gambia, and Burkina Faso are among innovation learners this year, while middle-income countries Namibia, Swaziland, Angola, and Sudan have below-par performances.

Central and Southern Asia (11 economies)

In all prior editions of the GII, only India (76th), Kazakhstan (79th), and Sri Lanka (105th) have consistently achieved positions among the first 100; this year, Sri Lanka drops out of the top 100 and is displaced by Bhutan (86th), a new addition to the GII. The remaining seven countries of the region can be found at the bottom of the rankings: Kyrgyzstan (112th), the Islamic Republic of Iran (120th), Uzbekistan (128th), Bangladesh (129th), Pakistan (134th), Nepal (136th), and Tajikistan (137th). In 2014, none of the Central and Southern Asian countries are innovation leaders, with only India as an innovation learner, and Tajikistan, Uzbekistan, Pakistan, Kazakhstan, and Islamic Republic of Iran with below-par performances relative to their GDP (Figure 6).

India still comes 1st in the region, although it is now ranked 7th among lower-middle-income countries (3rd in 2013) and has dropped 10 positions in the overall GII since 2013. With more than 1.2 billion inhabitants and a robust economy (India showed a GDP per capita of PPP$4,077.1 in 2013, up from PPP$3,851.3 of the previous year), this low-income country is again among the innovation learners. As noted earlier, India lost traction in the Output Sub-Index this year (65th, down from 42nd in 2013, but still 1st in the region) over the Input Sub-Index (93rd, down from 87th in 2013), which led to a further fall in its efficiency ratio (to 31st this year, down from 11th in 2013). Weak

Box 4: Sub-Saharan Africa: A region of innovation learners *(cont'd.)*

lower-middle-income countries; and Market sophistication (40th), in which it scores well above the upper-middle-income average and quite close to that of the high-income group. With only the two exceptions of Human capital and research (117th) and Infrastructure (127th), Kenya performs above all the lower-middle income average scores—one income group above its own.

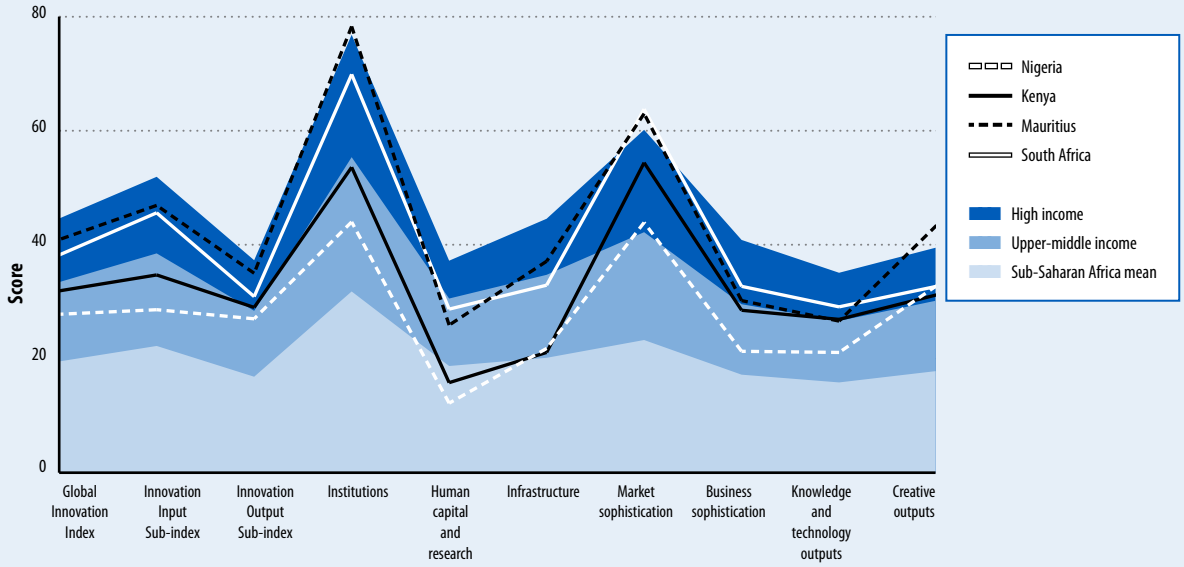
Nigeria also improves in the GII rankings this year, from 120th to 110th place. It places above both its region's average and its income group's average (lower-middle) in both its efficiency score (ranked 8th) and performance in Creative outputs (69th).

This group of Sub-Saharan African economies in the top half of the GII rankings, along with those described as innovative learners (a few exceptions aside),[1] performs close to or better than the regional average. The relative performance advantage of some of these nations is significant, reaching scores over 35% above the regional average in some areas. Examples include Mauritius's high score in Institutions, Ghana's score in Human capital and research, Seychelles' performance in Infrastructure, South Africa's high score in Market sophistication, Rwanda's levels of Business sophistication, Gambia's performance in Knowledge and technology outputs, and Seychelles' score in Creative outputs.

Note

1 The exceptions are Malawi, Senegal, Burkina Faso, and Gambia in the Input Sub-Index; Rwanda in the Output Sub-Index; Mozambique and Gambia in Institutions; Kenya, Gambia, Burkina Faso, Malawi, and Senegal in Human capital and research; Malawi, Burkina Faso, Gambia, Kenya, and Rwanda in Infrastructure; Seychelles, Uganda, Burkina Faso, Senegal, and Malawi in Market sophistication; Senegal in Business sophistication; and Malawi, Gambia, Rwanda, and Mozambique in Creative outputs.

Figure 4.1: Sub-Saharan Africa: Best-ranked countries compared



positions in Institutions (106th) and Human capital and research (96th), as well as Business sophistication (93rd), remain, with rankings in Knowledge and technology outputs (50th) and Creative outputs (82nd) worsening (from 37th and 65th in 2013, respectively). India's strengths are in the sub-pillars Knowledge diffusion (24th), R&D (31st), and General infrastructure (33rd).

Latin America and the Caribbean (22 economies)

Latin America and the Caribbean includes only upper- and middle-income economies, except for high-income Barbados, Trinidad and Tobago, Chile, and Uruguay (Chile and Uruguay both reclassified from upper-middle income to high income in 2013).

This year, Barbados (41st) reaches 1st place in the regional rankings, followed by Chile (46th) and upper-middle-income countries Panama (52nd), Costa Rica (57th), Brazil (61st), Mexico (66th), Colombia (68th), and Argentina (70th), all in the first half of the rankings.

The remaining countries in the top 100 are Uruguay (72nd), Peru (73rd), and Guyana (80th), followed by the two Caribbean countries Jamaica (82nd) and Dominican Republic (83rd), as well as Paraguay (89th), Trinidad and Tobago (90th), and Guatemala (93rd). The remaining countries are ranked below 100: El Salvador (103rd), the Plurinational State of Bolivia (111th), Ecuador (115th), Honduras (118th), the Bolivarian Republic of Venezuela (122nd), and Nicaragua (125th).

No countries in the region are among innovation learners this year; eight display below-par performances relative to their GDP per capita (Figure 6): Honduras, El Salvador, Uruguay, Nicaragua, Argentina, Ecuador, Trinidad and Tobago, and the Bolivarian Republic of Venezuela.

Barbados is ranked 41st, up six positions from 47th place in 2013. With a population of 0.3 million and a GDP per capita of PPP$25,180.9, Barbados ranks 38th in the Input Sub-Index (up from 42nd in 2013). It comes in at 53rd in the Output Sub-Index (down from 49th), primarily because of a lack of data for pillar 7 Creative outputs. The majority of its strengths are on the input side, particularly in the Business sophistication pillar, where it ranks 5th (from 15th in 2013). Barbados ranks 3rd in patent families filed in three or more offices, 7th in joint venture-strategic alliance deals, and 11th in the number of GMAT test takers. Although its position in Human capital and research continues to deteriorate (from 38th to 58th), it improved in Infrastructure (131st to 103rd).

Brazil is ranked 61st (up from 64th in 2013), 16th among upper-middle-income countries (up from 21st), and 5th in the region (up from 8th). Brazil is one of the four countries in the region that improves in the rankings this year. With a population of 198.7 million and a GDP per capita of PPP$12,220.9, Brazil ranks 63rd in the Input Sub-Index, 64th in the Output Sub-Index, and 71st in the efficiency ratio; it also shows relative strengths in Business sophistication (37th), Infrastructure (60th), Human capital and research (62nd), Creative outputs (64th), and Knowledge and technology outputs (65th). Brazil's strongest performance is in the Knowledge absorption sub-pillar, ranking in the top 30 for three out of the four variables. Brazil's weaknesses remain in Institutions (95th), particularly in the Business environment sub-pillar (137th).

Northern Africa and Western Asia (19 economies)

Israel (15th) and Cyprus (30th) achieve the top two positions in the region for the third year running. Three of the six countries of the Gulf Cooperation Council (GCC) come next: the United Arab Emirates (36th), Saudi Arabia (38th), and Qatar (47th). With per capita incomes ranging from PPP$29,813.16 (Oman, 75th) to PPP$98,813.66 (Qatar), most GCC economies achieve rankings below those of their peers in GDP per capita (with the exception of the UAE, which performs on par with those of its peers), a feature common to most resource-rich economies.

In past editions of the GII, GCC countries appeared all together in a block right after Israel and Cyprus; the regional rankings are now more dispersed: Bahrain (62nd) comes behind Turkey (54th), Armenia (65th) and Kuwait (69th) come behind Jordan (64th), and Oman (75th) comes behind Georgia (74th).

At the bottom of the regional rankings we find Lebanon (77th), Tunisia (78th), Morocco (84th), Egypt (99th), Azerbaijan (101st), Algeria (133rd), and Yemen (141st). Although Israel is the only innovation leader in the region (its profile is discussed in the section on the Output Sub-Index top 10), Armenia, Jordan, and Georgia remain in the group of innovation learners, while Saudi Arabia, Lebanon, Azerbaijan, Yemen, Algeria, Bahrain, Oman, Kuwait, and Qatar show below-par performances compared to their income levels (Figure 6).

South East Asia and Oceania (17 economies)

This region includes 17 economies that are very dissimilar in levels of development. The first five rank among the top 25 in the three indices (GII, input, and output): Singapore (7th), which displaces Hong Kong (China) at the top of the regional rankings this year; Hong Kong (China), which is now 10th globally and 2nd regionally; the Republic of Korea (16th), Australia (17th), and New Zealand (18th). These five economies, as well as Japan (21st), are innovation leaders, all placing within the top 25. High-income Brunei Darussalam ranks a disappointing 88th place (13th out of 17 in the region).

Among upper-middle-income economies, China (29th) and Malaysia (33rd) rank high, with Thailand climbing from 57th in 2013 to 48th in 2014. Lower-middle-income Mongolia (56th), Viet Nam (71st), Indonesia (87th), and upper-middle income Fiji (95th) and lower-middle-income Philippines (100th) are among the top 100. Low-income Cambodia is ranked 106th and Myanmar—another new addition to the 2014 GII—is ranked 140th.

China, Mongolia, Viet Nam, Malaysia, and Thailand are among the innovation learners this year, whereas Myanmar and Brunei Darussalam show below-par performance (Figure 6).

For the third year in a row (even more markedly in 2014), **China** shows several remarkable strengths: Overall, it is ranked 29th, up from 35th in 2012, 1st among upper-middle-income countries and 7th in the region. Ranking a strong 2nd in efficiency, China continues to improve in the Input Sub-Index (from 46th to 45th) and Output Sub-Index (from 25th to 16th). China's biggest improvement is in the Creative outputs pillar, partly due to retaining 1st position in the Creative goods exports variable (measured as the total value of creative goods exports net of re-imports over total trade), and an improvement from 12th to 8th position in the number of domestic resident trademark applications. Moreover, China remains 2nd overall in the Knowledge and technology outputs pillar, with strengths in all sub-pillars.

Europe (39 countries)

As last year, a total of 16 European countries (13 of them from the EU) are among the top 25: Switzerland (1st), the UK (2nd), Sweden (3rd), Finland (4th), the Netherlands (5th), Denmark (8th), Luxembourg (9th), Ireland (11th), Germany (13th), Norway (14th), Iceland (19th), Austria (20th), France (22nd), Belgium (23rd), Estonia (24th), and Malta (25th). All of them achieve positions in the top 25 in both the Output and Input Sub-Indices with the exception of France (26th in outputs) and Malta (33rd in inputs).

Fifteen countries follow among the top 50, including all remaining EU countries, with the exception of Romania (55th): the Czech Republic (26th), Spain (27th), Slovenia (28th), Italy (31st), Portugal (32nd), Latvia (34th), Hungary (35th), Slovakia (37th), Lithuania (39th), Croatia (42nd), the Republic of Moldova (43rd), Bulgaria (44th), Poland (45th), the Russian Federation (49th), and Greece (50th).

Romania (55th), Belarus (58th), Montenegro (59th), the Former Yugoslav Republic of Macedonia (60th), Ukraine (63rd), Serbia (67th), Bosnia and Herzegovina (81st), and Albania (94th) make up the rest of the European economies, all of which are ranked in the top 100. In addition, the Republic of Moldova and Ukraine are positioned among the innovation learners, while Greece and Albania show below-par performances (Figure 6).

Ranked 49th, up 11 positions from its 62nd place in 2013, the **Russian Federation** (also discussed above in the BRICS section) is ranked 42nd among high-income countries and 30th in Europe. This year, the country makes significant progress in the Output Sub-Index (from 72nd in 2013 to 45th) closing gaps in Knowledge and technology outputs (from 48th in 2013 to 34th) and Creative outputs (from 101st in 2013 to 72nd). Its relatively strong position in Human capital and research (30th) was maintained, although it fell from 74th to 111th in Market sophistication this year. The Russian Federation's main strengths are in Education, with robust scores in pupil-teacher ratio in secondary levels, tertiary enrolment, and graduates in science and engineering, in addition to Knowledge creation (number of domestic resident applications, domestic resident utility model applications, and citable documents H index).

Conclusion

The Global Innovation Index (GII) has grown over the years into a unique study of innovation capabilities and results around the world. The GII 2014 covers 143 economies and uses 81 indicators across a range of themes to analyse innovation in each economy. Thus the GII 2014 presents us with a rich dataset to analyse for global innovation trends.

The GII model is revised every year in a transparent exercise to improve the way innovation is measured. Such evolution will continue over the years as new metrics that provide better and more accurate measures of innovation, capabilities, and impact become available. Therefore the scores and rankings from one year to the next are not directly comparable (see Annex 2 for further details). The GII is focused both on improving the 'journey' to better measuring and understanding innovation and on identifying targeted policies and good practices.

Some of the results from GII 2014 mirror those from last year. We note that high-income economies continue to dominate the top 10 rankings. Innovation leaders such as Switzerland consistently score high on most dimensions of the GII model. Although not all high-income economies make it to the top of the GII rankings, the results show that innovation divides continue

to exist around the world—across income groups, across regions, and also within income groups and regions. The persistence of these innovation divides can be traced to the challenges of making progress in a holistic manner along all dimensions of the GII model and to the legacy benefits of investments (in education, infrastructure, institutions, etc.) made by leading economies in the sophistication of their business and market conditions, among other aspects.

Some interesting new regional trends are revealed in the GII 2014. The BRICS economies mostly progress in the rankings but show some divergence, with China improving at a significantly faster pace than its BRICS counterparts and India slipping back. If China continues to improve at this pace, it would not be a surprise to see that country move from its current 29th position to within the top 25 within a few years. The divergence of India from the rest of the BRICS economies is the result of the challenges it faces in integrating its efforts along the different dimensions of innovation to sustain a high level of innovation success.

A significant development is evident this year in selected parts of Sub-Saharan Africa. Five economies from this region—Burkina Faso, Gambia, Malawi, Mozambique, and Rwanda—entered the group of innovation learners (economies that perform greater than or equal to 10% of their expected level of development with respect to GDP—see Box 4 for more details). Sub-Saharan Africa now comprises nearly 50% of the innovation learner economies. These economies demonstrate rising levels of innovation, particularly in the areas of Human capital and research and Market sophistication.

The GII shows that it is crucial for lower-income economies to continue exploring ways to foster the environments in which new sources of innovation-based growth will flourish. These nations also face the challenges of optimizing the mix of institutional, infrastructural, and knowledge-based systems that will allow them to continue expanding their human capital, knowledge production capacity, and overall technology success.

The theme for this year's GII is the 'Human Factor in Innovation'. The importance of both individual and collective efforts of creators and scientists in the innovation process has been well documented in the literature. The results of the GII provide additional evidence of this significance. Further analysis of the GII results shows that the human factor is more critical for innovation success in higher-income economies than in lower-income economies. It is likely that better educated citizens are more successful in higher-income economies in leveraging the favourable contexts (in business and markets) for driving innovation.

The GII also recognizes that some important qualitative aspects of innovation policies and processes are not captured adequately within the GII model. Hence the GII report also includes special analytical chapters and case studies focused on country experiences. The following chapters provide additional details on successful strategies for leveraging the human factor in innovation.

Notes and References for Box 1

Notes

1 UNESCO-UIS Science & Technology Data Center and OECD Main Science and Technology Indicators (MSTI), update from 2 May 2014. Data used: GERD, performed by Business enterprise (in '000 PPP$, constant prices, 2005). Economies included: Australia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hong Kong (China), Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Mongolia, the Netherlands, Norway, Panama, Poland, Portugal, the Republic of Korea, the Republic of Moldova, Romania, the Russian Federation, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Turkey, Ukraine, the United Kingdom, and the United States of America.

2 UNESCO-UIS Science & Technology Data Center, update from 2 May 2014. Data used: GERD, performed by Business enterprise in '000 PPP$ (constant prices, 2005). Economies included: Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Mongolia, the Netherlands, Norway, Poland, Portugal, the Republic of Moldova, Romania, the Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Ukraine, the United Kingdom, and the United States of America.

3 OECD MSTI, updated 4 February 2014. Data used: Business enterprise expenditure on R&D (BERD) at constant 2005 PPP$. OECD countries are represented by the Main Science and Technology Indicators (MSTI) indicator 'OECD-total'.

4 Booz & Company, 2013. This growth is based on a changing sample of firms of the top 1,000 R&D spenders of a given year. Hence the numbers are upward biased compared with a stable sample of top R&D firms. That said, the composition of the top 1,000 spender list is quite stable over time.

5 UNESCO-UIS Science & Technology Data Center, updated 5 May 2014. Data used: GERD in '000 PPP$ (in constant prices, 2005). Countries included: Armenia, Austria, Azerbaijan, Belarus, Belgium, Brazil, Bulgaria, Burundi, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Germany, Guatemala, Hong Kong (China), Hungary, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Kuwait, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Macao (China), Madagascar, Malta, Mexico, Mongolia, the Netherlands, Norway, Panama, Poland, Portugal, the Republic of Korea, the Republic of Moldova, Romania, the Russian Federation, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Tajikistan, Trinidad and Tobago, Turkey, Ukraine, the United Kingdom, the United States of America, and Uruguay. For 2011, data were available for all the above-mentioned countries except for Brazil, Chile, El Salvador, Guatemala, Hong Kong (China), Japan, Panama, the Republic of Korea, Singapore, Trinidad and Tobago, and Uruguay.

6 OECD MSTI, updated 4 February 2014. Data used: Gross domestic expenditure on R&D (GERD) at constant 2005 PPP$. OECD countries are represented by the Main Science and Technology Indicators (MSTI) indicator 'OECD-total'.

7 OECD MSTI, updated 4 February 2014.

8 Batelle and *R&D Magazine,* 2014.

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Notes and References for Chapter 1

Notes

1 Becker, 1964.

2 Nelson and Phelps, 1966.

3 Lucas, 1988.

4 Aghion and Howitt, 1999.

5 Eurostat and OECD 2005, p. 141.

6 Trantow et al., 2011.

7 Lanvin and Evans, 2013, p. 7.

8 Pritchett, 2006.

9 Luthria and Dale, 2013.

10 Fink et al., 2013.

11 Meyer and Wattiaux, 2006.

12 Meyer and Wattiaux, 2006.

13 Kuznetsov and Sabel, 2006.

14 Beechler and Woodward, 2009.

15 Tung and Lazarova, 2007.

16 Leblang, 2011.

17 Carr et al., 2005.

18 Dutta et al., 2013.

19 Dutta et al., 2013.

20 See http://mineduc.gov.rw/rief/.

21 See http://yourstory.com/2014/04/innovation-africa-digital-summit-2014.

22 Dutta et al., 2013, p. 23.

23 The three indicators are: university rankings, patent families and cited documents.

24 Countries are grouped according to the World Bank classification. Economies are divided according to 2011 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups are: low-income, US$1,025 or less; lower-middle-income, US$1,026 to US$4,035; upper-middle-income, US$4,036 to US$12,475; and high-income, US$12,476 or more.

25 Since 2012, the regional groups have been based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; and SSF = Sub-Saharan Africa.

26 Polynomial of degree 3 with intercept.

27 Although the Czech Republic achieved a score at the level of all leader economies (above 50), it is not considered to be a leader economy because it is not among the top 25.

28 See the GII 2012 for a complete overview of the four stages.

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The Global Innovation Index (GII) Conceptual Framework

The rationale for the Global Innovation Index

The Global Innovation Index (GII) project was launched by INSEAD in 2007 with the simple goal of determining how to find metrics and approaches that better capture the richness of innovation in society and go beyond such traditional measures of innovation as the number of research articles and the level of research and development (R&D) expenditures.[1]

There were several motivations for setting this goal. First, innovation is important for driving economic progress and competitiveness—for both developed and developing economies. Many governments are putting innovation at the centre of their growth strategies. Second, the definition of innovation has broadened—it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social innovations and business model innovations as well as technical ones. Last but not least, recognizing and celebrating innovation in emerging markets is seen as critical for inspiring people—especially the next generation of entrepreneurs and innovators.

The GII helps to create an environment in which innovation factors are under continual evaluation, and it provides a key tool and a rich database of detailed metrics for refining innovation policies.

The GII is not meant to be the ultimate and definitive ranking of economies with respect to innovation. Measuring innovation outputs and impacts remains difficult; hence great emphasis is placed on measuring the climate and infrastructure for innovation and on assessing related outcomes.

Although the end result takes the shape of several rankings, the GII is more concerned with improving the 'journey' to better measure and understand innovation and with identifying targeted policies, good practices, and other levers that foster innovation. The rich metrics can be used—on the level of the index, the sub-indices, or the actual raw data of individual variables—to monitor performance over time and to benchmark developments against countries in the same region or of the same income class.

Drawing on the expertise of the GII's Knowledge Partners and its prominent Advisory Board, the GII model is continually updated to reflect the improved availability of statistics and our understanding of innovation. This year, however, the model has reached a level of maturity that requires only minor updates (refer to Annex 2).

An inclusive perspective on innovation

The GII adopts a broad notion of innovation, originally developed in the *Oslo Manual* developed by the European Communities and the Organisation for Economic Co-operation and Development (OECD):[2]

> An innovation is the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations.

This definition reflects the evolution of the way innovation has been perceived and understood over the last two decades.[3]

Previously economists and policy makers focused on R&D-based technological product innovation, largely produced in-house and mostly in manufacturing industries. This type of innovation was performed by a highly educated labour force in R&D-intensive companies. The process leading to such innovation was conceptualized as closed, internal, and localized. Technological breakthroughs were necessarily 'radical' and took place at the 'global knowledge frontier'. This characterization implied the existence of leading and lagging countries, with low- or middle-income economies only catching up.

Today, innovation capability is seen more as the ability to exploit new technological combinations; it embraces the notion of incremental innovation and 'innovation without research'. Non-R&D innovative expenditure is an important component of reaping the rewards of technological innovation. Interest in understanding how innovation takes

Box 1: Building a statistical and analytical framework of the highly skilled

Human capital is a central element of the innovation process, and the highly skilled play an especially important role in a knowledge-based economy. Significant efforts are now being devoted to improving both statistical and analytical frameworks and the availability and quality of the corresponding data to better understand the contribution of the human factor and its role in innovation. In particular, variables of interest for building indicators along the four different dimensions of measurement concerning the highly skilled, as elaborated as part of work being done by the Organisation for Economic Co-operation and Development (OECD), are set out in Figure 1.1. These dimensions are education, occupation, skills, and mobility.

A first set of indicators for measuring human capital focuses both on the role that education systems play in building competencies for science, technology, and innovation and on how this human capital is actually deployed in the labour market. These indicators position countries by looking at the performance of students from a young age and throughout the education system, with a special focus on those with scientific skills; those with science and engineering degrees; and doctoral holders, who are specifically trained for research.

Additional indicators look beyond the education systems to labour market outcomes (the occupation dimension), the dimension of skills and related mismatches, and finally the mobility dimension.

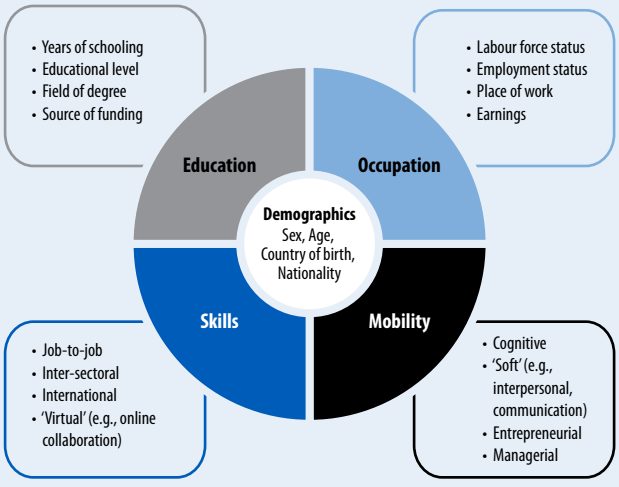
Different data sources may be used to look at the dimensions illustrated in Figure 1.1. Some may be dedicated to a specific dimension, such as education statistics; others are more general and cover several dimensions, such as population censuses. Efforts to measure highly skilled labour at the international level have long relied on standard statistical sources such as censuses or labour force surveys. These are particularly useful with regard to their international harmonization and comparability, but present a number of limitations in terms of their frequency (population censuses) and sample size (labour force surveys). It has also become increasingly apparent that aggregate numbers derived from such data mask very heterogeneous situations across degree levels, fields of education, occupations, industries, countries, and so on, calling for the use of complementary information from other data sources. Recent work by the OECD suggests that a statistical data framework and infrastructure characterized by the following statistical activities would meet the requirements for developing a comprehensive evidence base of the highly skilled population across the wide range of measurement dimensions illustrated in Figure 1.1:

1. analysis at different levels of aggregation: macro (basic aggregates), meso (e.g., industries), and micro (individual data);
2. consistent coverage of relevant populations of interest (e.g., researchers, doctorate holders, publishing scientists, etc.); and
3. access to and analysis of data at the micro level (e.g., enabling the linking of data collected from different sources and econometric analysis at the level of decision-making units).

The following links give examples of OECD statistical data work and analyses that use such a framework in different ways:

- Database on education statistics: http://www.oecd.org/education/database.htm.
- Statistics and indicators on the Careers of Doctorate Holders: www.oecd.org/sti/cdh.
- Evidence on the mobility of scientists, based on bibliometric affiliation data: http://www.oecd.org/sti/researchers-on-the-move-the-impact-of-brain-circulation.pdf.
- Database on immigrants in OECD and non-OECD countries: http://www.oecd.org/els/mig/dioc.htm.
- Programme for the International Assessment of Adult Competencies (PIAAC): http://www.oecd.org/site/piaac/.

Figure 1.1: Measurement dimensions of interest for a statistical and analytical framework of the highly skilled



Source: OECD Secretariat.
Note: The variables listed in the figure are not exhaustive, but rather are a minimal set of variables for which data are considered most informative.

place in low- and middle-income countries is increasing, along with an awareness that incremental forms of innovation can impact development. Furthermore, the process of innovation itself has changed significantly. Investment in innovation-related activity has consistently intensified at the firm, country, and global levels, adding both new innovation actors from outside high-income economies and nonprofit actors. The structure of knowledge production activity is more complex and geographically dispersed than ever.

A key challenge is to find metrics that capture innovation as it actually happens in the world today.[4] Direct official measures that quantify innovation outputs remain extremely scarce.[5] For example, there are no official statistics on the amount of innovative activity—defined as the number of new products, processes, or other innovations—for any given innovation actor, let alone for any given country (see Box 1, Annex 1 of Chapter 1 in the GII 2013). Most measures also struggle to appropriately capture the innovation outputs of a wider spectrum of innovation actors, such as the services sector or public entities.

The GII aims to move beyond the mere measurement of such simple innovation metrics. To do so will require the integration of new variables, with a trade-off between the quality of the variable on the one hand and achieving good country coverage on the other hand.

The timeliest possible indicators are used for the GII: 28.3% of data obtained are from 2013, 34.6% are from 2012, 11.6% are from 2011, 5.0% from 2010, and the small remainder (5.3%) from earlier years.[6]

Further, the *Oslo Manual* states that the human factor is important for enabling innovation at the firm level because 'much essential knowledge, particularly technological knowledge, is unwritten.'[7]

The theme of this year's GII, the 'Human Factor in Innovation', explores the role of the individuals and teams behind the innovation process. Statistically capturing this human contribution to innovation is a daunting challenge.

The organizations—such as the OECD and the National Science Foundation (NSF)—specializing in developing new innovation metrics, for instance, have started to address this lack of data by attempting to better understand precisely what is needed to measure the impact of talented human capital.

The OECD Innovation Strategy addresses four key areas when assessing the role of the highly skilled: education, occupation, skills, and mobility (see Box 1).

The NSF's *Science and Engineering Indicators 2014* report points out that measuring R&D human resources is not the only way to assess the human factor in innovation (Box 2). Other metrics—including employment in knowledge and technology-intensive industries and business sectors other than those specific to R&D—also need to be assessed.

The GII conceptual framework

The GII is an evolving project that builds on its previous editions while incorporating newly available data and that is inspired by the latest research on the measurement of innovation. This year the GII model includes 143 countries/economies that represent 92.9% of the world's population and 98.3% of the world's GDP (in current US dollars). The GII relies on two sub-indices—the Innovation Input Sub-Index and the Innovation Output Sub-Index—each built around pillars. Four measures are calculated (see Figure 1):

1. **Innovation Input Sub-Index:** Five input pillars capture elements of the national economy that enable innovative activities.
2. **Innovation Output Sub-Index:** Innovation outputs are the results of innovative activities within the economy. Although the Output Sub-Index includes only two pillars, it has the same weight in calculating the overall GII scores as the Input Sub-Index.
3. **The overall GII score** is the simple average of the Input and Output Sub-Indices.
4. **The Innovation Efficiency Ratio** is the ratio of the Output Sub-Index to the Input Sub-Index. It shows how much innovation output a given country is getting for its inputs.

Each pillar is divided into three sub-pillars, each of which is composed of individual indicators, for a total of 81 indicators. The GII pays special attention to presenting a scoreboard for each economy that includes strengths and weaknesses (Appendix I Country/Economy Profiles), making accessible the data series (Appendix II Data Tables), and providing data sources and definitions (Appendix III) and detailed technical notes (Appendix IV). Adjustments to the GII framework, including a detailed analysis of the factors influencing year-on-year changes, are detailed in Annex 2. In addition, since 2011 the GII has been submitted to an independent statistical audit performed by the Joint Research Centre of the European Union (results are detailed in Annex 3).

A table is included here for each pillar. That table provides a list of the pillar's indicators, specifying their type (composite indicators are

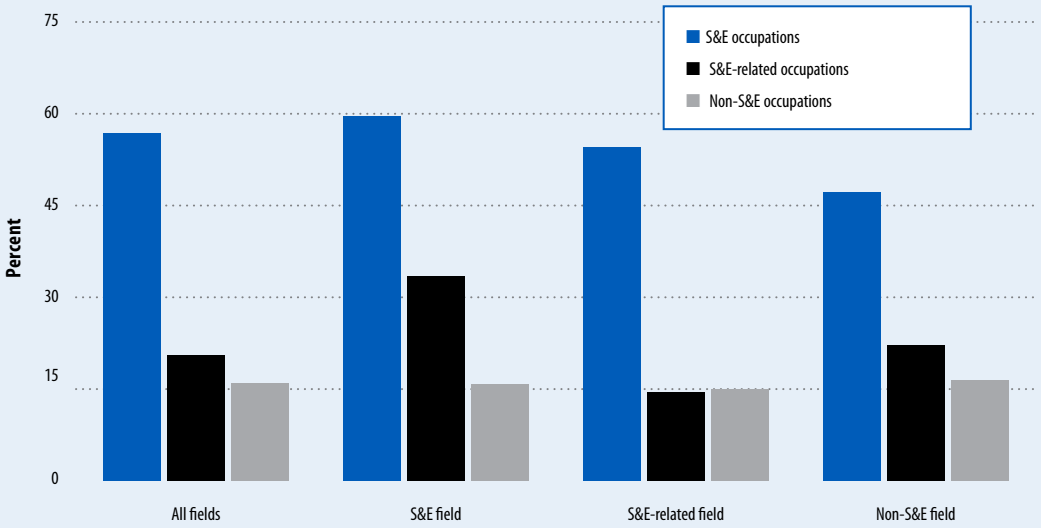
Box 2: New measurement approaches show innovation outside of R&D laboratories

Measuring the human factor in innovation is an important part of understanding the economic and social conditions that foster innovation and assessing its impact. The National Science Foundation's National Center for Science and Engineering Statistics (NCSES) has indicators on the human factor in innovation largely from data on the education, occupations, and activities of highly skilled people in the United States of America and worldwide. The NCSES reports much of this human innovation–related data in the National Science Board's biannual publication *Science and Engineering Indicators (SEI)*.

SEI 2014 reported several findings that shed light on the human factor in innovation. The first highlights the important role of scientists and engineers who use their knowledge in research and development (R&D).[1] The 2010 data are from the National Science Foundation's SESTAT database,[2] which indicate that 27% of employed US scientists and engineers reported R&D as a primary or secondary work activity (Figure 2.1). Although the scientists and engineers employed in S&E occupations are those most likely to perform R&D (57%) as a primary or secondary work activity, a considerable proportion of those in S&E-related (21%) or non-S&E occupations (16%) also reported R&D as a primary or secondary activity.

To get at a more refined notion of the human factor in commercial innovation, for the first time in 2014, *SEI 2014* reported employment in US knowledge- and technology-intensive industries (Table 2.1). This group consists of eight industries comprising

Figure 2.1: Employed scientists and engineers with R&D activity, by broad field of highest degree and broad occupational category, 2010



Source: NSF/NCSES, 2010.

Notes: Scientists and engineers include those with one or more S&E or S&E-related degrees at the bachelor's level or higher or those who have only a non-S&E degree at the bachelor's level or higher and are employed in an S&E or S&E-related occupation. R&D activity here refers to the share of workers reporting basic research, applied research, design, or development as a primary or secondary work activity in their principal job—activities ranking first or second in work hours.

(Continued)

identified with an asterisk '*', survey questions with a dagger '†', and the remaining indicators are hard data); their weight in the index (indicators with half weight are identified with the letter 'a'); and the direction of their effect (indicators for which higher values imply worse outcomes are identified with the letter 'b'). The table then provides each indicator's average values (in their respective units) per income group (World Bank classification) and for the whole sample of 143 economies retained in the final computation (Tables 1a through 1g).

The Innovation Input Sub-Index

The first sub-index of the GII, the Innovation Input Sub-Index, has five enabler pillars: Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication. Enabler pillars define aspects of the environment

Box 2: New measurement approaches show innovation outside of R&D laboratories *(continued)*

Table 2.1: Employment and R&D for selected US industries, 2012 or most recent year

Industry		Employment (millions of persons)	S&E share	Average salary (actual US dollars)	Business R&D (2009) (US$ billions)
All industries		**133.7**	**4.4**	**45,000**	**282.4**
	Commercial KI services	18.4	15.8	68,000	78.8
	HT manufacturing	1.8	26.4	70,000	135.9

Sources: BEA, Annual Industry Accounts, available at http://www.bea.gov/industry/index.htm#annual; BLS, Current Employment Statistics, available at http://www.bls.gov/ces/; BLS, Occupational Employment Statistics, special tabulations, accessed 15 July 2013; NSF/NCSES, 2013; NSB, 2014.

Notes: Business R&D consists of domestic funding by companies' own internal funds and funds from other sources. Employment consists of the nonagricultural workforce. HT manufacturing industries and KI services are classified by the Organisation for Economic Co-operation and Development. HT manufacturing includes computers, communications, semiconductors, electronic and measuring instruments, aircraft and space vehicles, and pharmaceuticals. KI services include health, education, business, information, and financial services. Commercial KI services include business, information, and financial services. Business R&D of commercial KI services consists of professional and technical services and information. Coverage of some industries may vary among data sources due to differences in classification of industries. Salaries are rounded to the nearest thousand.

three commercial knowledge-intensive (KI) services—business, financial, and telecommunications; and five high-technology (HT) industries—aircraft and spacecraft, communications and semiconductors, computers, pharmaceuticals, and scientific instruments. US commercial KI services industries employ 18 million workers, or 14% of the non-government US labour force; US HT manufacturing industries employ 1.8 million workers, or 16% of the US manufacturing labour force (this comes to 1% of the total US non-government labour force). Both commercial KI services and HT manufactures pay higher-than-average wages because, in part, of their high concentration of highly skilled S&E workers. These data together cover a fuller range of human contributions to innovative business sectors, going beyond direct R&D personnel alone.

However, more work remains if we are to fully measure the human factor in innovation. The current approach of using data from education and labour force surveys provides an incomplete picture of the human impact on innovation. One limitation to this approach is the lack of systematic data on the skills themselves, which is arguably as important as data on occupation or education in human capital. A further limitation is the lack of data on the technological know-how of employees and workers. Technological know-how is probably at least as important as formal education and training, and it becomes increasingly important as individuals advance in their careers. Advances in gathering data that allow for the more precise measurement of the skills and know-how of the people who work in these fields would help economies tailor policies to enhance the human factor of the innovative environment.

Notes

1 Scientists and engineers are defined as people who work in science and engineering (S&E) or S&E-related occupations or who hold at least a bachelor's level degree in an S&E or S&E-related field.

2 The Scientists and Engineers Statistical Data System (SESTAT) database is available at http://ncsesdata.nsf.gov/sestat/sestat.html.

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conducive to innovation within an economy.

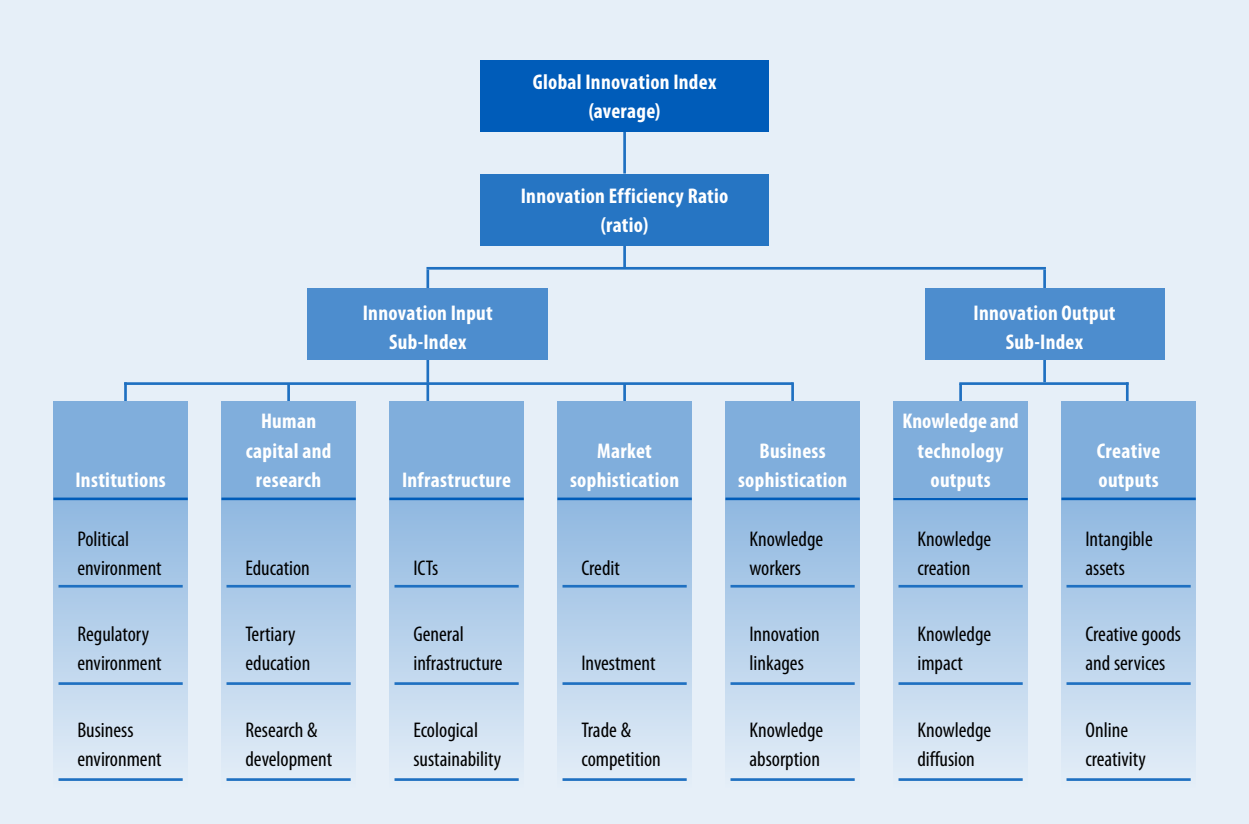
Pillar 1: Institutions

Nurturing an institutional framework that attracts business and fosters growth by providing good governance and the correct levels of protection and incentives is essential to innovation. The Institutions pillar captures the institutional framework of a country (Table 1a).

The political environment sub-pillar includes three indices that reflect perceptions of the likelihood that a government might be destabilized; the quality of public and civil services, policy formulation, and implementation; and perceptions of violations to press freedom.

The regulatory environment sub-pillar draws on two indices aimed at capturing perceptions on the ability of the government to formulate and implement cohesive policies that promote the development of the private sector and at

Figure 1: Framework of the Global Innovation Index 2014



evaluating the extent to which the rule of law prevails (in aspects such as contract enforcement, property rights, the police, and the courts). The third indicator evaluates the cost of redundancy dismissal as the sum, in salary weeks, of the cost of advance notice requirements added to severance payments due when terminating a redundant worker.

The business environment sub-pillar expands on three aspects that directly affect private entrepreneurial endeavours by using the World Bank indices on the ease of starting a business; the ease of resolving insolvency (based on the recovery rate recorded as the cents on the dollar recouped by creditors through reorganization, liquidation, or debt enforcement/foreclosure proceedings); and the ease of paying taxes.

Pillar 2: Human capital and research

The level and standard of education and research activity in a country are prime determinants of the innovation capacity of a nation. This pillar tries to gauge the human capital of countries (Table 1b).

The first sub-pillar includes a mix of indicators aimed at capturing achievements at the elementary and secondary education levels. Education expenditure and school life expectancy are good proxies for coverage. Government expenditure per pupil, secondary gives a sense of the level of priority given to secondary education by the state. The quality of education is measured through the results to the OECD Programme for International Student Assessment (PISA), which examines 15-year-old students' performances in reading, mathematics, and science, as well as the pupil-teacher ratio.

Higher education is crucial for economies to move up the value chain beyond simple production processes and products. The sub-pillar on tertiary education aims at capturing coverage (tertiary enrolment); priority is given to the sectors traditionally associated with innovation (with a series on the percentage of tertiary graduates in science and engineering, manufacturing, and construction); and the inbound and mobility of tertiary students, which plays a crucial role in the exchange of ideas and skills necessary for innovation.

The last sub-pillar, on R&D, measures the level and quality of R&D activities, with indicators on researchers (headcounts), gross

expenditure, and the quality of scientific and research institutions as measured by the average score of the top three universities in the QS World University Ranking of 2013. By design, this indicator aims at capturing the availability of at least three higher education institutions of quality within each economy (i.e., included in the global top 700), and is not aimed at assessing the average level of all institutions within a particular economy.

Pillar 3: Infrastructure

The third pillar includes three sub-pillars: information and communication technologies (ICTs), general infrastructure, and ecological sustainability (Table 1c).

Good and ecologically friendly communication, transport, and energy infrastructures facilitate the production and exchange of ideas, services, and goods and feed into the innovation system through increased productivity and efficiency, lower transaction costs, better access to markets, and sustainable growth.

The ICTs sub-pillar includes four indices developed by international organizations on ICT access, ICT use, online service by governments, and online participation of citizens.

The sub-pillar on general infrastructure includes the average of electricity output in kWh per capita; a composite indicator on logistics performance; and gross capital formation, which consists of outlays on additions to the fixed assets and net inventories of the economy, including land improvements (fences, ditches, drains); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

Table 1a: Institutions pillar

		Average value by income group (0–100)				
	Indicator	High income	Upper-middle income	Lower-middle income	Low income	Mean
1	**Institutions**					
1.1	*Political environment*					
1.1.1	Political stability*	0.69	–0.25	–0.56	–0.77	–0.08
1.1.2	Government effectiveness*	1.17	–0.10	–0.48	–0.82	0.13
1.1.3	Press freedom*[b]	21.07	34.51	37.50	33.96	30.57
1.2	*Regulatory environment*					
1.2.1	Regulatory quality*[a]	1.11	–0.06	–0.42	–0.68	0.16
1.2.2	Rule of law*[a]	1.13	–0.31	–0.59	–0.82	0.03
1.2.3	Cost of redundancy dismissal, salary weeks[b]	14.17	19.01	26.05	19.41	19.04
1.3	*Business environment*					
1.3.1	Ease of starting a business*	87.05	80.66	79.43	68.90	80.68
1.3.2	Ease of resolving insolvency*	66.44	37.93	27.95	22.45	43.01
1.3.3	Ease of paying taxes*	80.22	65.51	56.49	56.44	67.08

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1b: Human capital & research pillar

		Average value by income group (0–100)				
	Indicator	High income	Upper-middle income	Lower-middle income	Low income	Mean
2	**Human capital and research**					
2.1	*Education*					
2.1.1	Expenditure on education, % GDP	5.28	4.69	4.67	4.23	4.81
2.1.2	Gov't expend on edu./pupil, secondary[1]	24.92	17.32	19.90	25.16	22.09
2.1.3	School life expectancy, years	15.90	13.69	11.67	9.84	13.36
2.1.4	PISA scales in reading, maths & science[a]	496.34	427.85	360.19	n/a	469.85
2.1.5	Pupil-teacher ratio, secondary[a,b]	11.18	16.16	20.03	28.17	17.54
2.2	*Tertiary education*					
2.2.1	Tertiary enrolment, % gross[a]	62.50	43.02	23.16	9.46	39.50
2.2.2	Graduates in science & engineering, %	22.57	23.01	18.57	16.82	21.08
2.2.3	Tertiary inbound mobility, %[a]	9.59	4.33	1.21	1.88	5.38
2.3	*Research and development (R&D)*					
2.3.1	Researchers, headcounts/mn pop	4,918.58	1,192.64	508.06	122.86	2,155.99
2.3.2	Gross expenditure on R&D, % GDP	1.67	0.52	0.28	0.34	0.90
2.3.3	QS university ranking, average score top 3*	41.37	16.30	5.47	0.25	19.81

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

[1] Scaled by percent of GDP per capita.

The sub-pillar on ecological sustainability includes three indicators: GDP per unit of energy use (a measure of efficiency in the use of energy), the Environmental Performance Index of Yale and Columbia Universities, and the number of certificates of conformity with standard ISO 14001 on environmental management systems issued.

Pillar 4: Market sophistication

The ongoing global financial crisis has underscored how crucial the availability of credit, investment funds, and access to international markets is for businesses to prosper. The Market sophistication pillar has three sub-pillars structured around market conditions and the total level of transactions (Table 1d).

The credit sub-pillar includes a measure on the ease of getting credit

Table 1c: Infrastructure pillar

	Indicator	Average value by income group (0–100) High income	Upper-middle income	Lower-middle income	Low income	Mean
3	**Infrastructure**					
3.1	*Information and communication technologies (ICTs)*					
3.1.1	ICT access*	7.38	4.81	3.27	2.05	4.99
3.1.2	ICT use*	5.78	2.56	1.35	0.37	3.13
3.1.3	Government's online service*	0.72	0.49	0.40	0.28	0.51
3.1.4	E-participation*	0.49	0.24	0.19	0.06	0.29
3.2	*General infrastructure*					
3.2.1	Electricity output, kWh/cap[a]	9,476.98	2,808.78	1,305.40	577.56	4,816.63
3.2.2	Logistics performance*[a]	3.49	2.85	2.63	2.45	2.95
3.2.3	Gross capital formation, % GDP	20.24	25.52	25.16	25.37	23.59
3.3	*Ecological sustainability*					
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.44	7.26	5.41	3.68	6.54
3.3.2	Environmental performance*	70.29	53.78	42.77	33.46	53.51
3.3.3	ISO 14001 environ. certificates/bn PPP$ GDP[a]	4.54	3.30	0.49	0.30	2.79

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1d: Market sophistication pillar

	Indicator	Average value by income group (0–100) High income	Upper-middle income	Lower-middle income	Low income	Mean
4	**Market sophistication**					
4.1	*Credit*					
4.1.1	Ease of getting credit*	70.41	63.65	61.36	50.54	63.33
4.1.2	Domestic credit to private sector, % GDP	110.96	55.82	36.39	23.23	65.19
4.1.3	Microfinance gross loans, % GDP	0.14	0.97	2.43	3.08	1.92
4.2	*Investment*					
4.2.1	Ease of protecting investors*	59.73	56.84	47.07	47.10	54.01
4.2.2	Market capitalization, % GDP[a]	67.46	42.21	26.03	31.10	49.31
4.2.3	Total value of stocks traded, % GDP[a]	39.85	13.08	3.71	3.66	22.20
4.2.4	Venture capital deals/tr PPP$ GDP[a]	0.21	0.02	0.02	0.09	0.13
4.3	*Trade and competition*					
4.3.1	Applied tariff rate, weighted mean, %[a,b]	2.34	5.63	6.44	8.35	5.10
4.3.2	Non-agricultural mkt access weighted tariff, %[a,b]	2.29	1.34	1.41	1.72	1.75
4.3.3	Intensity of local competition†	5.38	4.64	4.76	4.53	4.92

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

aimed at measuring the degree to which collateral and bankruptcy laws facilitate lending by protecting the rights of borrowers and lenders, as well as the rules and practices affecting the coverage, scope, and accessibility of credit information. Transactions are given by the total value of domestic credit and, in an attempt to make the model more applicable to emerging markets, by the gross loan portfolio of microfinance institutions.

The investment sub-pillar includes the ease of protecting investors index as well as three indicators on the level of transactions. To show whether market size is matched by market dynamism, stock market capitalization is complemented by the total value of shares traded. The last metric is a hard data metric on venture capital deals, taking into account a total of 18,860 deals in 71 countries in 2013.

The last sub-pillar tackles trade and competition. The market conditions for trade are given by two indicators: the average tariff rate weighted by import shares and a measure capturing non-agricultural market access conditions to foreign markets (five major export markets weighted actual applied tariffs for non-agricultural exports). The third and last indicator is a survey question that reflects on the intensity of competition in local markets. Efforts made at finding hard data on competition have so far proved unsuccessful.

Pillar 5: Business sophistication

The last enabler pillar tries to capture the level of business sophistication to assess how conducive firms are to innovation activity (Table 1e). The Human capital and research pillar (pillar 2) made the case that the accumulation of human capital through education, and particularly higher education and the prioritization of R&D activities, is an indispensable condition for innovation to take place. That logic is taken one step further here with the assertion that businesses foster their productivity, competitiveness, and innovation potential with the employment of highly qualified professionals and technicians.

The first sub-pillar includes four quantitative indicators on knowledge workers: employment in knowledge-intensive services; the availability of formal training at the firm level; R&D performed by business enterprise (GERD) as a percentage of GDP (i.e., GERD over GDP); and the percentage of total gross expenditure of R&D that is financed by business enterprise. In addition, the sub-pillar includes an indicator related to the Graduate Management

Admission Test (GMAT).[8] The total number of GMAT test takers (scaled by population aged 20 to 34 years old) were taken as a proxy for the entrepreneurial mindset of young graduates).

Innovation linkages and public/private/academic partnerships are essential to innovation. In emerging markets, pockets of wealth have developed around industrial or technological clusters and networks, in sharp contrast to the poverty that may prevail in the rest of the territory. The innovation linkages sub-pillar draws on both qualitative and quantitative data regarding business/university collaboration on R&D, the prevalence of well-developed and deep clusters, the level of gross R&D expenditure financed by abroad, and the number of deals on joint ventures and strategic alliances. The latter covers a total of 2,978 deals announced in 2013, with firms headquartered in 127 participating economies.[9] In addition, the total number of Patent Cooperation Treaty (PCT) and national office published patent family applications filed by residents in at least three offices is included this year to proxy for international linkages.

In broad terms, pillar 4 on market sophistication makes the case that well-functioning markets contribute to the innovation environment through competitive pressure, efficiency gains, and economies of transaction and by allowing supply to meet demand. Markets that are open to foreign trade and investment have the additional effect of exposing domestic firms to best practices around the globe, which is critical to innovation through knowledge absorption and diffusion, which are considered in pillars 5 and 6. The rationale behind sub-pillars 5.3 on knowledge absorption (an enabler) and 6.3 on knowledge diffusion (a result)—two sub-pillars designed to be mirror images of each other—is precisely that together they will reveal how good countries are at absorbing and diffusing knowledge.

Sub-pillar 5.3 includes four statistics that are linked to sectors with high-tech content or are key to innovation: royalty and license fees payments as a percentage of total trade;[10] high-tech imports (net of re-imports) as a percentage of total imports; imports of communication, computer and information services as a percentage of total trade;[11] and net inflows of foreign direct investment (FDI) as a percentage of GDP.

Table 1e: Business sophistication pillar

		Average value by income group (0–100)				
	Indicator	High income	Upper-middle income	Lower-middle income	Low income	Mean
5	**Business sophistication**					
5.1	*Knowledge workers*					
5.1.1	Knowledge-intensive employment, %	37.42	22.37	17.48	6.71	26.63
5.1.2	Firms offering formal training, % firms	45.12	40.57	30.78	31.68	36.75
5.1.3	GERD performed by business, % GDP[a]	1.11	0.24	0.09	0.07	0.64
5.1.4	GERD financed by business, %[a]	52.68	32.68	21.92	17.05	40.15
5.1.5	GMAT test takers/mn pop. 20-34[a]	292.64	95.33	37.09	13.47	136.62
5.2	*Innovation linkages*					
5.2.1	University/industry research collaboration[†a]	4.49	3.58	3.20	3.07	3.75
5.2.2	State of cluster development[†]	4.34	3.65	3.63	3.33	3.85
5.2.3	GERD financed by abroad, %	12.37	9.26	12.87	30.97	14.33
5.2.4	JV-strategic alliance deals/tr PPP$ GDP[a]	0.07	0.03	0.03	0.05	0.05
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP[a]	1.11	0.08	0.03	0.06	0.50
5.3	*Knowledge absorption*					
5.3.1	Royalty & license fees pay'ts, % total trade[a]	1.55	0.51	0.38	0.10	0.77
5.3.2	High-tech imports less re-imports, %	9.35	9.24	7.46	6.80	8.53
5.3.3	Comm., comp. & info services imp., % tot. trade	1.21	0.85	0.71	1.26	1.01
5.3.4	FDI net inflows, % GDP	4.55	4.19	4.80	5.17	4.61

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

The Innovation Output Sub-Index

Innovation outputs are the results of innovative activities within the economy. Although the Output Sub-Index includes only two pillars, it has the same weight in calculating the overall GII scores as the Input Sub-Index. There are two output pillars: Knowledge and technology outputs and Creative outputs.

Pillar 6: Knowledge and technology outputs

This pillar covers all those variables that are traditionally thought to be the fruits of inventions and/or innovations (Table 1f). The first sub-pillar refers to the creation of knowledge. It includes five indicators that are the result of inventive and innovative activities: patent applications filed by residents both at the national patent office and at the international level through the PCT; utility model applications filed by residents at the national office; scientific and technical published articles in peer-reviewed journals; and an economy's number of articles (H) that have received at least H citations.

The second sub-pillar, on knowledge impact, includes statistics representing the impact of innovation activities at the micro- and macroeconomic level or related proxies: increases in labour productivity, the entry density of new firms, spending on computer software, and the number of certificates of conformity with standard ISO 9001 on quality

Table 1f: Knowledge & technology outputs pillar

	Indicator	Average value by income group (0–100) High income	Upper-middle income	Lower-middle income	Low income	Mean
6	**Knowledge and technology outputs**					
6.1	*Knowledge creation*					
6.1.1	Domestic resident patent app/bn PPP$ GDP[a]	7.33	3.38	2.32	1.35	4.58
6.1.2	PCT resident patent app/bn PPP$ GDP[a]	3.28	0.38	0.11	0.11	1.46
6.1.3	Domestic res utility model app/bn PPP$ GDP	1.95	4.05	5.85	1.07	3.22
6.1.4	Scientific & technical articles/bn PPP$ GDP[a]	31.57	13.25	7.67	10.18	17.65
6.1.5	Citable documents H index[a]	314.53	113.79	74.91	60.17	164.98
6.2	*Knowledge impact*					
6.2.1	Growth rate of PPP$ GDP/worker, %	0.91	1.92	2.18	2.16	1.59
6.2.2	New businesses/th pop. 15–64[a]	5.82	2.96	0.79	0.36	3.38
6.2.3	Computer software spending, % GDP[a]	0.49	0.31	0.27	0.31	0.39
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP[a]	16.61	12.65	3.34	1.26	10.09
6.2.5	High- & medium-high-tech manufactures, %[a]	33.10	22.78	16.45	7.27	25.00
6.3	*Knowledge diffusion*					
6.3.1	Royalty & license fees receipts, % total trade[a]	1.03	0.10	0.31	0.20	0.50
6.3.2	High-tech exports less re-exports, %[a]	6.32	5.05	1.45	0.50	4.08
6.3.3	Comm., comp. & info. services exp., % tot. trade[a]	2.27	1.34	1.87	1.74	1.85
6.3.4	FDI net outflows, % GDP	12.69	19.91	0.28	(0.41)	10.46

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1g: Creative outputs pillar

	Indicator	Average value by income group (0–100) High income	Upper-middle income	Lower-middle income	Low income	Mean
7	**Creative outputs**					
7.1	*Intangible assets*					
7.1.1	Domestic res trademark app/bn PPP$ GDP	60.53	61.17	92.92	26.96	62.79
7.1.2	Madrid trademark applications/bn PPP$ GDP[a]	2.01	0.73	0.73	0.10	1.33
7.1.3	ICTs & business model creation[†]	4.90	4.22	4.12	3.87	4.39
7.1.4	ICTs & organizational model creation[†]	4.68	4.04	3.90	3.59	4.18
7.2	*Creative goods and services*					
7.2.1	Cultural & creative services exp., % total trade[a]	0.51	0.30	0.11	0.04	0.30
7.2.2	National feature films/mn pop. 15–69[a]	7.92	2.69	5.26	0.68	5.15
7.2.3	Global ent. & media output/th pop. 15–69[a]	1.30	0.24	0.05	0.06	0.84
7.2.4	Printing & publishing manufactures, %	2.65	0.02	0.01	0.02	0.02
7.2.5	Creative goods exports, %	1.77	2.20	1.01	0.12	1.48
7.3	*Online creativity*					
7.3.1	Generic TLDs/th pop. 15–69	38.54	9.65	1.68	0.41	16.22
7.3.2	Country-code TLDs/th pop. 15–69	51.61	28.80	13.03	3.66	28.93
7.3.3	Wikipedia monthly edits/mn pop. 15–69	19,630.51	4,827.56	2,107.01	173.15	8,568.66
7.3.4	Video uploads on YouTube/pop. 15–69	84.55	67.09	46.56	22.78	72.00

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. Scores rather than values are presented for indicators 7.3.1, 7.3.2, and 7.3.4.

management systems issued. To strengthen the sub-pillar, the measure of high- and medium-high-tech industrial output over total manufactures output was added this year.

The third sub-pillar, on knowledge diffusion, is the mirror image of the knowledge absorption sub-pillar of pillar 5. It includes four statistics all linked to sectors with high-tech content or that are key to innovation: royalty and license fees receipts as a percentage of total trade;[12] high-tech exports (net of re-exports) as a percentage of total exports (net of re-exports); exports of communication, computer and information services as a percentage of total trade;[13] and net outflows of FDI as a percentage of GDP.

Pillar 7: Creative outputs

The role of creativity for innovation is still largely underappreciated in innovation measurement and policy debates. Since its inception, the GII has always emphasized measuring creativity as part of its Innovation Output Sub-Index. The last pillar, on creative outputs, has three sub-pillars (Table 1g).

The first sub-pillar on intangible assets includes statistics on trademark applications by residents at the national office; trademark applications under the Madrid System by country of origin,[14] and two survey questions regarding the use of ICTs in business and organizational models, new areas that are increasingly linked to process innovations in the literature.

The second sub-pillar on creative goods and services includes proxies to get at creativity and the creative outputs of an economy. This year, in an attempt to include broader sectoral coverage, a global entertainment and media output composite was added. In addition, the indicator on audio-visual and related services exports was renamed 'Cultural and creative services exports' and expanded to include information services, advertising, market research and public opinion polling, and other personal, cultural, and recreational services (as a percentage of total trade). These two indicators complement the remainder of the sub-pillar, which measures national feature films produced in a given country (per capita count); printing and publishing output (as a percentage of total manufactures output); and creative goods exports (as

a percentage of total trade), all which are aimed at providing an overall sense of the international reach of creative activities in the country.

The third sub-pillar on online creativity includes four indicators, all scaled by population aged 15 through 69 years old: generic (biz, info, org, net, and com) and country-code top level domains, average monthly edits to Wikipedia, and video uploads on YouTube. Attempts made to strengthen this sub-pillar with indicators in areas such as blog posting, online gaming, the development of applications, and have so far proved unsuccessful.

Notes

1 For a fuller introduction to the Global Innovation Index, see the GII 2011. Examples of other composite innovation indices were reviewed there too. The Global Innovation Policy Index of the Information Technology and Innovation Foundation, which is quite complementary to the GII, was formulated in 2012.

2 Eurostat and OECD, 2005.

3 OECD, 2010; INSEAD, 2011; and WIPO, 2011.

4 INSEAD, 2011; OECD Scoreboard, 2013; WIPO, 2011.

5 INSEAD, 2011; OECD, 2011; WIPO, 2011

6 For completeness, 2.1% of data points are from 2009, 1.2% from 2008, 0.7% from 2007, 0.5% from 2006, 0.4% from 2005, and 0.3%. In addition, the GII is calculated on the basis of 9,820 data points (compared to 11,583 with complete series), implying that 15.22% of data points are missing. Data Tables (Appendix II) include the reference year for each data point and mark missing data as not available (n/a).

7 Eurostat and OECD, 2005, p. 21.

8 The GMAT is a standardized test aimed at measuring aptitude to succeed academically in graduate business studies. It is an important part of the admissions process for nearly 5,600 graduate management programmes in approximately 2,000 business schools worldwide.

9 These data were determined from a query on joint ventures/strategic alliances deals announced in 2013 from Thomson Reuters SDC Platinum database. A count variable was created: each participating nation of each company in a deal (*n* countries per deal) gets, per deal, a score equivalent to 1/*n* so that all country scores add up to the total number of deals.

10 In previous editions of the GII, this indicator was scaled by total services imports.

11 In previous editions of the GII, this indicator was scaled by total services imports.

12 In previous editions of the GII, this indicator was scaled by total services exports.

13 In previous editions of the GII, this indicator was scaled by total services exports.

14 Domestic resident trademarks and the Madrid System trademarks are now counted by number of applications, not by registrations, as was the case in previous editions of the GII.

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Adjustments to the Global Innovation Index Framework and Year-on-Year Comparability of Results

The Global Innovation Index (GII) is a cross-country performance assessment, compiled on an annual basis, which continuously seeks to update/improve the way innovation is measured. The GII report pays special attention to making accessible the statistics used in the Country/Economy Profiles and Data Tables, providing data sources and definitions and detailing the computation methodology (Appendices I, II, III, and IV, respectively). This annex summarizes the changes made this year and provides an assessment of the impact of these changes on the comparability of rankings.

Adjustments to the Global Innovation Index framework

The GII model is revised every year in a transparent exercise. This year, no change was made at the pillar or sub-pillar level.

Beyond the use of World Intellectual Property Organization (WIPO) data, we collaborate with both public international bodies such as the International Energy Agency; the United Nations Educational, Scientific and Cultural Organization (UNESCO); and the International Telecommunication Union (ITU) and private organizations such as the International Organization for Standardization (ISO); the Graduate Management Admission Council (GMAC); Thomson Reuters; IHS Global Insight; QS Quacquarelli Symonds Ltd; ZookNIC Inc; Google; and PwC to obtain the best available data on innovation measurement globally.

Although the rationale for the adjustments made to the GII framework is explained in detail in Annex 1, Table 1 provides a summary of these changes for quick referencing. A total of 17 indicators were modified: 4 indicators were deleted or replaced, 10 underwent methodological changes (new computation methodology at the source, change

Table 1: Changes to the Global Innovation Index framework

GII 2013		GII 2014	
2.1.1	Current expenditure on education, % GNI	2.1.1	Government expenditure on education, % GDP
2.1.2	Public expenditure on education per pupil, all levels	2.1.2	Expenditure on education per pupil, secondary
2.2.4	Gross tertiary outbound enrolment ratio		Deleted
3.2.2	Electricity consumption		Deleted
3.2.3	Logistics Performance Index	3.2.2	Logistics Performance Index
3.2.4	Gross capital formation	3.2.3	Gross capital formation
5.1.5	GMAT mean score		Deleted
5.1.6	GMAT test takers	5.1.5	GMAT test takers
5.3.1	Royalty and license fees payments, % of total services imports	5.3.1	Royalty and license fees payments, % of total trade
5.3.3	Communications, computer and information services imports, % of total services imports	5.3.3	Communications, computer and information services imports, % of total trade
6.3.1	Royalty and license fees receipts, % of total services imports	6.3.1	Royalty and license fees receipts, % of total trade
6.3.3	Communications, computer and information services exports, % of total services imports	6.3.3	Communications, computer and information services exports, % of total trade
7.1.1	National office resident trademark Registrations	7.1.1	National office resident trademark applications
7.1.2	Madrid system trademark registrations by country of origin	7.1.2	Madrid System trademark applications by country of origin
7.2.1	Audiovisual and related services exports, % of total services exports	7.2.1	Cultural and creative services exports, % of total trade (compilation including EBOPS 264, 278, 288, and 897)
7.2.3	Daily newspapers circulation	7.2.3	Global entertainment and media output
7.2.5	Creative goods exports, % of total goods exports	7.2.5	Creative goods exports, % of total trade

Note: White rows indicate indicators that were deleted or replaced; dark blue rows indicate indicator numbers that have changed; and light blue rows indicate indicators that have undergone methodological changes.

of scaling factor, change of classification, etc.), and 3 changed indicator number as a result of the framework adjustments.

Six GII indicators (refer to Table 1 for details) now use total trade as a denominator to better assess their overall economic importance when compared with a broader base.

The statistical audit performed by the Joint Research Centre (Annex 3) provides a confidence interval for each ranking following a robustness and uncertainty analysis of the modelling assumptions.

Sources of changes in the rankings

The GII compares the performance of national innovation systems across economies, but it also presents changes in economy rankings over time.

Importantly, scores and rankings from one year to the next are not directly comparable (see Annex 2 of the GII 2013 for a full explanation). Making inferences about absolute or relative performance on the basis of year-on-year differences in rankings can be misleading. Each ranking reflects the relative positioning of that particular country/economy on the basis of the conceptual framework, the data coverage, and the sample of economies—elements that change from one year to another.

A few particular factors influence the year-on-year ranking of a country/economy:

- the actual performance of the economy in question;
- adjustments made to the GII framework;
- data updates, the treatment of outliers, and missing values; and
- the inclusion or exclusion of countries/economies in the sample.

Additionally, the following characteristics complicate the time-series analysis based on simple GII scores or rankings:

- **Missing values:** The GII produces relative index scores, which means that a missing value for one economy affects the index score of other economies.
- **Reference year:** The data underlying the GII do not refer to a single year, but to several years, depending on what the latest available year is for any given variable. In addition, the reference years for the different variables are not the same for each economy. The motivation for this approach is that it widens the set of data points for cross-economy comparability.
- **Normalization factor:** Most GII variables are normalized using either GDP or population. This approach is also intended to enable cross-economy comparability. Yet, again, year-on-year changes in individual variables may be driven either by the variable's numerator or by its denominator.
- **Consistent data collection:** Finally, measuring year-on-year performance changes relies on the consistent collection of data over time. Changes in the definition of variables or in the data collection process could create movements in the rankings that are unrelated to true performance.

The GII has been transparent about these time-series caveats since its inception.

A detailed economy study based on the GII database and the country/economy profile over time, coupled with analytical work on the ground that includes innovation actors and decision makers, yields the best results in terms of grasping an economy's innovation performance over time as well as possible avenues for improvement.

Changes to the way missing information is managed have also been implemented. In particular, the following indicators were affected when data were not readably available:

- 4.2.4 Venture capital deals per trillion PPP$ GDP, and 5.2.4 Joint venture/strategic alliance deals per trillion PPP$ GDP

  For these indicators, countries were given 'n/a' rather than zero if they were not included in the in the SDC Platinum database provided by Thomson Reuters, which is our source of data on joint ventures and strategic alliance deals.

- 5.2.5 Patent families per billion PPP$ GDP

  For indicator 5.2.5, those countries not included in the WIPO Statistic Database were given 'n/a'; those included in the database that had no data, zero, or 'n/a' were given zero as a value at the suggestion of WIPO.

- 7.3.4 Video uploads on YouTube

  For indicator 7.3.4, those countries where Google is an official launched platform and those countries where comScore has determined a market share above 45% all received non-zero scores. All other economies in GII 2014 received 'n/a' for this indicator.

These changes can have implications on the overall rankings of particular economies for which data were not available this time around.

Joint Research Centre Statistical Audit of the 2014 Global Innovation Index

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Modelling the concepts underlying innovation at the national scale around the globe, as attempted in the Global Innovation Index (GII), raises both conceptual and practical challenges. The conceptual challenges are discussed in the main text of Chapter 1 of the GII 2014 report. In this annex, the focus is on the practical challenges related to the data quality and the methodological choices made by grouping these data into 21 sub-pillars, 7 pillars, 2 sub-indices, and an overall index.

We consider statistical soundness to be a necessary but not a sufficient condition for a sound GII. Given that the statistical analysis of an index is based primarily, but not solely, on correlations, correspondence of the GII with real-world phenomena needs to be critically addressed, whereas 'correlations need not necessarily represent the real influence of the individual indicators on the phenomenon being measured'.[1] The point we are making here is that the validity of the GII relies on the interplay between statistical and conceptual soundness. To this end, the development of the GII has followed an iterative process that went back and forth between a theoretical understanding of innovation on the one hand and empirical observations of the data underlying the variables on the other.

The Econometrics and Applied Statistics Unit at the European Commission Joint Research Centre (JRC) in Ispra (Italy) was invited for a fourth consecutive year to audit the GII following some adjustments that were made to the list of indicators included in the GII framework (see Chapter 1 for more details).

The JRC assessment of the 2014 GII focused on two main issues: the statistical soundness of its multi-level structure and the impact of key modelling assumptions on its scores and ranks.[2] These are necessary steps to ensure the transparency and reliability of the GII, to enable the public to derive more accurate and meaningful conclusions, and to support policy makers with choices on priority setting and policy formulation.

As in past GII reports, the JRC analysis complements the country rankings with confidence intervals for the GII, the Innovation Input Sub-Index, and the Innovation Output Sub-Index in order to better appreciate the robustness of these ranks to the computation methodology. In addition, the JRC analysis includes an assessment of potential redundancy of information in the GII and a measure of distance to the efficient frontier of innovation by using data envelopment analysis.

Conceptual and statistical coherence in the GII framework

An earlier version of the GII model was assessed by the JRC in April 2014. Fine-tuning suggestions were taken into account in the final computation of the rankings in an iterative process with the JRC aimed at establishing the foundation for a balanced index. The entire process followed four steps (see Figure 1):

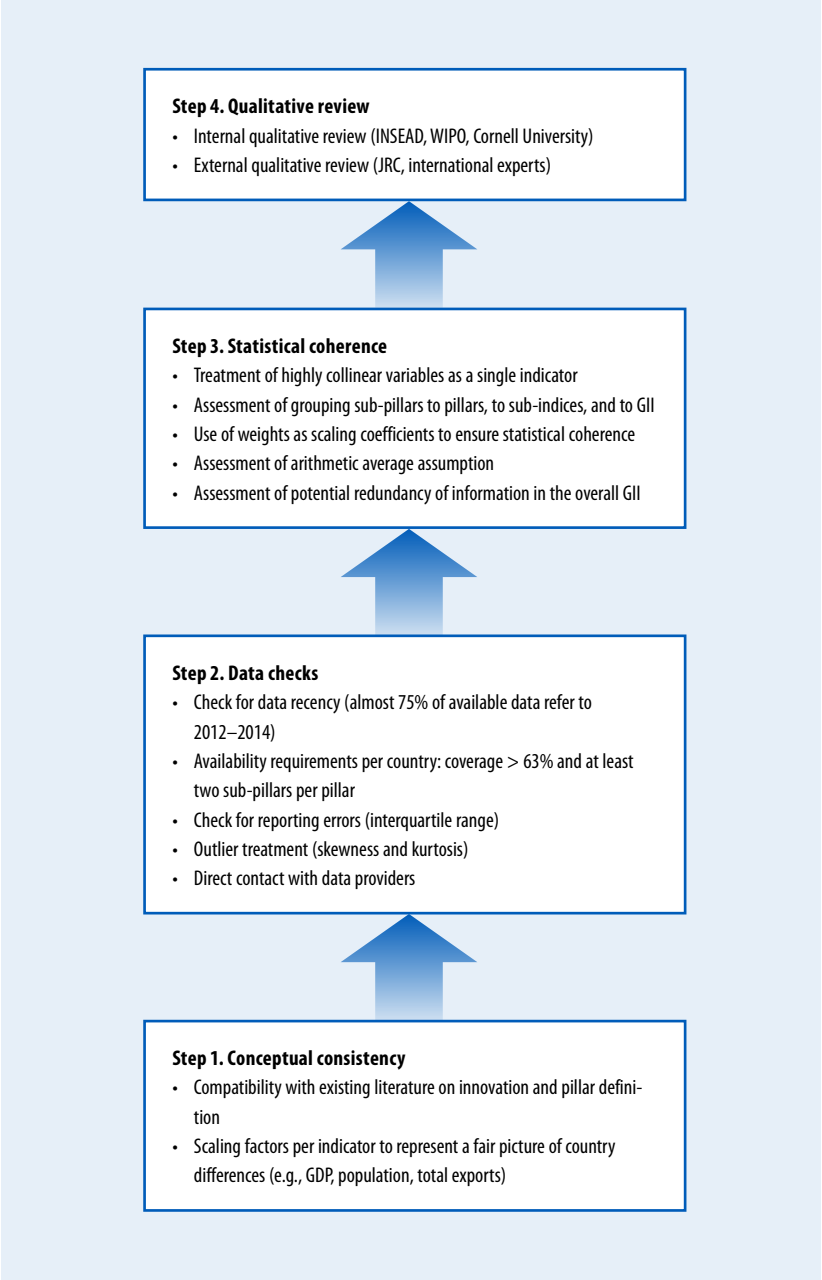
Step 1: Conceptual consistency

Eighty-one indicators were selected for their relevance to a specific innovation pillar on the basis of the literature review, expert opinion, country coverage, and timeliness. To represent a fair picture of country differences, indicators were scaled either at the source or by the GII team as appropriate and where needed.

Step 2: Data checks

The most recently released data were used for each country with a cut-off year of 2004. Almost 75% of the available data refer to 2012 or a more recent year. Countries were included if data availability was at least 63% (i.e., 51 out of 81 variables) and at least two of the three sub-pillars in each pillar could be computed. Potentially problematic indicators that could bias the overall results were identified as those having absolute skewness greater than 2 and kurtosis greater than 3.5;[3] these were treated either by winsorization or by taking the natural logarithm (in cases with more than five outliers). These criteria were decided jointly with the JRC in 2011 (see Appendix IV Technical Notes for details).

Figure 1: Conceptual and statistical coherence in the GII 2014 framework



Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Step 3: Statistical coherence

Weights as scaling coefficients

Weights of 0.5 or 1.0 were decided jointly with the JRC and the GII team in 2012 to be scaling coefficients and not importance coefficients, with the aim of arriving at sub-pillar and pillar scores that were balanced in their underlying components (i.e., that indicators and sub-pillars can explain a similar amount of variance in their respective sub-pillars/pillars). Paruolo et al. (2013) show that, in weighted arithmetic averages, the ratio of two nominal weights gives the rate of substitutability between the two indicators, and hence can be used to reveal the relative importance of individual indicators. This importance can then be compared with ex-post measures of variables' importance, such as the non-linear Pearson correlation ratio. As a result of this analysis, 36 out of 81 indicators and two sub-pillars—7.2 Creative goods and services and 7.3 Online creativity—were assigned half weights, while all other indicators and sub-pillars were assigned a weight 1.0.

Principal components analysis and reliability item analysis

Principal component analysis (PCA) was used to assess to what extent the conceptual framework is confirmed by statistical approaches. PCA results confirm the presence of a single latent dimension in each of the seven pillars (one component with an eigenvalue greater than 1.0) that captures between 57% (pillar 4: Market sophistication) up to 82% (pillar 1: Institutions) of the total variance in the three underlying sub-pillars. These results reveal that the adjustments made to the 2014 GII framework did not affect the solid statistical coherence properties of the previous version. Furthermore, results confirm the expectation that the sub-pillars are more correlated to their own pillar than to any other (see Table 1). It is interesting to note that sub-pillar 7.3 Online creativity has the same degree of correlation (0.86) with its own pillar Creative outputs (pillar 7) that it has with Human capital and research (pillar 2) and Infrastructure (pillar 3), which evidences an association between human capital and infrastructure on one hand and online content, such as Wikipedia monthly edits and video uploads on YouTube, on the other.

Table 1: Statistical coherence in the GII: Correlations between sub-pillars and pillars

	Sub-pillar	Institutions	Human capital and research	Infrastructure	Market sophistication	Business sophistication	Knowledge and technology outputs	Creative outputs
INPUT	Political environment	0.91	0.71	0.76	0.61	0.74	0.63	0.77
	Regulatory environment	0.93	0.65	0.69	0.61	0.67	0.56	0.65
	Business environment	0.88	0.75	0.78	0.71	0.63	0.60	0.66
	Education	0.62	0.77	0.63	0.43	0.50	0.59	0.54
	Tertiary education	0.57	0.81	0.68	0.49	0.56	0.47	0.54
	Research and development (R&D)	0.72	0.89	0.82	0.69	0.69	0.82	0.71
	Information and communication technologies (ICTs)	0.78	0.88	0.93	0.65	0.71	0.72	0.77
	General infrastructure	0.46	0.50	0.68	0.39	0.44	0.38	0.46
	Ecological sustainability	0.72	0.69	0.82	0.53	0.58	0.61	0.71
	Credit	0.68	0.68	0.64	0.86	0.56	0.62	0.60
	Investment	0.41	0.40	0.40	0.81	0.43	0.38	0.28
	Trade and competition	0.51	0.42	0.45	0.56	0.42	0.40	0.45
	Knowledge workers	0.74	0.79	0.75	0.62	0.87	0.72	0.70
	Innovation linkages	0.51	0.37	0.42	0.38	0.72	0.33	0.51
	Knowledge absorption	0.45	0.41	0.43	0.39	0.72	0.43	0.44
OUTPUT	Knowledge creation	0.61	0.78	0.67	0.60	0.61	0.85	0.62
	Knowledge impact	0.41	0.52	0.51	0.39	0.34	0.75	0.45
	Knowledge diffusion	0.49	0.46	0.45	0.44	0.63	0.71	0.51
	Intangible assets	0.44	0.34	0.42	0.29	0.49	0.32	0.75
	Creative goods and services	0.64	0.62	0.69	0.49	0.60	0.60	0.79
	Online creativity	0.81	0.86	0.86	0.63	0.73	0.78	0.86

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

The five input pillars share a single statistical dimension that summarizes 78% of the total variance, and the five loadings (correlation coefficients) of these pillars are all very similar. This similarity suggests that the five pillars make roughly equal contributions to the variation of the Innovation Input Sub-Index scores, as envisaged by the developing team. The reliability of the Input Sub-Index, measured by the Cronbach alpha value, is very high, at 0.93, which is well above the 0.70 threshold for a reliable aggregate.[4]

The two output pillars—Knowledge and technology outputs and Creative outputs—are sufficiently correlated with each other (0.67); they are also both strongly correlated with the Innovation Output Sub-Index (0.91). This result suggests that the Output Sub-Index is also well balanced in its two pillars.

Finally, building the GII as the simple average of the Input and Output Sub-Indices is also statistically justifiable because the Pearson correlation coefficient of either sub-index with the overall GII is 0.97; the two sub-indices have a correlation of 0.87. Thus far, results show that the grouping of sub-pillars into pillars, sub-indices, and the overall GII 2014 is statistically coherent, and that the GII has a balanced structure at each aggregation level.

Assessing potential redundancy of information in the GII

As already discussed, the Input and Output Sub-Indices correlate strongly with each other and with the overall GII. Furthermore, the five pillars in the Input Sub-Index have a very high statistical reliability. These results—the strong correlation between Input and Output Sub-Indices and the statistical reliability of the five Input pillars—may be interpreted by some as a sign of redundancy of information in the GII. Yet this is not the case here. In fact, for more than 51.7% (up to 74.1%) of the 143 economies included in the 2014 GII, the GII ranking and any of the seven pillar rankings differ by 10 positions or more (see Table 2). This is a desired outcome because it demonstrates the added value of the GII ranking, which helps to highlight other components of innovation that do

Table 2: Distribution of differences between pillar and GII rankings

	Innovation Input Sub-Index					Innovation Output Sub-Index	
Rank differences (positions)	Institutions (%)	Human capital and research (%)	Infrastructure (%)	Market sophistication (%)	Business sophistication (%)	Knowledge and technology outputs (%)	Creative outputs (%)
More than 29	18.2	14.0	12.6	32.9	23.8	22.4	8.4
20–29	10.5	18.2	11.9	18.2	15.4	10.5	12.6
10–19	24.5	25.2	30.1	23.1	22.4	21.7	30.8
10 or more*	**53.1**	**57.3**	**54.5**	**74.1**	**61.5**	**54.5**	**51.7**
5–9	21.0	18.2	21.0	16.1	19.6	23.8	24.5
Less than 5	22.4	22.4	21.7	9.1	16.1	17.5	23.1
Same rank	0.0	0.0	2.1	2.1	2.8	2.8	2.8
Total†	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.
* This column is the sum of the prior three rows.
† This column is the sum of all white rows.

not emerge directly by looking into the seven pillars separately.

Step 4: Qualitative review

Finally, the GII results—including overall country classifications and relative performances in terms of the Innovation Input or Output Sub-Indices—were evaluated to verify that the overall results were, to a great extent, consistent with current evidence, existing research, and prevailing theory. Notwithstanding these statistical tests and the positive outcomes on the statistical coherence of the GII structure, it is important to note that the GII model is and has to remain open for future improvements as better data, more comprehensive surveys and assessments, and new relevant research studies become available.

Impact of modelling assumptions on the GII results

Every economy score on the GII and its two sub-indices depends on modelling choices: the seven-pillar structure, the indicators selected, the imputation or not of missing data, the normalization, the weights, and the aggregation method, among other elements. These choices are based on expert opinion (e.g., selection of indicators), or common practice (e.g., min-max normalization in the [0, 100] range), driven by statistical analysis (e.g., treatment of outliers) or simplicity (e.g., no imputation of missing data). The robustness analysis performed by the JRC aimed at assessing the simultaneous and joint impact of these modelling choices on the rankings. It thus complements the GII 2014 ranks with error estimates stemming from the unavoidable uncertainty in the choices made.

The robustness assessment of the GII was based on the combination of a Monte Carlo experiment and a multi-modelling approach, following good practices suggested in the composite indicators literature.[5] We focused on three key issues: pillar weights, missing data, and the aggregation formula. The data are assumed to be error-free because potential outliers and eventual errors and typos were corrected during the computation phase (see Step 2 in Figure 1).

The Monte Carlo simulation related to the issue of weighting and comprised 1,000 runs, each corresponding to a different set of weights for each of the seven pillars, randomly sampled from uniform continuous distributions centred in the reference values. The choice of the range for the weights' variation was driven by two different needs: to ensure a wide enough interval to have meaningful robustness checks and to respect the rationale of the GII that places the Input Sub-Index and the Output Sub-Index on equal footings. Given these considerations, limit values of uncertainty intervals for the pillar weights are: 10%–30% for the five Input pillars and 40%–60% for the two Output pillars (see Table 3).

The GII developing team, for transparency and replicability, has always opted not to estimate missing data. The 'no imputation' choice, which is common in similar contexts, might encourage economies not to report low data values.[6] To overcome this limitation, the JRC estimated missing data using the Expectation Maximization (EM) algorithm.[7]

Regarding the aggregation formula, decision-theory practitioners have challenged the use of simple arithmetic averages because of their

Table 3: Uncertainty parameters: Missing values, aggregation, and weights

		Reference	Alternative
I.	**Uncertainty in the treatment of missing values**	**No estimation of missing data**	**Expectation Maximization (EM)**
II.	**Uncertainty in the aggregation formula at the pillar level**	**Arithmetic average**	**Geometric average**
III.	**Uncertainty intervals for the GII weights**		
GII Sub-Index	Pillar	Reference value for the weight	Distribution assigned for robustness analysis
Innovation Input	Institutions	0.2	U[0.1, 0.3]
	Human capital and research	0.2	U[0.1, 0.3]
	Infrastructure	0.2	U[0.1, 0.3]
	Market sophistication	0.2	U[0.1, 0.3]
	Business sophistication	0.2	U[0.1, 0.3]
Innovation Output	Knowledge and technology outputs	0.5	U[0.4, 0.6]
	Creative outputs	0.5	U[0.4, 0.6]

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

fully compensatory nature, in which a comparative high advantage on a few indicators can compensate for a comparative disadvantage on many indicators.[8] We relaxed this strong perfect substitutability assumption inherent in the arithmetic average and we considered instead the geometric average, which is a partially compensatory approach that rewards economies with balanced profiles and motivates economies with unbalanced profiles to improve in the GII pillars in which they perform poorly, and not just in *any* GII pillar.[9]

Four models were tested based on the combination of no imputation versus EM imputation, and arithmetic versus geometric average, combined with 1,000 simulations per model (random weights versus fixed weights), for a total of 4,000 simulations for the GII and each of the two sub-indices (see Table 3 for a summary of the uncertainties considered in the GII 2014).

Uncertainty analysis results

The main results of the robustness analysis are shown in Figure 2 with median ranks and 90% confidence intervals computed across the 4,000 Monte Carlo simulations for the GII and the two sub-indices. Countries are ordered from best to worst according to their reference rank (black line), the dot being the median rank.

All published GII 2014 ranks lay within the simulated 90% confidence intervals, and for most economies these intervals are narrow enough for meaningful inferences to be drawn: there are fewer than 10 positions for 81 of the 143 economies. However, it is also true that some economy ranks vary significantly with changes in weights and aggregation function and, where applicable, they also vary because of the estimation of missing data. Indeed, 21 economies have 90% confidence interval widths between 20 and 29. Confidence interval widths for 6 of them lie between 30 and 39 (Bangladesh, Fiji, the Islamic Republic of Iran, Togo, Uganda, and the Bolivarian Republic of Venezuela), and for 2 countries the widths are over 40 (Bhutan, Tajikistan). For these countries, the GII ranks should be interpreted cautiously. Some caution is also warranted in the Input Sub-Index for 32 economies that have 90% confidence interval widths over 20 (up to 37 for Dominican Republic). The Output Sub-Index is more sensitive to the methodological choices: 40 economies have 90% confidence interval widths over 20 (up to 67 for Bhutan). This sensitivity is mostly the consequence of the estimation of missing data and the fact that there are only two pillars (with 0.68 correlation); hence changes to the imputation method, weights, or aggregation formula have a more notable impact on the country ranks.

Although some economy ranks, either in the GII 2014 or its two sub-indices, appear to be sensitive to the methodological choices, the published rankings for the vast majority can be considered representative of the plurality of scenarios we have simulated herein. Taking the median rank as our yardstick for an economy's average rank in the realm of the GII's unavoidable methodological uncertainties, we find that 75% of the economies shift fewer than five positions with respect to the median rank in the GII (four and seven positions in the Input and Output Sub-Index, respectively).

For full transparency and information, Table 4 reports the GII 2014

Table 4: GII 2014 and Input/Output Sub-Indices: Ranks and 90% confidence intervals

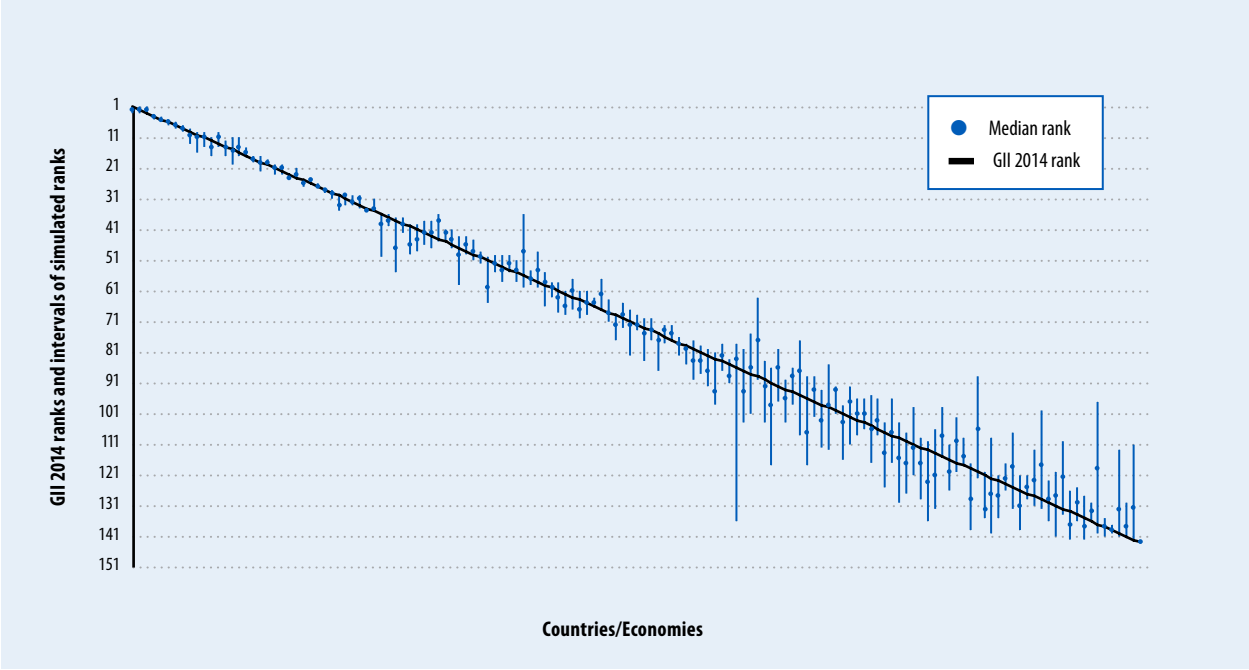
	GII 2014		Input Sub-Index		Output Sub-Index	
Country/Economy	Rank	Interval	Rank	Interval	Rank	Interval
Switzerland	1	[1, 3]	7	[6, 9]	1	[1, 3]
United Kingdom	2	[1, 3]	3	[2, 5]	4	[1, 4]
Sweden	3	[1, 3]	6	[3, 6]	3	[1, 3]
Finland	4	[4, 5]	5	[2, 8]	6	[5, 6]
Netherlands	5	[4, 6]	11	[10, 14]	2	[2, 4]
United States of America	6	[5, 7]	4	[3, 6]	7	[7, 11]
Singapore	7	[6, 8]	1	[1, 1]	25	[21, 26]
Denmark	8	[7, 9]	9	[7, 10]	12	[8, 13]
Luxembourg	9	[8, 13]	21	[18, 23]	5	[5, 6]
Hong Kong (China)	10	[9, 16]	2	[2, 6]	24	[20, 28]
Ireland	11	[9, 14]	12	[10, 17]	11	[9, 13]
Canada	12	[11, 17]	8	[6, 9]	20	[18, 26]
Germany	13	[9, 14]	19	[17, 19]	8	[7, 9]
Norway	14	[12, 17]	14	[11, 18]	14	[12, 17]
Israel	15	[11, 20]	17	[11, 21]	13	[11, 16]
Korea, Rep.	16	[11, 17]	16	[11, 17]	15	[11, 15]
Australia	17	[14, 17]	10	[10, 12]	22	[19, 25]
New Zealand	18	[17, 19]	13	[12, 19]	18	[17, 22]
Iceland	19	[17, 22]	24	[23, 26]	9	[7, 15]
Austria	20	[18, 20]	18	[15, 20]	21	[19, 23]
Japan	21	[20, 23]	15	[13, 16]	27	[26, 31]
France	22	[20, 23]	20	[19, 21]	26	[20, 25]
Belgium	23	[23, 25]	22	[21, 23]	23	[21, 25]
Estonia	24	[21, 24]	23	[21, 25]	19	[15, 20]
Malta	25	[25, 27]	33	[30, 35]	10	[9, 13]
Czech Republic	26	[24, 26]	27	[26, 29]	17	[15, 18]
Spain	27	[26, 27]	26	[23, 26]	28	[27, 29]
Slovenia	28	[28, 29]	28	[27, 29]	31	[29, 31]
China	29	[28, 31]	45	[34, 53]	16	[14, 23]
Cyprus	30	[29, 35]	31	[29, 36]	34	[33, 34]
Italy	31	[30, 33]	32	[30, 33]	33	[32, 34]
Portugal	32	[30, 33]	29	[28, 32]	36	[35, 36]
Malaysia	33	[30, 34]	30	[26, 31]	35	[35, 38]
Latvia	34	[34, 35]	35	[35, 39]	32	[32, 33]
Hungary	35	[31, 35]	41	[37, 45]	29	[28, 31]
United Arab Emirates	36	[36, 50]	25	[23, 31]	68	[57, 95]
Slovakia	37	[36, 40]	43	[41, 48]	38	[37, 40]
Saudi Arabia	38	[37, 55]	39	[35, 45]	41	[41, 69]
Lithuania	39	[37, 42]	36	[34, 39]	52	[46, 53]
Mauritius	40	[39, 49]	42	[39, 58]	43	[43, 48]
Barbados	41	[39, 48]	38	[34, 48]	53	[48, 56]
Croatia	42	[38, 46]	50	[45, 53]	40	[39, 42]
Moldova, Rep.	43	[38, 47]	80	[74, 83]	30	[27, 30]
Bulgaria	44	[36, 45]	54	[48, 55]	37	[35, 38]
Poland	45	[41, 45]	40	[39, 43]	48	[45, 50]
Chile	46	[41, 47]	37	[33, 39]	54	[53, 60]
Qatar	47	[43, 59]	34	[32, 36]	69	[65, 83]
Thailand	48	[43, 49]	52	[42, 55]	49	[46, 50]
Russian Federation	49	[44, 51]	56	[45, 60]	45	[42, 49]
Greece	50	[48, 52]	44	[42, 51]	58	[56, 62]
Seychelles	51	[50, 65]	53	[47, 78]	56	[52, 63]
Panama	52	[49, 55]	64	[60, 72]	42	[39, 51]
South Africa	53	[49, 58]	47	[39, 56]	63	[60, 70]
Turkey	54	[49, 55]	78	[66, 83]	39	[37, 40]
Romania	55	[51, 58]	65	[59, 70]	44	[41, 52]
Mongolia	56	[36, 60]	51	[40, 54]	67	[39, 68]
Costa Rica	57	[54, 59]	66	[58, 72]	51	[50, 53]
Belarus	58	[48, 60]	70	[57, 80]	50	[41, 54]
Montenegro	59	[55, 66]	46	[44, 55]	74	[61, 79]
TFYR of Macedonia	60	[58, 63]	57	[54, 72]	66	[58, 68]
Brazil	61	[58, 68]	63	[54, 69]	64	[61, 71]
Bahrain	62	[61, 69]	48	[44, 53]	80	[75, 83]
Ukraine	63	[57, 67]	88	[72, 92]	46	[43, 50]
Jordan	64	[61, 70]	72	[66, 81]	57	[56, 65]
Armenia	65	[61, 69]	81	[71, 87]	55	[53, 56]
Mexico	66	[63, 66]	62	[55, 63]	70	[67, 71]
Serbia	67	[57, 67]	75	[64, 82]	59	[52, 61]
Colombia	68	[64, 71]	58	[49, 59]	77	[74, 78]
Kuwait	69	[69, 77]	79	[72, 84]	62	[59, 76]
Argentina	70	[65, 73]	83	[62, 89]	61	[61, 67]
Viet Nam	71	[67, 82]	100	[89, 103]	47	[44, 58]
Uruguay	72	[69, 74]	73	[68, 82]	72	[68, 72]

Table 4: GII 2014 and Input/Output Sub-Indices: Ranks and 90% confidence intervals *(continued)*

	GII 2014		Input Sub-Index		Output Sub-Index	
Country/Economy	Rank	Interval	Rank	Interval	Rank	Interval
Peru	73	[70, 84]	60	[56, 69]	85	[81, 104]
Georgia	74	[70, 77]	68	[61, 82]	75	[72, 78]
Oman	75	[75, 87]	59	[53, 65]	96	[93, 117]
India	76	[72, 78]	93	[84, 95]	65	[61, 69]
Lebanon	77	[72, 77]	61	[55, 71]	95	[79, 95]
Tunisia	78	[76, 82]	77	[60, 87]	87	[84, 91]
Kazakhstan	79	[78, 85]	69	[59, 72]	101	[97, 102]
Guyana	80	[77, 90]	92	[83, 111]	76	[63, 86]
Bosnia and Herzegovina	81	[79, 88]	82	[72, 89]	92	[84, 95]
Jamaica	82	[80, 92]	84	[75, 89]	91	[90, 100]
Dominican Republic	83	[81, 98]	101	[91, 128]	71	[69, 108]
Morocco	84	[78, 87]	89	[76, 98]	86	[78, 86]
Kenya	85	[83, 91]	103	[89, 110]	73	[69, 79]
Bhutan	86	[78, 136]	76	[72, 89]	102	[73, 140]
Indonesia	87	[80, 104]	117	[105, 124]	60	[59, 86]
Brunei Darussalam	88	[75, 101]	55	[50, 72]	124	[100, 128]
Paraguay	89	[63, 90]	99	[90, 101]	79	[45, 94]
Trinidad and Tobago	90	[84, 104]	86	[80, 91]	98	[97, 124]
Uganda	91	[86, 118]	98	[93, 109]	90	[85, 125]
Botswana	92	[80, 97]	67	[59, 77]	116	[101, 118]
Guatemala	93	[90, 104]	94	[93, 109]	97	[95, 110]
Albania	94	[86, 98]	71	[65, 84]	117	[91, 117]
Fiji	95	[77, 108]	49	[41, 74]	136	[92, 137]
Ghana	96	[89, 118]	106	[104, 116]	82	[75, 121]
Cabo Verde	97	[89, 102]	85	[78, 91]	114	[90, 116]
Senegal	98	[93, 112]	116	[108, 118]	78	[75, 113]
Egypt	99	[85, 113]	104	[90, 115]	89	[83, 115]
Philippines	100	[92, 101]	110	[102, 114]	84	[79, 85]
Azerbaijan	101	[98, 116]	91	[88, 108]	109	[108, 123]
Rwanda	102	[92, 111]	74	[66, 101]	128	[94, 128]
El Salvador	103	[96, 108]	97	[91, 102]	110	[108, 118]
Gambia	104	[96, 106]	111	[107, 125]	93	[74, 100]
Sri Lanka	105	[95, 117]	125	[113, 136]	81	[77, 87]
Cambodia	106	[96, 108]	113	[100, 122]	99	[95, 102]
Mozambique	107	[104, 125]	96	[88, 100]	115	[111, 138]
Namibia	108	[96, 117]	95	[88, 107]	119	[115, 123]
Burkina Faso	109	[104, 130]	112	[107, 126]	104	[102, 130]
Nigeria	110	[107, 127]	133	[131, 139]	83	[80, 103]
Bolivia, Plurinational St.	111	[99, 121]	115	[101, 127]	106	[104, 115]
Kyrgyzstan	112	[109, 129]	90	[82, 99]	131	[128, 140]
Malawi	113	[110, 136]	109	[106, 127]	108	[107, 135]
Cameroon	114	[106, 132]	127	[119, 129]	100	[98, 132]
Ecuador	115	[99, 115]	105	[96, 111]	113	[110, 117]
Côte d'Ivoire	116	[111, 126]	135	[132, 137]	88	[82, 108]
Lesotho	117	[102, 120]	87	[80, 97]	137	[124, 137]
Honduras	118	[109, 118]	102	[96, 104]	126	[123, 127]
Mali	119	[117, 139]	132	[130, 141]	103	[102, 130]
Iran, Islamic Rep.	120	[89, 122]	107	[91, 121]	125	[78, 124]
Zambia	121	[120, 135]	131	[123, 142]	105	[103, 131]
Venezuela, Bolivarian Rep.	122	[109, 140]	137	[120, 142]	94	[92, 122]
Tanzania, United Rep.	123	[121, 135]	120	[111, 126]	122	[120, 137]
Madagascar	124	[117, 126]	123	[117, 133]	121	[110, 122]
Nicaragua	125	[107, 132]	108	[89, 123]	130	[128, 133]
Ethiopia	126	[121, 139]	128	[124, 139]	118	[114, 134]
Swaziland	127	[121, 129]	119	[109, 133]	127	[117, 128]
Uzbekistan	128	[113, 131]	124	[111, 133]	123	[106, 129]
Bangladesh	129	[100, 132]	130	[113, 135]	120	[88, 121]
Zimbabwe	130	[123, 136]	136	[131, 142]	111	[99, 112]
Niger	131	[120, 141]	118	[112, 132]	134	[119, 141]
Benin	132	[110, 134]	129	[120, 132]	129	[89, 129]
Algeria	133	[126, 142]	122	[107, 127]	132	[130, 142]
Pakistan	134	[125, 136]	139	[138, 142]	107	[96, 107]
Angola	135	[128, 142]	138	[136, 141]	112	[108, 137]
Nepal	136	[130, 136]	121	[112, 134]	135	[125, 137]
Tajikistan	137	[97, 140]	114	[104, 129]	140	[88, 141]
Burundi	138	[135, 141]	126	[119, 129]	141	[138, 141]
Guinea	139	[137, 140]	140	[117, 141]	138	[135, 139]
Myanmar	140	[113, 141]	143	[117, 143]	133	[93, 134]
Yemen	141	[130, 141]	141	[119, 141]	139	[130, 140]
Togo	142	[111, 142]	134	[123, 137]	142	[88, 142]
Sudan	143	[143, 143]	142	[142, 143]	143	[143, 143]

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

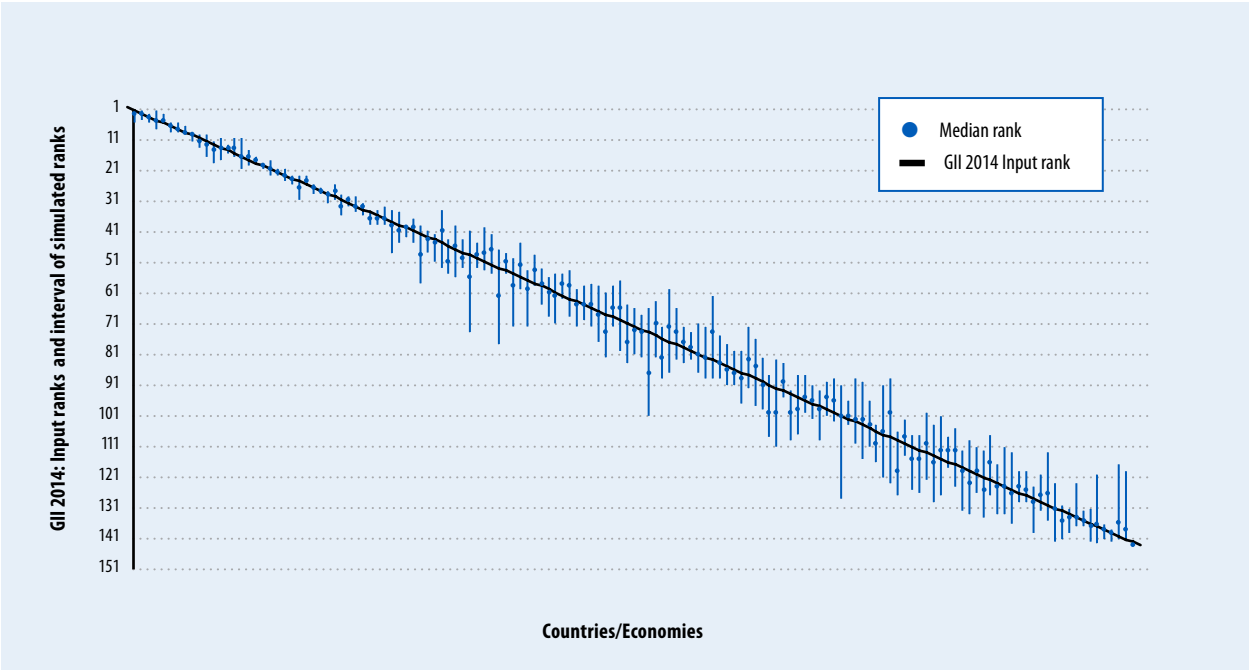
Figure 2a: Robustness analysis (GII rank vs. median rank, 90% confidence intervals)



Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Notes: The Spearman rank correlation between the median rank and the GII 2014 rank is 0.993. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputed versus missing values, and geometric versus arithmetic averages at the pillar level.

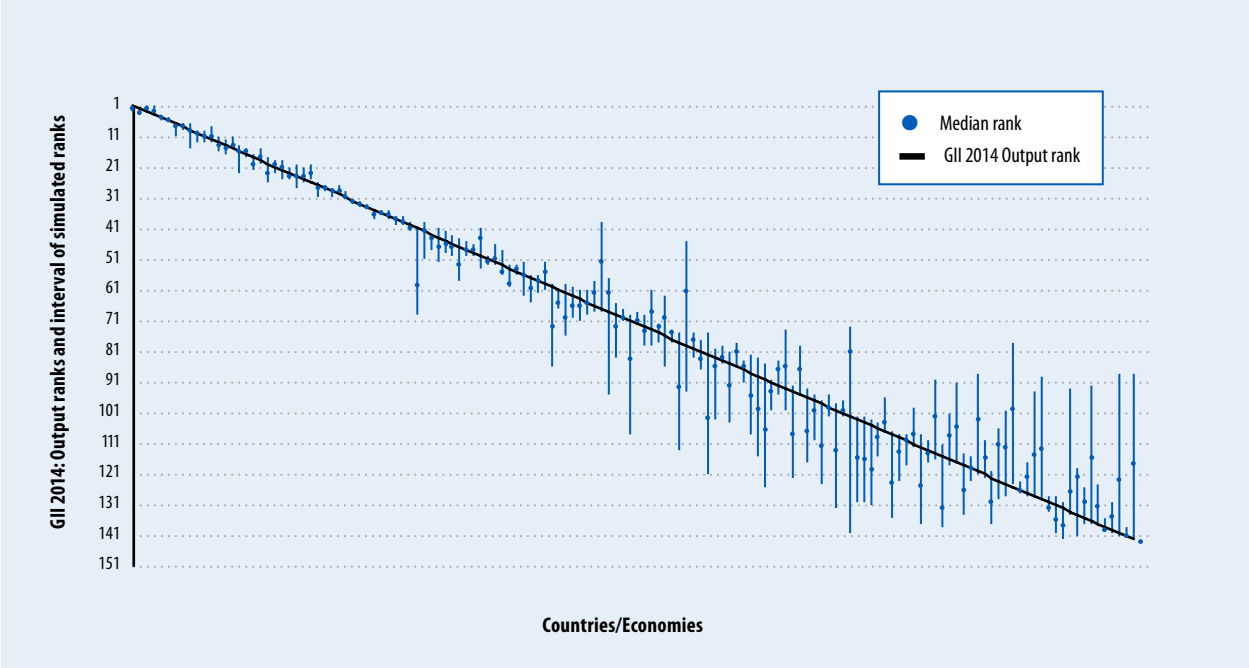
Figure 2b: Robustness analysis (Input rank vs. median rank, 90% confidence intervals)



Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Notes: The Spearman rank correlation between the median rank and the Innovation Input 2014 rank is 0.997. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputed versus missing values, and geometric versus arithmetic averages at the pillar level.

Figure 2c: Robustness analysis (Output rank vs. median rank, 90% confidence intervals)



Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Note: The Spearman rank correlation between the median rank and the Innovation Output 2014 rank is 0.981. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputation versus no imputation of missing values, and geometric versus arithmetic averages at the pillar level.

Index and Sub-Index country ranks together with the simulated median ranks and 90% confidence intervals in order to better appreciate the robustness of the results to the choice of weights and aggregation function and the impact of estimating missing data (where applicable).

Sensitivity analysis results

Complementary to the uncertainty analysis, sensitivity analysis has been used to identify which of the modelling assumptions have the highest impact on certain country ranks. Figure 3 plots the rankings of the GII and its sub-indices versus one-at-a-time changes of either the EM imputation method or the geometric aggregation formula, with random weights, with summary results included in Table 5. The most influential assumption is the choice of no imputation versus EM imputation, in particular for the Output Sub-Index, next for the GII, and least for the Input Sub-Index. This sensitivity is a result of data availability, which is less satisfactory in the case of the Output Sub-Index: although no economy has indicator coverage of less than 63% over the 54 variables in the Input Sub-Index, 38 economies have data coverage below this threshold over the 27 variables in the Output Sub-Index. This factor has impacted the uncertainty analysis as well, and has propagated from the Output Sub-Index to the estimation of the overall GII. The choice of the aggregation formula has a very limited impact on the country/economy ranks.

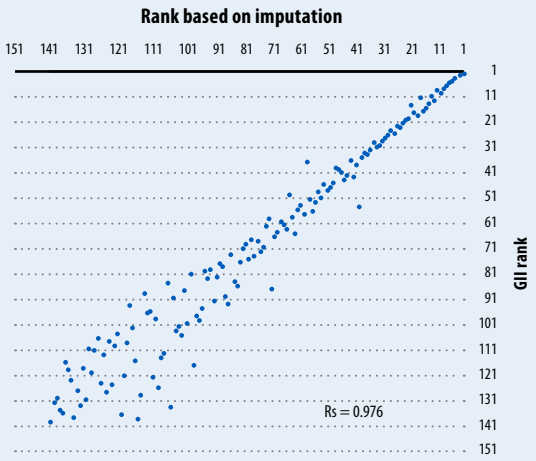
Our recommendation would be to consider country/economy ranks in the GII 2014 and in the Input and Output Sub-Indices not only at face value but also within the 90% confidence intervals in order to better appreciate to what degree a country/economy rank depends on the modelling choices.

Distance to the efficient frontier in the GII by data envelopment analysis

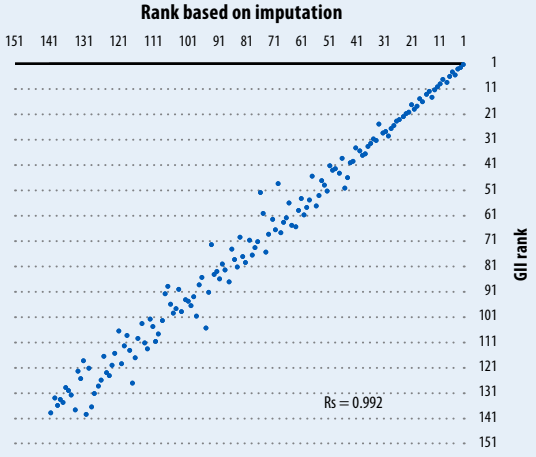
Several innovation-related policy issues at the national level entail an intricate balance between global priorities and economy-specific strategies. Comparing the multi-dimensional performance on innovation by subjecting economies to a fixed and common set of weights may prevent acceptance of an innovation index on the grounds that a given weighting scheme might not be fair to a particular economy. An appealing feature of the more recent data envelopment analysis (DEA) literature applied in real decision-making settings is that it

Figure 3a: Sensitivity analysis: Impact of modelling choices
(Imputation)

Global Innovation Index 2014



Innovation Input Sub-Index 2014



Innovation Output Sub-Index 2014

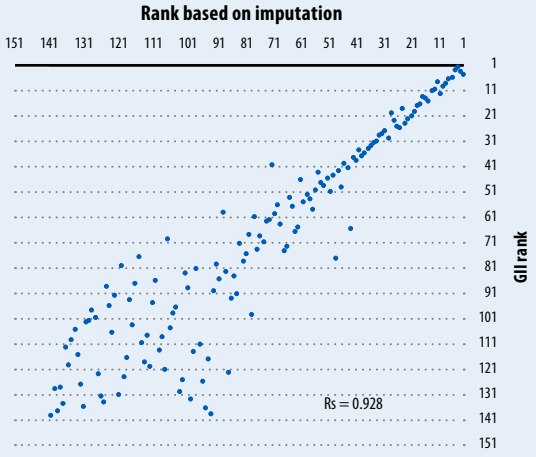
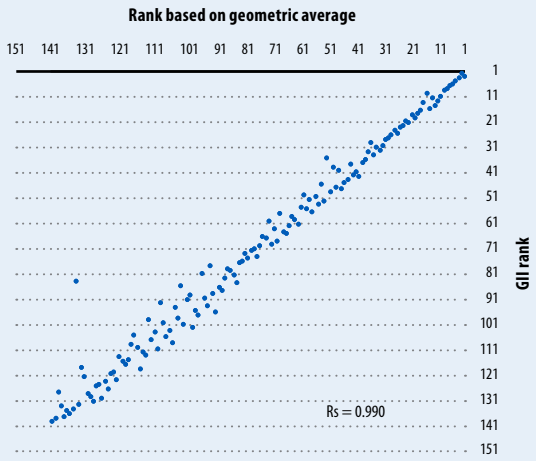
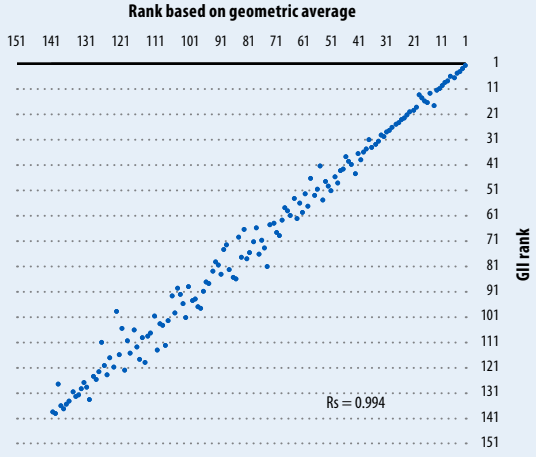


Figure 3b: Sensitivity analysis: Impact of modelling choices
(Geometric average)

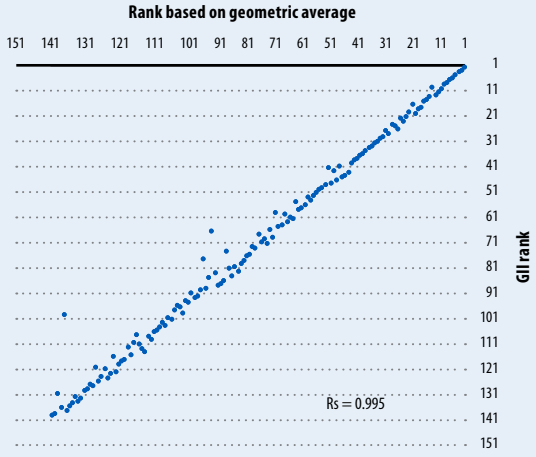
Global Innovation Index 2014



Innovation Input Sub-Index 2014



Innovation Output Sub-Index 2014



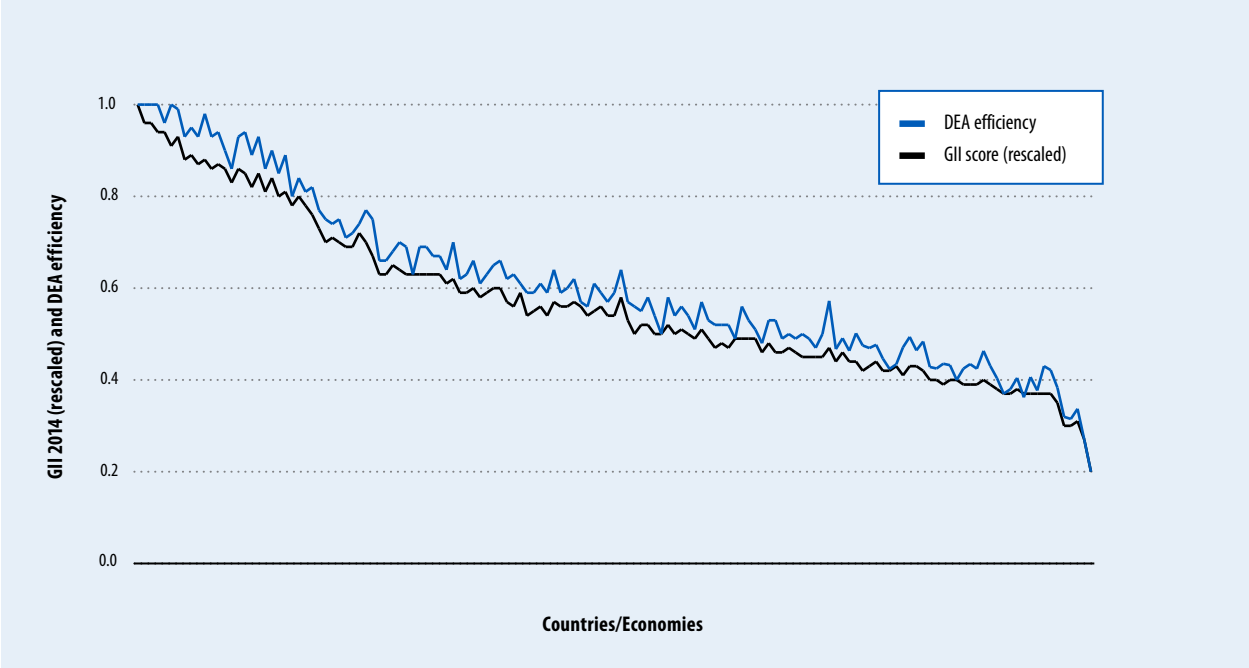
Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.
Note: Rs = Spearman rank correlation; imputation based on expectation-maximization algorithm.

Table 5: Sensitivity analysis: Impact of modelling choices on economies with most sensitive ranks

Index or Sub-Index	Uncertainty tested (pillar level only)	Number of economies that *improve* by 20 or more positions	Number of economies that *deteriorate* by 20 or more positions
GII	Geometric vs. arithmetic average	0	1
	EM imputation vs. no imputation of missing data	6	0
	Geometric average and EM imputation vs. arithmetic average and missing values	7	3
Input Sub-Index	Geometric vs. arithmetic average	0	0
	EM imputation vs. no imputation of missing data	0	0
	Geometric average and EM imputation vs. arithmetic average and missing values	1	1
Output Sub-Index	Geometric vs. arithmetic average	0	1
	EM imputation vs. no imputation of missing data	13	16
	Geometric average and EM imputation vs. arithmetic average and missing values	13	16

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Figure 4: GII 2014 scores and DEA 'distance to the efficient frontier' scores



Note: For comparison purposes, we have rescaled the GII scores by dividing them with the best performer in the overall GII 2014.

Table 6: Pie shares and distance to the efficient frontier: Top 15 economies in the GII 2014

Counttry/Economy	DEA efficiency	Institutions	Human capital and research	Infrastructure	Market sophistication	Business sophistication	Knowledge and technology outputs	Creative outputs
United Kingdom	1.00	0.08	0.19	0.19	0.19	0.07	0.19	0.08
Switzerland	1.00	0.06	0.19	0.10	0.09	0.18	0.19	0.19
Singapore	1.00	0.07	0.20	0.20	0.12	0.20	0.17	0.05
Sweden	1.00	0.15	0.20	0.20	0.05	0.10	0.20	0.11
Finland	1.00	0.20	0.20	0.11	0.05	0.16	0.20	0.08
United States of America	0.99	0.20	0.20	0.06	0.20	0.09	0.20	0.05
Hong Kong (China)	0.98	0.20	0.05	0.20	0.20	0.15	0.05	0.15
Netherlands	0.96	0.20	0.06	0.20	0.05	0.20	0.09	0.20
Denmark	0.95	0.20	0.20	0.20	0.15	0.05	0.05	0.15
Canada	0.94	0.20	0.17	0.20	0.20	0.05	0.05	0.13
Ireland	0.93	0.20	0.08	0.05	0.20	0.20	0.20	0.07
Israel	0.93	0.05	0.20	0.07	0.20	0.20	0.20	0.08
Luxembourg	0.93	0.20	0.07	0.20	0.05	0.20	0.08	0.20
Germany	0.90	0.20	0.20	0.18	0.05	0.05	0.20	0.12
Iceland	0.86	0.20	0.20	0.20	0.09	0.05	0.06	0.20

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.
Note: Pie shares are in absolute terms, bounded by 0.05 and 0.20.

can determine endogenous weights that maximize the overall score of each decision-making unit given a set of other observations.

In this section, the assumption of fixed pillar weights common to all economies is relaxed once more; this time economy-specific weights that maximize an economy's score are determined endogenously by DEA.[10] In theory, each economy is free to decide on the relative contribution of each pillar to its score, so as to achieve the best possible score in a computation that reflects its innovation strategy. In practice, the DEA method assigns a higher (lower) contribution to those pillars in which an economy is relatively strong (weak). Reasonable constraints on the weights are assumed to preclude the possibility of an economy achieving a perfect score by assigning a zero weight to weak pillars: for each economy, the share of each pillar score (i.e., the pillar score multiplied by the DEA weight over the total score) has upper and lower bounds of 5% and 20%, respectively. The DEA score is then measured as the weighted average of all seven pillar scores, where the weights are the economy-specific DEA weights compared to the best performance among all other economies with those same weights. The DEA score can be interpreted as a measure of the distance to the efficient frontier.

Table 6 presents the pie shares and DEA scores for the top 15 economies in the GII 2014. All pie shares are determined in accordance with a starting point that grants leeway to each economy when assigning shares while not violating the (relative) upper and lower bounds. The pie shares are quite diverse and reflect current national innovation strategies. This year, for example, Switzerland assigns 19% of its DEA score to *Creative outputs,* while the same pillar accounts for no more than 5% of Sweden's DEA score. More than half of the top 15 economies assign the maximum allowed (20%) to the first three Input pillars of the GII: *Institutions, Human capital and research,* and *Infrastructure.* Five economies—the United Kingdom, Switzerland, Singapore, Sweden, and Finland—reach a perfect DEA score of 1, and the United States of America and Hong Kong (China) are very close to the frontier. It is worth noting that the 15 economies that achieved the highest DEA scores are the same economies in the top 15 of the GII (except for Iceland, which ranks 19th in the GII). Figure 4 shows how closely related the DEA scores and GII 2014 scores are for all 143 economies (correlation of 0.994).

Conclusion

The JRC analysis suggests that the conceptualized multi-level structure

of the GII 2014 with its 21 sub-pillars, 7 pillars, 2 sub-indices, and overall index is statistically sound and balanced: that is, each indicator and sub-pillar makes a similar contribution to the variation of its respective sub-pillar or pillar. The no-imputation choice of not treating missing values, common in relevant contexts and justified on the grounds of transparency and replicability, can at times have an undesirable impact on some country scores for the Innovation Output Sub-Index in particular, with the additional negative side effect that it may encourage countries not to report low data values. The choice of the GII team this year to use weights as scaling coefficients during the development of the index (the same choice that was made for the GII 2012 and 2013) constitutes a significant departure from the traditional vision of weights as a reflection of indicators' importance in a weighted average. Such a consideration will, it is hoped, also be made by other developers of composite indicators.

The strong correlations among the GII components are proven not to be a sign of redundancy of information in the GII. For more than 51.7% (up to 74.1%) of the 143 economies included in the GII 2014, the GII ranking and any of the seven pillar rankings differ by 10 positions or more. This demonstrates the added value of the GII ranking, which helps to highlight other components of innovation that do not emerge directly by looking into the seven pillars separately.

All published GII 2014 ranks lie within the simulated 90% confidence intervals that take into account the unavoidable uncertainties in the estimation of missing data, the weights (fixed vs. random), and the aggregation formula (arithmetic vs. geometric average) at the pillar level. For most economies, these intervals are narrow enough for meaningful inferences to be drawn: fewer than 10 positions for 81 of the 143 economies. Caution is needed for some countries with ranks that are highly sensitive to the methodological choices. The Output Sub-index is more sensitive to the methodological choices, mostly because of the estimation of missing data and the fact that this sub-index has only two pillars (with 0.68 correlation); hence changes to the imputation method, weights, or aggregation formula have a more notable impact on the country ranks. Nevertheless, country ranks, either in the GII 2014 or in the two sub-indices, can be considered representative of the many possible scenarios: 75% of the economies shift fewer than five positions with respect to the median rank in the GII (four and seven positions, respectively, in the Input and Output Sub-Indices).

The distance to the efficient frontier measure calculated with DEA scores could replace the Innovation Efficiency Ratio as a measure of efficiency, even if it is conceptually closer to the GII score than it is to the Efficiency Ratio. In fact, the 15 economies that achieved the highest DEA scores are the same economies in the top 15 of the GII (except for Iceland, which is ranked 19th in the GII).

All things considered, the JRC audit conducted herein shows the usefulness of the GII 2014 as a statistically sound benchmarking tool in reliably identifying strengths and weaknesses in national innovation practices around the world. We invite readers and users of the GII 2014 not to use this index as a standalone metric but to see it instead as a pointer back to the wealth of information gathered in the GII framework, which is a sound attempt to pave the way for better and more informed innovation policies worldwide.

Notes

1 OECD/EC JRC, 2008, p. 26.

2 The JRC analysis was based on the recommendations of the OECD/EC JRC (2008) *Handbook on Composite Indicators* and on more recent research from the JRC. The JRC audits on composite indicators are conducted upon request of the Index developers and are available at http://composite-indicators.jrc.ec.europa.eu/.

3 Groeneveld and Meeden (1984) set the criteria for absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to account for the small sample of 143 economies.

4 See Nunnally, 1978.

5 Saisana et al., 2005; Saisana et al., 2011.

6 With arithmetic average, the no-imputation choice is equivalent to replacing missing values with the average of the available (normalized) data within each sub-pillar.

7 The Expectation-Maximization (EM) algorithm (Little and Rubin, 2002) is an iterative procedure that finds the maximum likelihood estimates of the parameter vector by repeating two steps: (1) The expectation E-step: Given a set of parameter estimates, such as a mean vector and covariance matrix for a multivariate normal distribution, the E-step calculates the conditional expectation of the complete-data log likelihood given the observed data and the parameter estimates. (2) The maximization M-step: Given a complete-data log likelihood, the M-step finds the parameter estimates to maximize the complete-data log likelihood from the E-step. The two steps are iterated until the iterations converge.

8 Munda, 2008.

9 In the geometric average, pillars are multiplied as opposed to summed as they are in the arithmetic average. Pillar weights appear as exponents in the multiplication. All pillar scores were greater than zero, hence there was no reason to rescale them to avoid zero values that would have led to zero geometric averages.

10 The original question in the DEA literature concerned how to measure each unit's relative efficiency in production compared with a sample of peers, given observations on input and output quantities and, often, no reliable information on prices (Charnes and Cooper, 1985). A notable difference between the original DEA question and the one applied here is that no differentiation between inputs and outputs is made (Melyn and Moesen, 1991; Cherchye et al., 2008). To estimate DEA-based distance to the efficient frontier scores, we consider the $m = 7$ pillars in the GII 2014 for $n = 143$ economies, with y_{ij} the value of pillar j in economy i. The objective is to combine the pillar scores per economy into a single number, calculated as the weighted average of the m pillars, where w_j represents the weight of the jth pillar. In absence of reliable information about the true weights, the weights that maximize the DEA-based scores are endogenously determined. This gives the following linear programming problem for each country i:

$$Y_i = \max_{w_{ij}} \frac{\sum_{j=1}^{7} y_{ij} w_{ij}}{\max_{y_{ci} \in \text{dataset}} \sum_{j=1}^{7} y_{cj} w_{ij}} \qquad \text{(bounding constraint)}$$

subject to

$$w_{ij} \geqq 0, \qquad \text{(non-negativity constraint)}$$

where

$j = 1, \ldots, 7,$
$i = 1, \ldots, 143$

In this basic programming problem, the weights are non-negative and a country's score is between 0 (worst) and 1 (best).

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The Human Factor in Innovation

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This chapter will analyse and discuss major global trends related to the presence of skilled labour in countries, drawing on aggregated data collected by UNESCO through its Institute for Statistics (UIS) and other international organizations. Although there is a rich literature on the relation between skills and innovation, it is not possible in this chapter to delve deeply into that literature and explore the data accordingly. Such an analysis would require both more space than is available here and a micro-econometric data analysis. The data presented here are nationally aggregated data that do not allow for such detailed consideration.

The role of innovation

Innovation is instrumental to the increase of human well-being. It can make a difference in addressing urgent developmental challenges such as providing access to drinking water, eradicating neglected diseases, and reducing hunger. Technology and technological advances are a key component of innovation—they raise productivity and, by extension, contribute to economic growth.[1] Particularly in high- and middle-income economies, the evidence of innovation's vital importance is overwhelming, but it is important for economies at all stages of development, although different types and degrees of innovation play different roles at various stages. In order for low- and middle-income countries to reach per capita income levels similar to those of the richest economies, they need to expand both their access to technology and their capacity to use it.[2] This process of 'catching up' generally occurs through imitation and technology acquisition rather than independent research and experimental development (R&D) and innovation.[3] However, technology transfer itself poses substantial problems of adaptation and absorption that are related to investments in technological capability. A successful transfer requires a complex array of skills, knowledge, and organizational structures in order to operate a technology efficiently and accomplish any process of technological change.[4]

Skills for innovation

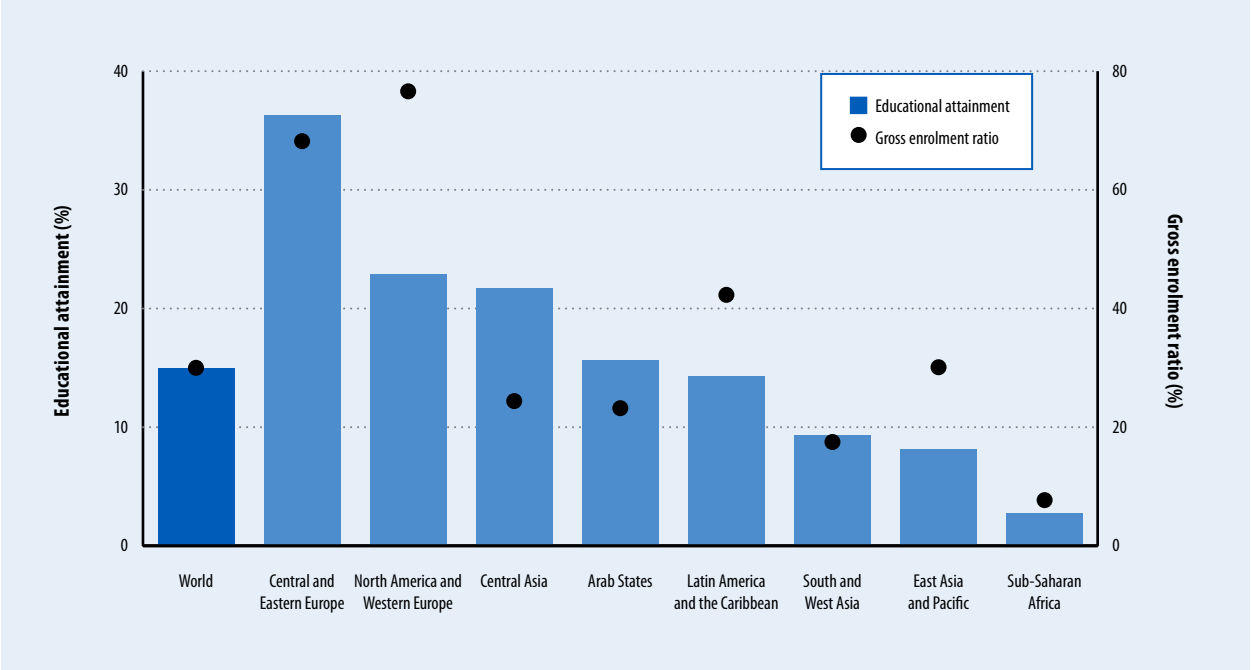
Innovation depends on people who are able to generate and apply knowledge and ideas in the workplace and in society at large, but explicit links between specific skills and innovation are difficult to establish.[5] And although a 'strong connection between education and economic development has often been proposed, the content, mechanisms, and outcomes of this link remain a matter of debate'.[6] The broad definitions of skills and innovation, the difficulty of measuring human capital and innovation outputs and outcomes, and the relative scarcity of innovation-specific empirical studies all serve to limit the clear identification of such relationships. Furthermore, no simple or unambiguous connection exists between a given innovation or technology and the demand it makes for skilled workers.

> How a technology is deployed is mediated by many factors, most notably [...] by firm strategies and work organisation methods. Moreover, the direction of causation is ambiguous: skills and knowledge are both an input and output of innovation. Implementing a particular innovation often requires training a workforce and use of a given innovation by the workforce in the production process and consumption gives rise to incremental improvements to the original innovation'.[7]

To take maximum advantage of R&D and other innovative activities being carried out in a country, framework conditions conducive to innovation are vital. The most important condition is the presence of a large, well-educated stock of human capital, which helps countries accelerate technological catch-up.[8] The connection between human capital and innovation in low- and middle-income countries, and its corresponding impact on productivity, stems mainly from the

Terminology on states and territories used throughout this chapter is that of UNESCO and differs from UN common practice.

Figure 1: Proportion of population aged 25 years and older with tertiary education and gross enrolment ratio in tertiary education, by region (2011, %)



Source: UIS Data Centre, accessed January 2014.

Notes: Based on data for the latest year available for 114 economies; no estimations were made. The 'gross enrolment ratio' (GER) for tertiary education is defined as the number of students enrolled in tertiary education, regardless of age, expressed as a percentage of the five-year age group starting from the official secondary school graduation age. The composition of the regions can be found in the annex at the end of this chapter.

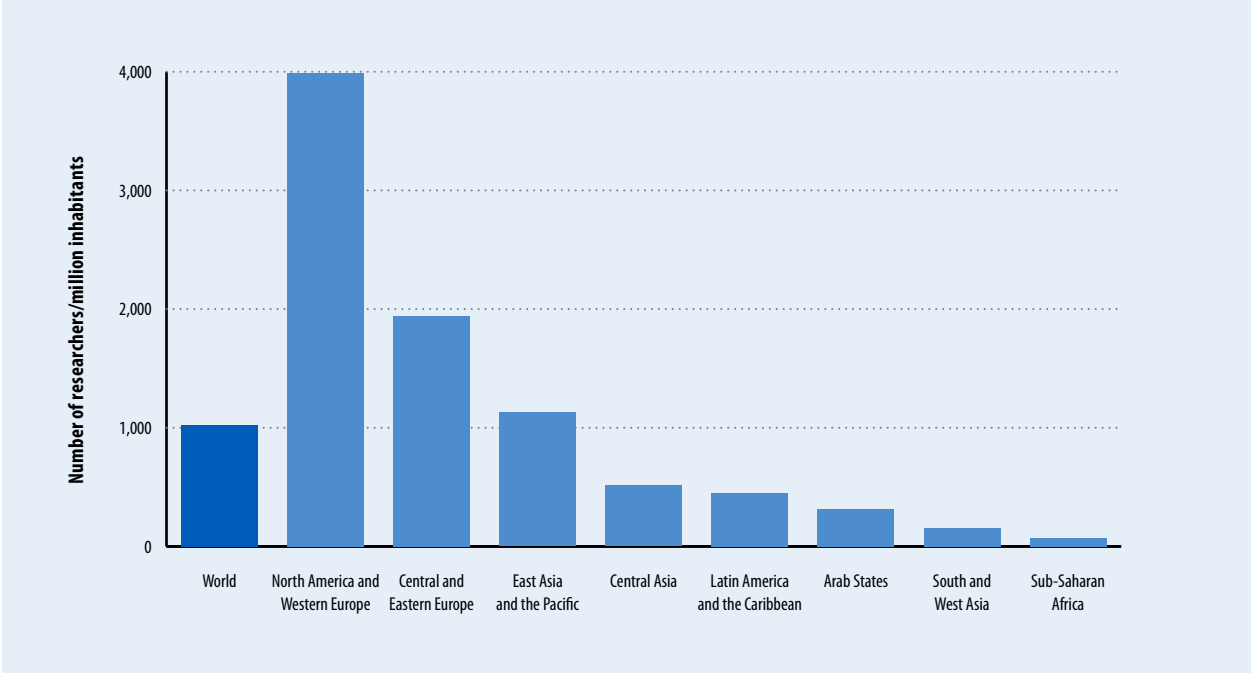
contribution of skilled workers dedicated to adapting existing technologies.[9] The negative effect of a large, poorly educated population is the primary reason for poor innovative performance. Positive externalities from higher educational attainment are found in the form of both a higher rate of innovation and more rapid technology transfer.[10] The existence of skilled labour is a more decisive element in the transmission of tacit knowledge than university or industry research.[11] Improving human capital through formal education and continuous R&D activities increases firms' absorptive capacity, thereby facilitating technology adoption and mastery. The chain reaction that results from a more highly skilled labour force offers possibilities for generating improvements and follow-up innovations.[12]

Higher education and educational attainment

Although the link between a country's stock of highly educated people and its wealth is not clear-cut or direct, correlations can be observed. Analysing enrolment rates in tertiary education provides an indication of whether and how this situation may change in the years to come. Figure 1 shows the proportion of the population over 25 years old that has completed tertiary education, broken down by region on the primary axis. The figure also shows regional averages for the gross enrolment ratio (GER) in tertiary education for the year 2011 on the secondary axis.

What stands out is that the highest proportion of population with a university degree is found in Central and Eastern Europe, at 36%—far ahead of richer North America and Western Europe (23%) and also ahead of Central Asia (22%). At the other end of the scale, and more according to expectations, we find Sub-Saharan Africa at only 3%. The data further show that the highest enrolment ratio is found in North America and Western Europe, indicating that this region is catching up in educational attainment—but only slowly, because the countries in Central and Eastern Europe follow closely. The two regions that follow—Latin America and the Caribbean and East Asia and the Pacific—are adding more people with a tertiary education to their populations than the other regions, and will therefore over time move up in the rankings. It is noteworthy that the global enrolment ratio, at 30%, is double the global stock of people with a tertiary education, meaning that more people are pursuing tertiary education than in the

Figure 2: Researchers per million inhabitants (2009)



Source: UIS Data Centre, accessed January 2014; data calculated December 2011.
Note: The composition of the regions can be found in the annex at the end of this chapter.

past. Looking at the evolution of the global GER over the last decade, the premium placed on a higher education degree becomes clear. There has been an explosion in enrolment in tertiary education, with the global GER almost doubling between 1998 and 2011. This growth has been uneven across regions, however. The highest growth rates are in Asia, with the exception of Central Asia, where the GER even decreased after 2007.

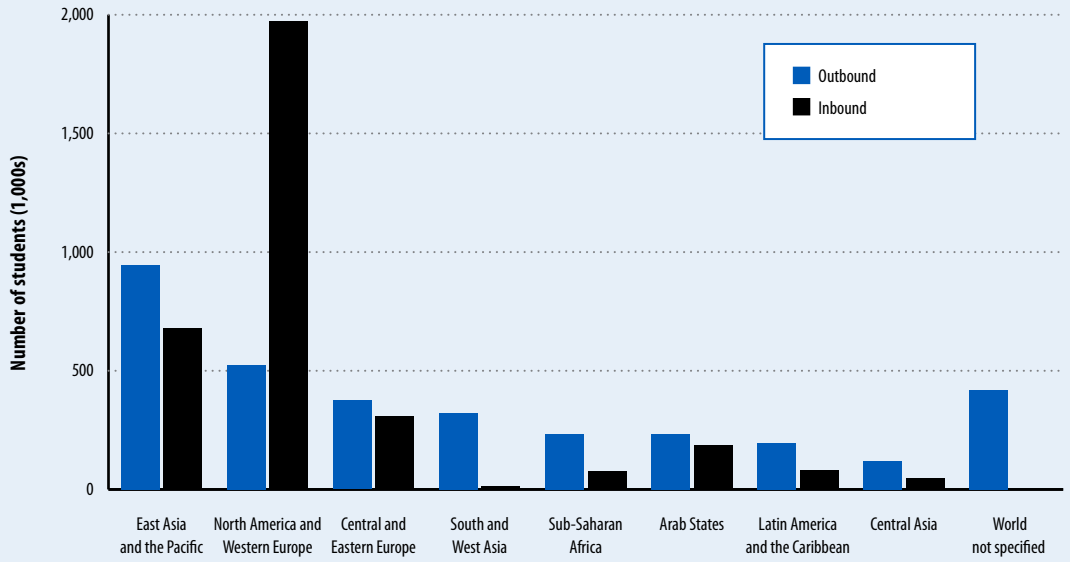
Research and experimental development

Since World War II, investment in R&D has been regarded as one of the key strategies needed to secure technological potential and, therefore, innovation and economic growth. However, R&D is unprofitable for low levels of human capital; it becomes profitable only when human capital reaches a certain threshold.[13] This implies a correlation between the data shown in the previous section and the volume of R&D carried out in economies. Figure 2 sheds light on this.

Figure 2 shows the strong correlation between the educational attainment and enrolment (GER) shown in Figure 1 and the number of researchers. The two regions with the highest numbers of people with a tertiary education and with the highest enrolment ratios in higher education are also the two regions with the most researchers as a proportion of the total population: North America and Western Europe and Central and Eastern Europe. At the other end, South and West Asia and Sub-Saharan Africa have the fewest highly educated people and the fewest researchers. East Asia and the Pacific deserves a special mention, as it ranks higher on the share of researchers in the population than it does on the attainment scale. This region is dominated by China, which has not only been extensively expanding its higher education system, but has enlarged its research system even more.

Digging a bit deeper into the data contributes a perspective on the role of women in research. Although globally more girls than boys enter university, at the PhD level, even though they are close, the share of girls drops below 50%. However, the proportion of women in research shows a particularly large gap, with women making up only 30% of the global research population. This gap can be observed not only in the poorer parts of the world, but also in the richer parts. Various explanations are offered, including gender stereotyping and working conditions that are unfavourable for women, especially during their childbearing years. The fact remains, however, that a great deal of potential remains unused, and governments should

Figure 3: Internationally mobile students, thousands (2009)



Source: UIS Data Centre, accessed January 2014.
Notes: 'Internationally mobile students' (or 'mobile students') are those who have crossed a national border and moved to another country with the objective of studying. The composition of the regions can be found in the annex at the end of this chapter.

take action to tap into this pool of potential researchers.

Despite the observed correlations among attainment, enrolment, and the number of researchers, more elements are at play than skills alone. For example, in the Community Innovation Survey 2010[14]—when firms in the European Union were asked which factors were the most important obstacles to innovation—the lack of qualified personnel as a highly important factor hampering innovation activities on average ranked only 6th for innovative enterprises and 7th for non-innovative enterprises out of 11 factors proposed.[15] The UIS is currently collecting global innovation statistics. When the results are released in July 2014, the lack of skills will be an indicator that can be studied for many more countries.

International mobility

The last decades have seen an explosion in the cross-border traffic of people of all skill levels. In this migratory trend, the most relevant factor for innovation is the movement of highly skilled people, whether they are students or experienced professionals. Figure 3 shows the number of internationally mobile students in 2009.

In 2009, almost 3.4 million students were studying abroad. By far the most popular destinations were the developed economies of North America and Western Europe—this was the only region with a net inflow. It received close to 2 million students, of which about one-third attended university in the United States of America (USA). Mobility is of course not limited to students. The Careers of Doctorate Holders (CDH) survey—developed by the Organisation for Economic Co-operation and Development (OECD), the UIS, and Eurostat[16]—includes a module on international mobility. According to Auriol et al., '[t]he 2009 CDH figures reveal that, in the countries for which data are available, an average of 14% of national citizens with a doctorate have been internationally mobile in the previous 10 years';[17] furthermore, 'the USA steadily appears among the three first destination countries [...]. Likewise, the three largest EU countries (France, Germany, and the United Kingdom) appear among the favourite destinations, as well as those countries with strong historical, cultural, or linguistic links with the reporting country'.[18]

The CDH indicators provide interesting information on international mobility, but they do not enlighten us about the migration patterns of doctorate holders and the possible resulting brain drain for economies. The data at hand are

too sparse and insufficiently robust to allow such analysis. In order to study migration better, the OECD has compiled data on migrant stocks from a wide array of origin countries. This database (called DIOC-E) covers 89 destination countries and includes information on 110 million migrants aged 15 and over.[19] Of all migrants in the database, 68% live in OECD countries; the remaining 32% live in the non-OECD countries currently included in the database. Low-skilled migration to both OECD and non-OECD countries still dominates in absolute terms. However, the emigration rate for highly skilled persons exceeds the total emigration rate in all regions, which reflects the selective nature of migration. The magnitude of the global emigration rate of highly skilled persons from Africa is striking: it is estimated at 10.6% (9.7% for migration to OECD countries), compared with other regions of origin and the world average of 5.4% (4.3% to OECD countries).[20]

Historically, the USA has been the destination of choice of many science and engineering (S&E) students and workers. This continues to be the case. The National Science Foundation's *Science and Engineering Indicators* provides interesting information on foreign-born scientists and engineers in the USA. For example, in 2011, foreign-born individuals accounted for 21% of workers employed in non-academic S&E occupations in the USA, which is higher than their representation in the overall population (13%).[21] Furthermore, in most S&E occupations, the higher the degree level, the greater the proportion of the workforce who are foreign born: workers from overseas range from between 13% and 23% at the bachelor's level to over 40% at the doctoral level. The leading countries of origin among immigrants with a highest degree in S&E are China and India. Most foreign-born noncitizen recipients of US S&E doctorates report that they plan to stay in the USA after graduation (75%); this proportion has risen over time, with the highest proportions reported by S&E doctorate recipients from China and India (86% to 87%, a proportion that has been declining since the early 2000s).[22]

Concluding remarks

The data analysed in this chapter broadly confirm preconceptions about the link between innovation and skills. UIS data show a correlation between educational attainment and level of development. Generally, the more developed the region, the higher the percentage of the population that have completed tertiary education, although the correlation is not perfect. And more and more students are enrolling in tertiary education, clearly showing the importance attached to education before entering the labour market. On tertiary enrolment, again the richer regions are far ahead of the poorer regions, in particular Sub-Saharan Africa. Furthermore, the regions with the highest numbers of people with tertiary education and with the highest enrolment ratios in higher education are also those with the most researchers as a proportion of the total population. This can be explained in part by the fact that economies that are catching up are more dependent on technology transfer than they are on original R&D. Moreover, R&D is generally unprofitable for firms with low levels of human capital.

Economies at the lowest levels of development may be trapped in a vicious circle. Low economic development does not offer a context that provides enough incentives for young people to pursue higher education, and without a skilled population, economies will not grow. Furthermore, people vote with their feet and move to places that offer more opportunities. Internationally mobile students overwhelmingly move to North America and Western Europe, which is the only region with a net inflow of foreign students. The USA remains the most popular destination not just for students but also for highly skilled professionals, and an important part of that country's innovative prowess can be ascribed to these very talented foreigners.

However, correlation is not the same as causation. These data neither provide explanations nor do they indicate the direction of potential causation. Does a lack of skills lead to poor development, or does poor development lead to a less-skilled population? The data presented here are nationally aggregated data, further summed up to regional totals, which does not allow for such a detailed analysis. To properly answer the question of how skills relate to innovation, more information is needed about the demand for skills by employers and the supply of these skills by highly educated people. To that end, firm-level surveys should ask more questions about skills and how those skills relate to firm performance.

But surveys also need to be carried out at the level of the individual. The CDH survey is a prime example of the type of survey and data collection that warrants being taken up more widely. So far, there is also insufficient hard evidence about the extent of brain drain and its impact. More information is needed, but it is extraordinarily difficult to collect. Finally, to fully understand the link between innovation and human

resources, all information collected needs to be analysed at the microdata level using econometric methods (see Box 1, Annex 1 in Chapter 1).

Notes

1 See OECD, 2012; UIS, 2014; and many others.

2 Crespi and Zuniga, 2012.

3 Bell and Pavitt, 1993; Katz, 1986.

4 Archibugi and Pietrobelli, 2003.

5 OECD, 2011.

6 Bruland, 2003.

7 Toner, 2011, p.59.

8 Nelson and Phelps, 1966; Griffith et al., 2004.

9 López Boo, 2009; Navarro et al, 2010.

10 Bilbao-Osorio and Rodríguez-Pose, 2004.

11 Audretsch and Feldman, 1996.

12 Goedhuys et al., 2008.

13 Sorensen, 1999.

14 See http://epp.eurostat.ec.europa.eu/portal/page/portal/microdata/documents/CIS_Survey_form_2010.pdf.

15 The 11 hampering factors are: Lack of qualified personnel; Lack of information on technology; Lack of information on markets; Difficulty in finding cooperation partners for innovation; Markets dominated by established enterprises; Uncertain demand for innovative goods or services; No need to innovate due to prior innovations; No need to innovate due to no demand for innovations; Lack of funds within the enterprise or group; Lack of finance from sources outside the enterprise; and Innovation costs too high.

16 Auriol et al., 2012.

17 'This is a low estimate since the data are based on the declarations of returnees and do not take into account those who are currently and may remain abroad. [Furthermore, most of the data are for] individuals in countries that host world-leading research organisations [who] may [therefore] perceive a lesser need to move abroad.' Auriol et al., 2013, p. 57. Other factors may play a role too.

18 Auriol et al., 2013, p. 57.

19 For further information about the DIOC-E database, see http://www.oecd.org/migration/databaseonimmigrantsinoecdandnon-oecdcountriesdioc-e.htm. Results are written up in Dumont et al., 2010.

20 Dumont et al., 2010.

21 NSB, 2014.

22 NSB, 2014.

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Composition of the regions

ARAB STATES

Algeria
Bahrain
Djibouti
Egypt
Iraq
Jordan
Kuwait
Lebanon
Libya
Mauritania
Morocco
Oman
Palestine*
Qatar
Saudi Arabia
Sudan
Syrian Arab Republic
Tunisia
United Arab Emirates
Yemen

CENTRAL AND EASTERN EUROPE

Albania
Belarus
Bosnia and Herzegovina
Bulgaria
Croatia
Czech Republic
Estonia
Hungary
Latvia
Lithuania
Montenegro
Poland
Republic of Moldova
Romania
Russian Federation
Serbia
Slovakia
Slovenia
TFYR of Macedonia
Turkey
Ukraine

CENTRAL ASIA

Armenia
Azerbaijan
Georgia
Kazakhstan
Kyrgyzstan
Mongolia
Tajikistan
Turkmenistan
Uzbekistan

EAST ASIA AND THE PACIFIC

Australia
Brunei Darussalam
Cambodia
China
China, Hong Kong SAR
China, Macao SAR
Cook Islands
DPR of Korea
Fiji
Indonesia
Japan
Kiribati
Lao People's Dem. Rep.
Malaysia
Marshall Islands
Micronesia (Fed States of)
Myanmar
Nauru
New Zealand
Niue
Palau
Papua New Guinea
Philippines
Republic of Korea
Samoa
Singapore
Solomon Islands
Thailand
Timor-Leste
Tokelau
Tonga
Tuvalu
Vanuatu
Viet Nam

LATIN AMERICA AND THE CARIBBEAN

Anguilla
Antigua and Barbuda
Argentina
Aruba
Bahamas
Barbados
Belize
Bermuda
Bolivia
Brazil
British Virgin Islands
Cayman Islands
Chile
Colombia
Costa Rica
Cuba
Curaçao
Dominica
Dominican Republic
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Haiti
Honduras
Jamaica
Mexico
Montserrat
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Sint Maarten
Suriname
Trinidad and Tobago
Turks and Caicos Islands
Uruguay
Venezuela

NORTH AMERICA AND WESTERN EUROPE

Andorra
Austria
Belgium
Canada
Cyprus
Denmark
Finland
France
Germany
Gibraltar
Greece
Holy See
Iceland
Ireland
Israel
Italy
Liechtenstein
Luxembourg
Malta
Monaco
Netherlands
Norway
Portugal
San Marino
Spain
Sweden
Switzerland
United Kingdom
United States

SOUTH AND WEST ASIA

Afghanistan
Bangladesh
Bhutan
India
Iran (Islamic Rep. of)
Maldives
Nepal
Pakistan
Sri Lanka

SUB-SAHARAN AFRICA

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Rep.
Chad
Comoros
Congo
Côte d'Ivoire
Dem. Rep. of the Congo
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritius
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
South Sudan
Swaziland
Togo
Uganda
United Rep. of Tanzania
Zambia
Zimbabwe

* Palestine is a member of UNESCO and is included for that reason in this annex and in the aggregate data in Figures 1, 2, and 3.

Educating Innovators and Entrepreneurs

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Successful innovation rests on a foundation of education and skills. As the Global Innovation Index (GII) demonstrates, increasing the educational achievement of young people is crucial to a country's ability to generate new knowledge and to innovate. But we should not assume that existing education systems are necessarily aligned with the need to produce the next generation of innovators. Education systems that narrowly focus on test-based academic performance and numbers of students enrolled in science and technology subjects are not necessarily those that will produce young people with the creativity, critical thinking, and communication skills that innovative societies require. In particular, a narrow focus on the acquisition of academic knowledge risks encouraging a teaching model that threatens to dampen innovative and entrepreneurial spirit rather than foster it. Instead, school education should ensure that young people not only acquire excellent knowledge but are also able to apply knowledge in a variety of contexts, and should also ensure that they develop less easily measured skills such as creativity. Decision makers should avoid crowding out arts and non-technical subjects that have an important role to play in developing the skills conducive to innovation in all its forms. The push for academic excellence needs to be combined with quality teaching and learning methods that stimulate a wide range of thinking and behavioural skills.

Aligning education and skills policies with the objective of increasing global innovation capacity is especially pressing in light of recent global economic trends. Over recent decades, rapid technological change has revolutionized many aspects of everyday life. But it has also changed the nature of work, especially in Organisation for Economic Co-operation and Development (OECD) countries. Higher-order thinking skills, such as the ability to process large quantities of information, have become more important in the workplace at the expense of routine skills that can now be undertaken by increasingly sophisticated machines. In this context, education systems need to equip young people with the skills to both participate in and respond to innovation in the workplace. Moreover, especially in light of the recent global economic crisis, improving skills is one of the most important ways to raise innovation, productivity, and economic growth, and to improve social welfare and equality.

This chapter explores the role of education, primarily at the school level, in fostering the dispositions and skills conducive to innovation. It examines what skills are required for innovative societies, how different teaching methods may help foster these skills, what policies and initiatives economies are undertaking in this area, and some of the remaining challenges. Finally, implications for the GII are discussed.

Context and background

Education policies to foster innovation have traditionally focused on increasing participation in science, technology, engineering, and mathematics (STEM) disciplines. Recently, however, a more comprehensive view of innovation, which recognizes the contribution of a wider set of skills and disciplines, has emerged. While STEM specialists are undoubtedly important for certain types of innovation, particularly technological innovation, government policy needs to take a broad view of the competencies used in the innovation process.

Surveys of tertiary-educated employees show that innovation requires a broad range of skills. The international REFLEX survey,[1] which interviews graduates five years after their graduation, shows that innovative employees (whom we define as those working in an organization that innovates

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and participating in the introduction of these innovations) report that they use more of all types of skills in their jobs than their non-innovative counterparts. Among the results from the self-reported use of skills that most distinguish innovative and non-innovative workers are 'coming up with new ideas and solutions' (creativity), 'a willingness to question ideas' (critical thinking), and 'the ability to present new ideas or products to an audience' (communication).

Reflecting this evidence from innovative workers, along with findings from the wider literature,[2] skills for innovation can be grouped into three broad categories:

- Subject-based skills, which represent knowledge and know-how in a particular field.
- Thinking and creativity, including both higher-order skills and creative cognitive habits. These competencies include critical faculties, imagination, and curiosity.
- Behavioural and social skills, including skills such as self-confidence, leadership and management, collaboration, and persuasion.

In terms of qualifications, it is not just graduates of tertiary education who contribute to innovation. Technical skills such as craft, design, and testing play an important role in innovation, especially in the incremental changes that make up a large proportion of innovation in practice.[3] Vocational education and training, in particular, help provide these essential capabilities. Moreover, non-technological innovation (such as new organizational methods and marketing innovations) requires a skill-set very different from that provided by traditional university-level science and engineering training. Again, a mix of qualification levels appears to be important. Balanced innovation systems need doctorate-holding researchers with focused expertise, but also informed users and consumers who have the curiosity and imagination to adapt goods and services to their own needs. Developing a wide set of skills is important for all individuals, not just for the sub-set who will go on to innovate.

Together, these insights help define the role of education in innovation. Developing excellent subject-based knowledge is undoubtedly important for an innovative society, but it is not enough on its own. In addition to raising academic achievement across all levels of education, innovation policies need to pay more attention to what skills young people acquire. Fostering critical thinking, creativity, and behavioural and social skills should be viewed as a central element of the remit of schools, colleges, and universities.

How can different types of school education develop skills for innovation?

Work by the OECD Centre for Educational Research and Innovation (CERI) highlights several areas where school education can help develop skills for innovation. In general, there are good examples of how schooling may foster innovation, but the link between the two is still not fully understood.

Improving students' knowledge and learning outcomes is an important indicator and target in many national education systems. But evidence suggests that performance in exams or standardized tests—the way these outcomes are usually measured—is not necessarily associated with the skills that matter for innovation. Using data from the 2006 OECD Programme of International Student Assessment (PISA), Avvisati and Vincent-Lancrin (forthcoming) highlight a negative correlation between national-level student test scores in science and interest in science. In fact, few countries successfully manage to combine above-average levels of student interest in science with above-average performance in the PISA science test. Countries range from those with comparatively low test scores and high interest in science (e.g., Mexico) to those with comparatively high scores and low interest (e.g., Finland), but a few do have relatively high scores and high interest (e.g., Japan). Because scientific interest was measured by embedded questions in the PISA questionnaire, these international patterns are unlikely to be simply the result of cultural differences among countries.

Looking at the *within-country* pattern (i.e., among schools in a single country), there is substantial diversity across countries. The negative association between interest and PISA test scores in science holds for around half of OECD countries. In Brazil, Chile, and the United States of America, for example, schools with the best test scores in science tend to have lower levels of student interest in science, suggesting that the prevalent modes of teaching and learning may develop disciplinary knowledge at the expense of interest in the topic or curiosity. But schools with strong science test performance in some other countries, such as Japan or the Republic of Korea, seem to also have students with high levels of interest. (It is noteworthy that this within-country pattern can hold in countries such as the Republic of Korea, where overall student interest

in science topics is low by international standards.)

The apparent trade-off between performance on tests and curiosity of pupils is thus neither universal nor inevitable. Since engagement and motivation is a key aspect of the skills required for innovation, it is important that teaching and learning activities to improve proficiency on science tests do not undermine the development of other skills.

Which teaching practices can foster both competence in scientific knowledge while maintaining students' engagement and curiosity? Analysis of the same PISA data on science teaching points towards the importance of linking classroom topics to real-world applications. Avvisati and Vincent-Lancrin (forthcoming) examine how four different types of science pedagogy (application, hands-on activities, interaction, and investigation) relate to student attitudes and performance. Of the four teaching models, increasing the time dedicated to application-based pedagogies is estimated, controlling for other factors, to have the largest positive association with interest and enjoyment of science, although there is no clear association with performance in the PISA science test. The results indicate that developing positive attitudes among science students in school requires more than just aiming at good test results, and that linking classroom theory to everyday problems is a way of fostering motivation alongside efforts to improve subject knowledge.

The use of classroom technology is also often put forward as a way of helping enhance skills such as creative thinking, engagement, and collaboration. Kärkkäinen and Vincent-Lancrin (2013) outline how technology-enhanced teaching models in STEM education—such as online laboratories or educational gaming—can expand the range of learning opportunities available to students and, in the right circumstances, help develop higher-order thinking. But technology—be it interactive whiteboards, tablet computers, or other tools—is best viewed as facilitating appropriate teaching and learning of these skills rather than replacing the traditional classroom.

In mathematics education, too, increasing attention is being paid to the teaching and learning models that best equip students with useful, long-lasting skills rather than providing them solely with the ability to pass tests and use mathematics within the confines of the classroom. In particular, the skills needed to solve unfamiliar, complex, and non-routine mathematical problems are likely to be important in an innovative society. A particular skill associated with the ability to tackle such problems is metacognition, or one's control of the thought process around learning. In contrast to commonly used techniques such as rote-learning or memorization, metacognitive teaching models guide students to consciously think about the process behind solving mathematical problems. Findings from a number of experimental studies show that metacognitive mathematics teaching can improve test performance in mathematics and, simultaneously, foster important skills such as maths reasoning and motivation, which may contribute to innovation.[4] Though such new instruction models need to be tested on a wider scale, there appears to be scope in many countries to focus on developing a wider set of mathematical skills.

Reflecting the breadth of competencies used in innovation, efforts to foster innovative skills among school students should also look beyond science and mathematics. The link between arts education and innovation, especially, is often recognized. Indeed, graduates of tertiary arts programmes are among the most likely to contribute to product or service innovation.[5]

As summarized in Winner et al. (2013), arts education can influence the skills used in innovation in a number of ways. Different types of arts education help develop verbal or visual-spatial skills, which in turn play an important role in non-artistic fields such as verbal competence (speaking, reading, and understanding written text) and in some maths or science activities. Most notably, experimental studies show that one-to-one music lessons have a positive effect on IQ and academic achievement, and that music education enhances verbal skills. Theatre education leads to an improvement in verbal skills; visual arts education improves observational skills and probably visual-spatial skills and geometrical reasoning, while more tentative evidence suggests that dance education enhances visual-spatial skills. Experimental research also shows that theatre education has a positive impact on the development of some social and emotional skills such as empathy, perspective taking, and emotion regulation—skills that are key dimensions of communication.

Although there is as yet no clear evidence, good arts teaching probably also typically develops some of the habits of mind that are crucial for innovation. And although most studies that have examined the link between arts education and creativity (measured by paper-and-pencil tests such as the Torrance Tests of Creative Thinking)[6] find a positive association, it is too early for general conclusions to be drawn. But a recent ethnographic study of high-standard

visual arts teaching shows that good teachers explicitly try to develop not only technical artistic skills but also creativity, critical thinking, and persistence.[7] Moreover, the typical teaching methods are highly personalized and include class projects, individual consultations with teachers, mid-project critiques, peer review, and a presentation of one's work to other students or a wider audience. Teaching methods in visual arts (and many other art forms) thus seem closer to the teaching practices that can nurture skills for innovation than those generally used in academic subjects.

Another pillar in innovation and education policy is aimed at increasing the rate of entrepreneurship. Entrepreneurship education is a popular policy tool to develop entrepreneurial skills and encourage a more favourable culture and attitude towards innovation and the creation of new firms. The content of entrepreneurship education often varies. School-level entrepreneurship education often involves trying to foster entrepreneurial skills through problem-solving activities and contextual learning based on interactive projects and games. By contrast, entrepreneurship education for upper-secondary school pupils and young adults is more typically based on providing information and developing the practical knowledge and skills needed to run a business. For example, the INJAZ Junior Achievement programme in the Middle East aims to provide business skills and financial literacy to students in Egypt, Jordan, Lebanon, Morocco, Saudi Arabia, and the United Arab Emirates through a mixture of classroom and extracurricular activities.[8]

However, the relative importance of education compared to other underlying determinants of entrepreneurship is still uncertain. The pervasive 'jack-of-all-trades' theory of entrepreneurship posits that successful entrepreneurs are generalists with skills in a variety of fields rather than specific expertise in one area.[9] This theory points to the importance of broad-based schooling. But many of the thinking and behavioural skills required for innovation are also central to entrepreneurship, in addition to characteristics such as the ability to adapt to change and to tolerate risk and uncertainty. Therefore, the lessons from the different teaching methods discussed above are also highly relevant for fostering entrepreneurial as well as innovative potential.

Evidence of the effectiveness of school-level entrepreneurship education programmes is mixed. Oosterbeek et al. (2010) showed that a 'mini-company' initiative in the Netherlands had no statistically significant effect on the entrepreneurial skills of students and a significant negative effect on their willingness to start a business. But other studies suggest that entrepreneurship education in school can develop non-cognitive entrepreneurial skills (including persistence, creativity, and proactivity), at least in the short term.[10] More work is needed to draw general conclusions and determine the successful elements of this type of intervention.

What are countries doing to foster innovation skills in school education?

By influencing what and how children learn, school curricula play a central role in developing skills from an early age. The role of skills for innovation in national curricula appears to have become more prominent in recent years in many countries. A survey of OECD countries in 2009 found that all responding countries included at least some aspects of 21st-century skills in primary and lower-secondary curricula.[11] Most primary and secondary education curricula in developed countries refer to critical thinking, creativity, problem-solving, and social skills.

Different country efforts take many forms. Denmark's 2012 National Innovation Strategy,[12] for instance, promotes the integration of innovation and entrepreneurship into the mainstream curriculum and increases practice-based teaching in schools and innovation courses in teacher training programmes. In addition, some countries—including Finland, Portugal, and Sweden—have embedded entrepreneurship education into primary and secondary school curricula, while a number of OECD countries, including Australia and Ireland, encourage the integration of information and communication technologies into schools. However, although national curriculum efforts to boost entrepreneurship and innovation skills appear to be pervasive across OECD countries, it can be hard to identify their impacts. Despite national policies, implementation can vary significantly across countries, and teaching tends to vary widely on a school-by-school basis. Though national curricula are important, maintaining school diversity and a variety of different teaching approaches can have many advantages.

Even in many Asian economies, where education systems have typically been associated with traditional learning models and a narrow focus on STEM subjects, there are signs of new efforts to emphasize creativity and critical thinking in national curricula. Since 2009, the Republic of Korea (an OECD country) expects its schools to foster creativity as part of subject-based learning, but also to devote almost 10% of overall school

time to projects and other transversal activities that foster creativity. By the end of secondary school, students in Singapore are expected to have developed critical and inventive thinking skills as well as social and emotional abilities such as being 'resilient in the face of adversity'. Singapore has also adopted a mathematics curriculum based around metacognitive approaches to complex problem solving. In China, since 2009, more emphasis has been placed on changing traditional teaching models. In Indonesia, the practice of 'lesson study' aims to promote professional learning among teachers and help them to reflect on their teaching methods and align those methods with the needs of students.[13]

In many other countries across the world, education systems start from different positions and face different challenges in curriculum reforms. In India, for example, the rote learning system (i.e., repetition as a technique for memorization) that still prevails in many Indian schools impedes the development of curricula focused on skills for innovation. But encouraging examples of curriculum reform and organizational innovation have started to appear in India—the Apeejay school network, for example, promotes educational programmes for creativity and innovation, with practices such as enquiry-based projects designed to develop creativity and original thinking.[14] Not all efforts need to take place in the classroom, however. In Costa Rica, for example, the Innovating at Home programme aims to teach parents how to develop their children's creativity from an early age.[15] These examples show there is increasing emphasis and interest in developing wider skills in a variety of country contexts.

Developing skills for innovation in school: Remaining challenges

Despite policy efforts in many countries to place more attention on the skills that school students acquire, a number of shared challenges remain. One potential barrier to developing skills for innovation is student assessment.

Assessment processes at the school level are typically poorly aligned with skills for innovation. Despite the fact that curricula in an increasing number of countries emphasize a wide range of skills, student assessment tends to focus heavily on content knowledge and cognitive skills.[16] This might reflect the fact that assessments focus on the competencies that are most understood or are easiest to measure, or that assessment is limited to formats that are easy for teachers to mark and those that allow different pupils, schools, and regions to be easily compared.

High-stakes examinations generally imply that teaching and learning activities become conditioned on preparing and passing tests. Often teaching becomes focused on the mechanical learning of what is tested rather than on developing student skills across the board. The potential benefits from, say, application-based or metacognitive teaching may become apparent only when assessments try to measure factors such as problem solving or reasoning. This has been shown in studies of problem-based learning in higher education, and may also be true in primary and secondary education. Although one might expect that 'teaching to the test' could foster positive outcomes if tests were appropriately designed to reflect different competencies, it is not possible to design (short) tests that reflect all the competencies that society values.[17] The inclusion of a broader range of competencies in new forms of assessment would, however, give all stakeholders greater incentives (see Box 1).

More progress is required across the world to ensure that educational assessment encourages schools to produce well-rounded students. This will require efforts not only from policy makers and school decision makers but also from teachers, who may need to be trained to assess a variety of student skills. Innovations such as formative assessment tools or curriculum-embedded assessments can help to ensure that teachers are

Box 1: Assessing creativity in schools

A study commissioned by the OECD and the CCE (Creativity, Culture and Education) examines how creativity could be assessed by primary school teachers. Lucas et al. (2013) propose a prototype tool for assessing creativity in schools that maps the habits of mind or dispositions associated with creativity along five principal dimensions: inquisitive, persistent, imaginative, collaborative, and disciplined. Two field trials of the assessment tool in 17 primary schools in England showed that the tool allowed teachers to be more precise and confident in developing pupils' creativity, while children showed signs of better understanding and being able to record their progress. Although the focus is on creativity, the tool is broad enough to capture other skills such as 'collaborative' competencies, which have a strong bearing on behavioural and social skills. For schools, the tool had the advantage of reminding teachers of the importance of a broad set of competencies and what they mean in the school setting. Further development of such formative assessment tools could increase teachers' and students' awareness of skills for innovation and help these skills be monitored in school learning.

equipped to assess real student learning in a timely manner.[18] In addition, advances in software development have increased the potential for computer-based assessments (both formative and summative), increasing the capability for a wide range of skills to be assessed in a flexible manner. Finally, the development of longitudinal information systems that track students' progress over time represent a good vehicle that can be used to monitor progress in acquiring a variety of skills over time and to design appropriate and personalized interventions for that purpose.[19]

Opportunities and challenges for the Global Innovation Index

The issues discussed in this chapter raise some interesting issues for the GII. At present the Index uses (if available) a number of school-level education indicators, including expenditure on education; school life expectancy; pupil-teacher ratios; and PISA results in reading, maths, and science. Given current data availability and measurement challenges, these indicators adequately capture the role of education in innovation, but there could be scope to broaden the range of indicators in the future.

The first point to note is that, in many countries, the first priority in widening the pool of individuals available to take part in innovation is to strengthen educational participation and the foundation skills of individuals. Changes in indicators that reflect these fundamental priorities remain relevant for the GII.

Second, the ongoing development of the OECD PISA assessment should, over time, allow the GII to draw from a wider set of indicators on pupil skills. Since 2003 PISA has included a paper-based measure of problem-solving skills, defined as an individual's ability to use cognitive processes to confront and resolve real, cross-disciplinary questions. In PISA 2012 the definition of problem solving was revised and assessment moved to a computer-based test. The computer-based testing can assess how willing a student is to engage with a problem rather than just checking for a right answer. In 2015, PISA will include a computer-based assessment of collaborative problem-solving skills, measuring the capacity of an individual to a group's success in problem solving by sharing effort and understanding.

But other existing and yet-to-be-developed indicators could, in the future, help better capture how well countries' education systems support innovation. First, more international data are needed on student outcomes in the areas of creativity, critical thinking, and behavioural and social skills. Many of these skills can be measured but indicators on a wider scale are still lacking. Tests for creativity, for instance (such as the Torrance tests) already exist, but widespread and field-specific measures would help assess the different aspects of student creativity in diverse fields. Data on student attitudes towards entrepreneurship (which already exist in many countries) could also contribute to the GII, though caution is needed as attitudes can reflect a number of issues. The second main opportunity for new indicators is proxies of educational processes conducive to developing skills for innovation. The fact that school assessment processes tend to be poorly aligned to skills for innovation means that a wider range of information on how schools in different countries operate is needed. Indicators of national curricula, assessment mechanisms, the use of active teaching models, university entrance exams, and work organization in the education sector could all shed light on the conditions for skills development.

Concluding remarks

In the context of a globalized world where innovation is a main driver of long-term economic growth, one of the key challenges for education and training systems is to find effective ways to equip more people with the skills to contribute to innovation in all its forms. Evidence points to a range of skills that are required for innovation, with these requirements varying by innovation type. Education in many disciplines can contribute, but the way subjects are taught is as important as the subject matter—linking content to real-world applications and teaching students the skills to address new problems are important. Although many countries are addressing the kinds of skills needed for innovation in their curricula, school assessment methods may provide a barrier to their development. More metrics are needed for policy makers to gauge progress in fostering innovative and entrepreneurial competencies and to allow the GII to capture a broader range of student learning outcomes. Addressing these issues is one of the key ways education systems can produce young people able to adapt to and engage in the global knowledge economy.

Notes

1 The REFLEX survey is a large-scale survey of higher education graduates in 14 European countries and Japan. It was conducted in 2005 and financed by the Sixth Framework Programme of the European Union. See http://www.fdewb.unimaas.nl/roa/reflex/.

2 See, for example, Tether et al., 2005.

3 Toner, 2011.

4 Mevarech et al., 2010.

5 Avvisati et al., 2013.

6 Torrance, 1998.

7 Hetland et al., 2013.

8 Reimers et al., 2012.

9 Lazear, 2004.

10 For example, Rosendahl Huber et al., 2012.

11 Ananiadou and Claro, 2009.

12 See http://ufm.dk/en/publications/2012/files-2012/innovation-strategy.pdf.

13 OECD, 2013.

14 See OECD, 2012.

15 This example comes from the response from Costa Rica (unpublished) to the OECD Science, Technology and Industry Outlook 2014 survey.

16 Ananiadou and Claro, 2009.

17 Looney, 2009.

18 Schleicher, 2012; Kärkkainen and Vincent-Lancrin, 2013.

19 OECD, 2010.

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Higher Education in India: Growth with Challenges

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The British economist Joan Robinson once said,'. . . whatever you can rightly say about India, the opposite is also true.'[1] Nowhere is this more true than in higher education. Excellence at a few institutes co-exists with mediocrity at many others. The opportunity for social mobility grasped by millions of Indians who obtain a college degree contrasts vividly with the waste of millions who remain excluded from a system in which they cannot afford to participate. And the dynamism presented by the creation of new private institutions throws into relief the stagnant governance structures of Indian public universities.

Higher education has grown very rapidly in India over the last 30 years, with the proportion of those who attend tertiary institutions to the relevant age group rising from 6% in 1983 to around 20% by 2011.[2] This growth has been greatly compressed into only a few areas. First, most of the growth has occurred primarily in professional fields, especially engineering and management. Second, the growth has occurred in teaching rather than in research, with public research in India highly concentrated in autonomous research institutes instead of universities.[3] Third, most of the growth has been in private institutes rather than public ones. And fourth, because the most dramatic growth has been in professional education such as engineering and management, the humanities and social sciences have been neglected.

Such rapid growth, concentrated in private rather than public institutions and focused on only a few professional fields, has given rise to four crucial challenges. These are the need to ensure quality, to build graduate education and research universities, to provide equity of access, and to build excellent liberal arts universities. This chapter considers ways in which the growth of the higher education system has been compressed and the challenges that have followed, and provides suggestions for how these challenges can best be tackled.

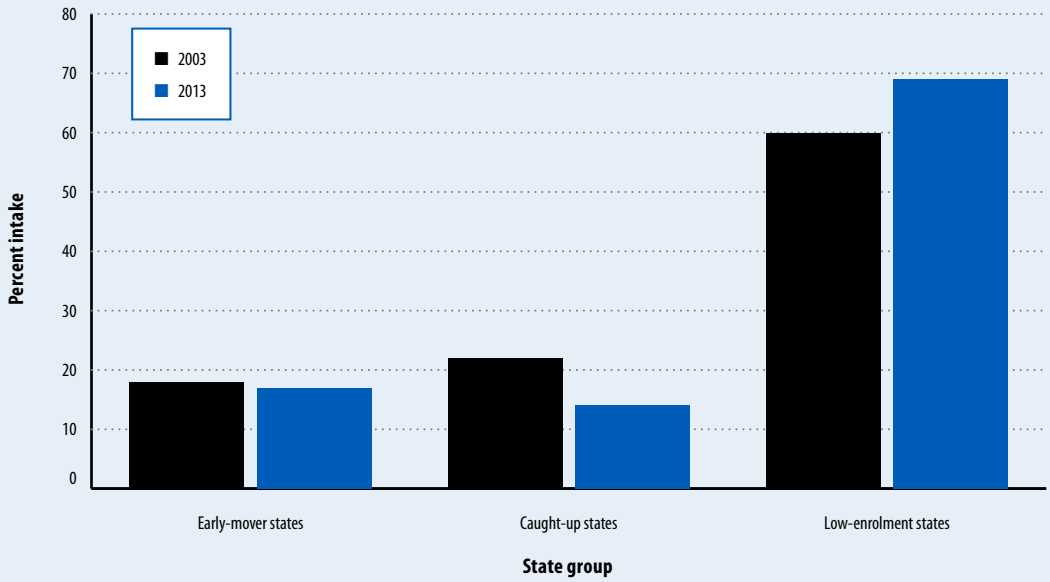
The problem of quality

Engineering, pharmaceuticals, business, and computer applications have been the recipients of most of the growth in higher education in India. Both the number of engineering colleges and their enrolment have grown at a rate of 20% a year for 30 years. At the height of this boom—from 1995 to 2010—India opened the doors to approximately one new engineering college and one new management institute each day. In 2012–13, India had around 3,500 engineering colleges and 2,500 management institutes.[4] In 2013, out of the nearly 1.5 million approved engineering seats, almost 1.2 million new students were admitted to various engineering programs across India (see Figure 1). This is a 30-fold increase over the 1983 annual enrolment of 40,000 engineers. This growth has contributed directly to India's abundance of engineers, but raising their quality is a pressing concern and represents the first challenge.

To keep the quality of an engineering education level with the quality it had 30 years ago (hardly an ambitious goal), the number of faculty would need to have increased 30-fold.[5] Because PhDs in science and engineering have only doubled and those holding a Master's degree in science and engineering have only tripled, the number of those who have achieved the credentials to teach at the tertiary level has not kept pace, so the number of faculty needed to ensure quality teaching falls very short. In fact, a severe faculty shortage affects almost every Indian institute.

Various attempts have been made to address the quality problem. Most of these have focused on regulation, which can dictate the physical infrastructure for institutes and the qualification requirements for faculty. More useful measures have taken the form of various schemes to entice Indians with PhDs who are working overseas to come back home (an example is the Ramalingaswani Re-entry Fellowship programme) and programmes to make a career in academics and research more attractive to recent graduates (such

Figure 1: Percent total undergraduate engineering student intake by state groups, 2003 and 2013



Source: Personal communication, Dr S. S. Mantha, Chairman, AICTE, 7 February 2014.

Note: 'Early-mover states' are those that expanded college enrolment early (these encompass 30% of the population); 'Caught-up states' are those that expanded college enrolment later, but have now caught up (these encompass 19% of the population); and 'low-enrolment states' are those where college enrolment is still disproportionately low (these encompass 51% of the population).

as the J.C. Bose National Fellowship programme).[6] Such programmes will have some impact, but it will be felt mainly at the top end of the institutional scale. Well over half the faculty at the great bulk of institutes in India are 'temporary' faculty who do not have to meet the requirements, and who have to date displayed little interest in graduate programmes or research. It seems that trying to regulate quality into institutes has largely failed. Instead, a combination of market and institutional mechanisms has much greater potential for providing an effective boost to quality in education.

For many years, when demand for professional course seats exceeded supply, tertiary institutions had little incentive to improve the quality of their faculty or their facilities. The supply of places at institutes of higher learning has now exceeded demand in India for the last five years in the southern states of the country,[7] and institutes are finally being forced to compete with each other to attract enough students. Simply relying on the market to weed out those institutes that cannot perform at an improved level and thus provide a higher-quality education, therefore, will address much of the problem. The state can also play a useful role in ensuring that this happens, however, first by ignoring the cry of incumbent colleges to limit the number of new seats and new institutes. Second, introducing a strong compulsory accreditation and assessment programme that publishes college quality indicators would go a long way towards harnessing this market solution. And third, one could emulate the state university system prevalent in the United States of America (USA) in the second half of the 20th century, where a few excellent (and relatively inexpensive) state universities provided an excellent 'quality control' pool for more expensive private universities that must either be better in some way than their public counterparts or admit less-qualified students.

What evidence is there that relying on the market to improve matters in higher education will work? As noted above, some improvement in the five states where supply exceeds demand is already in evidence. Moreover, consider the geographical concentration of India's higher education system. In 2003, the five southern states accounted for two-thirds of seats and less than one-third of the population.[8] This mismatch was entirely a supply-and-demand

Table 1: Undergraduate engineering student intake by states

State categories	Annual student intake (2003)	Percent of total	Annual student intake (2013)	Percent of total	Population (2011)	Percent of total
States that moved early in expanding college enrolment (Tamil Nadu, Andhra Pradesh, Maharashtra, Karnataka, Kerela)	248,700	69	695,871	60	363,603,498	30
States that moved later but have caught up (Madhya Pradesh, Gujarat, Orissa, Haryana, Punjab)	50,294	14	260,215	22	228,135,519	19
States where college enrolment is still disproportionately low (Uttar Pradesh, West Bengal, Rajasthan, Bihar, others)	62,302	17	210,381	18	618,830,556	51
Total	**361,296**	**100**	**11,66,467**	**100**	**1,210,569,573**	**100**

Source: Personal communication, Dr S. S. Mantha, Chairman, AICTE, 7 February 2014.

issue. The five southern states had been the first to permit private engineering colleges, and student demand followed. Recent work by Chandrashekhar and Sharma shows how, over the last 10 years, 5 million students migrated from states such as Bihar, Uttar Pradesh, West Bengal, and Rajasthan to prosperous states such as Karnataka, Maharashtra, and Delhi in search of an education.[9] That migration prompted other states to join in the private education boom to meet the demand of their own students. By 2013, many other states—such as Madhya Pradesh, Gujarat, and Punjab—had caught up, and their share of engineering students now reflects their share in the population (see Table 1).

The need to build graduate education and research universities[10]

The concentration by field has combined with a focus on teaching programmes. Graduate technical education has stagnated relative to undergraduate education. There are some signs of life now, with the better private engineering colleges starting Master's degree programmes and the Indian Institutes of Technology (IITs) growing their PhD programmes in a big way. But India will need 10 years of increased output to address the faculty shortages just at the top technical institutes, even before beginning to substantively address the shortages that are rife across the country's mainstream technical education system. Even at the very top, a recent article indicates that the 15 IITs have over 2,000 faculty vacancies—equivalent to more than one-third of its total faculty positions.[11]

Thus the second challenge is to raise the quantity and quality of graduate technical education, an issue linked to where public research is done. Although India was also an early investor in public scientific research, this investment went overwhelmingly into autonomous scientific research institutions. The result of doing scientific research in autonomous institutions has been that research has largely bypassed the university system.[12]

A few leading institutes, especially the IITs, are now focusing much more on research than they did in earlier years,[13] but most publicly funded research is still done in autonomous institutes. Although research in the higher education sector has grown (from 1% to 4% of national research and development, or R&D, funds) over the last 20 years, even its current level of 4% compares poorly with an international norm of 15% to 25% of national R&D spending. Instead India continues to locate over 90% of its public research spending within autonomous institutes. Every other major economy concentrates public research within the university system.

Doing public research within the university system is a long-established international principle.[14] High-quality graduate education requires research, and combining research and teaching will benefit both. World-class graduate education requires teachers who do research. And the benefits to be had by combining research and teaching do not flow only one way, to teaching. Research too benefits, which is particularly important for India's innovation system.

The successful experience of the Republic of Korea and Taiwan, Province of China, for example, indicates that the flow of innovation runs sequentially from industrial development to industrial in-house R&D and then to public scientific research. An industrial sector competing with the best firms in the world in increasingly sophisticated industrial sectors is a requirement for sustaining investment in in-house R&D, and strong in-house R&D is

a requirement for sustaining investment in public scientific research of value to industry. It is only since 1991 that Indian industry has increasingly had to compete with the world's leading firms. This competition in turn has driven greater investment in in-house R&D by specific Indian firms and industries such as pharmaceuticals. The more advanced technological sectors in Indian industry are only now capable of utilizing, and therefore sustaining, public investment in scientific research. By combining this research with teaching, the Indian economy will get the primary benefit of doing research: availability of trained researchers.

The issue of the isolation of Indian public research has simply received no public attention and is not on the reform agenda. Indeed, at a minimum India should grandfather the problem and allocate increases in public research spending to the higher education sector. Instead, the problem is perpetuated. In the government's 11th Plan (2007–2012),[15] 14 new autonomous public research institutes were initiated; in the current 12th Plan (2012–2017), doors are opening on another seven public research institutes.[16] Opening new autonomous research institutes outside of the higher education system remains the number one long-term problem with the Indian higher education system. It is foolish to remain oblivious to something where contrary international evidence is so overwhelming, so well founded, and so well known.

Providing equity of access

The rapid growth of the Indian education system has overwhelmingly taken place in the private sector, leading to concern about equity and access. Engineering enrolment rose from 15% in private institutes in 1960 to over 90% by 2006–07.[17] Growth in public-sector higher education over the last 30 years has been small, with some renewed investment only in the last eight years.[18]

Obtaining clear data on just what proportion of spending on higher education is put towards public education and what is put towards private education is not easy in India. The official numbers indicate that India spends around 0.5% of GDP on higher education.[19] My—very rough—estimate indicates that private spending on higher education is about 2% of GDP.[20] Why does this not show in the official data? Many private engineering and medical colleges charge before the admission what are called 'capitation fees'—they collect a certain amount as a cash donation (sometimes with no receipt) and put this in a trust that is formed to receive the money. The amount charged for the capitation fee varies considerably, based on course and institute desirability. A good private engineering institute in Maharashtra, for example, would charge an official fee set by the state of US$1,500 per year, but would add a capitation fee of US$15,000 as an immediate, one time 'donation' to the trust before admission is granted. The fees for attending a medical college would be even more extreme.

Overall, Indian higher education is increasingly private and increasingly expensive, in spite of the growing state regulations regarding what can be charged and who can be admitted. The fact that spending on private education is evident in surveys of consumer spending but not in official education data means that capitation fees, long made illegal, are alive and well.[21] The conclusion is clear: as Kapur and Mehta put it in the title of their 2004 paper, Indian education has gone from 'half-baked socialism to half-baked capitalism'.[22] So the fourth challenge is to provide equity of access for all Indians.

Only the very best performing poor (who get into some leading public institutions such as the IITs on merit) have access to high-quality education. They cannot afford the bulk of private education on offer, and they cannot access loans because the fees must be paid unofficially in cash. The result is that student loans cover less than 3% of students; this is in substantial contrast to the situation in the USA, the United Kingdom, and Australia, where more than 50% of students obtain student loans.[23] Reforms that free all institutes to charge the fees they wish would allow poor students to obtain loans for their education. The state could then guarantee all student loans, which could be made available through the banking system. These loans could be repaid in an equitable way. One of the most interesting approaches to student loan repayment is the Australian system, where education loans are repaid through a surcharge percent on income tax paid.[24] This has the merit of speeding up repayment for those earning more and reducing or eliminating it for those in low-paying occupations. Finally, there is no reason for the state to subsidize the tuition of professional courses at the IITs or Indian Institutes of Management (IIMs), where median earnings after graduation comfortably cover the cost of education. The money saved by not subsidizing professional education could be used to fund a loan or grant programme for poor students.

Building world-class, full-service research universities

A focus on professional fields has the corollary of neglect of the social sciences and humanities. India today

arguably does not have even a single world-class, full-service university.[25] The country requires several. The last 10 years have begun to see some private investment in liberal arts colleges and a few endowed universities. Much remains to be done, however, to build full-service universities that provide an excellent education in the humanities and social sciences. The abundance of political and intellectual freedom in India can help the liberal arts to thrive, and the country's education policy should make full use of this advantage.

The most elusive feature of a world-class institute is excellence. Excellence is hard to define—most university presidents who have it say it is 'in the water'. But in whatever way it is defined, excellence is sorely missing in Indian higher education. Only at the Indian Institute of Science (IISc) Bangalore, the country's IITs, and some IIMs can one find excellence in abundance. Creating a culture of excellence in an existing educational institution that is only mediocre is a much harder task than growing new fields in an institution that already has it. Because of this, India's best chance of creating a few world-class, full-service universities is to grow its IITs and its IISc into full-service universities, where graduate and undergraduate educations are combined and where science, engineering, and the liberal arts and humanities are all of equal merit. Establishing full-service universities from the IITs and IISCs should be the Indian government's project for the next 20 years.

Conclusions

The relatively small reform of the early 1980s of allowing private colleges in some states triggered a massive expansion of professional education, almost all privately provided. We should not underestimate just how impressive this expansion has been, but the quality problem India now faces is a direct consequence of its emphasis on quantity over quality. The solution is not to limit expansion but rather to improve quality. In typical Indian style, the state manages to simultaneously overplay and underplay its role. The state over-regulates private institutes, limiting what can be started, how many students can be admitted, what fees can be charged (although it has been unsuccessful in eliminating the persistent capitation fees), and the curriculum that is taught. At the same time, it underplays the assessment of institute quality, which it should publish; continues to spend money on public research in the wrong place (autonomous institutes); and grossly underinvests in the liberal arts and social sciences. Meanwhile, the public agenda is dominated by debate on extending caste-based reservations in public and private institutions, a move focused nine parts on electioneering and one part on educating.[26]

India has a tremendous opportunity, an opportunity provided by a unique combination of the huge availability of talent in student numbers with an education system that—with all its problems—has demonstrated its ability to respond effectively to market demand, a strong social propensity to invest in education at great personal cost, and an abundance of the political and intellectual freedom in which academic enquiry can thrive. To produce 1.5 million engineers a year, of whatever quality, is no mean achievement. India must now move on four fronts: first, it must build true research universities by moving public research funding from autonomous institutes to the university system. That will grow graduate programmes, which will simultaneously provide faculty for the education sector and trained researchers for industry. Second, it must use the market more and more to improve quality in the largely private professional education system, with the state ensuring public assessment so parents and students decide which institutes are of adequate quality to survive. Third, it must ensure equity of access on merit by permitting institutes to set their own fees and recover costs in a transparent manner, for which state guaranteed loans are easily available. The state will need to step in to provide adequate support for non-professional fields, but there is no reason to subsidize education in an IIT or IIM or to regulate what an engineering college can charge. And finally, it must focus higher education investment on building a few world-class, full-service universities that will produce the country's intellectuals of the future. India must not squander this opportunity.

Notes

1 Sen, 2005.

2 Minglebox.com, 2013; World Bank Data, available at http://data.worldbank.org/indicator/SE.TER.ENRR.

3 Examples of autonomous labs across the country are the 39 labs within the Council for Scientific and Industrial Research (CSIR) labs.

4 Personal communication from Dr S.S. Mantha, Chairman, All India Council for Technical Education (AICTE), 7 February 2014.

5 Although subjective and difficult to quantify, a 'poor quality' engineering education means that students who receive such an engineering degree have low employability because of their poor skillset.

6 The Ramalingaswami Re-entry Fellowship programme was instituted by the Ministry of Science & Technology's Department of Biotechnology in 2006. See http://dbtindia.nic.in/docs/Ramalingaswamiadvertisement%2013-14.pdf for details. For information about the J. C. Bose Fellowships, see Government of India, Ministry of Science & Technology, 2005.

7 The southern states where places have exceeded demand are Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, and Kerala, which together accounted for two-thirds of all engineering seats until a decade ago.

8 Forbes, 2003.

9 Chandrashekhar and Sharma, 2014.

10 Much of the material in this section is taken from Forbes, 2013.

11 Srivastava, 2013.

12 Forbes, 2013, p. 261.

13 Ramya, 2013.

14 See in particular the work of Nathan Rosenberg and Richard Nelson, and especially Rosenberg and Nelson, 1994; Nelson, 1993; Pavitt, 1998; Mowrey, 1998; and OECD, 1998.

15 Government of India, Planning Commission, 2007.

16 Government of India, Planning Commission, 2013a.

17 Cheney et al. 2005, p. 17; Ernst & Young, 2011, p. 19.

18 The government has set up 8 new Indian Institutes of Technology, 7 new Indian Institutes of Management, and 74 new state universities in the last eight years (Government of India, Ministry of Human Resource Development, 2011a, b; UCG, 2012).

19 UGC, 2008.

20 My estimate combines the work of Agarwal (2006) with University Grants Commission data for public spending (University Grants Commission, 2008) and some investigating with National Sample Surveys (Government of India, Ministry of Statistics and Programme Implementation, no date) of consumer spending.

21 *The Times of India,* 2013.

22 Kapur and Mehta, 2004; see also Kapur and Mehta, 2007.

23 Agarwal, 2006.

24 In India, cess is collected by the government as a percent of all taxes (income tax, service tax, excise duty tax, etc.). This money is then used directly to subsidize the tuition fees of professional courses of government-sponsored academic institutions, some of which—such as the IITs and IIMs—have excellent reputations. Students who graduate from these high-status institutions generally get well-salaried jobs and ideally can repay the cost of their education. These students usually do not need the cess to cover their education cost, unlike students from lower-rank institutions, which are not funded through cess.

25 At a presentation on our higher education system that I made at the Planning Commission some years ago, I repeated this assertion. After much heated discussion a few held that we perhaps had one, in JNU (Jawaharlal Nehru University, in Delhi). For a country of our size to have arguably one world-class liberal arts institution surely proves the point!

26 Sharma, 2014.

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Innovative Activities and Skills

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With the transition to a knowledge-based economy, innovation has become a driving force for economic and social change. It is already more than just a factor in the production of goods and services—it has become a form of mass awareness of both innovation and its implications.[1] In this central role, successful innovation requires the population to obtain a higher level of education, to be more creative, and to boost their ability to perceive essential achievements in science, technology, and innovation (STI) and implement those in daily practices. Progress today therefore depends not only on an economy's level of development in STI, but also on the depth of its penetration into society as well as the intellectual potential of the population, its competence in generating and applying new knowledge, and its ability to adapt to qualitatively new trends of STI development.

Population plays multiple roles in innovation.[2] It acts as the subject of production, a role that requires not only basic STI knowledge but also an ability to continuously perfect professional and technical skills. As consumers, people perceive and use new products and technologies. As citizens, they may engage in discussions of critical STI issues and of respective government policies. A lack of necessary skills in any particular part of the population becomes an obstacle to the creation and distribution of new technologies and social practices throughout society. Because technological changes occur rather quickly and on a global scale, such a lack puts nations that have not carried out a timely transition to the new technological structure at risk of being left behind.[3]

For this reason, national governments seek to learn more about the types of skills needed for innovation and about efficient ways to engage the population in innovative activities, including, in a broad sense, the generation of innovation and its implementation, social recognition, and dissemination. This chapter provides some insights on human capital inputs into innovation on the basis of relevant surveys (see Box 1).

Readiness to innovate

People perceive innovation at both macro- and micro-levels. While the former is associated with a nation's economic and social progress, the latter is connected to the quality of an individual's life. The balance of these interpretations indicates social legitimation of innovation in the 'lifeworld' where 'people both create social reality and are constrained by the preexisting social and cultural structures created by their predecessors'.[4] The case of the European Union (EU) is exemplar: the average ratio between the two groups that clearly recognize the importance of innovation for both economic growth and personal lives is 1:1 (42% and 43%, respectively) (Figure 1). The picture for the Russian Federation is rather different: it demonstrates a substantial gap between the perception of innovation as a source of economic growth (39% of respondents in 2011) and its actual impact on daily life (17%). Even though the first group has nearly tripled during 2009–11, the second group remains stable.

Further to the work of Inglehart (1997), we suggest that such discrepancies between perception and impact assessments correlate with an economy's position on a transition curve towards a post-industrial, innovation-based economic model. The percentage of respondents who understand the economic value of innovation—that is, its effects on the competitiveness of companies and their products—in the Russian Federation is two- to threefold lower than the EU average. The gap with countries notable for the highest shares of innovating companies in industry, such as Germany, Luxembourg, Belgium, and Sweden, is even greater. In those EU countries with minimal scores of innovation activities in industry, such as Lithuania, Bulgaria, Latvia, and Romania, appreciation of the economic value of innovation is lower

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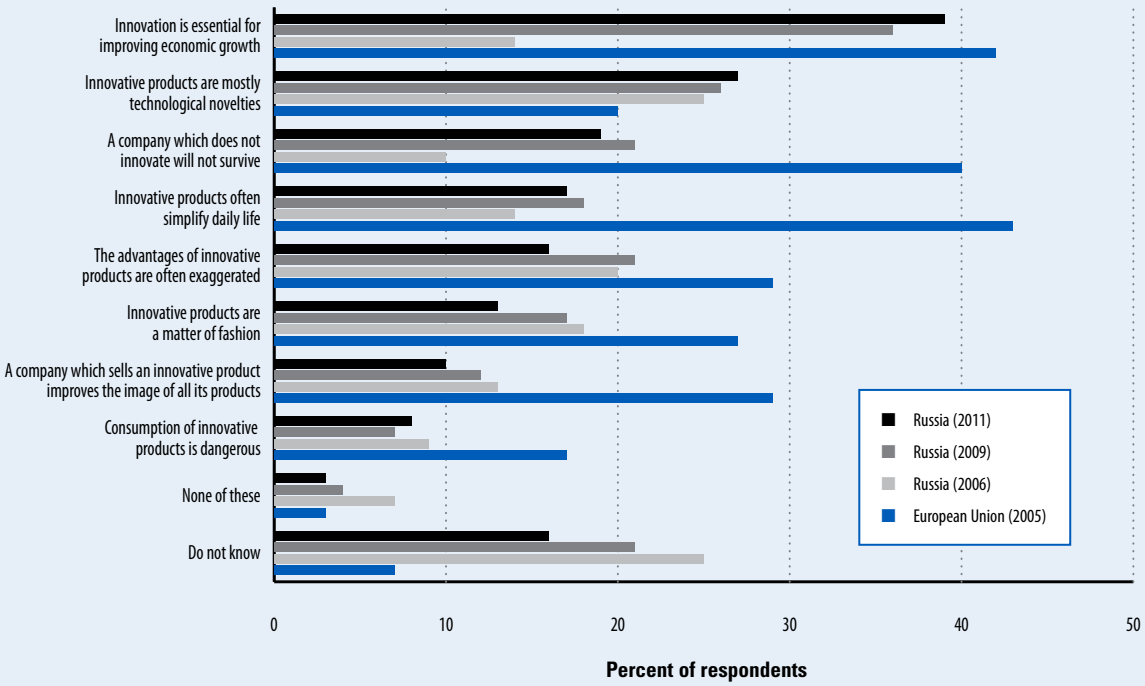
Box 1: Surveys of public attitudes towards, and understanding of, STI

Public opinion polls on science-related issues began in the United States of America as early as 1970s. Since the 1990s, Member States of the European Union (EU), Brazil, Canada, China, Japan, the Republic of Korea, and the Russian Federation, along with some other countries, have been tracking public attitudes towards science, technology, and innovation (STI) as well as tracking public understanding of STI on a regular basis. Important motivations for tracking these attitudes with surveys have been the societal impact of tremendous successes in STI in addition to well-known technogenic disasters and their tragic aftermaths.

National surveys are usually based on representative adult population samples and cover a broad variety of issues, such as interest in STI and the use of respective sources of information (including various types of media, specialized literature, friends, etc.); test-based metrics of understanding of its major concepts (scientific literacy); assessments of its impact on the economy, society, and daily life; views on allied government policies; the social prestige of related occupations; measures of innovative skills (e.g., Internet and computer skills); the consumption of technologically novel goods and services; attitudes towards ethically controversial or dangerous STI areas (nuclear power, stem cell research, genetically modified organisms or GMOs); and so on. Special indicators vary according to a policy agenda and national particularities.

Survey findings are taken into consideration by national governments in the elaboration of priority programmes (education, space, environment, nuclear energy, biotechnology) and in their methods of communicating STI to the general public. The findings are also considered by businesses in their strategy planning for the market promotion of innovative products or actions in societally sensitive STI areas.

Figure 1: Public perception of innovation (% of respondents)



Source: EU data are from Eurobarometer, 2005; data for Russia are from the Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2006, 2009, 2011.

Table 1: The motivation for using innovations at households in the Russian Federation (% respondents)

User motivation	2003	2011
I admire technological novelties and use them whenever possible	8	9
It is necessary to use technological novelties to keep abreast of life	35	41
I use certain technological novelties as far as I need them in my job	10	12
My children encourage our family to use technological novelties	3	12
I almost do not come across modern technological equipment in everyday life	21	12
Modern technological equipment frightens me	3	5
None of these statements	10	4
Do not know	10	5

Source: Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2011.

than the average by 10–20 percentage points. In other words, the larger the shares of innovating companies and allied employment, the more operational the abovementioned population's function as producers of innovation. Ireland and Portugal, which have high rankings for their industry innovation indicators, have been exceptions in this regard: their populations' disappointment, which is a result of the influence of the recent economic downturn despite the innovativeness of industry, has been translated into assessments similar to those of Eastern Europe.

For the Russian Federation, despite the yet-insufficient impact of innovation on daily life, the overall tendency of public opinion regarding innovative products looks rather favourable. During the last decade, the share of 'technological enthusiasts'—those who actively exploit novelties—reached 50%; another 12% were represented by the 'forced users,' who are motivated to use new technologies and methods by job requirements. Only a marginal stratum (5%) are still frightened by modern technological equipment (Table 1). Children have become a strong factor affecting technology diffusion, a fact explained by its deepening penetration into the contemporary lifestyle. However, nearly one out of eight respondents remains isolated from technological innovation—a warning signal reflecting the quality of life in certain population groups.

Four types of respondents can be distinguished according to their attitude towards technological novelties: 'admirers' (9%), those who respond 'positively' (65%), those who respond 'indifferently' (16%), and those who respond 'negatively' (5%). The first group is rather narrow and is represented mostly by men (61% of all admirers), the younger generation between 18 and 35 years of age (67%); one-third belongs to a higher-income category (compared with 16% for the overall sample); and 28% of admirers are university graduates (vs. 21% among all respondents). Such an attitude is an attribute of a specific lifestyle that is not generally widespread. The polar opposite groups offer quite a contrast: those who are either indifferent to innovation (e.g., do not use modern technological equipment in daily life or are not able to identify themselves with any survey statements) or who are even negatively motivated (i.e., frightened by technological novelties) are most frequently women, older than 55 years, and of poor social strata. Low income and conservative attitudes obviously hamper dissemination of innovative products.

The middle group—the positive users of innovation—is the most common and comprises two-thirds of the Russian population. These users are typical mainstream consumers;[5] their proportion can be interpreted as an important indicator of social demand for innovation, and is in fact a focal point of modern innovation policies.[6] The diffusion of positive attitudes reveals the increase of the population's receptivity to innovation. Subsequent changes in social behaviour caused by the recognition of the impact of innovation on economic growth and openness to novelties will stimulate the market supply of technologically advanced products and services as well as public engagement in new practices enabled by the latter.

Innovative behaviour: Skills and activities

For analytical purposes, we divide participants in innovative activities into three basic categories: 'innovators', 'team members', and 'users'.[7] Each category is notable for a specific set of skills that plays a crucial role in each stage of the innovation cycle (see Box 2).

According to the Higher School of Economics (HSE) survey, innovators—those who have been engaged in initiating and/or implementing improvements at work (launching new or modifying existing products or services, technologies, business processes, etc.)—amounted to roughly a quarter of the sample population (27%). However, only

Box 2: Skills for innovation: A measurement framework

Our analysis of skills for innovation is based upon findings of a 2010 Higher School of Economics (HSE) survey of the employed population with tertiary and vocational secondary education degrees in the Russian Federation.

A relevant methodological basis for this survey was provided by the European Qualification Framework, which defined skills as cognitive (involving the use of logical, intuitive, and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments) meaning the ability to apply knowledge and use know-how to complete tasks and solve problems.[1] The literature often concentrates on skills as social values and attitudes rather than abilities,[2] although some scholars focus on practical skills.[3] However, both aspects should be taken into consideration to ensure comprehensive measurement.[4]

For survey purposes, the following classification was proposed: technological competencies (the level of engagement with advanced technologies); information skills (the ability to conceive and use information from different sources, including mass media and the Internet, and to use information technologies for communication and information search); management skills (project-management skills, managerial and organizational knowledge); marketing skills; entrepreneurial skills (the ability to start a new business, manage it, and assume responsibility and risk); communication skills; and personal qualities (creativity, proactive attitude, leadership, self-efficacy, tolerance, risk-propensity).

Notes

1 European Commission, 2010; Méhaut, 2012.

2 Florida, 2002; Batinic et al., 2008; Sojka and Deeter-Schmelz, 2008; Chell and Athayde, 2009; Zaytseva and Shulalova, 2011; Zaytseva et al., 2013.

3 Hanel, 2008; Smatko, 2012, 2013.

4 OECD, 2011a, p. 52.

60% of them (or 16% of the total sample) were identified as successful innovators who achieved their own desired goals. Their distinctive feature is that they exhibit the widest range of relevant skills among all the actors:

- Successful innovators are the most active in browsing professional information on the web (66% of respondents in this group); reading STI literature (68%); attending exhibitions and conferences (43%); and studying information about competitors, consumers, and/or suppliers (46%).
- They are technologically advanced because they are studying new professions (83%) and learning new work techniques (86%) and equipment (69%).
- They are notable for achieving the highest scores in e-skills: 75% of successful innovators use search engines (compared with 60% for the whole sample); 67% send e-mails with attached files (vs. 50%); 58% are able to install new devices (vs. 41%); and 47% use specialized software (vs. 33%).
- In addition to strong cognitive skills, they are best equipped with the knowledge of business processes and are experienced in team building and steering, developing enterprise strategies, marketing, and external communications.

In terms of personal qualities, successful innovators, to a large degree, exhibit entrepreneurship, leadership, self-confidence, and creativity (Table 2). Interestingly, unsuccessful innovators have similar psychographic profiles, but their skill range is more restricted. This similarity implies that the innovative potential of an individual is not an instinctive feature, and essential skills for innovation can be learned. The same is true for personal qualities, or 'soft' skills.[8] National education systems are therefore motivated to transform formal curricula and teaching techniques and to promote life-long learning aimed at supporting the innovative patterns of a population's behaviour and attitudes.

Successful innovators are accompanied by skilled employees (team members) who contribute to developing new ideas (15% of respondents). The percentage of efficient team members whose innovative projects have been implemented is even lower—7%. These workers are comparable to innovators in their skill profile, though it is narrower: their e-skills are less advanced and their professional duties are subjected to in-house operations. Even the efficient team members typically visit exhibitions or conferences (33%) or participate in strategy planning, fundraising, and communication activities less often than the successful innovators. Such team member employees are conscientious assistants rather than leaders: their core personal qualities include a proactive attitude and self-confidence, although they lack leadership, creativity, and risk propensity. Efficient team members are somewhat older than innovators (44 vs. 41 years on average) and less frequently have a university diploma (56% vs. 69%, respectively), but they are better skilled than their

Table 2: Personal qualities of the innovative workforce

	All	Innovators		Team members		Users		Non-participants
Quality		Successful	Unsuccessful	Efficient	Inefficient	Active	Passive	
Entrepreneurship	0.32	0.71	0.55	0.40	0.32	0.16	0.17	0.04
Tolerance	0.57	0.61	0.56	0.62	0.54	0.57	0.55	0.53
Self-confidence	0.42	0.60	0.51	0.46	0.44	0.37	0.36	0.19
Leadership	0.09	0.53	0.38	0.13	0.10	–0.13	–0.08	–0.15
Creativity	0.10	0.51	0.40	0.17	0.08	–0.01	–0.12	–0.19
Activeness	0.09	0.37	0.35	0.18	0.05	0.04	–0.12	–0.17
Risk propensity	–0.01	0.15	0.10	–0.04	0.05	–0.05	–0.11	–0.13

Source: Survey on Innovation Behaviour of the Population, conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2010.
Note: Numbers in the table are on the scale of –2.00 (minimal expression) to +2.00 (maximum expression).

inefficient colleagues. This finding provides additional evidence of the impact of training on technological capabilities and the innovative potential of firms.

The third important group engaged in the implementation of innovation unites new knowledge and technology users. It covers almost half of employees (48%) and is divided into two subgroups: 'active users' (22%) and 'passive users' (26%). Active users include those who have upgraded competencies during the last five years. This is the youngest group among all respondents, while the passive users are the oldest. In terms of core competencies, active users stand far behind both the innovators and the team members: they are insufficiently motivated to use innovation and less ambitious, with weaker leadership, creativity, and risk propensity qualities, but they are hard-working and tolerant. Such characteristics allow younger members of this subgroup to advance their position (by, for example, moving into the group of team members or even to become successful innovators) in the course of improving their professional qualities and developing their careers.

Beyond the abovementioned categories, 10% of employees with tertiary and vocational secondary degrees are not engaged in any innovative activities. This group is the least skilled and least well adapted for innovation, and its members usually occupy lower positions and perform the jobs that do not require special education. A large proportion of them have qualifications that do not meet the needs of the labour market. Their lack of self-confidence and creativity hampers learning and their ability to adapt to changing circumstances.

Policy implications

Surveys of public attitudes towards STI and public understanding of it shed light on the linkages among social values, skills, and innovation. These linkages have to be taken into account by national governments when designing evidence-based policies aimed at building public trust to be shared among different parts of the society. No single approach to such a complex task can work in every instance, and a one-size-fits-all model is insufficient when applied to different countries. However, some successful practices are worth considering.

The Strategy for Innovative Development until 2020, adopted by the Russian government in December 2011, centres around promoting innovation culture, improving allied competencies, creating a positive image of innovative entrepreneurship, increasing the societal prestige of STI activities, and developing an innovation-friendly environment. An earmarked President's Decree of May 2012 urged all governmental agencies to ensure the coordination of sectoral policies and programmes with this document, which consequently allowed a comprehensive action plan as a whole-of-the-government policy to be established.

The primary component of this action plan is the reform of education, with the goal of supporting the development of innovative skills and personal qualities from early childhood. The plan is envisaged to upgrade education programmes by placing particular emphasis on modern information and communication technology (ICT)-enabled techniques and information resources, enlarging public support for kindergartens and schools, and establishing necessary outreach to parents and raising their awareness about the benefits of innovation. An infrastructure that helps to identify particular talents of students early and to promote those talents through individual advanced education services is being developed

in collaboration with leading universities. The training of qualified teachers is given particular attention, and certain measures are being taken to reconsider respective education standards for teacher training. Government-supported federal student Olympiads in mathematics, natural and social sciences, and information technology take place every year, and the winners are accepted by the best national universities. Tertiary education reforms include offering college-level applied baccalaureate degrees that combine fundamental knowledge with advanced technological skills in specific areas, stronger integration of courses in management and entrepreneurship into university programmes (especially for engineering), and strengthening universities' innovative infrastructures (with technoparks, business incubators, technology transfer centres, spin-off firms, etc.) and cooperation on research and development with companies.[9] Training in innovative entrepreneurship has also become a key priority for multiple life-long learning programmes and networks supported by universities, venture companies, industry, and regional authorities.

Large-scale inclusive innovation policy actions have been implemented at national and regional levels to broaden access to new technology and combat social exclusion. Several government programmes envisage funding to promote e-government public services, high-tech health aid and telemedicine, and Internet penetration to remote areas.

An important role in promoting innovative culture is played by innovation-development institutions—the Russian Venture Company, RUSNANO, the Agency for Strategic Initiatives, and a few others—which together have created a joint task force for popularizing innovation. The task force provides subsidies to STI museums, exhibitions, and media; organizes contests for individual innovators; and supports the innovation projects of young inventors and start-up communities. Information centres in sensitive high-tech sectors (such as the 17 centres established by the nuclear energy corporation Rosatom in the areas of its enterprises' presence) contribute greatly to the communication of STI knowledge to the general public and the popularization of science education among children. Another successful example of promoting innovation is the national Science Festival initiated by the Moscow City Government in 2006. Since its inception, the Science Festival has spread to 70 regions and involved more than 500 organizations—universities, research centres, innovating companies, museums, and so on. The Festival enjoyed over a million visitors across the whole country in 2013.

Conclusion

The population's engagement with innovation requires greater attention from policy makers and from society at large. The findings analysed in this chapter suggest that, in most cases, people recognize the importance of innovation for socio-economic development, although such an appreciation is not always coupled with intensive penetration of innovation into individual lifestyles. A large part of the population remains isolated from technological advancements and uninvolved with any innovative activities. This isolation is explained by social barriers and the lack of personal attitudes, skills, and abilities needed to master knowledge and technology. This mixture represents a societal mindset,[10] reflecting the actual status of innovation-related values that embody people's active involvement with the social environment and its improvement by finding better solutions for specific situations at work or in everyday life. At the individual level, taken together with a composite of skills and personal qualities, it determines the role of a person in innovative processes and his or her intellectual and material progress that can result from seizing opportunities for life-long learning.

Groups of the population that do not participate in the implementation and consumption of innovation are at risk of being left behind by social exclusion and subsequent backwardness. This may occur because of a lack of means and adequate skills, but it may also be deliberate because of poor self-confidence and an inability to adjust to a changing environment. All these factors can significantly hamper innovation processes and, consequently, mark a space for inclusive policy actions. Popularizing innovation and allied novel practices aimed at upgrading competencies and developing an innovation-friendly environment are also important components of boosting competitiveness. Another critical element is the modernization of education systems so that they will ensure the development of knowledge, innovative skills, and personal qualities (such as entrepreneurship, tolerance, self-confidence, leadership, creativity, activeness, and risk propensity) from early childhood.

Given the changing nature of innovation and the long-term character of public awareness and trust building processes, the policies that address these areas have to be adaptive and continuous, and their efficiency will, to a great extent, determine the global competitiveness of nations.

Notes

1 Gokhberg and Shuvalova, 2004, p. 8

2 Miller, 1996. Here and below, we follow the internationally harmonized definition of innovation: 'An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations' (OECD/Eurostat, 2005, p. 46). Although this definition was initially intended for companies, we apply it with certain modifications at the level of households and individuals and include, among other things, user innovation aimed at household improvements, entertainment, leisure, personal health and comfort, and so on, beyond technological and organizational novelties.

3 Miller, 1996; Gokhberg and Shuvalova, 1997

4 Ritzer, 2011, p. 219.

5 Rogers, 1962.

6 OECD, 2011b.

7 In some cases, people may simultaneously play different roles depending on their particular positions in specific innovation projects. For instance, an initiator can promote his or her own idea and at the same time implement a supporting function in a project run by another colleague. In order to produce more accurate analytical distinctions we consider pure, ideal types.

8 Chell and Athayde, 2009.

9 For details, see Gokhberg and Roud, 2012.

10 Gokhberg and Meissner, 2013.

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The United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge-Based Economy

Ahmad Bin Byat and **Osman Sultan**, du

The United Arab Emirates (UAE) is quickly transforming itself from an oil-based economy to an innovative, knowledge-based economy. In fact, knowledge-based industries and services now make up a greater part of the UAE's GDP than oil revenues, having grown from 32.1% in 2001 to 37.5% in 2012.[1] By moving towards a knowledge-based economy, the UAE has diversified its economy and positioned itself as a key player in real estate, renewable energy, and aviation; it has also become a global hub for trade and logistics, financial services, and tourism. It has done this by innovating and aspiring to game-changing developments: the UAE is home to the world's tallest tower and its most sustainable eco-city, one of the world's largest airlines, and state-of-the art infrastructure and smart government services—all helping it to move away from simply localizing external innovation to developing its own intellectual property and creative outputs.

The country's leadership aspires to create a knowledge-based economy fueled by innovation. This is evident in the UAE's *Vision 2021,* which aims to build a nation where 'knowledgeable and innovative Emiratis will confidently build a competitive and resilient economy.'[2] Towards this end, the UAE has invested significantly in education and capacity development, setting the foundation for long-term competitiveness.

The telecommunications sector in the UAE also has a key role to play in promoting innovation and in supporting the country's evolution towards a knowledge-based economy. Telecommunications infrastructure and services are the backbone of a knowledge-based economy. The sector's players are particularly well positioned to champion the UAE's national innovation ecosystem development goals by using their experience in commercializing innovation, their technical talent, and their institutionalized diversification into the digital space.

The UAE's innovation ecosystem

The three pillars of the innovation ecosystem are human capital, financial capital, and technological capital (Figure 1). The UAE is actively working to promote innovation through policies and targeted initiatives aimed at developing the human element of the ecosystem while also addressing the key enablers of the human factor: the requirements of financial and technological capital.

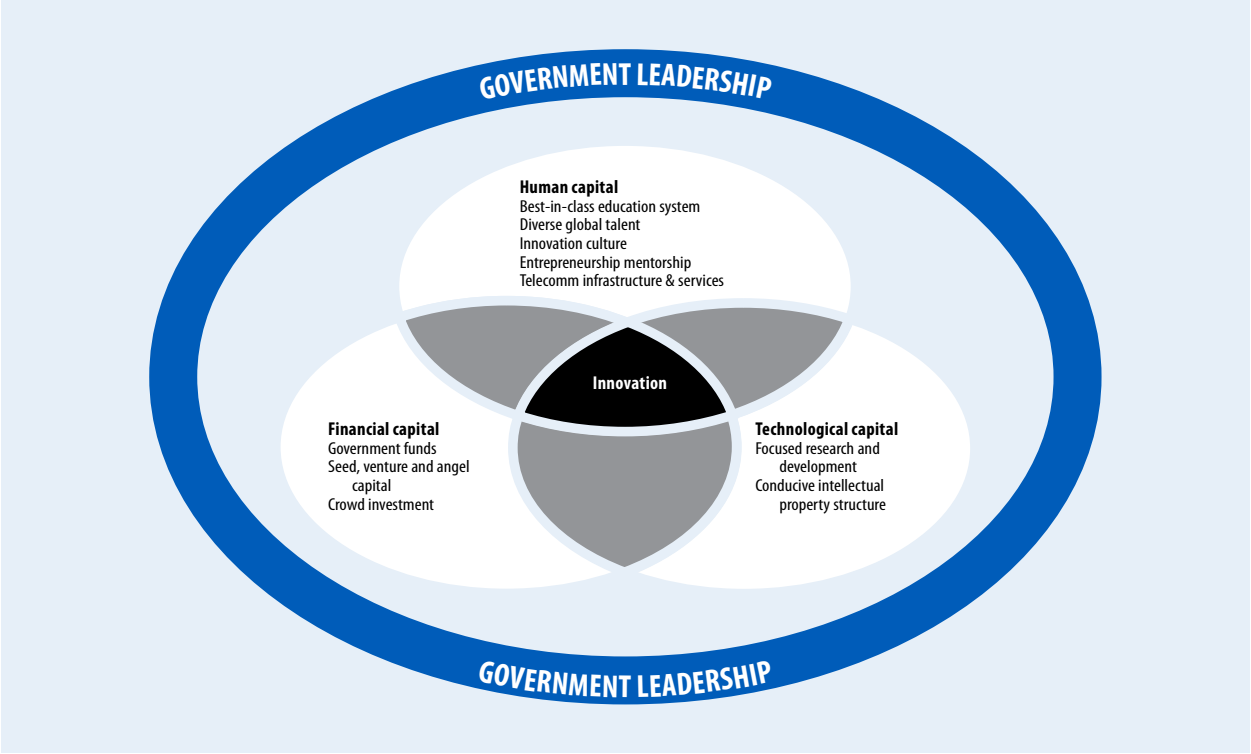
Human capital

Human capital is fundamental to all innovative change: a well-educated and highly skilled population and workforce are a necessary condition for the potential of innovation to be realized. To this end, the UAE has advanced its human capital on several fronts. The country has evolved into a melting pot that taps into the experiences and perspectives of people from more than 200 different nations, and its population has grown enormously from 1975 to 2012—much more than the global average growth rate. It currently boasts one of the most advanced education systems in the Middle East and North Africa (MENA) region, thanks to continuous investments across all education levels. Moreover, advancing women's education and economic participation has resulted in women assuming leadership roles throughout the nation. A burgeoning culture of innovation—fostered by the collaborative efforts of government, educational institutions, entrepreneurial organizations, corporations, and the media—is bridging cultural barriers. Finally, support systems for innovation in the form of mentors, incubators, and accelerators are starting to emerge.

Education system

The UAE's budget allocation to education represents more than 20% of its total government budget, higher than the benchmark average of 13% (see Figure 2). The country is investing in building local talent by overhauling primary, secondary, and higher education systems and offering various opportunities for vocational training. As a result, the country's rank on the Education sub-pillar of the Global Innovation

Figure 1: The pillars of innovation in the UAE



Source: Strategy& analysis.

Index has improved in two years, from 65th in 2011 to 15th in 2013.

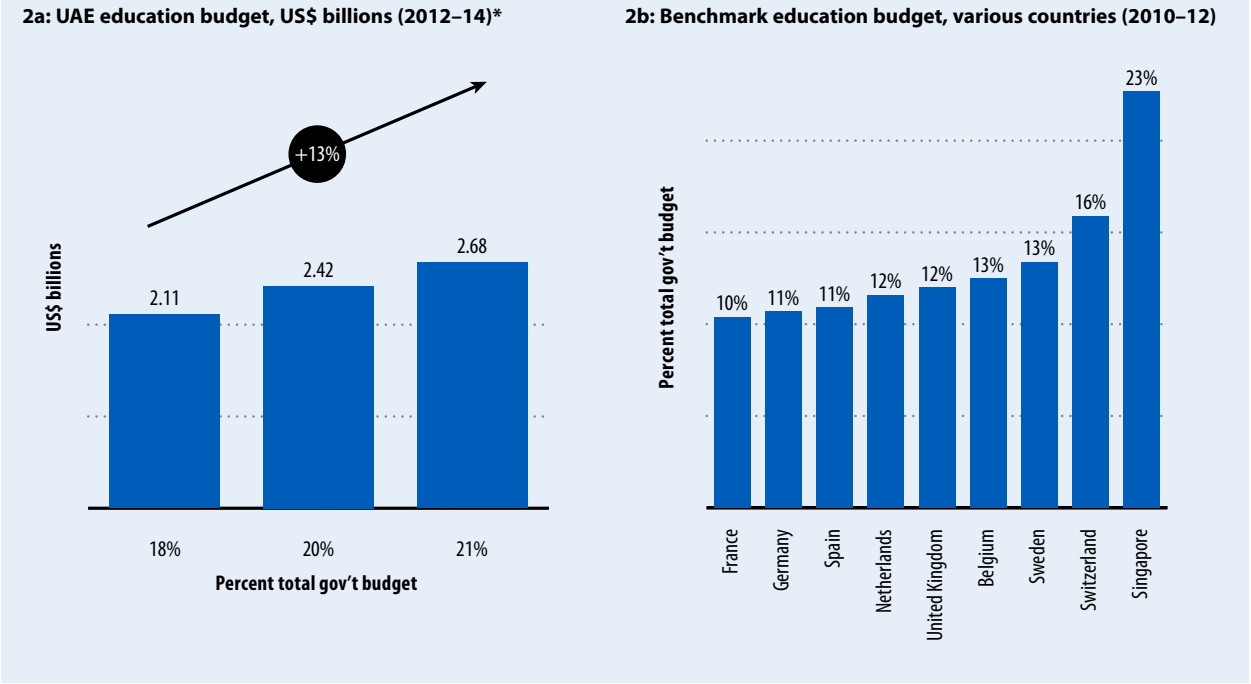
Keeping its national education strategy first rate is a continual effort. The UAE is constantly improving its educational strategy to ensure that the programmes developed in its schools comply with international standards. The Abu Dhabi Educational Council, for example, has developed a new curriculum to build the 21st-century skills needed to foster innovation; these skills include critical thinking, creativity, communication, and collaboration. This curriculum is beginning to teach these skills when students are young.

In the UAE, higher education institutes are expanding by establishing world-class local universities, attracting top universities to open branches in the UAE, and striking international partnerships. This effort has been driven by national policies to develop adequate higher education and research facilities targeted at different sectors. A few recent successes include:

- The Khalifa University of Science, Technology, and Research has begun to offer various engineering degrees (including aerospace, biomedical and industrial engineering) in its aim to become an internationally recognized research university. Several international universities with a focus on post-graduate degrees (which also attract practiced professionals to the country)—including INSEAD, Paris-Sorbonne, and the London Business School—have opened branches in the UAE in the past few years. Dubai alone has attracted 26 international universities from over 10 countries.
- The Masdar Institute, established in 2007 in close cooperation with the Massachusetts Institute of Technology (MIT), is the world's first graduate-level research institute dedicated to alternative energy and sustainability.
- NYUAD, a joint venture between New York University and the Emirate of Abu Dhabi launched in 2010, offers liberal arts and science programmes and hosts a centre for advanced research.

The development of UAE nationals' capabilities is a top priority for the government. This place in the government's agenda is evidenced by its investment in continuing education and career guidance for its nationals through multiple initiatives. The government's key

Figure 2: Budget allocation for education as percent of total government budget



Source: World Bank, 2013; UAE Ministry of Finance.
* Note: Data are the latest available.

imperative going forward is to develop the deep technical skills that are required for disruptive innovations, as opposed to generalist skills. Almost 30% of students in higher education institutions in the UAE are studying business and economics; 14% are studying engineering and 8% are in the sciences.

The National Human Resource and Development Authority (Tanmia) was established in 1999 to support UAE nationals by linking them with potential employers and providing them with career guidance. In another example, Advanced Technology Investment Company (ATIC)—a wholly owned subsidiary of the Mubadala Development Company focused on the semiconductor industry—is actively developing Emirati talent in the technology space. For example, Tech Quest is an ATIC programme for middle and high school students aimed at creating future leaders in mathematics, science, technology, and engineering. AlNokhba, another ATIC programme, provides internships and scholarships for bright Emirati graduates across a broad range of advanced technology-driven industries.

The private sector also contributes to the talent development of UAE nationals. In the UAE, telecommunications operators contribute 1% of their revenues to the ICT Fund of the TRA (a government entity); one of the ICT Fund's mandates is to grant scholarships to UAE nationals to study engineering within the UAE or abroad. The ICT Fund also promotes educational institutes within the ICT space by equipping them with laboratories.

Diverse talent

The representation of more than 200 nationalities within the country has made the UAE a melting pot that is fertile ground for innovation. Immigrants constituted 96% of the total UAE workforce in 2013 and 99.5% of the nation's 4 million private-sector employees. Traditionally, the local population has been more drawn towards working in the public sector but this is now beginning to change; the UAE government is encouraging the local population to join the private sector to develop their skill sets. This is a boon for the UAE: multicultural teams help fuel innovation by addressing issues in creative ways, drawing on members' unique experiences from their countries of origin.

Attracting foreign talent is an important aspect of establishing

and maintaining an innovative environment. In the UAE, several factors have played a role in attracting immigrants. The overall good quality of life in the country, which includes a safe and welcoming environment, state-of-the-art infrastructure, ease of doing business, and absence of income tax have been key drivers. Free zones have been set up where businesses can enjoy 100% foreign ownership and special tax and administrative incentives: there are 36 such zones in total across the seven emirates, including twofour54 media and production in Abu Dhabi, dedicated to media and entertainment organizations; Dubai Knowledge Village, dedicated to Human Resource Management and learning excellence; Ras Al-Khaimah Industrial and Technology Park, a world-class business hub facilitating industrial growth and development; and Fujairah Creative City, which benefits smaller media companies and freelancers.

Women are another key contributor to UAE's diverse talent pool. The World Economic Forum's *Global Gender Gap Report 2013* ranked the UAE number one for female educational attainment.[3] Although cultural nuances restrict their labour participation (27.5% participate in the workforce, compared with 62.5% of men), women have taken up entrepreneurial roles. The UAE is committed to advancing female leadership and increasing female participation in the economy through various initiatives. For example, every government agency is required to have at least one board member who is a woman. The Abu Dhabi Hub of the Global Shapers Community, launched by the World Economic Forum in 2013, seeks to support women through Fikrati, a competition aimed at fostering an entrepreneurial culture among Emirati women. The Emirates Business Women Council builds awareness, educates, promotes opportunities, and effects positive change in the community.

Innovation culture

Establishing a culture that encourages innovation and individual characteristics conducive to the ability to look beyond an established norm is essential to an environment that enhances innovative ability. Cultural barriers to innovation—such as fear of failure and an aversion to taking risks—can present serious difficulties. Such barriers are starting to diminish in the UAE.

Although government jobs have historically been the preferred employment for UAE nationals, 71% of UAE millennials (those who are 35 years old or younger) currently have entrepreneurial aspirations.[4] Women, in particular, may prefer entrepreneurship because of the flexible working hours and the ability to work from home. In fact, more tech entrepreneurs in the UAE are female than in many other parts of the world: women account for 35% of tech entrepreneurs in the region, compared with a global average of 10%.[5]

A collaborative effort among government authorities, private corporations, media, and entrepreneurial organizations is driving this cultural shift through regular innovation- and entrepreneurship-themed events, dedicated media content, and awards that celebrate innovation successes. Start-up Weekends at which aspiring entrepreneurs can pitch and develop ideas have been organized in Dubai, Abu Dhabi, and Sharjah. Top-quality talent is visibly recognized in the UAE through various awards such as the Young Emirati Innovators Prize (YEIP), the Patent Filing Award, and the Manchester Innovation Award. Wamda, a regional platform for empowering entrepreneurs, has a media site dedicated to entrepreneurship. Other media organizations—such as TechView.me and TechStars, which provide seed funding, mentorship, and a network of alumni and mentors—focus exclusively on tech entrepreneurship within the region. For instance, du encourages its employees to innovate and has started an 'ideation platform' through which employees can share their innovative ideas.

An interesting example of innovative entrepreneurship is that of Sougha, a social enterprise initiative launched by the Khalifa Fund that is proving to be instrumental in reducing innovation barriers. Sougha's model is interesting for many nuances, including being a reliable platform for skilled Emirati artisans to become entrepreneurs and providing them with essential business know-how and consumer insights. This allows the artisans to use their skills to create non-traditional products, such as iPad cases made of traditional weaves, thus extending the market and consumer scope. Truly, this is an example of a model that is bridging the gap between traditional culture and contemporary needs. Most importantly, it is helping Emiratis embrace innovation.

Entrepreneurial mentorship

One other essential element of a successful ecosystem of innovation is the encouraging and fostering of young entrepreneurs. One of the most effective ways to do this is through mentoring. In the UAE, this is taking shape—more than 10 incubators/accelerators are operational in the country—a substantial increase from the three that were active in 2008. These include in5 (in Dubai Internet City), Turn8 (by DP World), i360

accelerator, Silicon Oasis Founders, SeedStartup, Endeavor, twofour54's Ibtikar, afkar.me, the First Steps Business Center, and the Dubai SME Business Incubation Center.

These incubators and accelerators offer a variety of mentorship and business support services for UAE nationals and immigrants alike. SeedStartup, for example, brings international start-ups to a three-month acceleration programme held in Dubai. The programme provides value-added services and events (e.g., a demo day that connects start-ups with investors) and seed investment up to US$25,000 for a 10% flat stake. Start-ups from Bahrain, India, Italy, Jordan, Malaysia, Tanzania, the United Kingdom, and the United States of America (USA) have already participated in SeedStartup's programme. In another example, Dubai SME provides a variety of advisory and incubation services to small and medium-size enterprises (SMEs) in Dubai, including the Intilaq programme focused on UAE nationals, the Business Incubation Center, and the Dubai Entrepreneurship Academy. Dubai SME also issues best practice recommendations, launches competitions (e.g., the Young Entrepreneur Competition, or YEC), and ranks the top 100 SMEs in Dubai each year. Furthermore, the TRA's ICT Fund supports government-sponsored incubators within the country by financing entrepreneurs in the ICT space within these incubation centres.

The UAE private sector too is establishing and supporting platforms for collaboration, innovation, and new entrepreneurial ventures. One of the foremost examples of this was *The Entrepreneur* reality show, presented by du and aired regionally. This show provided a platform for aspiring entrepreneurs to realize their dreams, network, and exchange ideas with the goal of nurturing talent. Along with a platform from which to launch the business, the winner also received mentorship by experts over the course of a year.

Telecommunications infrastructure and services

Connectivity creates access to information and connects people, enabling them to learn online, build their skills, and collaborate in real time. In a world where physical boundaries are steadily diminishing, good telecommunications can be a catalyst to fulfilling dreams. Beyond basic connectivity, telecommunications infrastructure and services play a critical role in supporting innovation. For example, du offers a user-friendly platform called 'du Developer Cloud' that enables innovators to develop mobile applications at no cost. du has also launched a series of initiatives in line with Dubai's vision of becoming a Smart City and in line also with the UAE's overall Smart Government programme. These initiatives include the provision of WiFi access across all public areas in the UAE, the introduction of smart telecommunications building infrastructure guidelines, and the development of a smart application for the General Directorate of Residency and Foreigners Affairs.

Financial capital

Even highly skilled human capital cannot perform to its full potential without sufficient financial capital. Ensuring that funds are made available can usefully be an object of government policy, but private sources of capital also have a role to play. Within the UAE, several sources of funding are available, including government funds, equity investing, and crowd funding or crowd investment. Government funds typically provide early-stage funding and include the TRA's ICT Fund, the Khalifa Fund, the Expo 2020 fund, and others. In terms of equity investment in the UAE, venture capital (VC) is the most accessible, despite the low risk tolerance of VC funds. Seed capital and angel investment are still scarce and are not yet institutionalized. Crowd-based funding and investment is a nascent form of funding within the UAE, and provides early-stage funding for start-ups.

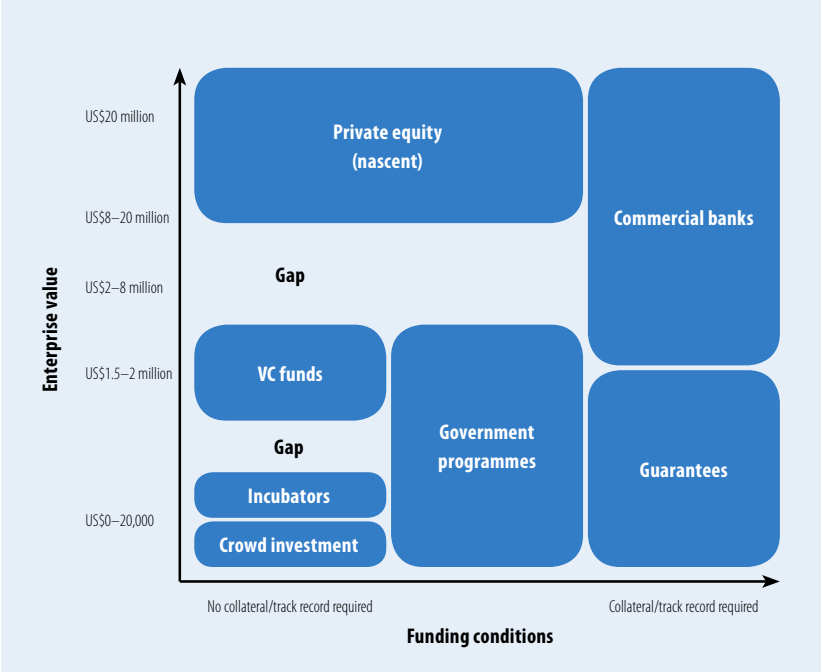
Government funds

The government has undertaken many initiatives to support the funding of innovation. The TRA's ICT Fund aims to drive the country's ICT sector by providing R&D funding, scholarships for students of ICT engineering programmes, and support for incubators. Additionally, the Khalifa Fund for Enterprise Development (with approximately US$550 million in capital) aims to develop local enterprises in Abu Dhabi by funding programmes, including microfinance and start-up loans, and by supporting entrepreneurs. The Expo 2020 Partnership Fund (€100 million) supports innovation and entrepreneurship ideas of varying size, scale, and stages of development with a focus on mobility, sustainability, and the creation of opportunities.[6]

Seed, angel, and venture capital

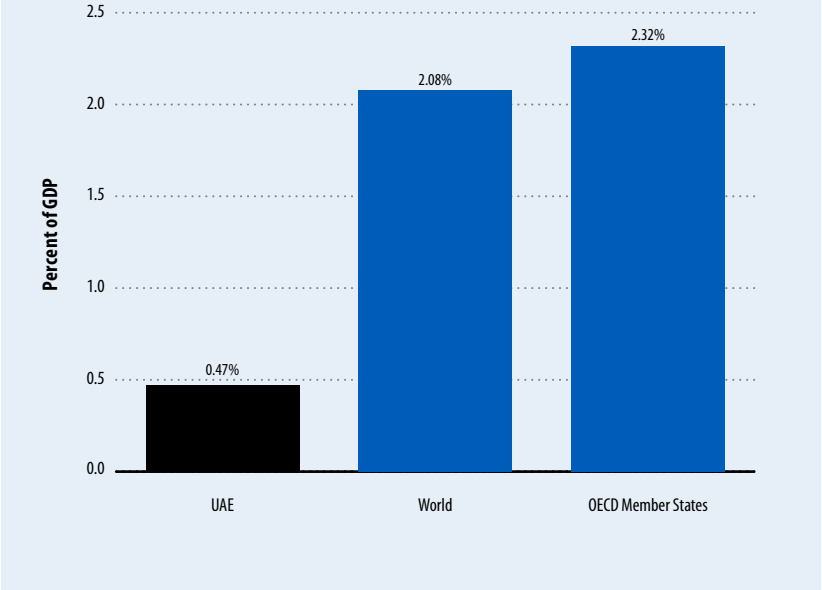
As noted earlier, government funding alone requires supplementation with private funding to meet the growing demand. In the UAE, seed capital is also available through incubators and, more recently, through crowd investment. This capital is still scarce, however, and institutionalized angel investment networks that provide smart capital are absent. This gap prevents innovators from

Figure 3: The funding gap in the UAE innovation ecosystem



Source: Strategy& analysis; interviews with key stakeholders in the UAE innovation system.

Figure 4: R&D expenditure as a % of GDP (2011)



Source: World and OECD average data: World Bank, 2013; UAE data: Strategy& analysis.

growing from the idea stage to the product stage and becoming eligible for VC funding (see Figure 3).

The number of regional VC funds actively investing in the UAE is growing.[7] The number of VC deals in the region has grown by 50% between 2010 and 2012, with much of it (47%) focused on technology. Based on available data, the UAE captured 7% of the total deals in the MENA region over that time period.[8] This trend has made Series A funding relatively accessible, although VC firms are still risk-averse and prefer to invest in established start-ups. Nonetheless, a wide range of UAE-based start-ups—such as Careem, the online chauffeur-driven car service; Glambox, the beauty products enterprise; and Souqalmal, the enterprise that enables UAE residents to compare financial services, schools, and other large purchases—have recently raised VC funding.

Beyond Series A funding, obtaining follow-on funding has been challenging, given the few private equity funds in the region focused on growth equity investments, especially within the technology sector.

Crowd investment

Crowd investment is an innovative approach that is becoming a viable source of early-stage funding for start-ups. Although crowd investment is still at a nascent stage globally, it is encouraging to see it being slowly accepted in the UAE. However, there is a need to boost it further, as new crowd-investment organizations may help address the scarcity of seed capital in the region.

Examples of crowd-investment organizations that are operating in the UAE include Zoomal, which follows the model pioneered by Kickstarter in the USA to support projects that require US$5,000 or less; Aflamnah, a source of

project-based crowd funding in the region focused on films; PiSlice, an online platform to facilitate microfinance; and Eureeca, a platform providing funding in exchange for equity.

Technological capital

Along with human capital and financial capital, technology is critical for unlocking ground-zero innovation. Although the UAE's spending on R&D as a percentage of its GDP is still below international benchmarks, in an attempt to address the need for this essential element of innovation, the country is kick-starting several targeted and industry-focused initiatives to develop its R&D efforts, as mentioned in the following section. Furthermore, the UAE government has reviewed its laws on intellectual property and copyright to align them with international standards.

Targeted research and development

In line with UAE's vision of a knowledge-based economy, the government's R&D efforts are targeted at specific sectors to solve its market needs and key socioeconomic challenges. However, the UAE's R&D expenditure as a percentage of its GDP was 0.47% in 2011 (0.74% of non-oil GDP), below the global average of 2.08% and the OECD average of 2.32% (see Figure 4). Several players are implementing programmes and initiatives to solve this issue, including government, universities, and government-backed companies. As for the rest of the MENA region—and quite different from global trends—it is the public sector, rather than the private sector, driving efforts to encourage R&D in the UAE.

One example of a public scheme to enhance R&D is the Abu Dhabi Education Council, which pledged US$1.3 billion for university R&D between 2009 and 2018. In addition, the Abu Dhabi government will launch a research funding mechanism to institutionalize research activities in higher education institutions and secure sustainable funding. Abu Dhabi's plans are already resulting in the development of new R&D centres. For example, Khalifa University and Mubadala Aerospace are planning to establish an aerospace research and innovation centre at Khalifa University.

Beyond driving R&D in universities, the UAE government is keen on establishing scientific hubs to address socioeconomic issues relevant to the region. For example, TechnoPark was established as a science and technology park whose scientific activities are managed by the Dubai Institute of Technology (DIT). DIT is focused on enhancing research in five sectors: water, health, energy, engineering, and logistics and mobility. The International Center for Biosaline Agriculture is another example of an R&D centre focused on innovation specific to regional issues. It is a centre of excellence that aims to deliver agricultural and water scarcity solutions in marginal environments.

Investment in R&D has seen some success, even though most of the proposals are from the public sector. For example, Emirati companies, including Masdar Capital (a division of Masdar Institute) and ATIC, are investing in international companies with advanced technologies with the aim of potentially bringing these technologies to the region in the future.

The telecommunications sector in the UAE, through the TRA's ICT Fund, is actively sponsoring R&D projects and centres in various universities, including Khalifa University and UAE University. The ICT Fund has dedicated AED 25 million to support the Arabic Digital Content initiative, which will develop tools and programmes to enhance Arabic content. The ICT Fund also finances Ankabout, the UAE's Advanced National Research and Education Network (NREN), offering academic institutions connectivity to other education networks around the world.

As a result of this recent R&D activity, innovative technologies are emerging in the country (see Box 1). Examples include:

- A Khalifa University professor who benefited from the university's internal research fund was granted a US patent for the world's smallest semiconductor transistor.[9]
- Emirati students were granted a US patent for inventing a foot-based vehicle navigation system to allow disabled people to drive cars without using their hands.[10]
- The Masdar Institute and Abu Dhabi National Oil Corporation (ADNOC) are developing a technology that enables commercial-scale projects for carbon capture, usage, and storage, thus minimizing carbon footprint.[11]
- The Masdar Institute is developing a technology to desalinate sea water using renewable energy sources, and is building the London Array, the world's largest offshore wind farm.[12]

Conducive intellectual property structure

As the UAE evolves in its innovation journey, it will need to build a robust and enforceable intellectual property rights system. Recently, the government has reviewed its laws on intellectual property and copyright and harmonized them with international standards (e.g., the US Patent Office

Box 1: UAE start-ups

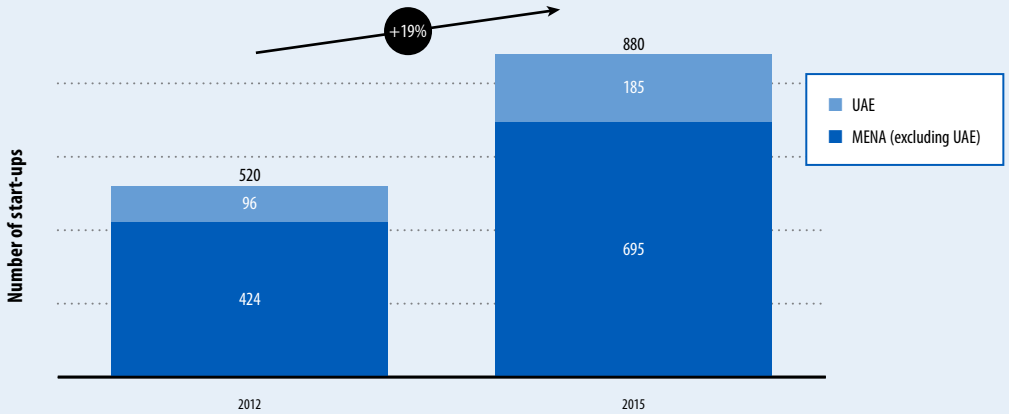
The UAE's budding innovation ecosystem has inspired Emiratis and immigrants alike to become entrepreneurs, spawning several entrepreneurship success stories (see Table 1.1). For example, UAE-based technology start-up launches are forecasted to rise at a faster rate than the MENA average between 2012 and 2015. By 2015, the UAE is expected to witness 185 new tech-based start-ups (see Figure 1.1).

Table 1.1: Some UAE start-ups

Start-up name	Business type
Zawya	Online business intelligence platform focused on MENA; acquired by Thomson Reuters
cobone	Daily deals website; launched in 2010; acquired by New York–based investment firm Tiger Management for an undisclosed amount (rumored to be between US$20 million and US$40 million)
Just Falafel	Vegetarian fast-food chain incorporating worldwide tastes in the falafel recipe with a focus on health; franchise business model, going global, currently planning IPO
Careem	Online car-booking service; raised US$1.7 million in a round led by STC Ventures and including angel investors
Glambox.me	Online beauty sampling shop and community; received US$1.4 million from STC Ventures, R&R Ventures, and MBC Ventures to expand regionally
Souqalmal.com	Financial comparison website for products and services in financial services, education, and healthcare; raised US$1.2 million from Hummingbird Ventures in its second round of funding
Qordoba	Language software and service solutions, including content development and website, social media application, and business document localization while integrating local customs and cultural references
nabbesh.com	Skill exchange platform connecting businesses with project-based and contract talent; winner of The Entrepreneur, a reality TV competition presented by du; prizes, provided by du, of AED 1 million with a further AED 500,000 in professional services.
JadoPado	E-commerce portal with innovative approach to user experience and supply chain management
Bayt.com	Online job site linking job seekers with employers; Bayt.com has more than 12.5 million registered job seekers
The Luxury Closet	Platform for buying and selling luxury items
propertyfinder.ae	Real estate listing service
mumzworld.com	E-commerce platform for mothers
Wally	Personal finance application with more than 100,000 users
Eureeca.com	A crowd-investment platform where businesses can raise capital from the crowd

Source: Strategy& analysis.
Note: The list in this table is not exhaustive

Figure 1.1: Number of tech start-ups in MENA (2012–15)



Source: DIC in collaboration with Frost & Sullivan, 2012; Strategy& analysis.
Note: Of the MENA start-ups that emerged in 2005–2012, 17% were launched in the UAE.

and Patent Cooperation Treaty).[13] In addition, the Abu Dhabi Technology Development Committee developed the Takamul programme, which offers advisory and financial support for international patent applications. The total number of patent applications underwritten by Takamul has now risen to 66, of which 33 were underwritten in 2013 alone.[14]

Lessons learned

In the UAE's innovation ecosystem, the pieces of the puzzle are falling into place. The nation now offers a number of unique advantages, including a strong education system, a diverse pool of multinational and local talent, a growing innovation culture, and a series of targeted R&D initiatives. The collaborative efforts and leadership of the government is capitalizing on these strengths while addressing the challenges that remain. The private sector is playing a critical role in supporting the government's agenda and promoting the national innovation ecosystem.

The UAE has had to overcome several challenges in its journey towards becoming a knowledge-based society. These include wide dependence on oil revenues, a small population, and a cultural aversion to taking risks. Through its own example, the UAE can offer several recommendations to countries looking at commencing on their own innovation journey:

- **Institutionalize top-down aspirations.** A clear government vision that visibly communicates the importance of innovation on the government agenda creates a top-down push for innovation and prioritizes key focus areas.
- **Unlock telecommunications operators' potential role in the innovation ecosystem.** Telecommunications operators are in a position to champion the development of national innovation ecosystems and can play a key role in catalyzing the human, financial, and technological factors in innovation.
- **Attract and promote talent.** Talent is critical for the development of a sustainable innovation ecosystem. Although it is important to fill capability gaps in the short term by attracting and supporting immigrant talent, fundamental improvements through longer-term initiatives to the system for training domestic talent are essential. The UAE is doing this by overhauling its education system and making some fundamental changes to the culture so that the population will embrace innovation.
- **Provide and promote smart capital at all funding levels.** Different types and amounts of funding are required at various stages of innovation evolution depending on its risk/return profile, whether this innovation is taking place in a start-up or a larger enterprise. Fostering an innovation ecosystem requires ensuring adequate early-stage funding, venture capital, and growth equity. Any gaps in these funding sources can break the overall system.
- **Partnerships, partnerships, partnerships.** Various stakeholders are required to work simultaneously and in concert for innovation to happen. This includes entrepreneurs, government entities, educational institutions, funds, the media, entrepreneurial organizations, and others. Unlocking innovation requires getting these disparate parties with distinct agendas to work together to drive the same objective.

While major improvements have been made across each element of the innovation ecosystem, there are some gaps that still need to be addressed:

- **Limited technical talent.** The number of students going into STEM fields (science, technology, engineering, and mathematics) in the UAE is still low compared with international standards. As a result, there are limited specialists with deep technical skills (e.g., developers, user experience experts) who can contribute to ground-zero innovation.
- **Restricted R&D budgets in the private sector.** Although the UAE government has put several initiatives in place to stimulate R&D activities, the overall spending in the country still lags behind because of limited spending by the private sector.
- **Environmental sustainability.** The UAE needs to ensure that its rapid pace of economic development is sustainable. This entails lowering the country's ecological footprint and effectively addressing climate change to sustain a natural environment conducive to innovation that will continue attracting foreign talent. The development of Masdar City and investment in solar parks, by both the government and the private sector, are steps in the right direction.
- **Increased prevalence of health issues.** High incidence of diabetes, early onset heart conditions, and widespread obesity are three serious health issues currently facing UAE nationals. A healthy mind goes hand in hand with a

healthy body, and thus addressing these issues and promoting healthy lifestyles is critical for supporting the development of a progressive, knowledge-based economy. This shift has already started through government pledges and movements by the private sector such as du's Every Step Counts initiative.

Although the UAE's innovation ecosystem is still evolving, policies that address these issues—issues of clear vision, talent, funding, and cooperation among stakeholders—are an essential part of what has worked for the UAE. Such policies will repay the effort needed to implement them with an environment that is more conducive to innovating, and thus to reaping the associated benefits for a nation's people.

Notes

1 The data in the chapter are all from the UAE *Yearbook 2013* unless specified otherwise. The yearbook is available at http://www.uaeyearbook.com/yearbook2013.php?lang=ENG; see National Media Council, 2013. Knowledge-based industries include financial services, manufacturing, restaurants and hotels, transport, storage and communication, and real estate and business services.

2 *Vision 2021*, p. 1; see http://www.vision2021.ae/downloads/UAE-Vision2021-Brochure-English.pdf UAE-Vision2021-Brochure-English.pdf.

3 World Economic Forum, 2013.

4 Bayt.com, 2014.

5 The Economist, 2013.

6 Wam, 2013.

7 Examples of these funds are Middle East Venture Partners, MBC Ventures, STC Ventures, and Wamda Capital.

8 MENA Private Equity Association, 2013.

9 Khalifa University, News Details, 2014.

10 Kazmi, 2013.

11 Sambidge, 2013.

12 MIT Technology Review Custom, no date.

13 Zawya, 2013.

14 Abu Dhabi Technology Development Committee, 2013.

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Retaining Top Innovators: An Essential Element of Competitiveness for Developing Countries

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The inclusion of indicators for human capital development as a core feature of innovation measurement is an acknowledgement of the importance of highly skilled innovators to successful innovation, especially to high-technology innovation. However, such indicators tend to focus on the conventional supply channels of secondary and tertiary education, overlooking the significant influence of migration.

Openness and permeability are fundamental and essential properties of a functional national system of innovation (NSI). In particular, the mobility of talented people is critical to a system's capacity for learning, adapting, and innovating. Paradoxically, policy support for migration in developing countries presents a difficult balancing act. Although facilitating a developing economy's human capital growth through immigration and international training opportunities, policy support for migration can lead to the net emigration of scarce skills. Further complicating this issue, the most productive innovators are also the most mobile. In this chapter, we argue that the retention of this cohort of innovators is a neglected but important policy objective for developing countries.

The first section of the chapter outlines the disproportionate contribution that exceptional innovators and researchers make to the NSI, and notes that these unusual individuals also tend to cluster geographically. The importance of policies that focus on the retention of high-performance innovators and their clustering within specific locations is underlined.

In the chapter's second section, the principles of innovation-led growth and its centrality to the economic development of middle-income countries are discussed. In particular, we refute the argument that innovation—especially radical innovation—should not be a priority and that developing countries should instead focus on the acquisition and absorption of readily available existing technology. Using South Africa as an example, we argue that the loss of highly productive researchers and innovators is a critical issue, and that achieving innovation-led growth will require a full spectrum of researchers and innovators.

The scarce 'human factor' in innovation

In order to study the impact of policies that affect an economy's innovative capacity, we look first at the people who actually perform the tasks associated with innovation.

Research and innovation outputs per individual vary widely

Patterns of research and innovation productivity at the level of the individual are highly unequal. As a consequence, research and innovation productivity is skewed, with a relatively small number of contributors accounting for a major portion of the outputs. This empirical observation has been studied over a long period and by a number of authors, including Lotka (1926) and Pao (1985), who have concluded that only a small number of researchers account for a major proportion of the overall output. It is these individuals who change the rules of the game, who create new technology paradigms, and who provide the necessary science that leads to technological revolutions.

This inequality exists across a wide range of fields and output indicators; we consider here three examples in more detail. In the first example, we look at the frequency of scientific publications by author. These data follow a skewed distribution, as originally noted and described mathematically by Lotka (see Figure 1). This mathematical formulation, which became known as *Lotka's Law,* states that the number of authors, *W,* making *n* contributions is about $1/n^2$ of those making a single contribution.[1] In other words, 10% of authors produce 50% of the total publications, and the top 5% of authors account for 39% of publications. Subsequent studies have shown that Lotka's Law overestimates the productivity of high-output researchers and that the distribution

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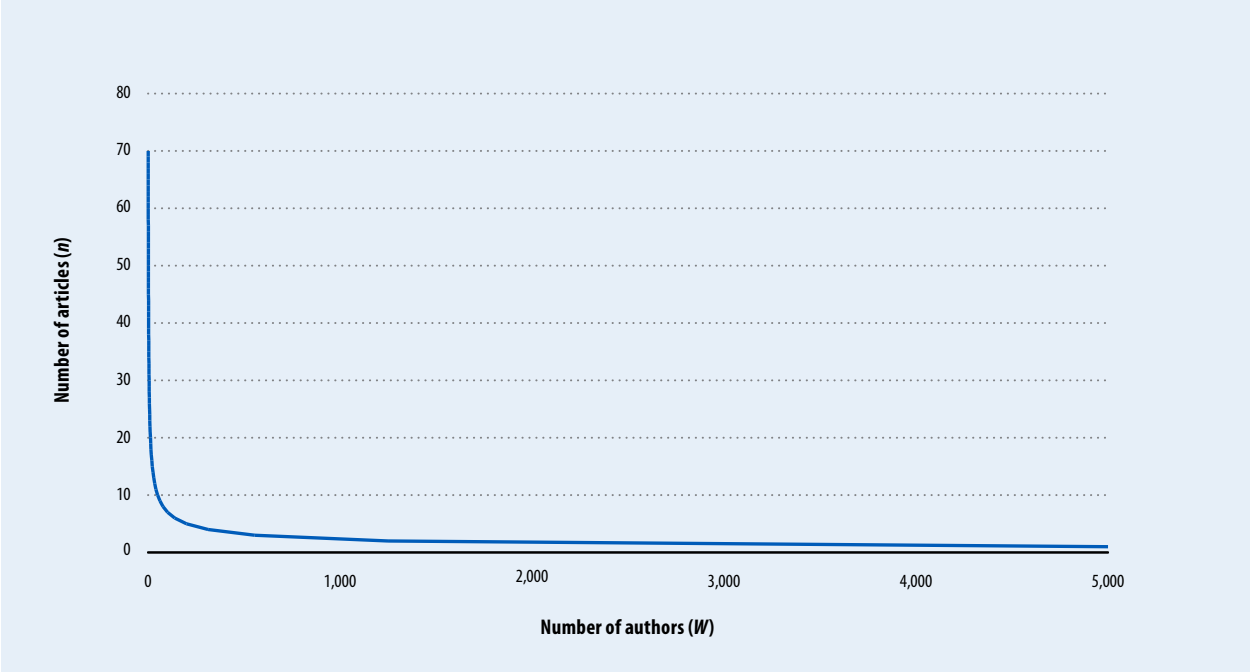
Figure 1: Lotka's Law on publication frequency per author



Source: Curve developed from Lotka's Law (Lotka, 1926).

is more accurately modelled using a standard Pareto distribution with a Gini coefficient of about 0.5.[2] Even under the more conservative estimates, however, it is still apparent that 20% of researchers produce 50% of the total output, and 8% produce 25% of the contributions.[3]

In a second example, also from the research literature, it is noted that the citation rates of scientific articles follow an exponential distribution, as shown in Figure 2. The graph shows that only a small proportion of total articles (less than 0.001%) achieve a citation rate of more than 400 cites per article. On the basis that citation rates reflect the outcome of a specific publication on the research community, it is apparent that only a small number of articles—and, by implication, a small number of authors—significantly influence the global research community.

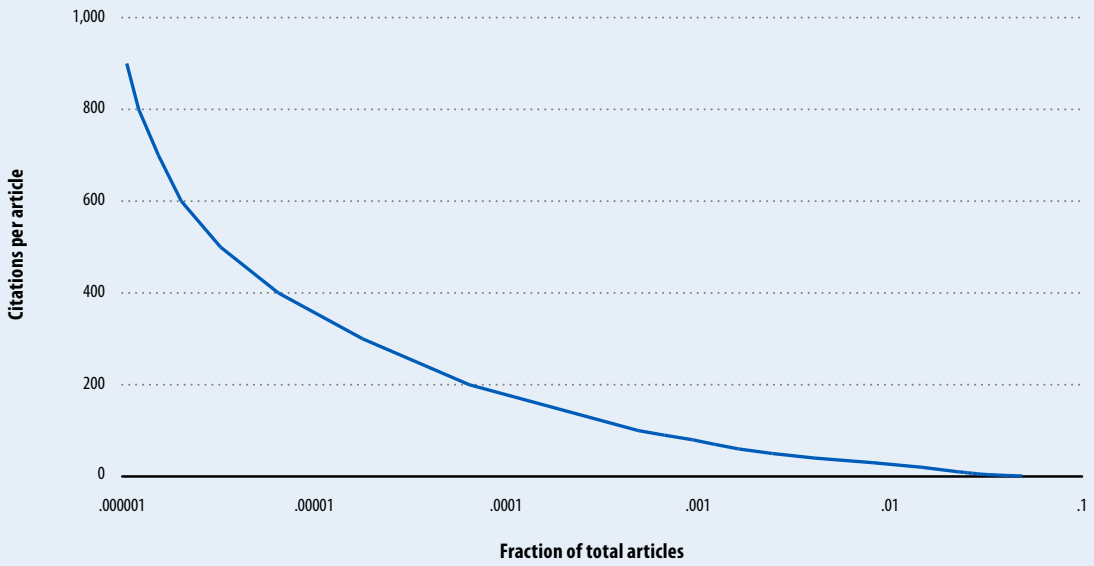
In the final example, we consider the unequal distribution of university licensing income in the United States of America (USA) (see Figure 3). This is an indicator of university-based innovation rather than research performance. It is clear that a handful of US institutions excel in this area, a feat that is considered to be the consequence of the clustering of top inventors working within well-resourced institutions and supported by top administrators, technology transfer staff, and research students. The graph also reinforces the notion that innovation output at an institutional and national level can be influenced by adopting specific policies aimed at attracting and retaining an active group of highly productive inventors. Unfortunately, these data are not available for developing countries, although it is suspected that the results are likely to be even more pronounced in this group, with even fewer universities generating the total licensing income than is the case in developed countries.

The above examples have been chosen to cover output, outcome, and impact indicators. All three examples illustrate clearly the initial proposition: high-impact innovators are a small and elite cohort.

The elite cohort clusters in narrow geographic locations

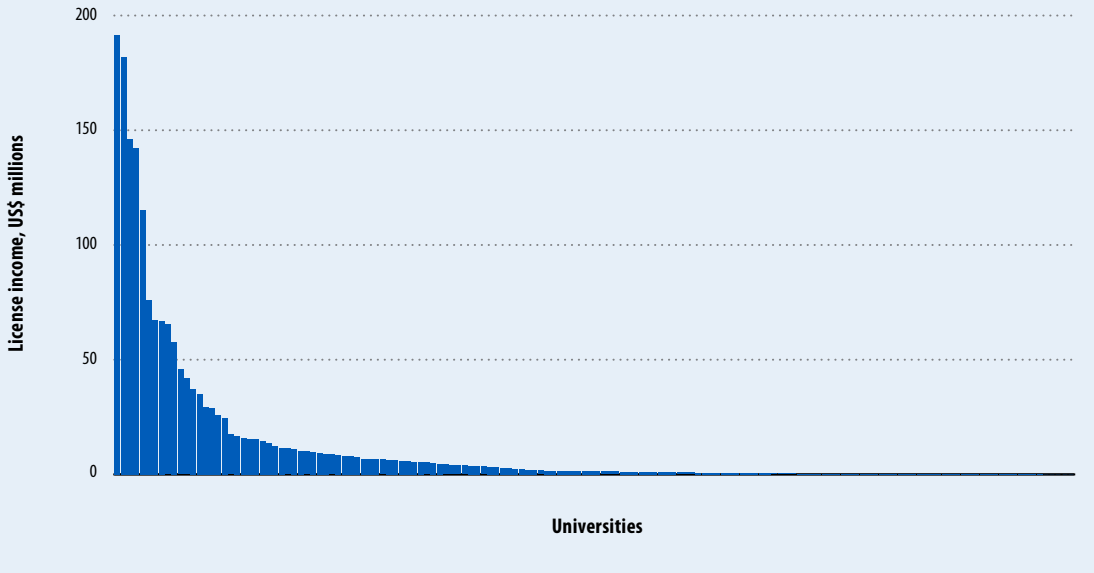
A second characteristic of research and innovation performance is that, in addition to unequal distribution at the level of the individual, performance is also geographically unequal. Talented innovators tend to cluster in the same places, even at the same institutions. This pattern has occurred throughout history and around the world, as can be found in the chronicles of China, Egypt, Greece, India, and Italy, and more recently Vienna. Eric Kandel is well known as the neuropsychiatrist who

Figure 2: Distribution of citations per article



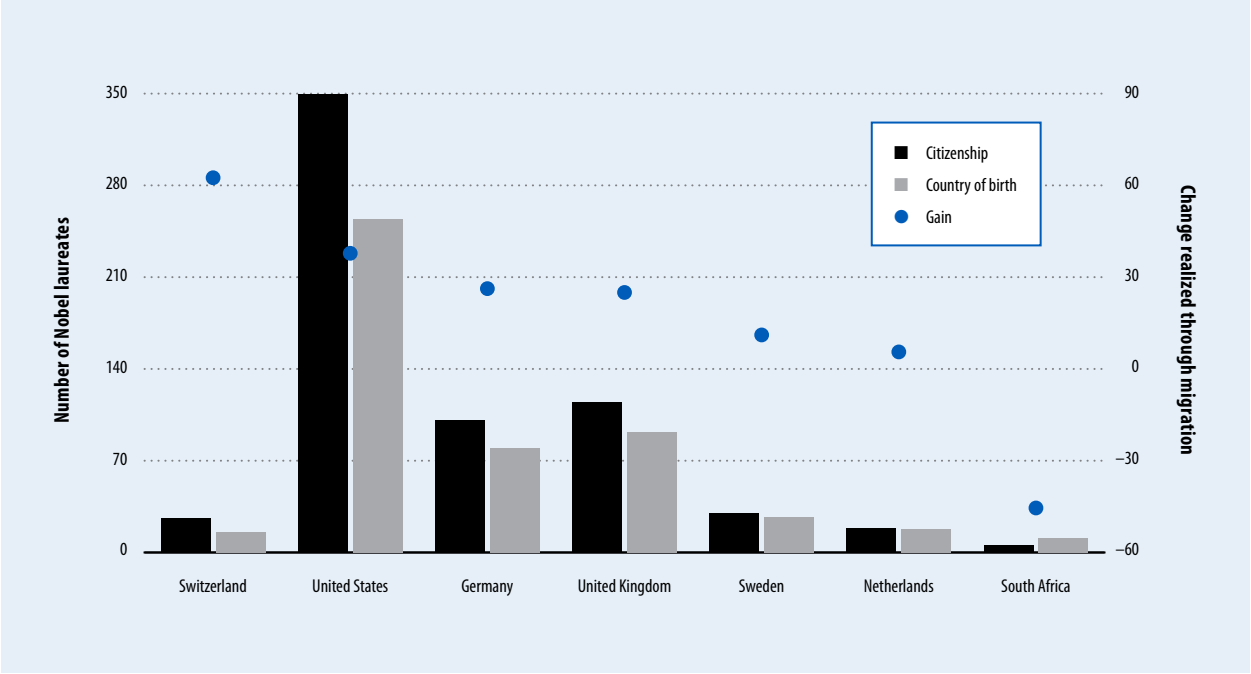
Source: Radicchi et al., 2008.

Figure 3: Distribution of licensing income of US universities (FY 2011)



Source: AUTM, 2013.

Figure 4: The impact of mobility on the citizenship of all Nobel laureates, 1901–2013



Source: http://en.wikipedia.org/wiki/List_of_countries_by_Nobel_laureates_per_capita; Schmidhuber, 2010.

unravelled the physiological basis of memory storage, for which he received the Nobel Prize in 2000. He is also an expert on Viennese history of the end of the 19th century and the beginning of the 20th, a period of remarkable intellectual progress referred to as the 'Age of Insight'.[4] Bringing together a diverse range of people, Vienna supported the blossoming of science and culture, including the work of the physicians Sigmund Freud, Carl von Rokitansky, and Johann Schnitzler; the artists Gustav Klimt, Oskar Kokoschka, and Egon Schiele; the philosopher Ludwig Wittgenstein; and the architects Adolf Loos and Otto Wagner.

Many cities and indeed countries may strive to repeat Vienna's extraordinary output, and Kandel is not the only scholar to have sought an explanation for its distinction. Interestingly, one of the important contributors to this phase of extraordinary insight and progress is considered to be migration, as the city drew intellectuals from all over Central Europe during this period. The combination of a multi-disciplinary and multi-ethnic population with an active cosmopolitan life within the social spaces of the Viennese coffee houses facilitated a powerful cross-fertilization of ideas, the outcomes of which have continued to influence the practice of medicine, psychiatry, music, and other disciplines.

Clusters of high output and performance repeat themselves across time and place as these factors of education, multi-disciplinary discourse, quality of life, human migration, and resources are aligned to the required extent. Although the appearance of these clusters may seem random with respect to time and geography, countries and institutions can and do intervene to influence the likelihood of research and innovation excellence. For instance, many countries have specific policy instruments that appoint internationally ranked researchers to secure, tenured, university-based positions. In South Africa, the Research Chairs Initiative was established in 2006 by the Department of Science and Technology as a strategic intervention aimed at reversing the attrition of research and innovation capacity in the country's higher education institutions and increasing the number of world-class researchers in the country. The initiative has sought to provide well-structured employment packages that include making research grants, facilities, and postgraduate students available to top researchers. By March 2012, 152 chairs had been awarded, of which 89 had been operationalized.[5]

This initiative, together with the Department of Education's performance management framework for South African universities, can be said to have been instrumental in successfully addressing the stagnation in scientific publications by

Table 1: Well-known South African entrepreneurs, in chronological order of innovation (1960s onwards)

Entrepreneur	Industry sector	Company	Date of innovation	Birth	Residence
George Pratley	Adhesives	Pratley (Pty) Ltd	1960s	South Africa	South Africa (deceased)
Ferdinand Chauvier	Leisure and hospitality	Kreepy Krawly	1974	Belgian Congo	USA
Herbert Sheffel	Rail transport	South African Railways	1970s	South Africa	Unknown
Sol Kerzner	Hotel and tourism	Sun International	1980s	South Africa	USA
Patrick Soon-Shiong	Biotechnology and health	Abraxis BioScience	1991	South Africa	USA
Mark Shuttleworth	Information technology	Thawte	1995	South Africa	United Kingdom
Elon Musk	Space and automobiles	PayPal, Zip2, SpaceX, and Tesla	1999	South Africa	USA
Pieter de Villiers	Information technology	Clickatell	2000	South Africa	USA
Roelof Botha	Information technology	PayPal and Sequoia Capital	2001	South Africa	USA
Percy Amoils	Medical (ophthalmic)	Cryoprobe	2002	South Africa	South Africa
Gavin Hood	Film (Tsotsi)	Not applicable	2005	South Africa	USA
Paul Maritz	Information technology	VMware (CEO)	2008	Zimbabwe	USA
Sindiso Khumalo	Textiles and design	Sindiso Khumalo	2009	South Africa	United Kingdom
Chris Pinkham	Information technology	Amazon EC2 and Nimbula	2010	South Africa	USA
Willem van Biljon	Information technology	Amazon EC2 and Nimbula	2010	South Africa	USA

Source: Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University - Higher School of Economics (HSE), 2011.

South African researchers over the period 1986 to 2004; certainly the output was relatively unchanged over the period 1994 to 2004 (from 3,500 to 4,000 publications), but it then rose steeply to over 9,750 publications by 2012.[6] Local institutions have now adopted strategies that focus on attracting the best academics, leading to a more robust employment market.

Even such proactive policies, however, have been insufficient to retain South Africa's top talent. Historical patterns of mobility have shown that leading researchers and entrepreneurs are more likely to pursue their careers in the USA or the United Kingdom (UK) (see Table 1 and Figure 4). For instance, of the five South African Nobel laureates who have received their prize for chemistry or medicine, all now live in other countries, and South Africa is the only major Nobel country (with more laureates than any other developing countries, and indeed more than many developed ones) that has seen a net emigration of prize winners (see Figure 4).

According to the table of top South African entrepreneurs (see Table 1), only one is still resident in the country. Although South Africa has an impressive reputation for Nobel recipients and entrepreneurs—including the 2013 laureate Michael Levitt and the USA-based space entrepreneur Elon Musk—it has not been successful in retaining this talent and providing longer-term career opportunities. The general pattern is that such talented individuals have migrated to other countries, especially the USA and the UK.

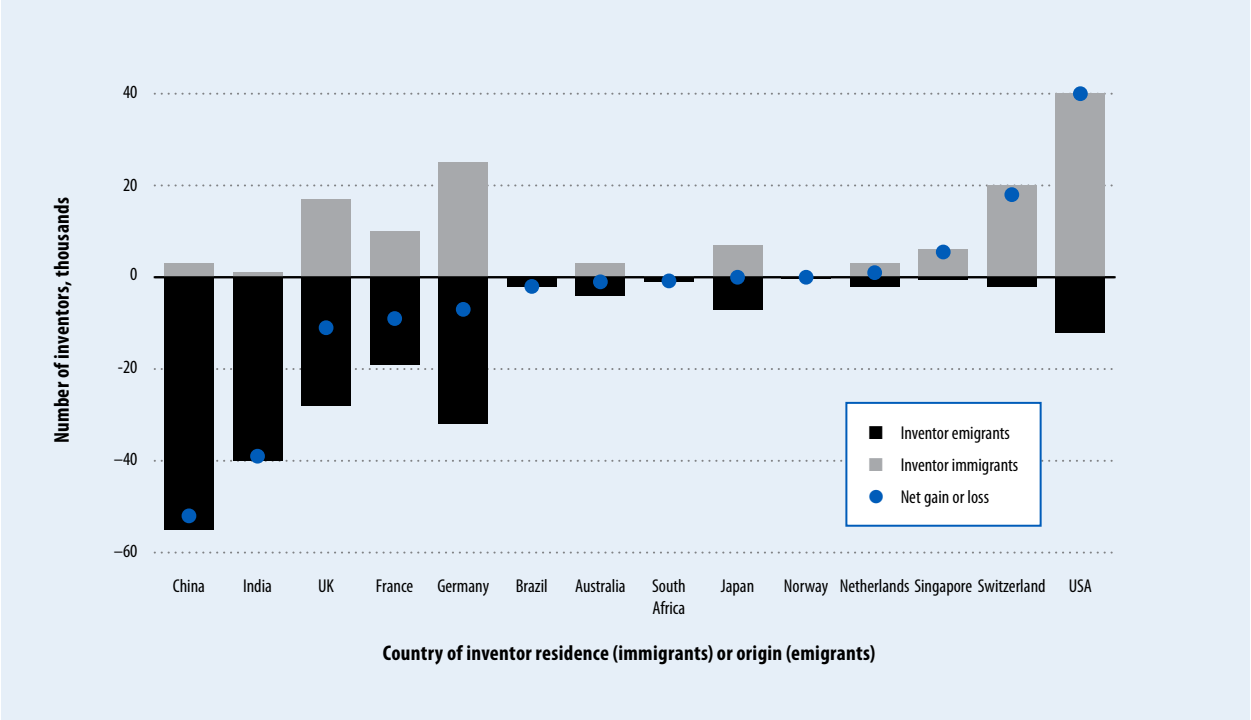
The migration of innovators from developing to developed countries is also evident in statistics on inventions, where it has been shown that inventors in developed countries such as the USA and Switzerland are more likely to be immigrants than natives (see Figure 5), and these inventors are more frequently cited in the patent literature. The ratio of immigrant to total inventors is especially high in Swiss and US universities, where up to 50% of all university inventors are immigrants.[7]

The capacity of some countries to attract and support higher levels of extraordinary talent, allowing it to develop and flourish, is a consequence of many factors that include funding, facilities, international migration, strong local networks and clustering, and the 'Sanger factor' (see Box 1). The probability that the exact circumstances of education, funding, creative thinking, and other framework conditions will occur simultaneously at a specific location and point in time is low despite the efforts of governments to provide such conditions, and countries vulnerable to skills emigration should incentivize this cohort to remain in their countries of birth.

Implications for developing countries: How to train and retain the best human capital

Although it may seem surprising, the relevance to innovation policy of the two characteristics of research and innovation, as described in the previous section and broadly named

Figure 5: Immigrant vs. emigrant inventors, 2001–2010



Source: CDIP, 2013.
Note: In the USA there are 194,000 immigrant inventors, for a net gain of 183,000 inventors.

as the disproportionate productivity of human capital, is often overlooked or ignored in developing countries. Although the need to attract and retain top talent in developed countries has been known and practiced over a long period, it is frequently argued that developing countries should pursue priorities other than the provision of research and innovation infrastructure necessary to retain the elite cohort. In this section, we provide a limited overview of technology policy for developing countries and the two sides of this debate. This is followed by a more detailed discussion of the conditions in South Africa, which illustrates why the loss of human capital is a major problem and hinders efforts to improve innovation output.

There are many views on the optimal economic growth strategy for developing countries, and for every theory there is an exception or even a counterargument. One of the key debates concerns the proper balance between research and development (R&D) and technology transfer/adaption. Innovation is both an inventive (creation of new knowledge) activity and an imitative (reworking of the existing stock of knowledge) one, with the latter being the dominant mode of innovation within firms. These two aspects have also been referred to as the 'learning face' (which acquires and absorbs technology) and the 'innovative face' (which seeks and applies new knowledge). Some studies argue that, in developing countries, the knowledge-using or learning face is quantitatively more important because it draws on the huge stock of existing knowledge that can be exploited for productive activity.[8]

The importance of imitative innovation can be extended to the point that public R&D and radical innovation is no longer a policy focus of developing countries.[9] But this approach does not allow developing countries to take full advantage of their own potential—imitative innovation alone is not sufficient. Instead, such countries should seek to adapt global knowledge to local conditions in order to solve local problems and in pursuit of international markets. They should develop the capability to enable the adoption of newer and better technologies than are currently in use, especially through experiential training for recent graduates, providing a type of experience that is often not available elsewhere. They should develop the necessary human capital to undertake incremental innovation in market-facing enterprises

Box 1: Framework conditions for elite innovators

The following factors are considered essential framework conditions for the emergence of elite innovators:

- **The human factor.** Innovation is undertaken by people who are empowered with the necessary education, training, and skills that facilitate the development of innovative products and services.[1]
- **Public research and development (R&D).** The role of the public sector and the state in supporting innovation is not restricted to providing the necessary policies and incentives for innovation to prosper. The public sector also plays an important role in making the type of innovative breakthroughs from which the private sector is itself able to innovate, thereby driving economic growth and development.[2]
- **Culture.** The openness of societies to new technologies and the pace of innovation itself can be significantly influenced by social culture. Societies that are resistant to innovation, have low levels of trust, impede mobility or migration, and are opposed to collaboration are less likely to be entrepreneurial and produce top innovators.
- **Intellectual property regulation.** A suitable intellectual property regime, which can achieve a balance between the protection of intellectual property rights and support for open innovation, is essential for productive innovation.[3]
- **Advanced information technology ecosystem.** Rapid and reliable communication has become essential for developing and sustaining innovation networks.
- **Support for new firms.** Small and micro-enterprises, particularly new firms, are important for the commercialization of new ideas that can transform these ideas into jobs and wealth. Governments should implement a wide range of measures to support entrepreneurs. These measures include imposing a favourable tax climate, making bankruptcy measures more lenient, and providing incentives for research.[4]
- **The Sanger factor**. This condition refers to the comment made by Fred Sanger on the award of his second Nobel prize, who commented that ' "It's much more difficult to get the first prize than to get the second one . . . because if you've already got a prize, then you can get facilities for work, and you can get collaborators, and everything is much easier."'[5] In other words, success breeds success: talented individuals who receive recognition for an initial achievement are soon rewarded with offers of money, facilities, and prestigious, tenured posts in the expectation of equivalent outputs in the future.

Notes

1. OECD, 2010.
2. Mazzucato, 2013.
3. OECD, 2010.
4. OECD, 2010.
5. Gellene, 2013.

(both state-owned and private). And, finally, they should identify, in-license, and adapt technology while paying special attention to supporting the innovation activities of domestic private companies and state-owned entities.[10]

This perspective has been strengthened by the discussion of innovation-led growth, particularly the strategy that has become known as the 'Beijing Consensus'.[11] China's commitment to a policy of innovation-led growth and the consequent substantial investment in R&D, as a route to economic development and a means of exiting poverty, has been evident since the early 1990s when China began to invest at a level at least three times higher than that of countries with a similar GDP per capita, such as Argentina and South Africa.[12] Since 1995, R&D spending in China has increased at a stunning annual rate of nearly 19% and in 2010 reached a huge US$178 billion PPP[13]—the second largest R&D spending rate worldwide and almost double the rate of a basket of comparator countries. The success of this investment supports the arguments of the Beijing Consensus and the notion that innovation and technology has supported 'super-fast change in some sectors'.[14]

The rapid growth as a consequence of China's approach has prompted South Africa to adopt a similar innovation-led growth strategy.[15] Although it may be premature to assess the outcome of this strategy, it is clear that South Africa is, so far, failing to grow its high-technology industries and remains locked in a resource-based economy. The limited response to several public-sector innovation initiatives, including the Ten Year Innovation Plan and the National R&D Strategy,[16] raises questions about the factors missing in South Africa's innovation strategy. Using the success factors mentioned earlier (see Box 1) as an analytical checklist, it is apparent that South Africa has made progress in the following areas:

- overcoming extremely poor framework conditions of the 1990s;[17]

- providing strong government support for basic science projects, such the Square Kilometre Array project,[18] and public-sector R&D in general; and
- facilitating a high proportion of business enterprise expenditure on R&D relative to the gross expenditure on R&D.

However, South Africa has weaknesses in the following important areas:

- human capital development falls short; this is the most significant weakness of the country's NSI;[19]
- trust among business, labour, and government is lacking; as a result, business is insufficiently involved in the development of the NSI and there is not a strong culture of innovation;[20]
- system-level monitoring is inadequate to inform necessary strategic interventions;[21] and
- the retention of top innovators is inadequate, thereby limiting the impact from this elite cohort (as demonstrated in this chapter). On the assumption that their contribution to the overall innovation output follows a pattern similar to the Pareto distributions mentioned earlier, it is estimated that South Africa's failure to retain the top 5% of researchers and entrepreneurs slices 20% from its potential innovation output.

These weaknesses suggest a number of interventions South Africa could make to address the retention issue. A key starting point is the shortfall in human and social capital. The country needs to actively improve the overall skills level in the economy and build trust between business and government. Policy makers must understand the factors that drive entrepreneurs abroad in more detail, and must address these issues with directed policies that secure better retention. They must improve partnerships among the universities, the public research institutions, and the business sector in order to improve the spillovers from publicly funded R&D. The latter intervention is particularly important given the increasing levels of support for R&D and the relative stagnation in innovation output.

Conclusion

South Africa, alongside other middle-income countries, faces major challenges as it attempts to diversify its economy from a traditional reliance on mineral extraction and primary industry. In charting the way forward, it has adopted the National Development Plan 2030, which has set a clear policy agenda together with many ambitious targets.[22] The Plan is based on the principles of innovation-led growth and clearly identifies the need to improve the quality of education, to support skills development in the population, and to encourage innovation as key enablers for economic development.

Although the country could address the general standard of education and skills development for the population as a whole, this intervention may not succeed in raising the level of innovation, which appears to respond in a non-linear manner to the standard inputs of public expenditure on R&D and education. The skewed distribution of innovation performance, as outlined in this chapter, may be an important consideration for the new policy agenda. It is not only the number of scientists and engineers per 10 million population that could stimulate higher rates of innovation and increase the contribution of high technology goods and services. The support and retention of elite innovators, high-output academics, and productive entrepreneurs should also be ensured. A failure to address the ongoing emigration of this cohort could slice 20% from its potential innovation output and strip the country of essential skills to meet its transformative needs.

Notes

1 Lotka, 1926.
2 Kyvik, 1989.
3 Kyvik, 1989.
4 Kandel, 2012.
5 National Research Foundation, 2012.
6 Pouris and Pouris, 2012.
7 CDIP, 2013.
8 Arnold and Bell, 2001; Cohen and Levinthal, 1989.
9 Arnold and Bell, 2001.
10 Arnold and Bell, 2001.
11 Ramo, 2004.
12 Walwyn, 2008.
13 OECD, 2012.
14 Ramo, 2004.
15 National Planning Commission, 2011.
16 For the Ten Year Innovation Plan, see Department of Science and Technology, 2007; for the National R&D Strategy, see Department of Science and Technology, 2001.
17 OECD, 2007.
18 Hanekom, 2013; Sapa Reporter, *Times Live,* 2013; Sapa Reporter, *TechCentral,* 2014.
19 Department of Science and Technology, 2012.
20 OECD, 2007.
21 Department of Science and Technology, 2012.
22 National Planning Commission, 2011.

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The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco

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Morocco has always been a crossroads, a place where people are mobile and aware of other cultures. Its location on the borders of three distinctive worlds—the Arab world, North Africa, and Europe—and alongside both the Atlantic Ocean and the Mediterranean Sea has meant that its people can embrace international contact and cultural, economic, and scientific exchange.

Today the mobilization of a highly educated workforce is an important part of international migration strategies. However, the lack of qualified human resources in a globalized and competitive marketplace that requires knowledge and know-how generates new reasons for Morocco's population to be mobile. Indeed, the expertise of Moroccans living abroad can answer specific needs of the nation's emerging sectors.

This chapter aims to describe some of the programmes that have been put in place to assist Moroccans Living Abroad (MLAs) in order to enhance the development of innovation in Morocco. The chapter examines the production of intellectual property, with a focus on patents by the MLA population as a proxy for the development of innovation, and draws some lessons about what has worked in Morocco that can be applied to other countries at a similar level of development.

The examples given here are presented to demonstrate some approaches that have been successful for Morocco in the hopes that they will prove useful for other developing countries confronting the same issues. These examples are offered in the same spirit of exchange that is found to be so useful and necessary to the successful implementation of innovation strategies.

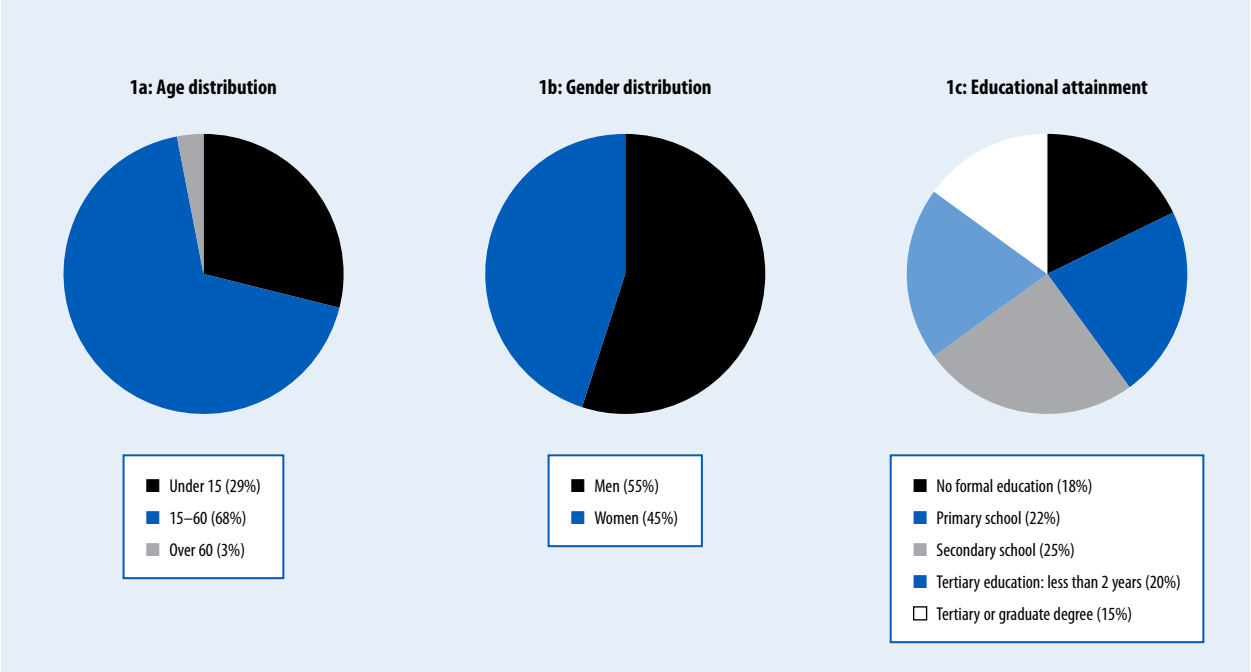
Moroccans throughout the world

In 2012, about 4.5 million Moroccans—15% of its total population—were living abroad. Although this group was originally comprised of men who migrated on their own after World War II, when Europe needed manpower for reconstruction, a recent move towards family reunification has meant that wives have now joined their husbands. The feminization of the group of MLAs has continued, with the migration of single women reflecting the evolving emancipation of women in Moroccan society.

According to a survey conducted in 2005 by the High Commissioner for the Plan, the age pyramid among MLAs shows a strong predominance of young and working-age people.[1] Men comprise 55% of this group, with women making up 45% (see Figure 1a, 1b). This gender distribution represents the feminization of migration over time. Although these data are from 2005 (no newer data are available), nevertheless they indicate a trend.

Highly skilled Moroccans (those with a tertiary or graduate degree) make up 15% of the Moroccan Diaspora (Figure 1c). This comes to more than 400,000 Moroccans living abroad who have either a bachelor's or graduate degree. The trans-generational socioeconomic ascent of the immigrant population, especially considering the flow of graduates of Moroccan higher education out of the country, is poised to create a high concentration of highly skilled workers among those living abroad. It should be noted that these people consist not only of MLAs who had already received their bachelor's degrees in Morocco when they emigrated, but also includes a generation of their children who were educated in the new country of residence. It is especially noteworthy that the share of persons with a university diploma is twice as high among the MLAs as it is among the domestic Moroccan

Figure 1: Characteristics of Moroccans living abroad, 2005



Source: High Commissioner for the Plan, 2005.

population. It is important to point out here that all programmes put in place in Morocco aim to involve highly educated MLAs in contributing to the development of Moroccan innovation.

More than 32,000 MLAs are senior executives or professionals in the private sector. They are mainly researchers, research and development (R&D) managers, university professors, and business people.

The Moroccan Diaspora is mainly located in France (32%), Spain (20%), Italy (12%), and other European countries, Arab countries (6%), the United States of America (USA) and Canada (together 3%), and some African and Asian countries (Figure 2). It would be useful to look at data about the skill level of the MLAs for each country, but these data are unfortunately not available.

Professionals and the innovative output of the Moroccan Diaspora

Identifying the skilled members of the Diaspora who contribute actively to innovation is extremely difficult because the data are often simply not available. For example, scientific publications do not mention the nationality of the authors, and some authors have more than one nationality.

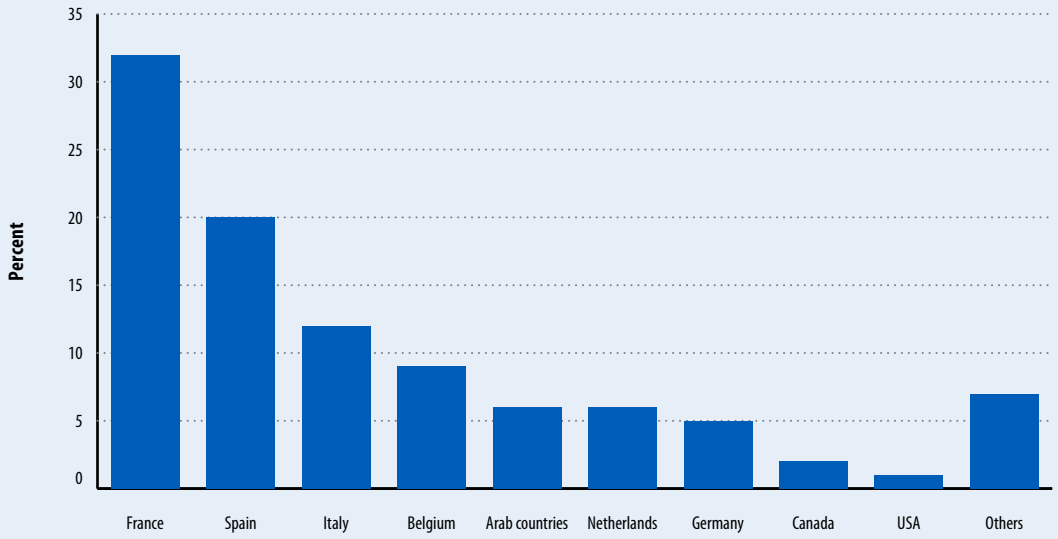
However, Patent Cooperation Treaty (PCT) patent applications present a unique feature: they specify the place of residence and nationality of applicants. Thus an analysis of patents issued under the PCT enables the identification of patents by inventors who belong to the Moroccan Diaspora, which can serve as a proxy for determining MLA inventors. An analysis of the change to PCT patent applications over the years, when considered in conjunction with the change in the numbers of highly skilled MLAs, reveals that the MLAs file more patents, especially in recent years.

According to this analysis, 876 patent applications published under the PCT have been filed by MLA inventors at international locations in the 16 years from 1995 through 2011 (Figure 3).

This large number of Moroccans filing for patents abroad illustrates the important role that research laboratories in developed countries play in stimulating creativity and invention among Moroccan scientists abroad.

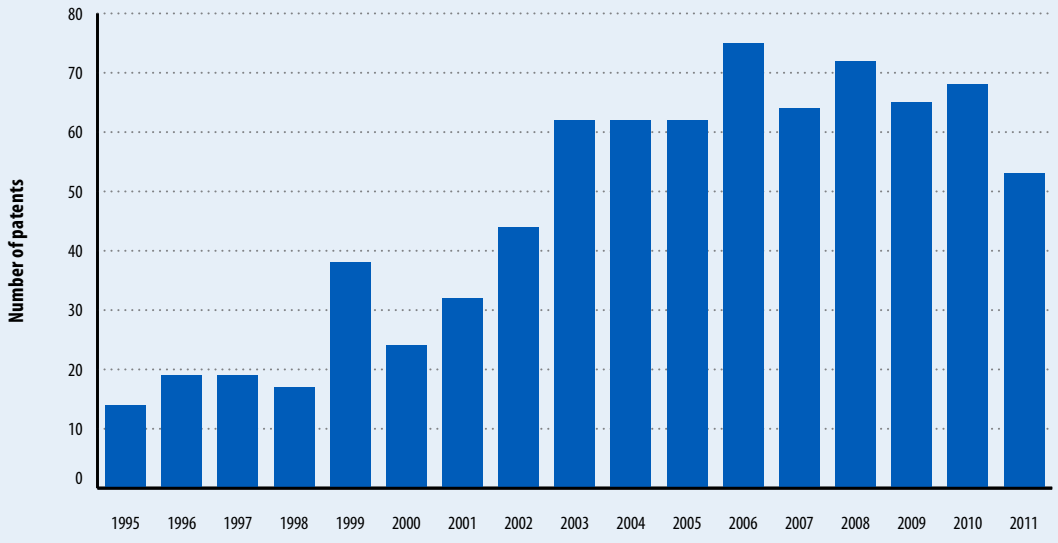
The geographical distribution of the patents of the Moroccan Diaspora shows that they are concentrated in the three countries: France, the USA, and Spain. This finding illustrates the correlation between

Figure 2: Geographic distribution of Moroccans living abroad, 2013



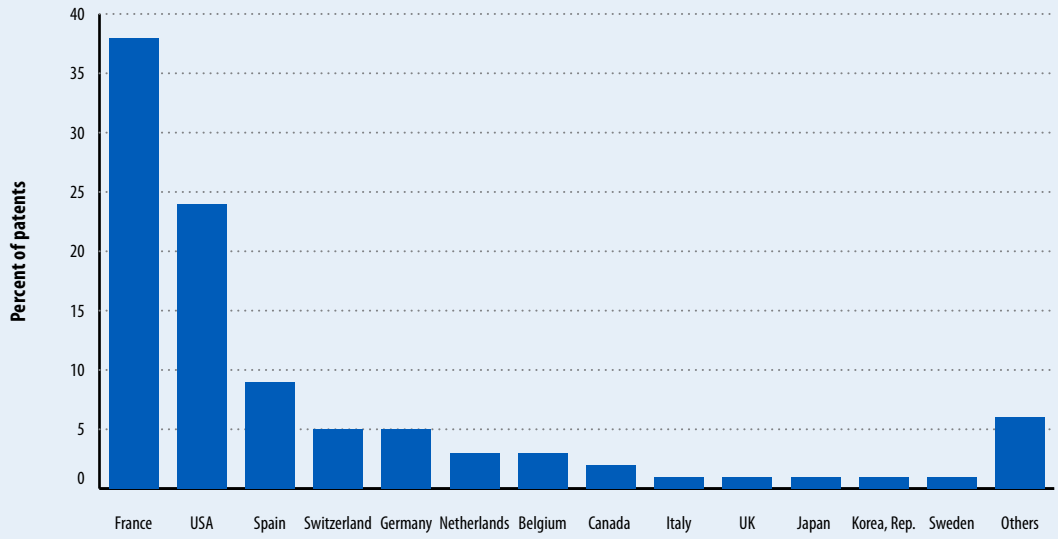
Source: Ministry in Charge of Moroccans Living Abroad and Migration Affairs, 2013a.

Figure 3: PCT patents of inventors of the Moroccan Diaspora, 1995–2011



Source: Patent Scope Database available at http://www.wipo.int/patentscope/en/.
Note: It should be noted that, starting in 2012, information on the nationality of the inventors of PCT patents is no longer available through the Patents Scope Database.

Figure 4: Regional mapping of patents of the Moroccan Diaspora



Source: The patent database of the European Patent Office, available at http://ep.espacenet.com/

the number of Moroccan students in these countries who became researchers and the number of patent applications they file. Indeed, most Moroccan migrant students settle in the country of their studies.

From Figures 2 and 4, we can conclude that the geographic distribution of MLAs and the geographic distribution of Moroccan patent applications are correlated—see, for example, the data for France and Spain. Note, however, that very few MLAs are living in the USA, but that country has a very high percent of MLA inventors. This is because the innovation ecosystem in the USA is more efficient and flexible.

Data from the Espacenet database of the European Patent Office, which includes patents published in more than 90 countries, shows 778 patents for which one of the inventors is originally from Morocco.[2] This research looks only at Moroccan inventors living abroad, not all Moroccan inventors (Figure 4).

A breakdown of the PCT patents of inventors from the Moroccan Diaspora by technical field shows that 20% of the patents belong to medical sciences, followed by organic chemistry with a share of 10% and then biochemistry with 8%.

Moroccan inventors operate in research centres that range from university research laboratories and those of private companies to national scientific research centres. Inventors from the Moroccan Diaspora operate primarily in companies such as France Telecom, Procter & Gamble Company, PHILIPS, Institut Pasteur, and NOVARTIS, among others.[3]

New research on return migration by the World Intellectual Property Organization shows that few Moroccan emigrant inventors—only 2.39%—return to their home country to file patents at home.[4]

Two conclusions can be drawn from these data:

1. Moroccan competencies—professional workers, organizations, and academic institutions—abroad contribute to innovation at a global level.
2. MLAs constitute a scientific potential of creativity and innovation for Morocco through mobilization programmes of the Moroccan Diaspora skills.

Mobilizing the Moroccan Diaspora: Strategy and programmes

Aware of the Moroccan Diaspora's role in the development of innovation in Morocco, since the 1990s the government of Morocco has made

major efforts to involve the MLAs directly. These efforts have been focused on both national political strategy and strategy targeted towards MLAs.

Elements of the national strategy

In addition to political measures undertaken to enhance the involvement of MLAs, particularly through specific elements that aim to foster such involvement in the Moroccan Constitution of 2011, actions targeting the Moroccan Diaspora and that aimed to facilitate their mobilization and contribute to the development of Morocco were carried out.

Mobilization strategies

One example of a successful strategy is the programme for the mobilization of highly skilled MLAs called 'Mobilization Program Skills'.[5] This programme calls upon Moroccan professionals who are ready to contribute with their expertise, experience, and know-how to the development of Morocco. It aims to provide a framework for these professionals that will inform them of opportunities in Morocco and allow them to develop partnerships with Moroccan public and private actors and support professionals abroad who establish projects in Morocco. This strategy is based on the compilation of networks of MLA competencies, the organization of preparatory meetings to inform MLAs about the needs for competencies in sectors that attract them in Morocco, the encouragement of proposals for entrepreneurship and partnership projects by the network that meet the needs of Morocco, the organization of a forum with Moroccan counterparts interested in these projects, and the establishment of partnerships for their implementation.

A second example is a programme called 'MDM invest'. This provides a mechanism to encourage investors in Moroccan enterprises. It is built around providing three basic possibilities for funding. MDM invest can provide:

- equity (in foreign currency) of at least 25% of the projected amount of the project,
- a state subsidy of 10% of the start-up costs (with a ceiling of 5 million dirhams), and/or
- a bank loan (if necessary) that can reach 65% of the start-up costs.

A third example is the United Nations programme entitled TOKTEN (Transfer of Knowledge through Expatriate Nationals).[6] Since 1993, Morocco has organized several meetings of the Moroccan Diaspora as part of the TOKTEN programme. TOKTEN aims primarily at mobilizing national professionals living abroad to contribute, through missions and scientific support, for the development of Morocco.

These TOKTEN meetings brought together Moroccan professionals from all backgrounds to discuss the possibilities of mobilization without, however, leading to real programmes and without choosing to move to the institutionalization of a sustainable mechanism in the framework of a national strategy of mobilization of Moroccan professionals living abroad.

Innovation strategy

In June 2009, Morocco created a national innovation strategy entitled 'Innovation Morocco' to build a favourable ecosystem for the development of innovation within Moroccan companies and research organizations. Innovation Morocco was made operational in March 2011.

This strategy consists of four strategic areas:

- Governance and Regulatory Framework,
- Infrastructure and Clusters,
- Funding and Support, and
- Mobilizing Talents.

The first three of these are out of the scope of this chapter, but we consider here the mobilization of talent, which includes members of the worldwide Moroccan community of innovation. In this context, the Moroccan Office for Industrial and Commercial Property, in partnership with the Ministry of Industry, established the Moroccan Innovation club—a virtual platform dedicated to innovation—to network Moroccan innovation actors both in Morocco and abroad. The web platform (available at http://www.marocinnovation.ma) was launched during the country's 2nd National Innovation Summit in March 2011. Although the formal evaluation of this programme has not yet taken place, the platform is likely to prove useful to Moroccan innovation worldwide.

The Moroccan Association for Scientific Innovation and Research (MAScIR)

The Ministry of Industry, Trade, Investment and the Digital Economy established the Moroccan Association for Scientific Innovation and Research (MAScIR) Foundation in 2007. The foundation's mission is to promote and develop a centre of innovation and competitiveness based on the needs of the market. MAScIR leads projects that are positioned on technological and application niches with a high added value in the areas of advanced technology such as nanotechnology, biotechnology, and microelectronics.

So far, 17 former MLAs are working in MAScIR in all specialties. They are researchers, PhD students, and experts in other specialities, working as platform directors, centre directors, project managers, researchers, and engineers in a wide range of sectors, including medical and green biotechnology, automotive, chemical industry, electronics, and basic research. The Diaspora comes from many countries to participate in MAScIR, including Belgium, Canada, France, Germany, Saudia Arabia, Spain and the USA. Former MLAs have provided, since its inception, a new dynamic to the expansion of the R&D activities conducted by MAScIR. MLAs have participated in 50% of the 44 patents filed by MAScIR to date. Furthermore, 176 scientific papers have been published by MAScIR since its creation.

The Maghribcom platform

The web platform Maghribcom was inaugurated on 31 January 2013. It provides a place for MLAs to encounter the initiatives and policies of the Ministry in Charge of Moroccans Living Abroad. It offers Moroccan professionals an appropriate information framework in terms of business opportunities, ad hoc collaboration, investment, and employment. Its objective is to serve as a springboard to establish win-win partnerships between economic operators, universities, and research institutions in Morocco on one hand, and Moroccan professionals abroad on the other hand, on a temporary or permanent basis. This platform is accessible at http://www.maghribcom.gov.ma/.

By 20 January 2014, almost exactly a year after its launch, the Maghribcom platform had 73 professionals who put their curriculum vitae online to participate in Moroccan projects and listed 860 competencies offered by MLAs.

The success of this programme depends on all stakeholders committing to total involvement, which includes continued updating and maintaining transparency by so that the suitability of demand and offer can be determined by all parties to these partnerships.

The success enjoyed by Maghribcom in just one year is evidence of Morocco's desire to appoint Moroccan professionals who are currently based abroad to posts within Morocco. To this end, Maghribcom called for the mobilization of efforts and means for the identification and segmentation of skill needs in research, training, expertise, and investment for each sector plans to guide the supply of competencies to satisfy the demands of Moroccan economy's priority sectors.

The FINCOME programme

The FINCOME (Moroccan Forum of International Competences Abroad) programme aims to involve Moroccan professionals residing abroad in supporting the economic, social, and cultural development of Morocco in terms of training, research, expertise, consultancy, or investment initiatives of their own.

FINCOME was implemented by the country's National Centre for Scientific Research (CNRST) and the Association R&D Maroc—a private-sector association of business enterprises established to boost innovation—via open tenders on the platform http://www.fincome.cnrst.ma/.

Since FINCOME began, an annual call for proposals for specific activities to be carried on in Morocco for developing innovation is launched by CNRST, thus creating a mechanism and the promise of partial funding to support expert activities carried on by Moroccan professionals residing abroad, especially in the field of education and research. In 2010, the scope of activities for this programme was enlarged to include the development of new business; this resulted in more activities in this year.

The results of this programme, since its launch in December 2006, are shown in Figure 5.

Since its inception, the FINCOM programme has supported 330 accomplishments (expert consultations, meetings, projects, and new businesses) by mobilizing 384 experts from the Moroccan Diaspora.

Innovative entrepreneurship for Moroccan professionals living abroad

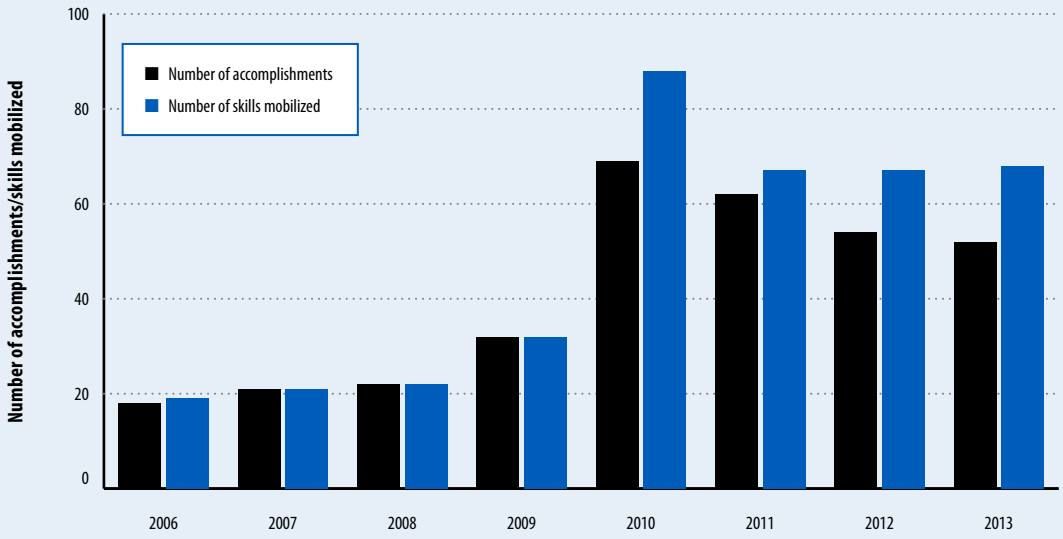
In 2011, the CNRST adopted an innovative business incubator called 'Morocco Incubation' that hosts project developers to create innovative companies from the Moroccan professionals living abroad. The experiment is still in its infancy, and the flow of projects has not yet reached its goal. Cumbersome administrative and financial procedures to which this centre is subject does not make it attractive to the MLAs. Only three projects were accepted in 2011: two of these led to the creation of companies in Morocco, but only one is still active. The other two enterprises have returned to their home countries.

This finding is related to the fact that, despite the considerable efforts of the government and all socio-economic stakeholders, the chain of innovation in Morocco still has missing links that hinder the successful implementation of such projects.

Competencies networks of Moroccans living abroad

The competencies of the Moroccan Diaspora—professionals, organizations, and academic institutions—are

Figure 5: Results of the FINKOM programme



Source: National Centre for Scientific and Technical Research (CNRST), 2013.

organized into networks to coordinate efforts and create synergies in relation to their contributions to the development of Morocco. The following sections provide details about some of these networks.

The Moroccan Competencies Forum (MCF)

Among these networks, the Moroccan Competencies Forum (MCF) aims to increase the involvement of the Moroccan Diaspora in the socioeconomic development of Morocco. These networks exist in Europe, Canada (http://www.fcmrc.net), and the USA (http://www.amcnusa.org). The stated mission of the American Moroccan Competencies Network, for example, is to 'mobilize and catalyse the engagement of US-based Moroccan professionals, organizations, and academic institutions in the advancement of the socio-economic development of Morocco and the Moroccan community in the US.'[7] It advances this mission in several ways, including holding conferences for members, among other activities.[8]

DMK Network

Established in 2009, the German-Moroccan network of competencies DMK (Deutsch-Marokkanisches Kompetenznetzwerkev) now includes more than 700 German and Moroccan experts working in different disciplines.

The main objectives of this network are to improve relations between the two countries in terms of technology transfer and to facilitate the integration of Moroccans living in Germany.

The DMK network has been involved with several projects. Among them are:

- the establishment of a double degree programme that confers a master in Computer Science from the Technical University of Munich (TUM) and Al Akhawayn University in Ifrane (AUI);
- the establishment of a counselling centre in Frankfurt run by Moroccans living in Germany;[9] and
- the promotion of the transfer of knowledge in medicine: the network has arranged for medical devices provided by the University of Göttingen to be received by the Faculty of Medicine in Marrakech, and organized a training course on new techniques in the field.

Public-private partnership: The creation of the International University of Rabat

In 2006, after working for more than 20 years in a science career in France, Professor Noureddine Mouaddib mobilized teachers and researchers from the academic and scientific Moroccan Diaspora to create the International University of Rabat (UIR). This project is the first public-private partnership in the field of higher education in Morocco.

The strategic orientation of the UIR—research, development, and innovation (RDI)—consists of the establishment of applied research with a strong, innovative market-oriented component in order to meet the socioeconomic needs of the country. The majority of UIR researchers—30 of them—are derived from the academic and scientific Moroccan Diaspora; they are deeply involved in promoting RDI in the Moroccan scientific environment. Since its creation in 2010, the UIR has recorded more than 100 scientific publications, books, and book chapters and 70 patents applications by its faculty teachers-researchers. In 2013 alone, the UIR filed 47 patent applications, a net increase in that year.[10]

Conclusion

The migration of Moroccan professionals to countries abroad began in the late 1990s. MLAs have seen educational achievement and have been elevated to highly qualified competencies, and the more than 400,000 MLAs have seen their contribution to creativity and innovation gain momentum during the last decade.

The efforts on the part of the Moroccan government have fostered a rapprochement with those living abroad. The public opinions of their leaders have strongly encouraged highly qualified individuals to create projects in Morocco. A study conducted by the European Training Foundation in 2012 revealed a steady return of migrants of working age in the last decade.[11] Of those who returned to Morocco, 81% are under 54 years old, and more than two-thirds have their own businesses. The projects of those who have returned to Morocco are in different sectors of the economy, and are often innovative projects that were designed and built out of their experience abroad before being undertaken in Morocco.

Although action has been taken by the government to encourage this development, policies and actions are not yet fully adequate to the needs of the Moroccan economy, which requires a serious boost to its pool of skilled human resources.

The operations carried out and the tools put in place so far are failing because of the relative weakness of their efficiency. A general communication campaign inviting professionals and other competencies to return to their home country may have only a limited effect. It is clear that, apart from the direct action of the FINCOME programme, the different programmes noted above were not much more than announcements.

Because of the lack of monitoring tools, it is difficult to provide updated data and specific indicators regarding the highly skilled Moroccans living abroad. More information about their research and the innovations they have contributed from other countries, as well as more data about the impact of the different actions taken in Morocco towards mobilizing innovative migrants of the Moroccan Diaspora, would provide an opportunity to tailor policy towards specific ends.

In order to compete successfully in the world marketplace for highly qualified professionals, and to provide for the globalization of markets and business, it is increasingly urgent to make the home country attractive to those who now contribute abroad. This means:

- considering specific return campaigns centred around major technology projects,
- mobilizing these human resources in a targeted manner and earmarking these projects, and
- creating the conditions and environment favourable to the contribution of professionals who are now abroad to further the development of innovation in Morocco.

Morocco has been successful in some ways, but needs to do more to realize the innovative potential of its highly educated workers. As for other developing countries, ensuring that the home country becomes more attractive to these migrants is an important early step. But to do that, more and better data are needed. There is a great need for further research in this area.

Notes

1 See the 2005 survey at the High Commission for the Plan, 2005, available at http://www.hcp.ma/Enquete-de-2005-sur-l-insertion-socio-economique-dans-les-pays-d-accueil-des-Marocains-residant-a-l-etranger_a102.html.

2 This research was carried out on the patent search engine Espacenet of the European Patent Office, available at http://worldwide.espacenet.com/searchResults?compact=false&ST=advanced&IN=[MA]&locale=en_EP&DB=EPODOC.

3 Data on organizations that employ MLAs can be found in the Patent Scope Database at http://patentscope.wipo.int/search/fr/result.jsf?query=ana:ma%20-an:%28pct/ma*%29.

4 Breschi et al., 2014.

5 Details of the programme are available at http://www.marocainsdumonde.gov.ma/le-minist%C3%A8re/programmes-du-minist%C3%A8re/programme-de-mobilisation-des-comp%C3%A9tences.aspx.

6 Belguendouz, 2010.

7 AMCN, no date.

8 For an announcement of such a conference, see Lemag: English, 2013.

9 For details about the counselling centre, see http://www.dmk-online.org/.

10 See 'Patents' on the UIR website at http://www.uir.ac.ma/en/recherche/les-brevets/patents.

11 This study was carried out from a field survey by the European Training Foundation (ETF) with the assistance of AMERM (Moroccan Association for Studies and Research on Migration), and published in March 2013 (EFT, 2013).

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Appendices

Appendix I

Country/Economy Profiles

Country/Economy Profiles

The following tables provide detailed profiles for each of the 143 economies in the Global Innovation Index 2014. They are constructed around three sections.

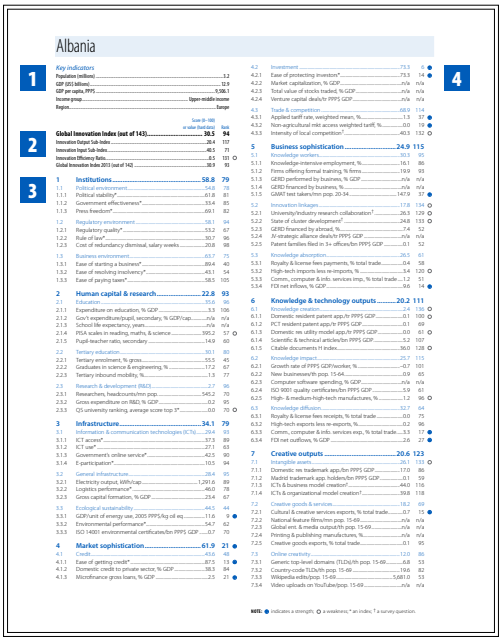
1 Five key indicators at the beginning of each profile are intended to put the economy into context. They present the population in millions,[1] GDP in US$ billions, and GDP per capita in PPP current international dollars.[2] The fourth indicator categorizes the economy into income group and the fifth indicates its geographical region.[3]

2 The next section provides the economy's scores and rankings on the Global Innovation Index (GII), the Innovation Output Sub-Index, the Innovation Input Sub-Index, and the Innovation Efficiency Ratio.

The GII ranking for the 2013 edition comes next. Four economies were added in 2014, and three were excluded. For that reason, and because of adjustments made to the GII framework every year and other technical factors not directly related to actual performance (missing data, updates of data, etc.), the GII rankings are not directly comparable from one year to the next. Please refer to Annex 2 of Chapter 1 for details.

Scores are normalized in the 0–100 range except for the Innovation Efficiency Ratio, for which scores revolve around the number 1 (this index is calculated as the ratio between the Output and Input Sub-Indices).

The Innovation Input Sub-Index score is calculated as the simple average of the scores in the first five pillars, while the Innovation Output Sub-Index is calculated as the simple average of the last two pillars.


Albania

3 Pillars are identified by single-digit numbers, sub-pillars by two-digit numbers, and indicators by three-digit numbers. For example, *indicator 1.3.1, Ease of starting a business,* appears under *sub-pillar 1.3, Business environment,* which in turn appears under *pillar 1, Institutions.*

The 2014 GII includes 81 indicators and three types of data. Composite indicators are identified with an asterisk (*), survey questions from the World Economic Forum's Executive Opinion Survey are identified with a dagger (†), and the remaining indicators are all hard data series.

For hard data, the original value is provided (except for indicators 7.3.1, 7.3.2, and 7.3.4, for which the raw data were provided under the condition that only the normalized scores be published). Normalized scores in the 0–100 range are provided for everything else (index and survey data, sub-pillars, pillars, and indices).

When data are either not available or out of date (the cutoff year is 2004), 'n/a' is used (please refer to Annex 2 of Chapter 1 for more information regarding the use of 'n/a' and zero in particular indicators). The year of each data point is indicated in the Data Tables shown in Appendix II.

For further details, see Appendix III, Sources and Definitions, and Appendix IV, Technical Notes.

4 To the far right of each column, a solid circle indicates that an indicator is one of the strengths of the country/economy in question, and a hollow circle indicates that it is a weakness.

All top ranks (of 1) are highlighted as strengths; for the remaining indicators, strengths and weaknesses of a particular economy are based on the percentage of economies with scores that fall below its score (i.e., percent ranks).

- For a given economy, strengths (●) are those scores with percent ranks greater than the 10th largest percent rank among the 81 indicators in that economy.
- Similarly, for that economy, weaknesses (○) are those scores with percent ranks lower than the 10th smallest percent rank among the 81 indicators in that economy.

Percent ranks embed more information than ranks and allow for comparisons of ranks of series with missing data and ties in ranks. Examples from Sweden illustrate this point:

1. Strengths for Sweden are all indicators with percent ranks above 0.97 (10th largest percent rank for Sweden); weaknesses are all indicators with percent ranks below 0.62 (Sweden's 10th smallest percent rank).
2. Sweden ranks 5th out of 143 in 3.2.1 *Electricity output, kWh/cap* with a percent rank of 0.97; this indicator is a strength for Sweden.
3. Sweden also ranks 5th in 5.1.3 *GERD performed by business, % GDP,* but with a percent rank of 0.95 (because only 87 countries are covered by that indicator), this indicator is not a strength for Sweden.
4. The rank of 52 (percent rank of 0.59) in 3.3.1 *GDP/unit of energy use, 2005 PPP$/kg oil eq* is a weakness for Sweden. By contrast, the rank of 76 for Sudan for that same indicator is a strength for Sudan (with a percent rank of 0.39, this is above the cutoff for strengths for Sudan, which is 0.37).

Percent ranks are not reported in the Country/Economy Profiles but they are presented in the Data Tables (Appendix II).

Notes

1 Data are from the United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision*.

2 Data for GDP and GDP per capita are from the International Monetary Fund *World Economic Outlook 2014* database.

3 Income group is according to the World Bank Income Group Classification (July 201 3): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Geographical regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; and SSF = Sub-Saharan Africa.

Index of Country/Economy Profiles

Country/Economy	Page
Albania	140
Algeria	141
Angola	142
Argentina	143
Armenia	144
Australia	145
Austria	146
Azerbaijan	147
Bahrain	148
Bangladesh	149
Barbados	150
Belarus	151
Belgium	152
Benin	153
Bhutan	154
Bolivia, Plurinational St.	155
Bosnia and Herzegovina	156
Botswana	157
Brazil	158
Brunei Darussalam	159
Bulgaria	160
Burkina Faso	161
Burundi	162
Cabo Verde	163
Cambodia	164
Cameroon	165
Canada	166
Chile	167
China	168
Colombia	169
Costa Rica	170
Côte d'Ivoire	171
Croatia	172
Cyprus	173
Czech Republic	174
Denmark	175
Dominican Republic	176
Ecuador	177
Egypt	178
El Salvador	179
Estonia	180
Ethiopia	181
Fiji	182
Finland	183
France	184
Gambia	185
Georgia	186
Germany	187
Ghana	188
Greece	189
Guatemala	190
Guinea	191
Guyana	192
Honduras	193
Hong Kong (China)	194
Hungary	195
Iceland	196
India	197
Indonesia	198
Iran, Islamic Rep.	199
Ireland	200
Israel	201
Italy	202
Jamaica	203
Japan	204
Jordan	205
Kazakhstan	206
Kenya	207
Korea, Rep.	208
Kuwait	209
Kyrgyzstan	210
Latvia	211
Lebanon	212
Lesotho	213
Lithuania	214
Luxembourg	215
Madagascar	216
Malawi	217
Malaysia	218
Mali	219
Malta	220
Mauritius	221
Mexico	222
Moldova, Rep.	223
Mongolia	224
Montenegro	225
Morocco	226
Mozambique	227
Myanmar	228
Namibia	229
Nepal	230
Netherlands	231
New Zealand	232
Nicaragua	233
Niger	234
Nigeria	235
Norway	236
Oman	237
Pakistan	238
Panama	239
Paraguay	240
Peru	241
Philippines	242
Poland	243
Portugal	244
Qatar	245
Romania	246
Russian Federation	247
Rwanda	248
Saudi Arabia	249
Senegal	250
Serbia	251
Seychelles	252
Singapore	253
Slovakia	254
Slovenia	255
South Africa	256
Spain	257
Sri Lanka	258
Sudan	259
Swaziland	260
Sweden	261
Switzerland	262
Tajikistan	263
Tanzania, United Rep.	264
TFYR of Macedonia	265
Thailand	266
Togo	267
Trinidad and Tobago	268
Tunisia	269
Turkey	270
Uganda	271
Ukraine	272
United Arab Emirates	273
United Kingdom	274
United States of America	275
Uruguay	276
Uzbekistan	277
Venezuela, Bolivarian Rep.	278
Viet Nam	279
Yemen	280
Zambia	281
Zimbabwe	282

Albania

Key indicators

Population (millions)	3.2
GDP (US$ billions)	12.9
GDP per capita, PPP$	9,506.1
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.5**	**94**	
Innovation Output Sub-Index		20.4	117	
Innovation Input Sub-Index		40.5	71	
Innovation Efficiency Ratio		0.5	131	○
Global Innovation Index 2013 (out of 142)		30.9	93	
1	**Institutions**	**58.8**	**79**	
1.1	Political environment	54.8	78	
1.1.1	Political stability*	61.8	81	
1.1.2	Government effectiveness*	33.4	85	
1.1.3	Press freedom*	69.1	82	
1.2	Regulatory environment	58.1	94	
1.2.1	Regulatory quality*	53.2	67	
1.2.2	Rule of law*	30.7	96	
1.2.3	Cost of redundancy dismissal, salary weeks	20.8	98	
1.3	Business environment	63.7	75	
1.3.1	Ease of starting a business*	89.4	40	
1.3.2	Ease of resolving insolvency*	43.1	54	
1.3.3	Ease of paying taxes*	58.5	105	
2	**Human capital & research**	**22.8**	**93**	
2.1	Education	35.6	96	
2.1.1	Expenditure on education, % GDP	3.3	106	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	395.2	57	○
2.1.5	Pupil-teacher ratio, secondary	14.9	60	
2.2	Tertiary education	30.1	80	
2.2.1	Tertiary enrolment, % gross	55.5	45	
2.2.2	Graduates in science & engineering, %	17.2	67	
2.2.3	Tertiary inbound mobility, %	1.3	77	
2.3	Research & development (R&D)	2.7	96	
2.3.1	Researchers, headcounts/mn pop.	545.2	70	
2.3.2	Gross expenditure on R&D, % GDP	0.2	95	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**34.1**	**79**	
3.1	Information & communication technologies (ICTs)	29.4	93	
3.1.1	ICT access*	37.3	89	
3.1.2	ICT use*	27.1	63	
3.1.3	Government's online service*	42.5	90	
3.1.4	E-participation*	10.5	94	
3.2	General infrastructure	28.4	95	
3.2.1	Electricity output, kWh/cap	1,291.6	89	
3.2.2	Logistics performance*	46.0	78	
3.2.3	Gross capital formation, % GDP	23.4	67	
3.3	Ecological sustainability	44.5	44	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	11.6	9	●
3.3.2	Environmental performance*	54.7	62	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	70	
4	**Market sophistication**	**61.9**	**21**	●
4.1	Credit	43.6	48	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	38.3	84	
4.1.3	Microfinance gross loans, % GDP	2.5	21	●
4.2	Investment	73.3	6	●
4.2.1	Ease of protecting investors*	73.3	14	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	68.9	114	
4.3.1	Applied tariff rate, weighted mean, %	1.3	37	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	19	●
4.3.3	Intensity of local competition†	40.3	132	○
5	**Business sophistication**	**24.9**	**115**	
5.1	Knowledge workers	30.3	95	
5.1.1	Knowledge-intensive employment, %	16.1	86	
5.1.2	Firms offering formal training, % firms	19.9	93	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20-34	147.9	37	●
5.2	Innovation linkages	17.8	134	○
5.2.1	University/industry research collaboration†	26.3	129	○
5.2.2	State of cluster development†	24.8	133	○
5.2.3	GERD financed by abroad, %	7.4	52	
5.2.4	JV-strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	52	
5.3	Knowledge absorption	26.5	61	
5.3.1	Royalty & license fees payments, % total trade	0.4	58	
5.3.2	High-tech imports less re-imports, %	3.4	120	○
5.3.3	Comm., computer & info. services imp., % total trade	1.2	51	
5.3.4	FDI net inflows, % GDP	9.6	14	●
6	**Knowledge & technology outputs**	**20.2**	**111**	
6.1	Knowledge creation	2.4	136	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	100	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	69	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.0	61	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.2	107	
6.1.5	Citable documents H index	36.0	128	○
6.2	Knowledge impact	25.7	115	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.7	101	
6.2.2	New businesses/th pop. 15-64	0.9	65	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.9	61	
6.2.5	High- & medium-high-tech manufactures, %	1.2	96	○
6.3	Knowledge diffusion	32.7	64	
6.3.1	Royalty & license fees receipts, % total trade	0.0	75	
6.3.2	High-tech exports less re-exports, %	0.2	96	
6.3.3	Comm., computer & info. services exp., % total trade	3.3	17	●
6.3.4	FDI net outflows, % GDP	2.6	27	●
7	**Creative outputs**	**20.6**	**123**	
7.1	Intangible assets	26.1	133	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	17.0	86	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	59	
7.1.3	ICTs & business model creation†	44.0	116	
7.1.4	ICTs & organizational model creation†	39.8	118	
7.2	Creative goods & services	18.2	69	
7.2.1	Cultural & creative services exports, % total trade	0.7	15	●
7.2.2	National feature films/mn pop. 15-69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15-69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	95	
7.3	Online creativity	12.0	86	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	6.8	53	
7.3.2	Country-code TLDs/th pop. 15-69	19.6	82	
7.3.3	Wikipedia edits/pop. 15-69	5,681.0	53	
7.3.4	Video uploads on YouTube/pop. 15-69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Algeria

Key indicators

Population (millions)	38.5
GDP (US$ billions)	206.1
GDP per capita, PPP$	7,534.1
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.2**	**133**	
Innovation Output Sub-Index		16.7	132	
Innovation Input Sub-Index		31.7	122	
Innovation Efficiency Ratio		0.5	130	
Global Innovation Index 2013 (out of 142)		23.1	138	
1	**Institutions**	**47.2**	**118**	
1.1	Political environment	40.8	123	
1.1.1	Political stability*	32.8	131	
1.1.2	Government effectiveness*	26.1	106	
1.1.3	Press freedom*	63.5	102	
1.2	Regulatory environment	50.5	113	
1.2.1	Regulatory quality*	15.1	137	○
1.2.2	Rule of law*	24.5	113	
1.2.3	Cost of redundancy dismissal, salary weeks	17.3	81	●
1.3	Business environment	50.2	117	
1.3.1	Ease of starting a business*	68.5	120	
1.3.2	Ease of resolving insolvency*	44.1	52	●
1.3.3	Ease of paying taxes*	38.1	133	
2	**Human capital & research**	**25.5**	**82**	●
2.1	Education	44.1	66	●
2.1.1	Expenditure on education, % GDP	4.3	79	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.0	56	●
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	30.6	77	●
2.2.1	Tertiary enrolment, % gross	31.5	74	●
2.2.2	Graduates in science & engineering, %	25.0	27	●
2.2.3	Tertiary inbound mobility, %	0.5	90	
2.3	Research & development (R&D)	1.6	111	
2.3.1	Researchers, headcounts/mn pop.	406.5	73	
2.3.2	Gross expenditure on R&D, % GDP	0.1	109	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**32.2**	**86**	
3.1	Information & communication technologies (ICTs)	18.4	116	
3.1.1	ICT access*	36.0	91	
3.1.2	ICT use*	6.8	111	
3.1.3	Government's online service*	25.5	128	
3.1.4	E-participation*	5.3	111	
3.2	General infrastructure	45.9	23	●
3.2.1	Electricity output, kWh/cap	1,423.7	84	
3.2.2	Logistics performance*	31.7	120	
3.2.3	Gross capital formation, % GDP	43.3	5	●
3.3	Ecological sustainability	32.4	82	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.6	54	●
3.3.2	Environmental performance*	50.1	83	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	89	
4	**Market sophistication**	**36.2**	**138**	○
4.1	Credit	23.5	115	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	14.3	134	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	33.4	75	●
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	70	○
4.3	Trade & competition	51.6	140	○
4.3.1	Applied tariff rate, weighted mean, %	8.6	118	
4.3.2	Non-agricultural mkt access weighted tariff, %	n/a	n/a	
4.3.3	Intensity of local competition†	42.7	131	○
5	**Business sophistication**	**17.2**	**137**	○
5.1	Knowledge workers	20.5	122	
5.1.1	Knowledge-intensive employment, %	19.1	75	
5.1.2	Firms offering formal training, % firms	17.3	96	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	2.8	137	○
5.2	Innovation linkages	19.0	131	
5.2.1	University/industry research collaboration†	18.5	135	○
5.2.2	State of cluster development†	36.5	112	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	93	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	100	
5.3	Knowledge absorption	12.1	135	
5.3.1	Royalty & license fees payments, % total trade	0.1	93	
5.3.2	High-tech imports less re-imports, %	5.7	91	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	124	
5.3.4	FDI net inflows, % GDP	1.4	106	
6	**Knowledge & technology outputs**	**19.5**	**114**	
6.1	Knowledge creation	5.5	108	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	79	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	107	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	7.1	89	
6.1.5	Citable documents H index	78.0	82	●
6.2	Knowledge impact	32.4	93	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.0	69	
6.2.2	New businesses/th pop. 15–64	0.5	74	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	112	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	20.5	129	
6.3.1	Royalty & license fees receipts, % total trade	0.0	103	
6.3.2	High-tech exports less re-exports, %	0.0	124	○
6.3.3	Comm., computer & info. services exp., % total trade	0.3	118	
6.3.4	FDI net outflows, % GDP	0.0	98	
7	**Creative outputs**	**14.0**	**138**	○
7.1	Intangible assets	19.7	137	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	12.8	91	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	61	
7.1.3	ICTs & business model creation†	31.5	135	○
7.1.4	ICTs & organizational model creation†	31.8	132	○
7.2	Creative goods & services	4.0	114	
7.2.1	Cultural & creative services exports, % total trade	0.2	43	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	48	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	124	○
7.3	Online creativity	12.5	84	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	123	
7.3.2	Country-code TLDs/th pop. 15–69	2.5	121	
7.3.3	Wikipedia edits/pop. 15–69	700.5	103	
7.3.4	Video uploads on YouTube/pop. 15–69	46.0	56	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Angola

Key indicators

Population (millions)	20.8
GDP (US$ billions)	121.7
GDP per capita, PPP$	6,247.3
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**23.8**	**135**	
Innovation Output Sub-Index		21.4	112	
Innovation Input Sub-Index		26.2	138	
Innovation Efficiency Ratio		0.8	33	●
Global Innovation Index 2013 (out of 142)		23.5	135	
1	**Institutions**	**39.1**	**136**	
1.1	Political environment	44.1	116	
1.1.1	Political stability*	56.4	87	●
1.1.2	Government effectiveness*	13.5	133	
1.1.3	Press freedom*	62.2	106	
1.2	Regulatory environment	35.5	135	
1.2.1	Regulatory quality*	23.3	130	
1.2.2	Rule of law*	11.3	139	○
1.2.3	Cost of redundancy dismissal, salary weeks	31.0	132	
1.3	Business environment	37.8	138	
1.3.1	Ease of starting a business*	56.5	134	
1.3.2	Ease of resolving insolvency*	0.0	140	○
1.3.3	Ease of paying taxes*	56.9	112	
2	**Human capital & research**	**13.8**	**129**	
2.1	Education	33.5	102	●
2.1.1	Expenditure on education, % GDP	3.5	100	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.3	100	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	27.4	98	
2.2	Tertiary education	6.8	132	
2.2.1	Tertiary enrolment, % gross	7.5	118	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.9	120	
2.3.1	Researchers, headcounts/mn pop.	148.4	93	
2.3.2	Gross expenditure on R&D, % GDP	0.1	106	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**17.5**	**137**	
3.1	Information & communication technologies (ICTs)	15.1	126	
3.1.1	ICT access*	18.3	128	
3.1.2	ICT use*	6.2	113	
3.1.3	Government's online service*	33.3	110	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	12.2	141	○
3.2.1	Electricity output, kWh/cap	288.0	111	
3.2.2	Logistics performance*	26.6	127	
3.2.3	Gross capital formation, % GDP	13.8	135	
3.3	Ecological sustainability	25.3	116	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.6	42	●
3.3.2	Environmental performance*	28.7	132	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	127	○
4	**Market sophistication**	**42.9**	**107**	
4.1	Credit	16.8	133	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	23.5	112	
4.1.3	Microfinance gross loans, % GDP	0.0	85	
4.2	Investment	53.3	23	●
4.2.1	Ease of protecting investors*	53.3	66	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	58.6	133	
4.3.1	Applied tariff rate, weighted mean, %	7.4	108	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	11	●
4.3.3	Intensity of local competition†	30.3	136	○
5	**Business sophistication**	**17.8**	**135**	
5.1	Knowledge workers	22.2	116	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	26.9	72	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	5.1	131	
5.2	Innovation linkages	25.1	101	●
5.2.1	University/industry research collaboration†	19.7	133	○
5.2.2	State of cluster development†	34.8	116	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	56	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	6.0	141	○
5.3.1	Royalty & license fees payments, % total trade	0.0	123	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	72	●
5.3.4	FDI net inflows, % GDP	–2.9	142	○
6	**Knowledge & technology outputs**	**24.8**	**83**	●
6.1	Knowledge creation	0.7	143	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	112	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	0.3	142	○
6.1.5	Citable documents H index	25.0	137	
6.2	Knowledge impact	47.1	37	●
6.2.1	Growth rate of PPP$ GDP/worker, %	3.1	35	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.3	137	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	26.6	98	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	84	●
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.1	134	○
6.3.4	FDI net outflows, % GDP	2.4	30	●
7	**Creative outputs**	**18.1**	**127**	
7.1	Intangible assets	35.1	115	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	37.8	130	
7.1.4	ICTs & organizational model creation†	32.3	130	
7.2	Creative goods & services	1.9	125	
7.2.1	Cultural & creative services exports, % total trade	0.0	79	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	0.3	135	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	135	
7.3.2	Country-code TLDs/th pop. 15–69	0.4	133	
7.3.3	Wikipedia edits/pop. 15–69	292.0	112	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Argentina

Key indicators

Population (millions)	41.1
GDP (US$ billions)	488.2
GDP per capita, PPP$	18,749.3
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**35.1**	**70**	
Innovation Output Sub-Index		31.1	61	
Innovation Input Sub-Index		39.2	83	
Innovation Efficiency Ratio		0.8	43	
Global Innovation Index 2013 (out of 142)		37.7	56	
1	**Institutions**	**49.1**	**111**	
1.1	Political environment	58.6	66	
1.1.1	Political stability*	67.3	66	
1.1.2	Government effectiveness*	34.1	84	
1.1.3	Press freedom*	74.3	45	
1.2	Regulatory environment	40.2	129	○
1.2.1	Regulatory quality*	23.6	129	○
1.2.2	Rule of law*	26.7	106	
1.2.3	Cost of redundancy dismissal, salary weeks	30.3	129	○
1.3	Business environment	48.5	124	○
1.3.1	Ease of starting a business*	68.8	119	
1.3.2	Ease of resolving insolvency*	32.6	86	
1.3.3	Ease of paying taxes*	44.0	127	○
2	**Human capital & research**	**38.3**	**41**	
2.1	Education	50.0	47	
2.1.1	Expenditure on education, % GDP	5.8	36	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.1	38	
2.1.3	School life expectancy, years	16.4	16	●
2.1.4	PISA scales in reading, maths, & science	396.7	55	○
2.1.5	Pupil-teacher ratio, secondary	10.9	29	
2.2	Tertiary education	39.6	49	
2.2.1	Tertiary enrolment, % gross	74.8	16	●
2.2.2	Graduates in science & engineering, %	13.5	90	○
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	25.1	39	
2.3.1	Researchers, headcounts/mn pop.	1,941.9	40	
2.3.2	Gross expenditure on R&D, % GDP	0.6	53	
2.3.3	QS university ranking, average score top 3*	42.7	32	●
3	**Infrastructure**	**38.0**	**65**	
3.1	Information & communication technologies (ICTs)	43.1	57	
3.1.1	ICT access*	58.8	53	
3.1.2	ICT use*	31.6	58	
3.1.3	Government's online service*	52.9	60	
3.1.4	E-participation*	29.0	53	
3.2	General infrastructure	34.3	64	
3.2.1	Electricity output, kWh/cap	3,177.7	62	
3.2.2	Logistics performance*	57.1	48	
3.2.3	Gross capital formation, % GDP	24.2	58	
3.3	Ecological sustainability	36.5	64	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.9	39	
3.3.2	Environmental performance*	49.6	84	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.7	49	
4	**Market sophistication**	**37.7**	**132**	○
4.1	Credit	22.4	120	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	18.5	122	○
4.1.3	Microfinance gross loans, % GDP	0.0	87	○
4.2	Investment	21.2	136	○
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	7.2	94	○
4.2.3	Total value of stocks traded, % GDP	0.3	86	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	53	
4.3	Trade & competition	69.6	113	
4.3.1	Applied tariff rate, weighted mean, %	5.6	88	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	37	
4.3.3	Intensity of local competition†	50.2	126	○
5	**Business sophistication**	**32.9**	**66**	
5.1	Knowledge workers	42.0	60	
5.1.1	Knowledge-intensive employment, %	25.0	54	
5.1.2	Firms offering formal training, % firms	58.1	10	●
5.1.3	GERD performed by business, % GDP	0.2	52	
5.1.4	GERD financed by business, %	24.6	59	
5.1.5	GMAT test takers/mn pop. 20–34	37.0	85	
5.2	Innovation linkages	18.7	133	○
5.2.1	University/industry research collaboration†	45.0	59	
5.2.2	State of cluster development†	37.0	110	
5.2.3	GERD financed by abroad, %	0.5	87	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	88	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	65	
5.3	Knowledge absorption	38.0	22	●
5.3.1	Royalty & license fees payments, % total trade	2.4	5	●
5.3.2	High-tech imports less re-imports, %	10.6	26	●
5.3.3	Comm., computer & info. services imp., % total trade	1.3	48	
5.3.4	FDI net inflows, % GDP	2.7	70	
6	**Knowledge & technology outputs**	**25.2**	**81**	
6.1	Knowledge creation	10.8	75	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.0	68	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	49	
6.1.4	Scientific & technical articles/bn PPP$ GDP	10.3	72	
6.1.5	Citable documents H index	222.0	35	
6.2	Knowledge impact	31.0	102	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.5	78	
6.2.2	New businesses/th pop. 15–64	0.5	79	
6.2.3	Computer software spending, % GDP	0.2	63	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	9.0	52	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.9	50	
6.3.1	Royalty & license fees receipts, % total trade	0.2	38	
6.3.2	High-tech exports less re-exports, %	2.2	51	
6.3.3	Comm., computer & info. services exp., % total trade	2.3	31	●
6.3.4	FDI net outflows, % GDP	0.2	78	
7	**Creative outputs**	**36.9**	**49**	
7.1	Intangible assets	42.1	82	
7.1.1	Domestic res trademark app./bn PPP$ GDP	83.2	25	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	45.7	113	
7.1.4	ICTs & organizational model creation†	48.5	85	
7.2	Creative goods & services	24.4	51	
7.2.1	Cultural & creative services exports, % total trade	1.0	7	●
7.2.2	National feature films/mn pop. 15–69	3.6	37	
7.2.3	Global ent. & media output/th pop. 15–69	0.5	30	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.2	82	
7.3	Online creativity	39.0	36	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.7	67	
7.3.2	Country-code TLDs/th pop. 15–69	62.9	16	●
7.3.3	Wikipedia edits/pop. 15–69	7,140.9	51	
7.3.4	Video uploads on YouTube/pop. 15–69	77.4	34	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Armenia

Key indicators

Population (millions)	3.0
GDP (US$ billions)	10.5
GDP per capita, PPP$	6,190.7
Income group	Lower-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.1**	**65**	
Innovation Output Sub-Index		32.7	55	
Innovation Input Sub-Index		39.4	81	
Innovation Efficiency Ratio		0.8	28	●
Global Innovation Index 2013 (out of 142)		37.6	59	
1	**Institutions**	**66.4**	**58**	
1.1	Political environment	60.1	63	
1.1.1	Political stability*	68.3	62	
1.1.2	Government effectiveness*	39.9	70	
1.1.3	Press freedom*	72.0	61	
1.2	Regulatory environment	70.2	53	
1.2.1	Regulatory quality*	57.4	61	
1.2.2	Rule of law*	35.4	84	
1.2.3	Cost of redundancy dismissal, salary weeks	11.0	45	
1.3	Business environment	68.9	54	
1.3.1	Ease of starting a business*	97.3	6	●
1.3.2	Ease of resolving insolvency*	38.6	68	
1.3.3	Ease of paying taxes*	70.8	62	
2	**Human capital & research**	**21.4**	**99**	
2.1	Education	28.4	123	○
2.1.1	Expenditure on education, % GDP	3.3	105	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.7	67	
2.1.3	School life expectancy, years	12.3	84	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	29.0	82	
2.2.1	Tertiary enrolment, % gross	46.0	56	
2.2.2	Graduates in science & engineering, %	15.9	78	
2.2.3	Tertiary inbound mobility, %	3.4	48	
2.3	Research & development (R&D)	6.6	78	
2.3.1	Researchers, headcounts/mn pop.	1,504.0	47	
2.3.2	Gross expenditure on R&D, % GDP	0.3	79	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**30.0**	**93**	
3.1	Information & communication technologies (ICTs)	26.0	98	
3.1.1	ICT access*	45.2	73	
3.1.2	ICT use*	26.0	67	
3.1.3	Government's online service*	32.7	113	○
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	28.7	91	
3.2.1	Electricity output, kWh/cap	2,397.7	70	
3.2.2	Logistics performance*	37.7	97	
3.2.3	Gross capital formation, % GDP	24.5	56	
3.3	Ecological sustainability	35.4	69	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.8	72	
3.3.2	Environmental performance*	61.7	46	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	111	○
4	**Market sophistication**	**50.4**	**56**	
4.1	Credit	46.2	42	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	42.9	78	
4.1.3	Microfinance gross loans, % GDP	4.0	13	●
4.2	Investment	28.9	104	
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	1.3	107	○
4.2.3	Total value of stocks traded, % GDP	0.0	106	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	30	
4.3	Trade & competition	76.1	60	
4.3.1	Applied tariff rate, weighted mean, %	2.3	49	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	59	
4.3.3	Intensity of local competition†	59.7	97	
5	**Business sophistication**	**28.8**	**90**	
5.1	Knowledge workers	38.3	75	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	30.4	65	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	85.5	55	
5.2	Innovation linkages	24.0	111	○
5.2.1	University/industry research collaboration†	36.0	102	○
5.2.2	State of cluster development†	43.8	80	
5.2.3	GERD financed by abroad, %	3.4	71	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	38	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	53	
5.3	Knowledge absorption	24.2	77	
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	6.9	68	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	73	
5.3.4	FDI net inflows, % GDP	4.9	40	
6	**Knowledge & technology outputs**	**31.8**	**51**	
6.1	Knowledge creation	27.7	37	
6.1.1	Domestic resident patent app./tr PPP$ GDP	7.0	16	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.4	42	
6.1.3	Domestic res utility model app./tr PPP$ GDP	2.0	16	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	33.8	26	●
6.1.5	Citable documents H index	105.0	62	
6.2	Knowledge impact	32.2	95	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.3	33	
6.2.2	New businesses/th pop. 15–64	1.5	48	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.3	117	○
6.2.5	High- & medium-high-tech manufactures, %	4.9	87	○
6.3	Knowledge diffusion	35.7	44	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.2	94	
6.3.3	Comm., computer & info. services exp., % total trade	2.7	23	●
6.3.4	FDI net outflows, % GDP	0.2	83	
7	**Creative outputs**	**33.6**	**63**	
7.1	Intangible assets	49.9	43	
7.1.1	Domestic res trademark app./bn PPP$ GDP	102.1	15	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.3	26	
7.1.3	ICTs & business model creation†	62.2	44	
7.1.4	ICTs & organizational model creation†	61.3	34	●
7.2	Creative goods & services	14.6	81	
7.2.1	Cultural & creative services exports, % total trade	0.1	52	
7.2.2	National feature films/mn pop. 15–69	2.4	53	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	45	
7.2.5	Creative goods exports, % total trade	0.3	72	
7.3	Online creativity	20.2	65	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.5	83	
7.3.2	Country-code TLDs/th pop. 15–69	32.6	53	
7.3.3	Wikipedia edits/pop. 15–69	14,960.1	33	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Australia

Key indicators

Population (millions)	22.7
GDP (US$ billions)	1,505.3
GDP per capita, PPP$	43,073.1
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**55.0**	**17**	
Innovation Output Sub-Index		45.5	22	
Innovation Input Sub-Index		64.6	10	
Innovation Efficiency Ratio		0.7	81	○
Global Innovation Index 2013 (out of 142)		53.1	19	
1	**Institutions**	**88.9**	**11**	
1.1	Political environment	86.3	14	
1.1.1	Political stability*	90.1	19	
1.1.2	Government effectiveness*	83.9	12	
1.1.3	Press freedom*	84.8	24	
1.2	Regulatory environment	93.7	12	
1.2.1	Regulatory quality*	95.0	7	●
1.2.2	Rule of law*	94.4	12	
1.2.3	Cost of redundancy dismissal, salary weeks	11.7	49	
1.3	Business environment	86.9	12	
1.3.1	Ease of starting a business*	95.9	9	●
1.3.2	Ease of resolving insolvency*	86.1	17	
1.3.3	Ease of paying taxes*	78.7	38	
2	**Human capital & research**	**61.8**	**7**	●
2.1	Education	55.5	24	
2.1.1	Expenditure on education, % GDP	5.6	43	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.9	59	○
2.1.3	School life expectancy, years	19.9	1	●
2.1.4	PISA scales in reading, maths, & science	512.5	14	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	59.9	7	●
2.2.1	Tertiary enrolment, % gross	83.2	7	●
2.2.2	Graduates in science & engineering, %	16.6	73	○
2.2.3	Tertiary inbound mobility, %	19.8	1	●
2.3	Research & development (R&D)	70.2	8	●
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	2.4	13	
2.3.3	QS university ranking, average score top 3*	85.8	5	●
3	**Infrastructure**	**60.1**	**7**	●
3.1	Information & communication technologies (ICTs)	78.4	9	●
3.1.1	ICT access*	76.4	21	
3.1.2	ICT use*	74.6	8	●
3.1.3	Government's online service*	86.3	9	
3.1.4	E-participation*	76.3	8	
3.2	General infrastructure	55.0	9	●
3.2.1	Electricity output, kWh/cap	10,929.8	10	
3.2.2	Logistics performance*	84.1	18	
3.2.3	Gross capital formation, % GDP	28.5	26	
3.3	Ecological sustainability	46.8	37	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.1	66	○
3.3.2	Environmental performance*	82.4	3	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.1	47	
4	**Market sophistication**	**68.1**	**10**	
4.1	Credit	66.8	11	
4.1.1	Ease of getting credit*	93.8	3	
4.1.2	Domestic credit to private sector, % GDP	123.3	22	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	50.4	29	
4.2.1	Ease of protecting investors*	56.7	55	○
4.2.2	Market capitalization, % GDP	84.6	20	
4.2.3	Total value of stocks traded, % GDP	69.2	10	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	23	
4.3	Trade & competition	86.9	1	●
4.3.1	Applied tariff rate, weighted mean, %	1.8	45	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.6	56	
4.3.3	Intensity of local competition†	80.3	11	
5	**Business sophistication**	**43.9**	**26**	
5.1	Knowledge workers	63.0	22	
5.1.1	Knowledge-intensive employment, %	42.9	16	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.3	16	
5.1.4	GERD financed by business, %	58.4	23	
5.1.5	GMAT test takers/mn pop. 20–34	159.6	31	
5.2	Innovation linkages	38.4	48	
5.2.1	University/industry research collaboration†	67.7	14	
5.2.2	State of cluster development†	54.5	34	
5.2.3	GERD financed by abroad, %	1.6	76	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	27	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.0	20	
5.3	Knowledge absorption	30.3	42	
5.3.1	Royalty & license fees payments, % total trade	1.3	14	
5.3.2	High-tech imports less re-imports, %	10.1	28	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	86	○
5.3.4	FDI net inflows, % GDP	4.8	42	
6	**Knowledge & technology outputs**	**38.5**	**31**	
6.1	Knowledge creation	36.6	26	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.7	40	
6.1.2	PCT resident patent app./tr PPP$ GDP	1.8	26	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.3	26	
6.1.4	Scientific & technical articles/bn PPP$ GDP	48.0	12	
6.1.5	Citable documents H index	514.0	10	
6.2	Knowledge impact	48.4	34	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.6	41	
6.2.2	New businesses/th pop. 15–64	12.2	8	
6.2.3	Computer software spending, % GDP	0.3	31	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	9.6	49	
6.2.5	High- & medium-high-tech manufactures, %	20.2	54	○
6.3	Knowledge diffusion	30.4	78	○
6.3.1	Royalty & license fees receipts, % total trade	0.3	32	
6.3.2	High-tech exports less re-exports, %	1.7	56	
6.3.3	Comm., computer & info. services exp., % total trade	0.9	87	○
6.3.4	FDI net outflows, % GDP	0.9	49	
7	**Creative outputs**	**52.5**	**12**	
7.1	Intangible assets	49.4	45	
7.1.1	Domestic res trademark app./bn PPP$ GDP	73.4	32	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.1	28	
7.1.3	ICTs & business model creation†	69.2	21	
7.1.4	ICTs & organizational model creation†	65.7	20	
7.2	Creative goods & services	42.4	12	
7.2.1	Cultural & creative services exports, % total trade	0.1	64	○
7.2.2	National feature films/mn pop. 15–69	2.6	49	○
7.2.3	Global ent. & media output/th pop. 15–69	2.3	3	●
7.2.4	Printing & publishing manufactures, %	0.1	5	●
7.2.5	Creative goods exports, % total trade	0.6	52	
7.3	Online creativity	68.6	10	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	83.6	10	
7.3.2	Country-code TLDs/th pop. 15–69	68.9	14	
7.3.3	Wikipedia edits/pop. 15–69	20,276.2	25	
7.3.4	Video uploads on YouTube/pop. 15–69	87.6	13	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Austria

Key indicators

Population (millions)	8.5
GDP (US$ billions)	415.4
GDP per capita, PPP$	42,596.6
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**53.4**	**20**	
Innovation Output Sub-Index		45.5	21	
Innovation Input Sub-Index		61.3	18	
Innovation Efficiency Ratio		0.7	69	○
Global Innovation Index 2013 (out of 142)		51.9	23	
1	**Institutions**	**88.8**	**12**	
1.1	Political environment	90.4	9	●
1.1.1	Political stability*	98.2	6	●
1.1.2	Government effectiveness*	82.4	15	
1.1.3	Press freedom*	90.6	10	●
1.2	Regulatory environment	96.4	8	●
1.2.1	Regulatory quality*	88.3	17	
1.2.2	Rule of law*	97.1	6	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	79.5	23	
1.3.1	Ease of starting a business*	79.2	93	○
1.3.2	Ease of resolving insolvency*	87.2	14	
1.3.3	Ease of paying taxes*	72.2	56	
2	**Human capital & research**	**61.5**	**8**	●
2.1	Education	55.9	20	
2.1.1	Expenditure on education, % GDP	5.9	31	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	29.6	23	
2.1.3	School life expectancy, years	15.6	30	
2.1.4	PISA scales in reading, maths, & science	500.3	18	
2.1.5	Pupil-teacher ratio, secondary	9.5	20	
2.2	Tertiary education	66.7	4	●
2.2.1	Tertiary enrolment, % gross	71.0	24	
2.2.2	Graduates in science & engineering, %	27.1	18	
2.2.3	Tertiary inbound mobility, %	19.5	7	●
2.3	Research & development (R&D)	61.9	13	
2.3.1	Researchers, headcounts/mn pop.	7,780.1	7	●
2.3.2	Gross expenditure on R&D, % GDP	2.9	9	●
2.3.3	QS university ranking, average score top 3*	47.4	26	
3	**Infrastructure**	**53.7**	**21**	
3.1	Information & communication technologies (ICTs)	62.7	26	
3.1.1	ICT access*	79.6	13	
3.1.2	ICT use*	59.7	23	
3.1.3	Government's online service*	74.5	26	
3.1.4	E-participation*	36.8	42	
3.2	General infrastructure	45.7	24	
3.2.1	Electricity output, kWh/cap	7,665.8	25	
3.2.2	Logistics performance*	90.5	11	●
3.2.3	Gross capital formation, % GDP	21.9	74	○
3.3	Ecological sustainability	52.6	19	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.3	19	
3.3.2	Environmental performance*	78.3	8	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.1	32	
4	**Market sophistication**	**57.2**	**32**	
4.1	Credit	59.5	19	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	117.0	26	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	31.7	87	○
4.2.1	Ease of protecting investors*	50.0	81	○
4.2.2	Market capitalization, % GDP	26.5	61	○
4.2.3	Total value of stocks traded, % GDP	11.8	38	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	19	
4.3	Trade & competition	80.5	27	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	80.5	9	●
5	**Business sophistication**	**45.5**	**24**	
5.1	Knowledge workers	67.1	14	
5.1.1	Knowledge-intensive employment, %	38.5	25	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.0	10	
5.1.4	GERD financed by business, %	68.8	10	
5.1.5	GMAT test takers/mn pop. 20–34	198.3	25	
5.2	Innovation linkages	44.3	32	
5.2.1	University/industry research collaboration†	63.2	22	
5.2.2	State of cluster development†	64.2	16	
5.2.3	GERD financed by abroad, %	15.2	30	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	63	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.5	13	
5.3	Knowledge absorption	25.1	72	○
5.3.1	Royalty & license fees payments, % total trade	0.8	36	
5.3.2	High-tech imports less re-imports, %	8.3	53	
5.3.3	Comm., computer & info. services imp., % total trade	1.4	44	
5.3.4	FDI net inflows, % GDP	0.5	125	○
6	**Knowledge & technology outputs**	**41.1**	**25**	
6.1	Knowledge creation	37.8	24	
6.1.1	Domestic resident patent app./tr PPP$ GDP	6.4	21	
6.1.2	PCT resident patent app./tr PPP$ GDP	3.7	13	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.5	22	
6.1.4	Scientific & technical articles/bn PPP$ GDP	35.7	23	
6.1.5	Citable documents H index	378.0	17	
6.2	Knowledge impact	44.3	46	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	82	○
6.2.2	New businesses/th pop. 15–64	0.5	77	○
6.2.3	Computer software spending, % GDP	0.6	13	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	14.9	31	
6.2.5	High- & medium-high-tech manufactures, %	38.1	22	
6.3	Knowledge diffusion	41.2	29	
6.3.1	Royalty & license fees receipts, % total trade	0.4	27	
6.3.2	High-tech exports less re-exports, %	8.3	24	
6.3.3	Comm., computer & info. services exp., % total trade	2.1	38	
6.3.4	FDI net outflows, % GDP	4.5	17	
7	**Creative outputs**	**49.9**	**15**	
7.1	Intangible assets	51.5	34	
7.1.1	Domestic res trademark app./bn PPP$ GDP	75.4	31	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	3.2	7	
7.1.3	ICTs & business model creation†	64.7	34	
7.1.4	ICTs & organizational model creation†	58.2	46	
7.2	Creative goods & services	37.6	22	
7.2.1	Cultural & creative services exports, % total trade	0.6	19	
7.2.2	National feature films/mn pop. 15–69	8.8	15	
7.2.3	Global ent. & media output/th pop. 15–69	1.8	9	
7.2.4	Printing & publishing manufactures, %	0.0	40	○
7.2.5	Creative goods exports, % total trade	1.3	37	
7.3	Online creativity	58.8	19	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	49.4	18	
7.3.2	Country-code TLDs/th pop. 15–69	71.3	10	●
7.3.3	Wikipedia edits/pop. 15–69	19,348.1	27	
7.3.4	Video uploads on YouTube/pop. 15–69	81.7	25	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Azerbaijan

Key indicators

Population (millions)	9.3
GDP (US$ billions)	73.5
GDP per capita, PPP$	11,044.2
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.6**	**101**	
Innovation Output Sub-Index		21.8	109	
Innovation Input Sub-Index		37.4	91	
Innovation Efficiency Ratio		0.6	120	
Global Innovation Index 2013 (out of 142)		29.0	105	
1	**Institutions**	**53.4**	**100**	
1.1	Political environment	40.4	124	○
1.1.1	Political stability*	48.9	108	
1.1.2	Government effectiveness*	20.1	119	
1.1.3	Press freedom*	52.3	128	○
1.2	Regulatory environment	51.5	111	
1.2.1	Regulatory quality*	36.6	107	
1.2.2	Rule of law*	24.2	115	
1.2.3	Cost of redundancy dismissal, salary weeks	21.7	100	
1.3	Business environment	68.2	57	
1.3.1	Ease of starting a business*	94.9	13	●
1.3.2	Ease of resolving insolvency*	36.0	76	
1.3.3	Ease of paying taxes*	73.7	52	
2	**Human capital & research**	**20.9**	**100**	
2.1	Education	29.3	121	○
2.1.1	Expenditure on education, % GDP	2.4	123	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.9	88	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	21.6	99	
2.2.1	Tertiary enrolment, % gross	20.4	90	
2.2.2	Graduates in science & engineering, %	16.2	76	
2.2.3	Tertiary inbound mobility, %	2.5	55	
2.3	Research & development (R&D)	11.9	63	
2.3.1	Researchers, headcounts/mn pop.	1,292.2	51	
2.3.2	Gross expenditure on R&D, % GDP	0.2	86	
2.3.3	QS university ranking, average score top 3*	19.2	53	
3	**Infrastructure**	**32.4**	**85**	
3.1	Information & communication technologies (ICTs)	34.7	78	
3.1.1	ICT access*	51.7	65	
3.1.2	ICT use*	37.2	48	●
3.1.3	Government's online service*	36.6	101	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	27.9	98	
3.2.1	Electricity output, kWh/cap	2,213.1	75	
3.2.2	Logistics performance*	34.5	110	
3.2.3	Gross capital formation, % GDP	24.7	52	
3.3	Ecological sustainability	34.7	75	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.5	57	
3.3.2	Environmental performance*	55.5	59	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	78	
4	**Market sophistication**	**59.9**	**26**	●
4.1	Credit	40.1	56	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	20.1	119	
4.1.3	Microfinance gross loans, % GDP	3.7	15	●
4.2	Investment	66.7	10	●
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	73.0	92	
4.3.1	Applied tariff rate, weighted mean, %	3.9	70	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	9	●
4.3.3	Intensity of local competition†	52.8	122	○
5	**Business sophistication**	**20.1**	**131**	○
5.1	Knowledge workers	21.6	119	
5.1.1	Knowledge-intensive employment, %	24.2	57	
5.1.2	Firms offering formal training, % firms	10.5	101	○
5.1.3	GERD performed by business, % GDP	0.0	72	
5.1.4	GERD financed by business, %	17.8	66	
5.1.5	GMAT test takers/mn pop. 20–34	34.7	88	
5.2	Innovation linkages	19.9	130	○
5.2.1	University/industry research collaboration†	39.3	81	
5.2.2	State of cluster development†	46.3	72	
5.2.3	GERD financed by abroad, %	0.0	93	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	81	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	89	
5.3	Knowledge absorption	18.9	111	
5.3.1	Royalty & license fees payments, % total trade	0.1	105	
5.3.2	High-tech imports less re-imports, %	4.0	115	○
5.3.3	Comm., computer & info. services imp., % total trade	0.5	99	
5.3.4	FDI net inflows, % GDP	7.7	21	●
6	**Knowledge & technology outputs**	**19.1**	**115**	
6.1	Knowledge creation	3.9	126	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.5	59	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	90	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	54	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.2	115	
6.1.5	Citable documents H index	45.0	116	
6.2	Knowledge impact	31.2	98	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.6	40	●
6.2.2	New businesses/th pop. 15–64	0.7	70	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.9	101	
6.2.5	High- & medium-high-tech manufactures, %	8.4	79	
6.3	Knowledge diffusion	22.2	121	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	112	○
6.3.2	High-tech exports less re-exports, %	0.2	102	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	110	
6.3.4	FDI net outflows, % GDP	6.7	8	●
7	**Creative outputs**	**24.6**	**104**	
7.1	Intangible assets	40.9	86	
7.1.1	Domestic res trademark app./bn PPP$ GDP	37.7	66	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	63	
7.1.3	ICTs & business model creation†	63.3	41	●
7.1.4	ICTs & organizational model creation†	64.8	23	●
7.2	Creative goods & services	6.2	108	
7.2.1	Cultural & creative services exports, % total trade	0.0	86	
7.2.2	National feature films/mn pop. 15–69	3.0	45	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	79	○
7.2.5	Creative goods exports, % total trade	0.0	121	○
7.3	Online creativity	10.3	91	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.7	99	
7.3.2	Country-code TLDs/th pop. 15–69	18.6	83	
7.3.3	Wikipedia edits/pop. 15–69	6,203.3	52	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bahrain

Key indicators

Population (millions)	1.3
GDP (US$ billions)	32.2
GDP per capita, PPP$	34,584.4
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.3**	**62**	
Innovation Output Sub-Index		27.1	80	
Innovation Input Sub-Index		45.5	48	
Innovation Efficiency Ratio		0.6	117	
Global Innovation Index 2013 (out of 142)		36.1	67	
1	**Institutions**	**67.9**	**52**	
1.1	Political environment	43.5	118	
1.1.1	Political stability*	38.0	120	
1.1.2	Government effectiveness*	55.3	45	
1.1.3	Press freedom*	37.3	137	○
1.2	Regulatory environment	80.2	32	
1.2.1	Regulatory quality*	66.8	41	
1.2.2	Rule of law*	54.0	52	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	80.1	22	●
1.3.1	Ease of starting a business*	76.2	103	
1.3.2	Ease of resolving insolvency*	71.4	25	
1.3.3	Ease of paying taxes*	92.8	7	●
2	**Human capital & research**	**27.0**	**78**	
2.1	Education	40.7	82	
2.1.1	Expenditure on education, % GDP	2.6	119	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	9.8	25	
2.2	Tertiary education	34.1	66	
2.2.1	Tertiary enrolment, % gross	33.5	73	
2.2.2	Graduates in science & engineering, %	17.9	65	
2.2.3	Tertiary inbound mobility, %	8.5	19	●
2.3	Research & development (R&D)	6.0	79	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	6.0	65	
3	**Infrastructure**	**48.1**	**29**	
3.1	Information & communication technologies (ICTs)	68.0	21	●
3.1.1	ICT access*	72.5	27	
3.1.2	ICT use*	47.5	37	
3.1.3	Government's online service*	86.3	9	●
3.1.4	E-participation*	65.8	19	●
3.2	General infrastructure	45.1	27	
3.2.1	Electricity output, kWh/cap	10,474.2	12	●
3.2.2	Logistics performance*	57.1	48	
3.2.3	Gross capital formation, % GDP	25.9	42	
3.3	Ecological sustainability	31.2	88	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.9	111	○
3.3.2	Environmental performance*	51.8	74	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.3	27	
4	**Market sophistication**	**48.5**	**68**	
4.1	Credit	32.9	82	
4.1.1	Ease of getting credit*	43.8	112	○
4.1.2	Domestic credit to private sector, % GDP	70.0	47	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	36.7	62	
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	89.0	18	●
4.2.3	Total value of stocks traded, % GDP	1.3	65	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	76.0	63	
4.3.1	Applied tariff rate, weighted mean, %	5.7	91	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.9	90	
4.3.3	Intensity of local competition†	72.2	38	
5	**Business sophistication**	**35.7**	**49**	
5.1	Knowledge workers	43.4	54	
5.1.1	Knowledge-intensive employment, %	20.7	69	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	177.3	27	
5.2	Innovation linkages	50.3	14	●
5.2.1	University/industry research collaboration†	32.2	117	
5.2.2	State of cluster development†	55.8	30	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.4	1	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	60	
5.3	Knowledge absorption	13.5	128	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	4.2	111	○
5.3.3	Comm., computer & info. services imp., % total trade	0.3	118	
5.3.4	FDI net inflows, % GDP	2.7	68	
6	**Knowledge & technology outputs**	**28.4**	**63**	
6.1	Knowledge creation	3.0	131	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	102	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	86	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.3	112	
6.1.5	Citable documents H index	39.0	124	
6.2	Knowledge impact	42.8	53	
6.2.1	Growth rate of PPP$ GDP/worker, %	−1.0	104	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.4	27	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	17.4	27	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	39.4	34	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.0	120	○
6.3.3	Comm., computer & info. services exp., % total trade	3.4	16	●
6.3.4	FDI net outflows, % GDP	3.1	22	●
7	**Creative outputs**	**25.8**	**100**	
7.1	Intangible assets	36.4	108	
7.1.1	Domestic res trademark app./bn PPP$ GDP	9.4	96	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	48	
7.1.3	ICTs & business model creation†	62.2	44	
7.1.4	ICTs & organizational model creation†	58.7	44	
7.2	Creative goods & services	2.2	123	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	41	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	123	○
7.3	Online creativity	28.0	54	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	9.2	50	
7.3.2	Country-code TLDs/th pop. 15–69	22.6	73	
7.3.3	Wikipedia edits/pop. 15–69	3,226.2	66	
7.3.4	Video uploads on YouTube/pop. 15–69	74.9	38	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bangladesh

Key indicators

Population (millions)	154.7
GDP (US$ billions)	141.3
GDP per capita, PPP$	2,079.8
Income group	Low income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.4**	**129**	
Innovation Output Sub-Index		19.7	120	
Innovation Input Sub-Index		29.0	130	
Innovation Efficiency Ratio		0.7	91	
Global Innovation Index 2013 (out of 142)		24.5	130	
1	**Institutions**	**45.2**	**128**	
1.1	Political environment	36.5	133	○
1.1.1	Political stability*	32.6	132	
1.1.2	Government effectiveness*	18.8	121	
1.1.3	Press freedom*	58.0	118	
1.2	Regulatory environment	38.2	132	
1.2.1	Regulatory quality*	23.7	128	
1.2.2	Rule of law*	21.4	121	
1.2.3	Cost of redundancy dismissal, salary weeks	31.0	131	
1.3	Business environment	61.1	82	
1.3.1	Ease of starting a business*	84.7	69	
1.3.2	Ease of resolving insolvency*	27.3	104	
1.3.3	Ease of paying taxes*	71.2	61	●
2	**Human capital & research**	**14.1**	**126**	
2.1	Education	20.6	134	○
2.1.1	Expenditure on education, % GDP	2.2	124	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	13.9	88	
2.1.3	School life expectancy, years	10.0	115	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	30.6	105	
2.2	Tertiary education	16.0	108	
2.2.1	Tertiary enrolment, % gross	13.2	99	
2.2.2	Graduates in science & engineering, %	15.6	83	
2.2.3	Tertiary inbound mobility, %	0.1	109	○
2.3	Research & development (R&D)	5.7	82	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	5.7	66	●
3	**Infrastructure**	**26.7**	**110**	
3.1	Information & communication technologies (ICTs)	18.8	114	
3.1.1	ICT access*	20.3	121	
3.1.2	ICT use*	2.4	124	
3.1.3	Government's online service*	44.4	86	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	31.3	77	
3.2.1	Electricity output, kWh/cap	292.8	110	
3.2.2	Logistics performance*	44.8	83	
3.2.3	Gross capital formation, % GDP	27.6	31	●
3.3	Ecological sustainability	30.0	94	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.5	43	●
3.3.2	Environmental performance*	25.6	138	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**44.1**	**99**	
4.1	Credit	32.9	81	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	49.6	67	
4.1.3	Microfinance gross loans, % GDP	2.2	24	●
4.2	Investment	38.2	56	●
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	15.1	80	
4.2.3	Total value of stocks traded, % GDP	10.9	39	●
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	61.3	129	
4.3.1	Applied tariff rate, weighted mean, %	13.0	135	○
4.3.2	Non-agricultural mkt access weighted tariff, %	3.8	127	
4.3.3	Intensity of local competition†	65.5	71	
5	**Business sophistication**	**14.9**	**138**	○
5.1	Knowledge workers	11.8	138	○
5.1.1	Knowledge-intensive employment, %	7.3	102	○
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	9.4	123	
5.2	Innovation linkages	25.5	100	
5.2.1	University/industry research collaboration†	27.0	128	○
5.2.2	State of cluster development†	48.2	63	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	82	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	7.3	140	○
5.3.1	Royalty & license fees payments, % total trade	0.0	115	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.1	133	○
5.3.4	FDI net inflows, % GDP	1.0	114	
6	**Knowledge & technology outputs**	**22.2**	**99**	
6.1	Knowledge creation	6.1	103	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	86	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.0	117	
6.1.5	Citable documents H index	97.0	67	
6.2	Knowledge impact	29.9	104	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.5	26	●
6.2.2	New businesses/th pop. 15–64	0.1	89	
6.2.3	Computer software spending, % GDP	0.2	73	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.9	124	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	30.5	77	
6.3.1	Royalty & license fees receipts, % total trade	0.0	101	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	1.4	62	●
6.3.4	FDI net outflows, % GDP	0.0	105	
7	**Creative outputs**	**17.2**	**130**	
7.1	Intangible assets	33.0	121	
7.1.1	Domestic res trademark app./bn PPP$ GDP	27.4	78	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	47.0	109	
7.1.4	ICTs & organizational model creation†	41.5	115	
7.2	Creative goods & services	2.3	122	
7.2.1	Cultural & creative services exports, % total trade	0.0	100	○
7.2.2	National feature films/mn pop. 15–69	0.7	83	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	0.5	134	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	119	
7.3.2	Country-code TLDs/th pop. 15–69	0.6	132	
7.3.3	Wikipedia edits/pop. 15–69	238.3	115	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Barbados

Key indicators

Population (millions)	0.3
GDP (US$ billions)	4.3
GDP per capita, PPP$	25,180.9
Income group	High income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.8**	**41**	
Innovation Output Sub-Index		33.2	53	
Innovation Input Sub-Index		48.3	38	
Innovation Efficiency Ratio		0.7	87	
Global Innovation Index 2013 (out of 142)		40.5	47	
1	**Institutions**	**78.5**	**26**	
1.1	Political environment	87.3	12	●
1.1.1	Political stability*	95.0	10	●
1.1.2	Government effectiveness*	79.6	20	
1.1.3	Press freedom*	n/a	n/a	
1.2	Regulatory environment	75.3	41	
1.2.1	Regulatory quality*	59.8	54	
1.2.2	Rule of law*	73.7	30	
1.2.3	Cost of redundancy dismissal, salary weeks	16.0	76	
1.3	Business environment	72.8	38	
1.3.1	Ease of starting a business*	82.8	73	
1.3.2	Ease of resolving insolvency*	68.9	26	
1.3.3	Ease of paying taxes*	66.7	81	
2	**Human capital & research**	**31.6**	**58**	
2.1	Education	49.7	50	
2.1.1	Expenditure on education, % GDP	5.6	41	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.0	39	
2.1.3	School life expectancy, years	15.4	36	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.6	56	
2.2	Tertiary education	45.0	35	
2.2.1	Tertiary enrolment, % gross	60.8	35	
2.2.2	Graduates in science & engineering, %	15.0	86	○
2.2.3	Tertiary inbound mobility, %	13.8	12	●
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**27.9**	**103**	
3.1	Information & communication technologies (ICTs)	40.7	63	
3.1.1	ICT access*	72.9	25	
3.1.2	ICT use*	50.0	31	
3.1.3	Government's online service*	37.3	99	
3.1.4	E-participation*	2.6	116	○
3.2	General infrastructure	11.3	142	○
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	14.3	130	○
3.3	Ecological sustainability	31.6	87	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	45.5	94	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	81	
4	**Market sophistication**	**48.7**	**66**	
4.1	Credit	40.9	54	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	80.6	39	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	33.3	81	
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	124.1	6	●
4.2.3	Total value of stocks traded, % GDP	0.5	79	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	72.0	97	
4.3.1	Applied tariff rate, weighted mean, %	14.8	137	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	17	●
4.3.3	Intensity of local competition†	70.2	48	
5	**Business sophistication**	**55.0**	**5**	●
5.1	Knowledge workers	61.9	24	
5.1.1	Knowledge-intensive employment, %	30.3	46	
5.1.2	Firms offering formal training, % firms	53.1	19	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	390.1	11	●
5.2	Innovation linkages	63.1	3	●
5.2.1	University/industry research collaboration†	54.7	37	
5.2.2	State of cluster development†	46.2	73	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	7	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	4.8	3	●
5.3	Knowledge absorption	39.9	17	●
5.3.1	Royalty & license fees payments, % total trade	0.9	32	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	1.9	12	●
5.3.4	FDI net inflows, % GDP	7.6	23	
6	**Knowledge & technology outputs**	**38.0**	**33**	
6.1	Knowledge creation	30.0	33	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	98	○
6.1.2	PCT resident patent app./tr PPP$ GDP	23.7	1	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.7	75	
6.1.5	Citable documents H index	50.0	111	○
6.2	Knowledge impact	44.0	49	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.3	85	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.3	57	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	40.0	32	
6.3.1	Royalty & license fees receipts, % total trade	0.2	40	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	1.8	48	
6.3.4	FDI net outflows, % GDP	7.7	7	●
7	**Creative outputs**	**28.5**	**85**	
7.1	Intangible assets	39.5	93	
7.1.1	Domestic res trademark app./bn PPP$ GDP	28.0	77	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	55.5	71	
7.1.4	ICTs & organizational model creation†	52.0	73	
7.2	Creative goods & services	22.0	56	
7.2.1	Cultural & creative services exports, % total trade	0.3	28	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	13.0	81	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	12.9	42	
7.3.2	Country-code TLDs/th pop. 15–69	20.7	76	
7.3.3	Wikipedia edits/pop. 15–69	3,174.5	69	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Belarus

Key indicators

Population (millions)	9.5
GDP (US$ billions)	71.7
GDP per capita, PPP$	15,753.2
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**37.1**	**58**	
Innovation Output Sub-Index		33.7	50	
Innovation Input Sub-Index		40.5	70	
Innovation Efficiency Ratio		0.8	27	●
Global Innovation Index 2013 (out of 142)		34.6	77	
1	**Institutions**	**52.1**	**105**	
1.1	Political environment	44.6	110	
1.1.1	Political stability*	66.3	69	
1.1.2	Government effectiveness*	15.8	128	○
1.1.3	Press freedom*	51.7	129	○
1.2	Regulatory environment	46.6	120	○
1.2.1	Regulatory quality*	20.2	135	○
1.2.2	Rule of law*	21.0	124	○
1.2.3	Cost of redundancy dismissal, salary weeks	21.7	100	
1.3	Business environment	65.0	69	
1.3.1	Ease of starting a business*	90.9	31	
1.3.2	Ease of resolving insolvency*	39.1	66	
1.3.3	Ease of paying taxes*	65.0	86	
2	**Human capital & research**	**39.8**	**38**	
2.1	Education	53.6	35	
2.1.1	Expenditure on education, % GDP	5.1	55	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.7	25	●
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	50.0	24	●
2.2.1	Tertiary enrolment, % gross	91.5	4	●
2.2.2	Graduates in science & engineering, %	27.2	17	●
2.2.3	Tertiary inbound mobility, %	2.1	59	
2.3	Research & development (R&D)	15.7	53	
2.3.1	Researchers, headcounts/mn pop.	2,081.2	38	
2.3.2	Gross expenditure on R&D, % GDP	0.7	49	
2.3.3	QS university ranking, average score top 3*	11.8	58	
3	**Infrastructure**	**39.9**	**56**	
3.1	Information & communication technologies (ICTs)	38.6	68	
3.1.1	ICT access*	64.1	45	
3.1.2	ICT use*	41.3	44	
3.1.3	Government's online service*	41.2	94	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	46.3	22	●
3.2.1	Electricity output, kWh/cap	3,399.4	58	
3.2.2	Logistics performance*	39.7	91	
3.2.3	Gross capital formation, % GDP	39.5	6	●
3.3	Ecological sustainability	34.7	74	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.2	95	
3.3.2	Environmental performance*	67.7	32	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	113	○
4	**Market sophistication**	**46.0**	**86**	
4.1	Credit	28.0	100	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	22.6	114	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	50.0	30	
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	59.9	130	○
4.3.1	Applied tariff rate, weighted mean, %	1.8	44	
4.3.2	Non-agricultural mkt access weighted tariff, %	7.0	137	○
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**24.9**	**114**	
5.1	Knowledge workers	53.4	35	
5.1.1	Knowledge-intensive employment, %	35.9	31	
5.1.2	Firms offering formal training, % firms	47.7	31	
5.1.3	GERD performed by business, % GDP	0.5	34	
5.1.4	GERD financed by business, %	69.9	7	●
5.1.5	GMAT test takers/mn pop. 20–34	50.5	75	
5.2	Innovation linkages	8.8	140	○
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	8.7	47	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	55	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	95	○
5.3	Knowledge absorption	12.5	133	○
5.3.1	Royalty & license fees payments, % total trade	0.2	78	
5.3.2	High-tech imports less re-imports, %	4.2	112	○
5.3.3	Comm., computer & info. services imp., % total trade	0.4	110	
5.3.4	FDI net inflows, % GDP	2.3	81	
6	**Knowledge & technology outputs**	**38.8**	**30**	
6.1	Knowledge creation	49.2	13	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	11.6	6	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	74	
6.1.3	Domestic res utility model app./tr PPP$ GDP	7.6	1	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.8	92	
6.1.5	Citable documents H index	106.0	60	
6.2	Knowledge impact	41.0	61	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.8	9	●
6.2.2	New businesses/th pop. 15–64	1.1	55	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.2	120	○
6.2.5	High- & medium-high-tech manufactures, %	28.7	36	
6.3	Knowledge diffusion	26.2	100	
6.3.1	Royalty & license fees receipts, % total trade	0.0	70	
6.3.2	High-tech exports less re-exports, %	1.3	63	
6.3.3	Comm., computer & info. services exp., % total trade	1.2	78	
6.3.4	FDI net outflows, % GDP	0.2	77	
7	**Creative outputs**	**28.6**	**84**	
7.1	Intangible assets	43.1	74	
7.1.1	Domestic res trademark app./bn PPP$ GDP	121.7	9	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.0	16	●
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	10.6	92	
7.2.1	Cultural & creative services exports, % total trade	0.2	41	
7.2.2	National feature films/mn pop. 15–69	0.1	97	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.5	61	
7.3	Online creativity	17.5	70	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.9	76	
7.3.2	Country-code TLDs/th pop. 15–69	36.4	49	
7.3.3	Wikipedia edits/pop. 15–69	7,714.7	49	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Belgium

Key indicators

Population (millions)	11.1
GDP (US$ billions)	506.6
GDP per capita, PPP$	37,880.5
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**51.7**	**23**	
Innovation Output Sub-Index		45.2	23	
Innovation Input Sub-Index		58.2	22	
Innovation Efficiency Ratio		0.8	55	
Global Innovation Index 2013 (out of 142)		52.5	21	
1	**Institutions**	**87.9**	**15**	
1.1	Political environment	86.0	15	
1.1.1	Political stability*	87.7	28	
1.1.2	Government effectiveness*	83.3	13	●
1.1.3	Press freedom*	87.1	19	
1.2	Regulatory environment	91.4	17	
1.2.1	Regulatory quality*	80.7	21	
1.2.2	Rule of law*	84.8	20	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	86.2	14	
1.3.1	Ease of starting a business*	94.2	16	
1.3.2	Ease of resolving insolvency*	94.2	6	●
1.3.3	Ease of paying taxes*	70.1	66	
2	**Human capital & research**	**51.7**	**20**	
2.1	Education	56.7	19	
2.1.1	Expenditure on education, % GDP	6.6	19	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	37.8	7	●
2.1.3	School life expectancy, years	16.2	21	
2.1.4	PISA scales in reading, maths, & science	509.8	15	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	41.6	40	
2.2.1	Tertiary enrolment, % gross	69.3	25	
2.2.2	Graduates in science & engineering, %	16.5	74	○
2.2.3	Tertiary inbound mobility, %	8.2	20	
2.3	Research & development (R&D)	57.0	17	
2.3.1	Researchers, headcounts/mn pop.	5,742.6	18	
2.3.2	Gross expenditure on R&D, % GDP	2.2	15	
2.3.3	QS university ranking, average score top 3*	66.0	15	
3	**Infrastructure**	**46.5**	**33**	
3.1	Information & communication technologies (ICTs)	53.0	37	
3.1.1	ICT access*	76.7	18	
3.1.2	ICT use*	57.5	26	
3.1.3	Government's online service*	64.7	39	
3.1.4	E-participation*	13.2	84	○
3.2	General infrastructure	45.1	26	
3.2.1	Electricity output, kWh/cap	6,999.3	29	
3.2.2	Logistics performance*	94.0	7	●
3.2.3	Gross capital formation, % GDP	21.3	77	○
3.3	Ecological sustainability	41.4	53	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.4	58	
3.3.2	Environmental performance*	66.6	36	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.5	39	
4	**Market sophistication**	**58.5**	**30**	
4.1	Credit	46.0	43	
4.1.1	Ease of getting credit*	62.5	69	○
4.1.2	Domestic credit to private sector, % GDP	92.2	34	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	47.9	35	
4.2.1	Ease of protecting investors*	70.0	16	
4.2.2	Market capitalization, % GDP	62.0	31	
4.2.3	Total value of stocks traded, % GDP	21.3	29	
4.2.4	Venture capital deals/tr PPP$ GDP	0.2	15	
4.3	Trade & competition	81.7	21	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	82.8	5	●
5	**Business sophistication**	**46.5**	**18**	
5.1	Knowledge workers	68.0	13	●
5.1.1	Knowledge-intensive employment, %	44.6	11	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.5	12	
5.1.4	GERD financed by business, %	67.8	13	
5.1.5	GMAT test takers/mn pop. 20–34	172.3	28	
5.2	Innovation linkages	43.9	33	
5.2.1	University/industry research collaboration†	75.5	6	●
5.2.2	State of cluster development†	63.5	19	
5.2.3	GERD financed by abroad, %	13.0	36	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	64	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.1	17	
5.3	Knowledge absorption	27.6	55	
5.3.1	Royalty & license fees payments, % total trade	0.7	45	
5.3.2	High-tech imports less re-imports, %	9.2	41	
5.3.3	Comm., computer & info. services imp., % total trade	1.8	14	
5.3.4	FDI net inflows, % GDP	–0.4	139	○
6	**Knowledge & technology outputs**	**44.6**	**19**	
6.1	Knowledge creation	44.8	22	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.8	53	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.9	17	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	44.0	14	
6.1.5	Citable documents H index	454.0	13	●
6.2	Knowledge impact	44.1	48	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.2	92	○
6.2.2	New businesses/th pop. 15–64	2.5	38	
6.2.3	Computer software spending, % GDP	0.7	7	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	9.4	51	
6.2.5	High- & medium-high-tech manufactures, %	34.2	29	
6.3	Knowledge diffusion	44.8	21	
6.3.1	Royalty & license fees receipts, % total trade	0.7	19	
6.3.2	High-tech exports less re-exports, %	9.3	23	
6.3.3	Comm., computer & info. services exp., % total trade	2.3	30	
6.3.4	FDI net outflows, % GDP	3.0	24	
7	**Creative outputs**	**45.7**	**22**	
7.1	Intangible assets	46.9	55	
7.1.1	Domestic res trademark app./bn PPP$ GDP	47.4	57	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.7	20	
7.1.3	ICTs & business model creation†	66.8	29	
7.1.4	ICTs & organizational model creation†	63.5	28	
7.2	Creative goods & services	31.7	37	
7.2.1	Cultural & creative services exports, % total trade	0.1	50	
7.2.2	National feature films/mn pop. 15–69	6.2	21	
7.2.3	Global ent. & media output/th pop. 15–69	1.5	15	
7.2.4	Printing & publishing manufactures, %	0.0	46	○
7.2.5	Creative goods exports, % total trade	2.0	27	
7.3	Online creativity	57.6	22	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	22.7	29	
7.3.2	Country-code TLDs/th pop. 15–69	70.4	11	●
7.3.3	Wikipedia edits/pop. 15–69	29,735.8	9	●
7.3.4	Video uploads on YouTube/pop. 15–69	86.7	17	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Benin

Key indicators

Population (millions)	10.1
GDP (US$ billions)	8.3
GDP per capita, PPP$	1,622.6
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.2**	**132**	
Innovation Output Sub-Index		18.1	129	
Innovation Input Sub-Index		30.3	129	
Innovation Efficiency Ratio		0.6	115	
Global Innovation Index 2013 (out of 142)		25.1	127	
1	**Institutions**	**53.4**	**101**	
1.1	Political environment	57.2	70	●
1.1.1	Political stability*	73.3	54	●
1.1.2	Government effectiveness*	26.6	101	
1.1.3	Press freedom*	71.7	65	●
1.2	Regulatory environment	63.2	80	
1.2.1	Regulatory quality*	38.5	102	
1.2.2	Rule of law*	28.8	101	
1.2.3	Cost of redundancy dismissal, salary weeks	11.6	48	●
1.3	Business environment	39.7	136	○
1.3.1	Ease of starting a business*	63.8	127	
1.3.2	Ease of resolving insolvency*	19.2	120	
1.3.3	Ease of paying taxes*	36.0	135	○
2	**Human capital & research**	**18.1**	**108**	
2.1	Education	36.5	91	
2.1.1	Expenditure on education, % GDP	5.3	50	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.7	42	●
2.1.3	School life expectancy, years	11.0	104	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	23.9	85	
2.2	Tertiary education	17.2	107	
2.2.1	Tertiary enrolment, % gross	12.4	101	
2.2.2	Graduates in science & engineering, %	12.7	93	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.5	124	
2.3.1	Researchers, headcounts/mn pop.	114.8	100	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**18.3**	**134**	
3.1	Information & communication technologies (ICTs)	13.1	134	
3.1.1	ICT access*	23.6	117	
3.1.2	ICT use*	1.4	127	
3.1.3	Government's online service*	19.6	134	○
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	22.9	122	
3.2.1	Electricity output, kWh/cap	16.9	124	○
3.2.2	Logistics performance*	49.2	66	●
3.2.3	Gross capital formation, % GDP	19.0	103	
3.3	Ecological sustainability	19.0	138	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.5	103	
3.3.2	Environmental performance*	32.4	125	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	120	
4	**Market sophistication**	**36.5**	**137**	○
4.1	Credit	26.4	107	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	24.0	111	
4.1.3	Microfinance gross loans, % GDP	2.3	23	●
4.2	Investment	33.3	76	
4.2.1	Ease of protecting investors*	33.3	125	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	49.7	142	○
4.3.1	Applied tariff rate, weighted mean, %	15.0	138	○
4.3.2	Non-agricultural mkt access weighted tariff, %	6.9	136	○
4.3.3	Intensity of local competition†	62.3	85	
5	**Business sophistication**	**25.2**	**111**	
5.1	Knowledge workers	24.7	112	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	26.8	73	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	11.6	117	
5.2	Innovation linkages	22.7	118	
5.2.1	University/industry research collaboration†	28.0	123	
5.2.2	State of cluster development†	31.3	125	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	28.1	50	●
5.3.1	Royalty & license fees payments, % total trade	0.1	88	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	2.2	9	●
5.3.4	FDI net inflows, % GDP	1.6	94	
6	**Knowledge & technology outputs**	**15.0**	**127**	
6.1	Knowledge creation	9.9	81	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	80	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	15.3	58	●
6.1.5	Citable documents H index	49.0	113	
6.2	Knowledge impact	4.7	133	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.1	96	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	30.6	76	
6.3.1	Royalty & license fees receipts, % total trade	0.0	114	○
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	1.7	51	●
6.3.4	FDI net outflows, % GDP	–2.2	122	○
7	**Creative outputs**	**21.2**	**119**	
7.1	Intangible assets	42.2	81	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	49.2	96	
7.1.4	ICTs & organizational model creation†	35.2	126	
7.2	Creative goods & services	0.0	140	○
7.2.1	Cultural & creative services exports, % total trade	0.0	103	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	0.5	133	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.7	110	
7.3.2	Country-code TLDs/th pop. 15–69	0.9	131	
7.3.3	Wikipedia edits/pop. 15–69	31.7	135	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bhutan

Key indicators

Population (millions)	0.7
GDP (US$ billions)	2.0
GDP per capita, PPP$	6,369.7
Income group	Lower-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.8**	**86**	
Innovation Output Sub-Index		23.9	102	
Innovation Input Sub-Index		39.8	76	
Innovation Efficiency Ratio		0.6	112	
Global Innovation Index 2013 (out of 142)		n/a	n/a	
1	**Institutions**	**62.6**	**62**	
1.1	Political environment	70.3	47	●
1.1.1	Political stability*	85.6	30	●
1.1.2	Government effectiveness*	53.6	47	●
1.1.3	Press freedom*	71.6	68	
1.2	Regulatory environment	67.5	63	
1.2.1	Regulatory quality*	19.6	136	○
1.2.2	Rule of law*	51.6	56	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.3	23	●
1.3	Business environment	49.9	118	
1.3.1	Ease of starting a business*	80.0	91	
1.3.2	Ease of resolving insolvency*	0.0	140	○
1.3.3	Ease of paying taxes*	69.8	69	
2	**Human capital & research**	**17.0**	**116**	
2.1	Education	42.3	71	
2.1.1	Expenditure on education, % GDP	4.7	70	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	31.5	19	●
2.1.3	School life expectancy, years	12.7	77	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	19.9	79	
2.2	Tertiary education	8.8	125	
2.2.1	Tertiary enrolment, % gross	9.4	112	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**44.0**	**43**	●
3.1	Information & communication technologies (ICTs)	18.8	113	
3.1.1	ICT access*	26.8	105	
3.1.2	ICT use*	10.5	105	
3.1.3	Government's online service*	35.3	106	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	66.4	1	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	36.1	105	
3.2.3	Gross capital formation, % GDP	47.7	4	●
3.3	Ecological sustainability	46.9	36	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	46.9	92	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**45.9**	**87**	
4.1	Credit	47.6	38	●
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	47.5	73	
4.1.3	Microfinance gross loans, % GDP	6.3	6	●
4.2	Investment	36.7	59	
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	53.4	137	○
4.3.1	Applied tariff rate, weighted mean, %	17.8	140	○
4.3.2	Non-agricultural mkt access weighted tariff, %	n/a	n/a	
4.3.3	Intensity of local competition†	61.5	91	
5	**Business sophistication**	**29.3**	**85**	
5.1	Knowledge workers	31.1	91	
5.1.1	Knowledge-intensive employment, %	16.5	85	
5.1.2	Firms offering formal training, % firms	29.9	66	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	39.0	81	
5.2	Innovation linkages	43.4	35	●
5.2.1	University/industry research collaboration†	28.0	123	○
5.2.2	State of cluster development†	41.2	93	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	10	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	13.3	129	
5.3.1	Royalty & license fees payments, % total trade	0.0	122	○
5.3.2	High-tech imports less re-imports, %	6.0	84	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	95	
5.3.4	FDI net inflows, % GDP	0.9	117	
6	**Knowledge & technology outputs**	**2.8**	**142**	○
6.1	Knowledge creation	5.1	113	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.7	94	
6.1.5	Citable documents H index	18.0	141	○
6.2	Knowledge impact	2.5	140	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.2	85	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	109	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	0.7	140	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	107	○
6.3.2	High-tech exports less re-exports, %	0.0	127	○
6.3.3	Comm., computer & info. services exp., % total trade	0.1	129	○
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**45.0**	**25**	●
7.1	Intangible assets	45.4	66	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	47.8	105	
7.1.4	ICTs & organizational model creation†	43.0	111	
7.2	Creative goods & services	83.3	1	●
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	58.5	1	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	7.1	7	●
7.3	Online creativity	6.0	106	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.1	89	
7.3.2	Country-code TLDs/th pop. 15–69	15.2	86	
7.3.3	Wikipedia edits/pop. 15–69	371.4	108	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bolivia, Plurinational State of

Key indicators

Population (millions)	10.5
GDP (US$ billions)	29.8
GDP per capita, PPP$	5,363.5
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.8**	**111**	
Innovation Output Sub-Index		22.8	106	
Innovation Input Sub-Index		32.7	115	
Innovation Efficiency Ratio		0.7	84	
Global Innovation Index 2013 (out of 142)		30.5	95	
1	**Institutions**	**32.7**	**141**	○
1.1	Political environment	50.5	87	
1.1.1	Political stability*	53.4	95	
1.1.2	Government effectiveness*	30.9	90	
1.1.3	Press freedom*	67.2	88	
1.2	Regulatory environment	11.2	141	○
1.2.1	Regulatory quality*	27.0	124	○
1.2.2	Rule of law*	17.7	127	○
1.2.3	Cost of redundancy dismissal, salary weeks	82.3	139	○
1.3	Business environment	36.5	140	○
1.3.1	Ease of starting a business*	55.7	135	○
1.3.2	Ease of resolving insolvency*	41.2	59	●
1.3.3	Ease of paying taxes*	12.7	142	○
2	**Human capital & research**	**28.1**	**74**	
2.1	Education	44.9	63	●
2.1.1	Expenditure on education, % GDP	6.9	13	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.5	63	
2.1.3	School life expectancy, years	13.2	70	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	18.2	76	
2.2	Tertiary education	37.8	55	●
2.2.1	Tertiary enrolment, % gross	37.7	69	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	1.7	110	
2.3.1	Researchers, headcounts/mn pop.	212.0	84	
2.3.2	Gross expenditure on R&D, % GDP	0.2	92	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**26.9**	**108**	
3.1	Information & communication technologies (ICTs)	27.3	97	
3.1.1	ICT access*	32.7	98	
3.1.2	ICT use*	14.2	96	
3.1.3	Government's online service*	41.2	94	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	21.7	126	○
3.2.1	Electricity output, kWh/cap	715.8	99	
3.2.2	Logistics performance*	39.7	91	
3.2.3	Gross capital formation, % GDP	19.3	98	
3.3	Ecological sustainability	31.8	86	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.9	69	
3.3.2	Environmental performance*	50.5	79	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.8	68	
4	**Market sophistication**	**48.2**	**71**	
4.1	Credit	52.4	30	●
4.1.1	Ease of getting credit*	43.8	112	○
4.1.2	Domestic credit to private sector, % GDP	44.2	77	
4.1.3	Microfinance gross loans, % GDP	13.7	1	●
4.2	Investment	22.4	130	○
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	16.4	79	
4.2.3	Total value of stocks traded, % GDP	0.1	102	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	69.8	112	
4.3.1	Applied tariff rate, weighted mean, %	3.7	64	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	35	●
4.3.3	Intensity of local competition†	47.2	129	○
5	**Business sophistication**	**27.7**	**96**	
5.1	Knowledge workers	40.1	66	
5.1.1	Knowledge-intensive employment, %	15.3	91	
5.1.2	Firms offering formal training, % firms	54.1	17	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	13.3	115	
5.2	Innovation linkages	23.0	117	
5.2.1	University/industry research collaboration†	42.5	68	
5.2.2	State of cluster development†	42.5	85	
5.2.3	GERD financed by abroad, %	1.9	73	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	72	
5.3	Knowledge absorption	20.1	101	
5.3.1	Royalty & license fees payments, % total trade	0.2	76	
5.3.2	High-tech imports less re-imports, %	6.9	66	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	76	
5.3.4	FDI net inflows, % GDP	3.6	60	●
6	**Knowledge & technology outputs**	**21.4**	**104**	
6.1	Knowledge creation	5.9	105	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.8	118	
6.1.5	Citable documents H index	61.0	96	
6.2	Knowledge impact	32.3	94	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.7	38	●
6.2.2	New businesses/th pop. 15–64	0.6	73	
6.2.3	Computer software spending, % GDP	0.3	62	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.4	81	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	26.0	102	
6.3.1	Royalty & license fees receipts, % total trade	0.1	60	
6.3.2	High-tech exports less re-exports, %	0.5	80	
6.3.3	Comm., computer & info. services exp., % total trade	1.0	83	
6.3.4	FDI net outflows, % GDP	0.0	104	
7	**Creative outputs**	**24.1**	**105**	
7.1	Intangible assets	37.2	104	
7.1.1	Domestic res trademark app./bn PPP$ GDP	46.8	58	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	48.0	104	
7.1.4	ICTs & organizational model creation†	45.5	95	
7.2	Creative goods & services	16.9	73	
7.2.1	Cultural & creative services exports, % total trade	0.1	66	
7.2.2	National feature films/mn pop. 15–69	4.1	31	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.7	50	●
7.3	Online creativity	5.2	108	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.9	95	
7.3.2	Country-code TLDs/th pop. 15–69	12.1	96	
7.3.3	Wikipedia edits/pop. 15–69	995.1	97	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bosnia and Herzegovina

Key indicators

Population (millions)	3.8
GDP (US$ billions)	17.8
GDP per capita, PPP$	8,280.4
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.4**	**81**	
Innovation Output Sub-Index		25.5	92	
Innovation Input Sub-Index		39.4	82	
Innovation Efficiency Ratio		0.6	101	
Global Innovation Index 2013 (out of 142)		36.2	65	
1	**Institutions**	**59.5**	**78**	
1.1	Political environment	51.4	84	
1.1.1	Political stability*	52.6	98	
1.1.2	Government effectiveness*	28.4	96	
1.1.3	Press freedom*	73.1	55	
1.2	Regulatory environment	70.6	52	
1.2.1	Regulatory quality*	47.1	76	
1.2.2	Rule of law*	40.0	73	
1.2.3	Cost of redundancy dismissal, salary weeks	9.2	31	●
1.3	Business environment	56.5	94	
1.3.1	Ease of starting a business*	71.0	114	
1.3.2	Ease of resolving insolvency*	38.2	69	
1.3.3	Ease of paying taxes*	60.3	102	
2	**Human capital & research**	**18.1**	**107**	
2.1	Education	n/a	n/a	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	33.7	68	
2.2.1	Tertiary enrolment, % gross	37.7	68	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	5.9	29	●
2.3	Research & development (R&D)	2.4	101	
2.3.1	Researchers, headcounts/mn pop.	763.3	60	
2.3.2	Gross expenditure on R&D, % GDP	0.0	116	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**29.4**	**95**	
3.1	Information & communication technologies (ICTs)	29.4	92	
3.1.1	ICT access*	48.3	70	
3.1.2	ICT use*	31.9	57	
3.1.3	Government's online service*	37.3	99	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	26.3	104	
3.2.1	Electricity output, kWh/cap	4,074.7	53	
3.2.2	Logistics performance*	54.8	55	
3.2.3	Gross capital formation, % GDP	16.1	123	○
3.3	Ecological sustainability	32.7	81	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.0	97	
3.3.2	Environmental performance*	45.8	93	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	5.5	23	●
4	**Market sophistication**	**51.9**	**47**	
4.1	Credit	40.2	55	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	62.3	51	
4.1.3	Microfinance gross loans, % GDP	3.1	17	●
4.2	Investment	46.7	36	●
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	68.7	115	
4.3.1	Applied tariff rate, weighted mean, %	1.5	41	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	14	●
4.3.3	Intensity of local competition†	40.3	132	○
5	**Business sophistication**	**37.9**	**40**	●
5.1	Knowledge workers	65.5	19	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	67.5	6	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	30.6	97	
5.2	Innovation linkages	29.1	82	
5.2.1	University/industry research collaboration†	55.3	36	●
5.2.2	State of cluster development†	16.0	136	○
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	19.3	107	
5.3.1	Royalty & license fees payments, % total trade	0.1	102	
5.3.2	High-tech imports less re-imports, %	5.7	90	
5.3.3	Comm., computer & info. services imp., % total trade	0.9	65	
5.3.4	FDI net inflows, % GDP	3.7	58	
6	**Knowledge & technology outputs**	**29.2**	**61**	
6.1	Knowledge creation	6.5	99	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	105	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	56	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.5	76	
6.1.5	Citable documents H index	44.0	119	
6.2	Knowledge impact	52.3	21	●
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.2	93	
6.2.2	New businesses/th pop. 15–64	0.7	69	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	39.3	7	●
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	28.9	84	
6.3.1	Royalty & license fees receipts, % total trade	0.2	41	
6.3.2	High-tech exports less re-exports, %	1.0	69	
6.3.3	Comm., computer & info. services exp., % total trade	1.2	76	
6.3.4	FDI net outflows, % GDP	0.0	107	○
7	**Creative outputs**	**21.8**	**116**	
7.1	Intangible assets	32.0	125	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	16.9	87	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.4	43	
7.1.3	ICTs & business model creation†	51.5	88	
7.1.4	ICTs & organizational model creation†	50.5	77	
7.2	Creative goods & services	7.3	106	
7.2.1	Cultural & creative services exports, % total trade	0.0	91	○
7.2.2	National feature films/mn pop. 15–69	2.5	51	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.2	81	
7.3	Online creativity	15.9	76	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.7	81	
7.3.2	Country-code TLDs/th pop. 15–69	25.1	69	
7.3.3	Wikipedia edits/pop. 15–69	11,760.9	42	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Botswana

Key indicators

Population (millions)	2.0
GDP (US$ billions)	14.8
GDP per capita, PPP$	16,376.7
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.9**	**92**	
Innovation Output Sub-Index		20.5	116	
Innovation Input Sub-Index		41.2	67	
Innovation Efficiency Ratio		0.5	133	○
Global Innovation Index 2013 (out of 142)		31.1	91	
1	**Institutions**	**71.5**	**42**	
1.1	Political environment	74.1	36	●
1.1.1	Political stability*	92.8	13	●
1.1.2	Government effectiveness*	52.6	49	
1.1.3	Press freedom*	77.1	36	●
1.2	Regulatory environment	69.1	59	
1.2.1	Regulatory quality*	66.9	40	
1.2.2	Rule of law*	64.5	39	
1.2.3	Cost of redundancy dismissal, salary weeks	21.7	103	
1.3	Business environment	71.3	41	
1.3.1	Ease of starting a business*	72.6	110	
1.3.2	Ease of resolving insolvency*	65.6	30	●
1.3.3	Ease of paying taxes*	75.8	45	
2	**Human capital & research**	**25.1**	**85**	
2.1	Education	54.5	29	●
2.1.1	Expenditure on education, % GDP	9.5	2	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	33.0	15	●
2.1.3	School life expectancy, years	11.7	92	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	13.9	48	
2.2	Tertiary education	13.9	116	
2.2.1	Tertiary enrolment, % gross	7.4	120	○
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	4.2	40	
2.3	Research & development (R&D)	6.8	77	
2.3.1	Researchers, headcounts/mn pop.	923.3	58	
2.3.2	Gross expenditure on R&D, % GDP	0.5	57	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**35.4**	**76**	
3.1	Information & communication technologies (ICTs)	21.1	107	
3.1.1	ICT access*	35.8	93	
3.1.2	ICT use*	10.0	106	
3.1.3	Government's online service*	36.0	104	
3.1.4	E-participation*	2.6	116	○
3.2	General infrastructure	43.3	32	●
3.2.1	Electricity output, kWh/cap	183.3	116	○
3.2.2	Logistics performance*	48.8	68	
3.2.3	Gross capital formation, % GDP	38.3	8	●
3.3	Ecological sustainability	41.6	52	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	11.9	7	●
3.3.2	Environmental performance*	47.6	90	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	96	
4	**Market sophistication**	**49.5**	**60**	
4.1	Credit	35.8	68	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	32.0	93	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	34.8	70	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	31.8	56	
4.2.3	Total value of stocks traded, % GDP	0.8	72	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	77.9	43	
4.3.1	Applied tariff rate, weighted mean, %	3.6	63	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	62.2	88	
5	**Business sophistication**	**24.5**	**117**	
5.1	Knowledge workers	33.7	86	
5.1.1	Knowledge-intensive employment, %	17.1	81	
5.1.2	Firms offering formal training, % firms	51.8	23	●
5.1.3	GERD performed by business, % GDP	0.1	59	
5.1.4	GERD financed by business, %	15.6	68	
5.1.5	GMAT test takers/mn pop. 20–34	35.6	86	
5.2	Innovation linkages	27.5	89	
5.2.1	University/industry research collaboration†	37.2	97	
5.2.2	State of cluster development†	43.0	84	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	48	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	12.5	134	○
5.3.1	Royalty & license fees payments, % total trade	0.2	83	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	112	
5.3.4	FDI net inflows, % GDP	2.0	86	
6	**Knowledge & technology outputs**	**23.7**	**92**	
6.1	Knowledge creation	5.2	112	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	99	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.9	101	
6.1.5	Citable documents H index	57.0	100	
6.2	Knowledge impact	41.2	60	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	12.3	7	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.5	130	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	24.8	110	
6.3.1	Royalty & license fees receipts, % total trade	0.0	102	○
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.1	133	○
6.3.4	FDI net outflows, % GDP	–0.1	111	
7	**Creative outputs**	**17.3**	**129**	○
7.1	Intangible assets	33.9	119	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.2	56	
7.1.3	ICTs & business model creation†	44.0	116	
7.1.4	ICTs & organizational model creation†	39.3	121	○
7.2	Creative goods & services	0.0	141	○
7.2.1	Cultural & creative services exports, % total trade	0.0	105	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	1.6	122	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.2	103	
7.3.2	Country-code TLDs/th pop. 15–69	3.3	118	
7.3.3	Wikipedia edits/pop. 15–69	245.0	114	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Brazil

Key indicators

Population (millions)	198.7
GDP (US$ billions)	2,242.9
GDP per capita, PPP$	12,220.9
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.3**	**61**	
Innovation Output Sub-Index		30.8	64	
Innovation Input Sub-Index		41.7	63	
Innovation Efficiency Ratio		0.7	71	
Global Innovation Index 2013 (out of 142)		36.3	64	
1	**Institutions**	**53.9**	**96**	
1.1	Political environment	57.4	69	
1.1.1	Political stability*	67.3	67	
1.1.2	Government effectiveness*	37.5	78	
1.1.3	Press freedom*	67.3	87	
1.2	Regulatory environment	66.2	70	
1.2.1	Regulatory quality*	51.2	70	
1.2.2	Rule of law*	43.3	66	
1.2.3	Cost of redundancy dismissal, salary weeks	15.4	71	
1.3	Business environment	38.2	137	○
1.3.1	Ease of starting a business*	54.7	136	○
1.3.2	Ease of resolving insolvency*	20.7	117	○
1.3.3	Ease of paying taxes*	39.3	131	○
2	**Human capital & research**	**31.1**	**62**	
2.1	Education	50.6	43	
2.1.1	Expenditure on education, % GDP	5.8	33	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.2	52	
2.1.4	PISA scales in reading, maths, & science	402.1	53	○
2.1.5	Pupil-teacher ratio, secondary	16.7	68	
2.2	Tertiary education	12.6	120	○
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	12.0	96	○
2.2.3	Tertiary inbound mobility, %	0.2	101	○
2.3	Research & development (R&D)	30.1	34	
2.3.1	Researchers, headcounts/mn pop.	1,202.8	52	
2.3.2	Gross expenditure on R&D, % GDP	1.2	31	
2.3.3	QS university ranking, average score top 3*	51.5	23	●
3	**Infrastructure**	**39.2**	**60**	
3.1	Information & communication technologies (ICTs)	51.6	41	
3.1.1	ICT access*	54.9	63	
3.1.2	ICT use*	34.1	55	
3.1.3	Government's online service*	67.3	32	
3.1.4	E-participation*	50.0	31	●
3.2	General infrastructure	29.2	90	
3.2.1	Electricity output, kWh/cap	2,703.9	67	
3.2.2	Logistics performance*	60.3	45	
3.2.3	Gross capital formation, % GDP	19.2	101	
3.3	Ecological sustainability	36.7	62	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.5	44	
3.3.2	Environmental performance*	53.0	70	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.4	53	
4	**Market sophistication**	**45.2**	**89**	
4.1	Credit	24.1	112	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	68.4	48	
4.1.3	Microfinance gross loans, % GDP	0.1	74	
4.2	Investment	36.1	63	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	54.6	36	
4.2.3	Total value of stocks traded, % GDP	37.0	23	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	44	
4.3	Trade & competition	75.3	74	
4.3.1	Applied tariff rate, weighted mean, %	7.9	111	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	45	
4.3.3	Intensity of local competition†	66.3	67	
5	**Business sophistication**	**39.3**	**37**	
5.1	Knowledge workers	45.5	52	
5.1.1	Knowledge-intensive employment, %	20.5	70	
5.1.2	Firms offering formal training, % firms	52.7	20	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	31.6	96	
5.2	Innovation linkages	35.7	57	
5.2.1	University/industry research collaboration†	49.7	46	
5.2.2	State of cluster development†	58.8	24	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	92	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	59	
5.3	Knowledge absorption	36.8	25	●
5.3.1	Royalty & license fees payments, % total trade	1.3	18	●
5.3.2	High-tech imports less re-imports, %	11.3	24	●
5.3.3	Comm., computer & info. services imp., % total trade	1.6	29	●
5.3.4	FDI net inflows, % GDP	3.4	61	
6	**Knowledge & technology outputs**	**28.1**	**65**	
6.1	Knowledge creation	18.8	54	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.1	51	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	61	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.2	27	
6.1.4	Scientific & technical articles/bn PPP$ GDP	14.9	59	
6.1.5	Citable documents H index	305.0	22	●
6.2	Knowledge impact	37.4	72	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.3	96	○
6.2.2	New businesses/th pop. 15–64	2.2	41	
6.2.3	Computer software spending, % GDP	0.3	52	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	11.1	45	
6.2.5	High- & medium-high-tech manufactures, %	39.6	21	●
6.3	Knowledge diffusion	28.0	89	
6.3.1	Royalty & license fees receipts, % total trade	0.2	39	
6.3.2	High-tech exports less re-exports, %	3.3	41	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	114	○
6.3.4	FDI net outflows, % GDP	0.4	74	
7	**Creative outputs**	**33.6**	**64**	
7.1	Intangible assets	46.8	56	
7.1.1	Domestic res trademark app./bn PPP$ GDP	51.7	54	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	61.3	49	
7.1.4	ICTs & organizational model creation†	59.0	41	
7.2	Creative goods & services	9.3	100	
7.2.1	Cultural & creative services exports, % total trade	0.3	35	
7.2.2	National feature films/mn pop. 15–69	0.7	81	
7.2.3	Global ent. & media output/th pop. 15–69	0.3	36	
7.2.4	Printing & publishing manufactures, %	0.0	77	○
7.2.5	Creative goods exports, % total trade	0.2	78	
7.3	Online creativity	31.6	47	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.0	92	
7.3.2	Country-code TLDs/th pop. 15–69	43.0	44	
7.3.3	Wikipedia edits/pop. 15–69	3,464.7	65	
7.3.4	Video uploads on YouTube/pop. 15–69	75.4	37	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Brunei Darussalam

Key indicators

Population (millions)	0.4
GDP (US$ billions)	16.2
GDP per capita, PPP$	53,430.9
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.7**	**88**	
Innovation Output Sub-Index		19.0	124	○
Innovation Input Sub-Index		44.3	55	
Innovation Efficiency Ratio		0.4	139	○
Global Innovation Index 2013 (out of 142)		31.2	74	
1	**Institutions**	**73.4**	**37**	●
1.1	Political environment	72.0	42	
1.1.1	Political stability*	88.2	25	●
1.1.2	Government effectiveness*	63.1	37	●
1.1.3	Press freedom*	64.6	100	
1.2	Regulatory environment	86.9	22	●
1.2.1	Regulatory quality*	79.0	23	●
1.2.2	Rule of law*	68.6	35	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	61.4	77	
1.3.1	Ease of starting a business*	51.9	138	○
1.3.2	Ease of resolving insolvency*	50.0	43	
1.3.3	Ease of paying taxes*	82.3	29	●
2	**Human capital & research**	**22.7**	**95**	
2.1	Education	38.9	87	
2.1.1	Expenditure on education, % GDP	3.5	101	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	8.1	104	○
2.1.3	School life expectancy, years	14.5	49	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	10.1	27	●
2.2	Tertiary education	26.8	85	
2.2.1	Tertiary enrolment, % gross	24.3	85	
2.2.2	Graduates in science & engineering, %	18.3	63	
2.2.3	Tertiary inbound mobility, %	4.2	38	
2.3	Research & development (R&D)	2.3	103	
2.3.1	Researchers, headcounts/mn pop.	676.3	65	
2.3.2	Gross expenditure on R&D, % GDP	0.0	114	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**36.6**	**70**	
3.1	Information & communication technologies (ICTs)	49.4	46	
3.1.1	ICT access*	65.5	40	
3.1.2	ICT use*	25.3	68	
3.1.3	Government's online service*	59.5	44	
3.1.4	E-participation*	47.4	34	●
3.2	General infrastructure	23.7	117	
3.2.1	Electricity output, kWh/cap	9,085.4	14	●
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	15.2	127	○
3.3	Ecological sustainability	36.6	63	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.8	85	
3.3.2	Environmental performance*	66.5	37	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.1	62	
4	**Market sophistication**	**54.7**	**38**	
4.1	Credit	38.9	61	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	31.5	95	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	46.7	36	●
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	78.5	37	●
4.3.1	Applied tariff rate, weighted mean, %	4.1	75	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	61	
4.3.3	Intensity of local competition†	68.0	59	
5	**Business sophistication**	**34.1**	**62**	
5.1	Knowledge workers	50.9	39	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	114.5	45	
5.2	Innovation linkages	34.1	61	
5.2.1	University/industry research collaboration†	43.5	63	
5.2.2	State of cluster development†	53.0	36	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	57	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	55	
5.3	Knowledge absorption	17.5	117	
5.3.1	Royalty & license fees payments, % total trade	0.1	94	
5.3.2	High-tech imports less re-imports, %	4.1	113	○
5.3.3	Comm., computer & info. services imp., % total trade	0.3	121	○
5.3.4	FDI net inflows, % GDP	7.4	25	●
6	**Knowledge & technology outputs**	**12.8**	**136**	○
6.1	Knowledge creation	4.2	121	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	68	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.6	121	○
6.1.5	Citable documents H index	40.0	122	○
6.2	Knowledge impact	7.3	129	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.2	84	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	27.0	95	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	1.2	64	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	109	
6.3.4	FDI net outflows, % GDP	0.2	85	
7	**Creative outputs**	**25.3**	**102**	
7.1	Intangible assets	38.8	100	
7.1.1	Domestic res trademark app./bn PPP$ GDP	3.9	99	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	57.8	64	
7.1.4	ICTs & organizational model creation†	57.0	52	
7.2	Creative goods & services	10.8	91	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.4	65	
7.3	Online creativity	12.7	83	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	13.5	41	
7.3.2	Country-code TLDs/th pop. 15–69	21.3	74	
7.3.3	Wikipedia edits/pop. 15–69	1,852.6	83	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Bulgaria

Key indicators

Population (millions)	7.3
GDP (US$ billions)	53.0
GDP per capita, PPP$	14,499.1
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.7**	**44**	
Innovation Output Sub-Index		37.1	37	
Innovation Input Sub-Index		44.3	54	
Innovation Efficiency Ratio		0.8	25	●
Global Innovation Index 2013 (out of 142)		41.3	41	
1	**Institutions**	**68.5**	**48**	
1.1	Political environment	63.2	56	
1.1.1	Political stability*	73.8	53	
1.1.2	Government effectiveness*	44.5	60	
1.1.3	Press freedom*	71.4	72	
1.2	Regulatory environment	76.5	38	
1.2.1	Regulatory quality*	63.0	47	
1.2.2	Rule of law*	43.0	67	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	65.7	66	
1.3.1	Ease of starting a business*	90.7	35	
1.3.2	Ease of resolving insolvency*	34.5	82	
1.3.3	Ease of paying taxes*	72.0	58	
2	**Human capital & research**	**31.2**	**61**	
2.1	Education	44.5	65	
2.1.1	Expenditure on education, % GDP	4.1	88	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.9	40	
2.1.3	School life expectancy, years	14.3	51	
2.1.4	PISA scales in reading, maths, & science	440.4	42	
2.1.5	Pupil-teacher ratio, secondary	12.3	40	
2.2	Tertiary education	35.9	61	
2.2.1	Tertiary enrolment, % gross	59.6	39	
2.2.2	Graduates in science & engineering, %	19.1	61	
2.2.3	Tertiary inbound mobility, %	3.6	47	
2.3	Research & development (R&D)	13.3	61	
2.3.1	Researchers, headcounts/mn pop.	2,017.4	39	
2.3.2	Gross expenditure on R&D, % GDP	0.6	54	
2.3.3	QS university ranking, average score top 3*	6.7	64	
3	**Infrastructure**	**42.7**	**47**	
3.1	Information & communication technologies (ICTs)	39.2	67	
3.1.1	ICT access*	63.3	47	
3.1.2	ICT use*	42.0	43	
3.1.3	Government's online service*	49.0	72	
3.1.4	E-participation*	2.6	116	○
3.2	General infrastructure	37.0	54	
3.2.1	Electricity output, kWh/cap	6,687.6	30	
3.2.2	Logistics performance*	63.5	36	
3.2.3	Gross capital formation, % GDP	21.2	79	
3.3	Ecological sustainability	51.9	23	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.6	89	
3.3.2	Environmental performance*	64.0	41	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	13.6	4	●
4	**Market sophistication**	**44.2**	**97**	
4.1	Credit	34.7	72	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	71.9	46	
4.1.3	Microfinance gross loans, % GDP	0.0	79	○
4.2	Investment	27.7	111	○
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	13.1	83	○
4.2.3	Total value of stocks traded, % GDP	0.7	74	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	32	
4.3	Trade & competition	70.1	111	○
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	59.7	97	○
5	**Business sophistication**	**35.1**	**53**	
5.1	Knowledge workers	46.6	49	
5.1.1	Knowledge-intensive employment, %	29.6	48	
5.1.2	Firms offering formal training, % firms	30.8	64	
5.1.3	GERD performed by business, % GDP	0.4	36	
5.1.4	GERD financed by business, %	60.5	21	
5.1.5	GMAT test takers/mn pop. 20–34	318.7	15	●
5.2	Innovation linkages	33.6	64	
5.2.1	University/industry research collaboration†	34.0	111	○
5.2.2	State of cluster development†	38.8	104	○
5.2.3	GERD financed by abroad, %	43.9	9	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	77	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	77	
5.3	Knowledge absorption	25.0	73	
5.3.1	Royalty & license fees payments, % total trade	0.5	54	
5.3.2	High-tech imports less re-imports, %	8.5	47	
5.3.3	Comm., computer & info. services imp., % total trade	0.9	67	
5.3.4	FDI net inflows, % GDP	4.0	53	
6	**Knowledge & technology outputs**	**36.2**	**38**	
6.1	Knowledge creation	19.5	53	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.4	47	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	50	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.9	17	
6.1.4	Scientific & technical articles/bn PPP$ GDP	19.9	46	
6.1.5	Citable documents H index	138.0	44	
6.2	Knowledge impact	57.0	10	●
6.2.1	Growth rate of PPP$ GDP/worker, %	2.7	37	
6.2.2	New businesses/th pop. 15–64	9.0	11	●
6.2.3	Computer software spending, % GDP	0.3	40	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	59.3	1	●
6.2.5	High- & medium-high-tech manufactures, %	18.4	58	
6.3	Knowledge diffusion	32.1	67	
6.3.1	Royalty & license fees receipts, % total trade	0.1	54	
6.3.2	High-tech exports less re-exports, %	2.9	43	
6.3.3	Comm., computer & info. services exp., % total trade	2.0	40	
6.3.4	FDI net outflows, % GDP	1.1	47	
7	**Creative outputs**	**38.1**	**45**	
7.1	Intangible assets	49.9	42	
7.1.1	Domestic res trademark app./bn PPP$ GDP	146.0	5	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.7	9	●
7.1.3	ICTs & business model creation†	48.5	101	○
7.1.4	ICTs & organizational model creation†	45.3	99	○
7.2	Creative goods & services	25.1	49	
7.2.1	Cultural & creative services exports, % total trade	0.8	14	●
7.2.2	National feature films/mn pop. 15–69	2.8	48	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	59	
7.2.5	Creative goods exports, % total trade	0.9	42	
7.3	Online creativity	27.4	56	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	23.3	28	●
7.3.2	Country-code TLDs/th pop. 15–69	27.4	66	
7.3.3	Wikipedia edits/pop. 15–69	18,504.0	29	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Burkina Faso

Key indicators

Population (millions)	16.5
GDP (US$ billions)	12.2
GDP per capita, PPP$	1,585.0
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**28.2**	**109**	
Innovation Output Sub-Index		23.5	104	
Innovation Input Sub-Index		32.9	112	
Innovation Efficiency Ratio		0.7	78	
Global Innovation Index 2013 (out of 142)		27.0	116	
1	**Institutions**	**56.5**	**87**	
1.1	Political environment	50.3	88	
1.1.1	Political stability*	50.6	104	
1.1.2	Government effectiveness*	24.0	111	
1.1.3	Press freedom*	76.3	41	●
1.2	Regulatory environment	67.6	62	●
1.2.1	Regulatory quality*	45.7	83	
1.2.2	Rule of law*	34.5	87	
1.2.3	Cost of redundancy dismissal, salary weeks	10.5	42	●
1.3	Business environment	51.6	114	
1.3.1	Ease of starting a business*	73.3	109	
1.3.2	Ease of resolving insolvency*	27.6	103	
1.3.3	Ease of paying taxes*	54.0	116	
2	**Human capital & research**	**14.9**	**122**	
2.1	Education	21.4	130	
2.1.1	Expenditure on education, % GDP	3.4	102	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.1	71	
2.1.3	School life expectancy, years	7.5	126	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	26.3	94	
2.2	Tertiary education	21.8	98	
2.2.1	Tertiary enrolment, % gross	4.6	125	
2.2.2	Graduates in science & engineering, %	19.9	58	
2.2.3	Tertiary inbound mobility, %	3.0	52	●
2.3	Research & development (R&D)	1.6	112	
2.3.1	Researchers, headcounts/mn pop.	73.6	107	
2.3.2	Gross expenditure on R&D, % GDP	0.2	87	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**21.5**	**126**	
3.1	Information & communication technologies (ICTs)	16.3	122	
3.1.1	ICT access*	18.7	125	○
3.1.2	ICT use*	1.3	128	○
3.1.3	Government's online service*	29.4	125	
3.1.4	E-participation*	15.8	79	
3.2	General infrastructure	21.0	129	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	28.2	125	
3.2.3	Gross capital formation, % GDP	17.1	116	
3.3	Ecological sustainability	27.3	107	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	40.5	107	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	121	○
4	**Market sophistication**	**40.4**	**122**	
4.1	Credit	23.7	113	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	22.1	115	
4.1.3	Microfinance gross loans, % GDP	1.7	29	●
4.2	Investment	27.1	113	
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	37	●
4.3	Trade & competition	70.5	107	
4.3.1	Applied tariff rate, weighted mean, %	8.6	117	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	18	●
4.3.3	Intensity of local competition†	56.5	110	
5	**Business sophistication**	**31.0**	**75**	
5.1	Knowledge workers	21.5	120	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	24.9	79	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	7.4	126	
5.2	Innovation linkages	50.3	15	●
5.2.1	University/industry research collaboration†	37.3	96	
5.2.2	State of cluster development†	30.8	127	
5.2.3	GERD financed by abroad, %	59.6	2	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	21.2	94	
5.3.1	Royalty & license fees payments, % total trade	0.0	125	○
5.3.2	High-tech imports less re-imports, %	4.8	103	
5.3.3	Comm., computer & info. services imp., % total trade	2.2	10	●
5.3.4	FDI net inflows, % GDP	0.1	134	○
6	**Knowledge & technology outputs**	**23.1**	**94**	
6.1	Knowledge creation	4.2	120	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	101	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	88	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	52	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.5	77	
6.1.5	Citable documents H index	62.0	94	
6.2	Knowledge impact	36.7	75	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.4	29	●
6.2.2	New businesses/th pop. 15–64	0.1	86	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.3	118	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	28.4	86	
6.3.1	Royalty & license fees receipts, % total trade	0.0	86	
6.3.2	High-tech exports less re-exports, %	0.1	107	
6.3.3	Comm., computer & info. services exp., % total trade	2.4	27	●
6.3.4	FDI net outflows, % GDP	0.0	102	
7	**Creative outputs**	**23.9**	**107**	
7.1	Intangible assets	46.3	58	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	51.8	85	
7.1.4	ICTs & organizational model creation†	40.8	116	
7.2	Creative goods & services	2.7	118	
7.2.1	Cultural & creative services exports, % total trade	0.1	58	
7.2.2	National feature films/mn pop. 15–69	0.5	89	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	110	
7.3	Online creativity	0.1	143	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.0	142	○
7.3.2	Country-code TLDs/th pop. 15–69	0.1	139	○
7.3.3	Wikipedia edits/pop. 15–69	17.8	139	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Burundi

Key indicators

Population (millions)	9.8
GDP (US$ billions)	2.7
GDP per capita, PPP$	641.7
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**22.4**	**138**	
Innovation Output Sub-Index		14.2	141	○
Innovation Input Sub-Index		30.6	126	
Innovation Efficiency Ratio		0.5	135	
Global Innovation Index 2013 (out of 142)		n/a	n/a	
1	**Institutions**	**45.5**	**127**	
1.1	Political environment	30.6	139	
1.1.1	Political stability*	24.5	138	
1.1.2	Government effectiveness*	5.3	141	○
1.1.3	Press freedom*	62.0	107	
1.2	Regulatory environment	52.1	109	
1.2.1	Regulatory quality*	23.8	127	
1.2.2	Rule of law*	16.4	128	
1.2.3	Cost of redundancy dismissal, salary weeks	15.9	74	
1.3	Business environment	53.9	106	
1.3.1	Ease of starting a business*	93.3	17	●
1.3.2	Ease of resolving insolvency*	8.1	138	
1.3.3	Ease of paying taxes*	60.4	101	
2	**Human capital & research**	**17.5**	**111**	
2.1	Education	36.4	92	
2.1.1	Expenditure on education, % GDP	5.8	34	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	33.5	13	●
2.1.3	School life expectancy, years	10.1	114	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	29.7	104	
2.2	Tertiary education	15.3	111	
2.2.1	Tertiary enrolment, % gross	3.2	130	
2.2.2	Graduates in science & engineering, %	9.6	99	
2.2.3	Tertiary inbound mobility, %	6.2	27	●
2.3	Research & development (R&D)	0.9	118	
2.3.1	Researchers, headcounts/mn pop.	39.7	116	
2.3.2	Gross expenditure on R&D, % GDP	0.1	101	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**16.1**	**141**	○
3.1	Information & communication technologies (ICTs)	7.5	141	○
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	15.0	138	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	15.0	139	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	0.0	137	○
3.2.3	Gross capital formation, % GDP	19.6	95	
3.3	Ecological sustainability	25.8	113	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	25.8	137	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**47.3**	**76**	
4.1	Credit	15.2	137	
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	19.5	120	
4.1.3	Microfinance gross loans, % GDP	1.3	32	
4.2	Investment	63.3	14	●
4.2.1	Ease of protecting investors*	63.3	32	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	63.3	127	
4.3.1	Applied tariff rate, weighted mean, %	6.6	102	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	38.2	134	○
5	**Business sophistication**	**26.7**	**104**	
5.1	Knowledge workers	18.5	127	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	22.1	86	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	6.3	127	
5.2	Innovation linkages	36.7	52	
5.2.1	University/industry research collaboration†	25.3	130	
5.2.2	State of cluster development†	29.2	130	
5.2.3	GERD financed by abroad, %	39.9	12	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.3	29	●
5.3	Knowledge absorption	24.9	75	
5.3.1	Royalty & license fees payments, % total trade	0.1	91	
5.3.2	High-tech imports less re-imports, %	9.8	31	●
5.3.3	Comm., computer & info. services imp., % total trade	1.5	34	●
5.3.4	FDI net inflows, % GDP	0.1	133	
6	**Knowledge & technology outputs**	**12.3**	**139**	
6.1	Knowledge creation	2.8	133	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.0	124	
6.1.5	Citable documents H index	24.0	138	
6.2	Knowledge impact	n/a	n/a	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	n/a	n/a	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	21.8	124	
6.3.1	Royalty & license fees receipts, % total trade	0.0	109	
6.3.2	High-tech exports less re-exports, %	0.2	103	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	94	
6.3.4	FDI net outflows, % GDP	0.0	99	
7	**Creative outputs**	**16.2**	**132**	
7.1	Intangible assets	29.7	128	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	31.8	134	○
7.1.4	ICTs & organizational model creation†	27.5	136	○
7.2	Creative goods & services	4.2	113	
7.2.1	Cultural & creative services exports, % total trade	0.1	60	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	86	
7.3	Online creativity	1.1	125	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.0	141	○
7.3.2	Country-code TLDs/th pop. 15–69	3.3	119	
7.3.3	Wikipedia edits/pop. 15–69	13.5	140	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Cabo Verde

Key indicators

Population (millions)	0.5
GDP (US$ billions)	1.9
GDP per capita, PPP$	4,337.7
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.1**	**97**	
Innovation Output Sub-Index		21.3	114	
Innovation Input Sub-Index		38.9	85	
Innovation Efficiency Ratio		0.5	126	○
Global Innovation Index 2013 (out of 142)		29.7	103	
1	**Institutions**	**59.6**	**76**	
1.1	Political environment	71.3	44	●
1.1.1	Political stability*	84.9	31	●
1.1.2	Government effectiveness*	43.5	63	●
1.1.3	Press freedom*	85.7	23	●
1.2	Regulatory environment	55.7	103	
1.2.1	Regulatory quality*	49.9	72	
1.2.2	Rule of law*	59.6	45	●
1.2.3	Cost of redundancy dismissal, salary weeks	29.5	127	○
1.3	Business environment	51.9	112	
1.3.1	Ease of starting a business*	85.6	68	
1.3.2	Ease of resolving insolvency*	0.0	140	○
1.3.3	Ease of paying taxes*	70.0	68	
2	**Human capital & research**	**17.9**	**109**	
2.1	Education	39.6	85	
2.1.1	Expenditure on education, % GDP	5.0	60	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	14.8	85	
2.1.3	School life expectancy, years	13.2	66	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	16.8	70	
2.2	Tertiary education	13.0	119	○
2.2.1	Tertiary enrolment, % gross	20.6	89	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.1	81	
2.3	Research & development (R&D)	1.2	114	
2.3.1	Researchers, headcounts/mn pop.	260.9	81	
2.3.2	Gross expenditure on R&D, % GDP	0.1	108	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**39.3**	**59**	●
3.1	Information & communication technologies (ICTs)	30.8	89	
3.1.1	ICT access*	34.6	94	
3.1.2	ICT use*	21.2	80	
3.1.3	Government's online service*	43.8	87	
3.1.4	E-participation*	23.7	60	
3.2	General infrastructure	56.5	8	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	35.8	13	●
3.3	Ecological sustainability	30.4	92	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	44.1	98	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	84	
4	**Market sophistication**	**47.3**	**77**	
4.1	Credit	34.2	76	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	59.4	54	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	40.0	51	●
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	67.6	117	
4.3.1	Applied tariff rate, weighted mean, %	10.2	126	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.4	47	●
4.3.3	Intensity of local competition†	55.3	116	○
5	**Business sophistication**	**30.3**	**79**	
5.1	Knowledge workers	26.3	105	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	24.1	83	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	28.2	98	
5.2	Innovation linkages	37.4	51	●
5.2.1	University/industry research collaboration†	36.8	100	
5.2.2	State of cluster development†	37.7	107	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	27.4	57	●
5.3.1	Royalty & license fees payments, % total trade	0.0	121	○
5.3.2	High-tech imports less re-imports, %	10.0	30	●
5.3.3	Comm., computer & info. services imp., % total trade	1.5	35	●
5.3.4	FDI net inflows, % GDP	2.8	66	
6	**Knowledge & technology outputs**	**14.6**	**128**	○
6.1	Knowledge creation	6.8	96	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.5	78	
6.1.5	Citable documents H index	12.0	143	○
6.2	Knowledge impact	9.5	125	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.2	72	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	27.7	90	
6.3.1	Royalty & license fees receipts, % total trade	0.0	113	○
6.3.2	High-tech exports less re-exports, %	0.0	121	○
6.3.3	Comm., computer & info. services exp., % total trade	2.5	26	●
6.3.4	FDI net outflows, % GDP	0.2	80	
7	**Creative outputs**	**27.9**	**88**	
7.1	Intangible assets	52.3	31	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	54.5	76	
7.1.4	ICTs & organizational model creation†	50.0	81	
7.2	Creative goods & services	0.9	135	○
7.2.1	Cultural & creative services exports, % total trade	0.0	83	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	6.3	104	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.7	111	
7.3.2	Country-code TLDs/th pop. 15–69	16.9	85	
7.3.3	Wikipedia edits/pop. 15–69	675.6	104	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Cambodia

Key indicators

Population (millions)	14.9
GDP (US$ billions)	15.7
GDP per capita, PPP$	2,576.2
Income group	Low income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**28.7**	**106**	
Innovation Output Sub-Index		24.5	99	
Innovation Input Sub-Index		32.9	113	
Innovation Efficiency Ratio		0.7	67	
Global Innovation Index 2013 (out of 142)		n/a	110	
1	**Institutions**	**46.6**	**120**	
1.1	Political environment	46.4	101	
1.1.1	Political stability*	62.4	79	
1.1.2	Government effectiveness*	18.7	122	
1.1.3	Press freedom*	58.2	117	
1.2	Regulatory environment	53.5	106	
1.2.1	Regulatory quality*	39.7	99	
1.2.2	Rule of law*	19.8	125	
1.2.3	Cost of redundancy dismissal, salary weeks	19.4	91	
1.3	Business environment	40.1	135	
1.3.1	Ease of starting a business*	40.1	142	○
1.3.2	Ease of resolving insolvency*	8.7	137	
1.3.3	Ease of paying taxes*	71.5	59	●
2	**Human capital & research**	**14.1**	**127**	
2.1	Education	28.6	122	
2.1.1	Expenditure on education, % GDP	2.6	118	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	10.9	106	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	28.9	100	
2.2	Tertiary education	13.7	117	
2.2.1	Tertiary enrolment, % gross	15.8	96	
2.2.2	Graduates in science & engineering, %	12.5	95	
2.2.3	Tertiary inbound mobility, %	0.1	111	○
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**21.0**	**128**	
3.1	Information & communication technologies (ICTs)	13.6	132	
3.1.1	ICT access*	31.4	100	
3.1.2	ICT use*	4.1	120	
3.1.3	Government's online service*	19.0	136	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	24.9	114	
3.2.1	Electricity output, kWh/cap	73.6	121	○
3.2.2	Logistics performance*	37.7	97	
3.2.3	Gross capital formation, % GDP	23.5	66	●
3.3	Ecological sustainability	24.5	121	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.6	75	
3.3.2	Environmental performance*	35.4	122	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	102	
4	**Market sophistication**	**55.8**	**35**	●
4.1	Credit	62.2	15	●
4.1.1	Ease of getting credit*	75.0	40	●
4.1.2	Domestic credit to private sector, % GDP	38.7	83	
4.1.3	Microfinance gross loans, % GDP	15.3	1	●
4.2	Investment	53.3	23	●
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	52.0	139	○
4.3.1	Applied tariff rate, weighted mean, %	9.9	124	
4.3.2	Non-agricultural mkt access weighted tariff, %	8.3	139	○
4.3.3	Intensity of local competition†	65.0	74	
5	**Business sophistication**	**26.7**	**105**	
5.1	Knowledge workers	25.3	108	
5.1.1	Knowledge-intensive employment, %	2.5	109	○
5.1.2	Firms offering formal training, % firms	48.4	30	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	2.5	138	○
5.2	Innovation linkages	38.7	47	●
5.2.1	University/industry research collaboration†	36.0	102	
5.2.2	State of cluster development†	52.3	41	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	47	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	16.0	121	
5.3.1	Royalty & license fees payments, % total trade	0.1	96	
5.3.2	High-tech imports less re-imports, %	2.3	125	○
5.3.3	Comm., computer & info. services imp., % total trade	0.5	94	
5.3.4	FDI net inflows, % GDP	7.0	27	●
6	**Knowledge & technology outputs**	**26.4**	**76**	
6.1	Knowledge creation	4.0	124	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.0	109	○
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.9	110	
6.1.5	Citable documents H index	49.0	113	
6.2	Knowledge impact	50.4	26	●
6.2.1	Growth rate of PPP$ GDP/worker, %	4.3	15	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.4	135	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	24.7	113	
6.3.1	Royalty & license fees receipts, % total trade	0.0	72	
6.3.2	High-tech exports less re-exports, %	0.2	97	
6.3.3	Comm., computer & info. services exp., % total trade	1.0	82	
6.3.4	FDI net outflows, % GDP	0.2	79	
7	**Creative outputs**	**22.6**	**113**	
7.1	Intangible assets	39.9	91	
7.1.1	Domestic res trademark app./bn PPP$ GDP	24.8	81	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	54.7	74	
7.1.4	ICTs & organizational model creation†	55.3	60	●
7.2	Creative goods & services	9.4	99	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.4	62	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.3	68	
7.3	Online creativity	1.1	126	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.7	112	
7.3.2	Country-code TLDs/th pop. 15–69	2.0	123	
7.3.3	Wikipedia edits/pop. 15–69	337.4	109	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Cameroon

Key indicators

Population (millions)	21.7
GDP (US$ billions)	28.0
GDP per capita, PPP$	2,422.8
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.5**	**114**	
Innovation Output Sub-Index		24.5	100	
Innovation Input Sub-Index		30.6	127	
Innovation Efficiency Ratio		0.8	39	●
Global Innovation Index 2013 (out of 142)		25.7	125	
1	**Institutions**	**46.8**	**119**	
1.1	Political environment	44.5	111	
1.1.1	Political stability*	51.6	102	
1.1.2	Government effectiveness*	16.8	126	
1.1.3	Press freedom*	65.2	99	
1.2	Regulatory environment	53.3	107	
1.2.1	Regulatory quality*	24.4	126	
1.2.2	Rule of law*	18.3	126	
1.2.3	Cost of redundancy dismissal, salary weeks	15.3	70	●
1.3	Business environment	42.6	132	○
1.3.1	Ease of starting a business*	76.9	99	
1.3.2	Ease of resolving insolvency*	16.3	129	○
1.3.3	Ease of paying taxes*	34.5	136	○
2	**Human capital & research**	**17.9**	**110**	
2.1	Education	29.9	118	
2.1.1	Expenditure on education, % GDP	3.2	108	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	20.9	56	●
2.1.3	School life expectancy, years	10.4	110	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	21.4	83	
2.2	Tertiary education	22.7	93	
2.2.1	Tertiary enrolment, % gross	11.9	105	
2.2.2	Graduates in science & engineering, %	21.0	47	●
2.2.3	Tertiary inbound mobility, %	1.4	75	
2.3	Research & development (R&D)	1.0	115	
2.3.1	Researchers, headcounts/mn pop.	232.8	83	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**20.0**	**132**	○
3.1	Information & communication technologies (ICTs)	13.3	133	○
3.1.1	ICT access*	18.7	125	○
3.1.2	ICT use*	1.9	126	○
3.1.3	Government's online service*	30.1	120	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	20.5	131	○
3.2.1	Electricity output, kWh/cap	299.4	109	
3.2.2	Logistics performance*	36.5	103	
3.2.3	Gross capital formation, % GDP	19.3	97	
3.3	Ecological sustainability	26.1	111	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.2	63	●
3.3.2	Environmental performance*	36.7	119	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	109	
4	**Market sophistication**	**45.0**	**91**	
4.1	Credit	21.4	125	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	15.0	131	○
4.1.3	Microfinance gross loans, % GDP	0.9	41	●
4.2	Investment	43.3	43	●
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	70.3	109	
4.3.1	Applied tariff rate, weighted mean, %	11.9	132	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	29	●
4.3.3	Intensity of local competition†	62.2	88	
5	**Business sophistication**	**23.3**	**123**	
5.1	Knowledge workers	28.1	102	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	24.5	82	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	37.2	84	●
5.2	Innovation linkages	30.9	72	●
5.2.1	University/industry research collaboration†	34.0	111	
5.2.2	State of cluster development†	41.8	89	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	71	
5.3	Knowledge absorption	10.7	137	○
5.3.1	Royalty & license fees payments, % total trade	0.2	79	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	120	
5.3.4	FDI net inflows, % GDP	1.4	104	
6	**Knowledge & technology outputs**	**21.8**	**103**	
6.1	Knowledge creation	9.3	87	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	85	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	12.2	69	●
6.1.5	Citable documents H index	72.0	87	●
6.2	Knowledge impact	29.1	110	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.2	52	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.2	72	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.8	125	
6.2.5	High- & medium-high-tech manufactures, %	5.1	86	
6.3	Knowledge diffusion	27.1	93	
6.3.1	Royalty & license fees receipts, % total trade	0.0	98	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	92	
6.3.4	FDI net outflows, % GDP	–1.1	119	○
7	**Creative outputs**	**27.1**	**96**	
7.1	Intangible assets	47.0	54	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	50.3	94	
7.1.4	ICTs & organizational model creation†	43.7	104	
7.2	Creative goods & services	10.9	90	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.0	101	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	60	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	3.3	116	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.4	124	
7.3.2	Country-code TLDs/th pop. 15–69	9.5	104	
7.3.3	Wikipedia edits/pop. 15–69	74.3	127	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Canada

Key indicators

Population (millions)	34.9
GDP (US$ billions)	1,825.1
GDP per capita, PPP$	43,471.7
Income group	High income
Region	Northern America

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**56.1**	**12**	
Innovation Output Sub-Index		46.0	20	
Innovation Input Sub-Index		66.3	8	
Innovation Efficiency Ratio		0.7	86	○
Global Innovation Index 2013 (out of 142)		57.6	11	
1	**Institutions**	**92.7**	**7**	●
1.1	Political environment	89.1	11	
1.1.1	Political stability*	92.4	14	
1.1.2	Government effectiveness*	87.7	10	
1.1.3	Press freedom*	87.3	18	
1.2	Regulatory environment	94.9	11	
1.2.1	Regulatory quality*	93.0	10	
1.2.2	Rule of law*	94.6	11	
1.2.3	Cost of redundancy dismissal, salary weeks	10.0	37	
1.3	Business environment	94.1	2	●
1.3.1	Ease of starting a business*	99.0	2	●
1.3.2	Ease of resolving insolvency*	92.5	9	
1.3.3	Ease of paying taxes*	91.0	8	
2	**Human capital & research**	**56.4**	**13**	
2.1	Education	49.9	48	
2.1.1	Expenditure on education, % GDP	5.4	47	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	522.2	8	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	62.8	12	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	1.7	23	
2.3.3	QS university ranking, average score top 3*	87.1	3	●
3	**Infrastructure**	**58.4**	**13**	
3.1	Information & communication technologies (ICTs)	74.4	14	
3.1.1	ICT access*	76.5	20	
3.1.2	ICT use*	63.8	19	
3.1.3	Government's online service*	88.9	6	●
3.1.4	E-participation*	68.4	15	
3.2	General infrastructure	61.2	5	●
3.2.1	Electricity output, kWh/cap	18,547.9	4	●
3.2.2	Logistics performance*	88.9	12	
3.2.3	Gross capital formation, % GDP	24.3	57	
3.3	Ecological sustainability	39.7	57	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.0	84	○
3.3.2	Environmental performance*	73.1	24	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.2	59	○
4	**Market sophistication**	**75.9**	**5**	●
4.1	Credit	61.4	17	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	128.2	19	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	80.6	4	●
4.2.1	Ease of protecting investors*	86.7	4	●
4.2.2	Market capitalization, % GDP	110.7	11	
4.2.3	Total value of stocks traded, % GDP	66.3	11	
4.2.4	Venture capital deals/tr PPP$ GDP	0.7	1	●
4.3	Trade & competition	85.6	5	●
4.3.1	Applied tariff rate, weighted mean, %	0.9	7	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	34	
4.3.3	Intensity of local competition†	73.8	31	
5	**Business sophistication**	**48.0**	**15**	
5.1	Knowledge workers	66.5	17	
5.1.1	Knowledge-intensive employment, %	43.8	13	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.9	24	
5.1.4	GERD financed by business, %	52.3	35	
5.1.5	GMAT test takers/mn pop. 20–34	893.1	4	●
5.2	Innovation linkages	44.7	31	
5.2.1	University/industry research collaboration†	65.5	17	
5.2.2	State of cluster development†	64.0	17	
5.2.3	GERD financed by abroad, %	5.8	60	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	18	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.0	18	
5.3	Knowledge absorption	32.8	34	
5.3.1	Royalty & license fees payments, % total trade	1.9	8	
5.3.2	High-tech imports less re-imports, %	10.0	29	
5.3.3	Comm., computer & info. services imp., % total trade	1.0	63	○
5.3.4	FDI net inflows, % GDP	2.5	74	○
6	**Knowledge & technology outputs**	**43.7**	**21**	
6.1	Knowledge creation	48.9	14	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.2	36	
6.1.2	PCT resident patent app./tr PPP$ GDP	1.9	25	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	37.4	19	
6.1.5	Citable documents H index	658.0	5	●
6.2	Knowledge impact	42.2	57	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.0	67	○
6.2.2	New businesses/th pop. 15–64	1.1	58	○
6.2.3	Computer software spending, % GDP	0.7	4	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.7	66	○
6.2.5	High- & medium-high-tech manufactures, %	28.7	37	
6.3	Knowledge diffusion	39.9	33	
6.3.1	Royalty & license fees receipts, % total trade	0.6	20	
6.3.2	High-tech exports less re-exports, %	4.8	32	
6.3.3	Comm., computer & info. services exp., % total trade	1.8	46	
6.3.4	FDI net outflows, % GDP	3.1	23	
7	**Creative outputs**	**48.3**	**16**	
7.1	Intangible assets	52.3	30	
7.1.1	Domestic res trademark app./bn PPP$ GDP	52.3	53	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	67.7	27	
7.1.4	ICTs & organizational model creation†	69.0	12	
7.2	Creative goods & services	18.4	66	○
7.2.1	Cultural & creative services exports, % total trade	0.2	47	
7.2.2	National feature films/mn pop. 15–69	3.4	42	
7.2.3	Global ent. & media output/th pop. 15–69	1.6	13	
7.2.4	Printing & publishing manufactures, %	0.0	85	○
7.2.5	Creative goods exports, % total trade	0.7	49	
7.3	Online creativity	70.1	6	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	92.9	6	●
7.3.2	Country-code TLDs/th pop. 15–69	59.9	20	
7.3.3	Wikipedia edits/pop. 15–69	20,636.0	24	
7.3.4	Video uploads on YouTube/pop. 15–69	92.6	7	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Chile

Key indicators

Population (millions)	17.5
GDP (US$ billions)	277.0
GDP per capita, PPP$	19,067.3
Income group	High income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.6**	**46**	
Innovation Output Sub-Index		32.8	54	
Innovation Input Sub-Index		48.4	37	
Innovation Efficiency Ratio		0.7	92	○
Global Innovation Index 2013 (out of 142)		40.6	46	
1	**Institutions**	**71.7**	**41**	
1.1	Political environment	74.1	37	
1.1.1	Political stability*	74.2	51	
1.1.2	Government effectiveness*	74.3	24	●
1.1.3	Press freedom*	73.8	51	
1.2	Regulatory environment	73.8	44	
1.2.1	Regulatory quality*	89.0	14	●
1.2.2	Rule of law*	84.0	21	●
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	120	○
1.3	Business environment	67.3	62	
1.3.1	Ease of starting a business*	88.1	53	
1.3.2	Ease of resolving insolvency*	30.8	91	○
1.3.3	Ease of paying taxes*	83.0	26	
2	**Human capital & research**	**32.4**	**57**	
2.1	Education	41.9	74	
2.1.1	Expenditure on education, % GDP	4.5	74	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.9	66	
2.1.3	School life expectancy, years	15.2	39	
2.1.4	PISA scales in reading, maths, & science	436.3	45	○
2.1.5	Pupil-teacher ratio, secondary	20.0	81	○
2.2	Tertiary education	35.6	63	
2.2.1	Tertiary enrolment, % gross	74.4	17	●
2.2.2	Graduates in science & engineering, %	19.2	60	
2.2.3	Tertiary inbound mobility, %	0.3	99	○
2.3	Research & development (R&D)	19.9	45	
2.3.1	Researchers, headcounts/mn pop.	551.2	69	
2.3.2	Gross expenditure on R&D, % GDP	0.4	68	
2.3.3	QS university ranking, average score top 3*	45.2	28	
3	**Infrastructure**	**48.2**	**28**	
3.1	Information & communication technologies (ICTs)	58.5	29	
3.1.1	ICT access*	56.5	59	
3.1.2	ICT use*	36.7	50	
3.1.3	Government's online service*	75.2	24	
3.1.4	E-participation*	65.8	19	●
3.2	General infrastructure	37.9	51	
3.2.1	Electricity output, kWh/cap	3,921.2	54	
3.2.2	Logistics performance*	61.9	39	
3.2.3	Gross capital formation, % GDP	25.7	46	
3.3	Ecological sustainability	48.1	33	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.5	33	
3.3.2	Environmental performance*	69.9	29	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.4	31	
4	**Market sophistication**	**53.3**	**44**	
4.1	Credit	33.5	78	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	73.3	44	
4.1.3	Microfinance gross loans, % GDP	0.7	44	
4.2	Investment	44.0	42	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	116.8	10	●
4.2.3	Total value of stocks traded, % GDP	17.4	30	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	36	
4.3	Trade & competition	82.3	15	●
4.3.1	Applied tariff rate, weighted mean, %	4.0	72	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	38	
4.3.3	Intensity of local competition†	73.0	34	
5	**Business sophistication**	**36.6**	**46**	
5.1	Knowledge workers	42.1	59	
5.1.1	Knowledge-intensive employment, %	24.1	59	
5.1.2	Firms offering formal training, % firms	45.9	34	
5.1.3	GERD performed by business, % GDP	0.2	51	
5.1.4	GERD financed by business, %	38.7	48	
5.1.5	GMAT test takers/mn pop. 20–34	114.1	47	
5.2	Innovation linkages	30.1	77	
5.2.1	University/industry research collaboration†	54.5	39	
5.2.2	State of cluster development†	51.3	47	
5.2.3	GERD financed by abroad, %	15.7	27	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	61	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	92	○
5.3	Knowledge absorption	37.5	23	●
5.3.1	Royalty & license fees payments, % total trade	0.9	31	
5.3.2	High-tech imports less re-imports, %	9.7	34	
5.3.3	Comm., computer & info. services imp., % total trade	0.8	68	
5.3.4	FDI net inflows, % GDP	11.3	11	●
6	**Knowledge & technology outputs**	**27.3**	**66**	
6.1	Knowledge creation	12.3	69	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.1	65	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.4	44	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.4	42	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	17.1	52	
6.1.5	Citable documents H index	194.0	37	
6.2	Knowledge impact	43.8	51	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.2	17	●
6.2.2	New businesses/th pop. 15–64	5.7	18	●
6.2.3	Computer software spending, % GDP	0.3	51	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.6	41	
6.2.5	High- & medium-high-tech manufactures, %	21.7	49	
6.3	Knowledge diffusion	26.0	104	○
6.3.1	Royalty & license fees receipts, % total trade	0.1	58	
6.3.2	High-tech exports less re-exports, %	0.6	75	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	107	○
6.3.4	FDI net outflows, % GDP	7.8	6	●
7	**Creative outputs**	**38.3**	**44**	
7.1	Intangible assets	54.2	23	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	88.9	21	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	67.0	28	
7.1.4	ICTs & organizational model creation†	61.0	36	
7.2	Creative goods & services	8.0	103	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.8	54	
7.2.3	Global ent. & media output/th pop. 15–69	0.3	37	
7.2.4	Printing & publishing manufactures, %	0.0	81	○
7.2.5	Creative goods exports, % total trade	0.2	77	
7.3	Online creativity	37.0	39	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.2	70	
7.3.2	Country-code TLDs/th pop. 15–69	48.7	38	
7.3.3	Wikipedia edits/pop. 15–69	10,125.8	45	
7.3.4	Video uploads on YouTube/pop. 15–69	78.8	31	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

China

Key indicators

Population (millions)	1,350.7
GDP (US$ billions)	9,181.4
GDP per capita, PPP$	9,844.0
Income group	Upper-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**46.6**	**29**	
Innovation Output Sub-Index		47.3	16	
Innovation Input Sub-Index		45.8	45	
Innovation Efficiency Ratio		1.0	2	●
Global Innovation Index 2013 (out of 142)		52.2	35	
1	**Institutions**	**48.3**	**114**	
1.1	Political environment	40.1	125	○
1.1.1	Political stability*	52.3	99	
1.1.2	Government effectiveness*	41.0	67	
1.1.3	Press freedom*	26.9	141	○
1.2	Regulatory environment	49.3	117	
1.2.1	Regulatory quality*	42.1	92	
1.2.2	Rule of law*	32.9	90	
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	120	○
1.3	Business environment	55.5	98	
1.3.1	Ease of starting a business*	67.4	122	○
1.3.2	Ease of resolving insolvency*	38.1	70	
1.3.3	Ease of paying taxes*	61.1	100	
2	**Human capital & research**	**43.4**	**32**	
2.1	Education	71.3	1	●
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	13.1	74	
2.1.4	PISA scales in reading, maths, & science	587.5	1	●
2.1.5	Pupil-teacher ratio, secondary	14.5	55	
2.2	Tertiary education	13.9	115	○
2.2.1	Tertiary enrolment, % gross	26.7	82	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.3	100	○
2.3	Research & development (R&D)	45.0	23	
2.3.1	Researchers, headcounts/mn pop.	1,392.8	50	
2.3.2	Gross expenditure on R&D, % GDP	2.0	19	
2.3.3	QS university ranking, average score top 3*	76.8	10	●
3	**Infrastructure**	**45.0**	**39**	
3.1	Information & communication technologies (ICTs)	36.1	73	
3.1.1	ICT access*	43.6	74	
3.1.2	ICT use*	27.0	64	
3.1.3	Government's online service*	52.9	60	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	65.3	2	●
3.2.1	Electricity output, kWh/cap	3,508.4	56	
3.2.2	Logistics performance*	75.8	24	
3.2.3	Gross capital formation, % GDP	48.9	2	●
3.3	Ecological sustainability	33.5	80	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.7	101	
3.3.2	Environmental performance*	43.0	103	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	7.5	16	
4	**Market sophistication**	**50.5**	**54**	
4.1	Credit	35.8	69	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	131.6	18	
4.1.3	Microfinance gross loans, % GDP	0.2	62	
4.2	Investment	40.5	50	
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	44.9	44	
4.2.3	Total value of stocks traded, % GDP	70.8	9	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	42	
4.3	Trade & competition	75.1	75	
4.3.1	Applied tariff rate, weighted mean, %	4.1	73	
4.3.2	Non-agricultural mkt access weighted tariff, %	2.6	94	
4.3.3	Intensity of local competition†	71.0	43	
5	**Business sophistication**	**41.8**	**32**	
5.1	Knowledge workers	59.4	29	
5.1.1	Knowledge-intensive employment, %	7.4	101	○
5.1.2	Firms offering formal training, % firms	79.2	1	●
5.1.3	GERD performed by business, % GDP	1.5	13	
5.1.4	GERD financed by business, %	76.2	5	●
5.1.5	GMAT test takers/mn pop. 20–34	154.2	33	
5.2	Innovation linkages	30.5	74	
5.2.1	University/industry research collaboration†	56.8	32	
5.2.2	State of cluster development†	60.2	23	
5.2.3	GERD financed by abroad, %	1.0	81	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	67	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	36	
5.3	Knowledge absorption	35.5	28	
5.3.1	Royalty & license fees payments, % total trade	0.8	34	
5.3.2	High-tech imports less re-imports, %	18.3	8	●
5.3.3	Comm., computer & info. services imp., % total trade	0.3	123	○
5.3.4	FDI net inflows, % GDP	3.0	65	
6	**Knowledge & technology outputs**	**59.0**	**2**	●
6.1	Knowledge creation	67.1	4	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	43.7	1	●
6.1.2	PCT resident patent app./tr PPP$ GDP	1.5	29	
6.1.3	Domestic res utility model app./tr PPP$ GDP	59.9	1	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	15.8	56	
6.1.5	Citable documents H index	385.0	16	
6.2	Knowledge impact	65.7	3	●
6.2.1	Growth rate of PPP$ GDP/worker, %	7.4	2	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.4	24	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	27.2	16	
6.2.5	High- & medium-high-tech manufactures, %	43.6	16	
6.3	Knowledge diffusion	44.3	23	
6.3.1	Royalty & license fees receipts, % total trade	0.0	68	
6.3.2	High-tech exports less re-exports, %	27.8	1	●
6.3.3	Comm., computer & info. services exp., % total trade	0.8	89	
6.3.4	FDI net outflows, % GDP	1.4	41	
7	**Creative outputs**	**35.7**	**59**	
7.1	Intangible assets	48.9	47	
7.1.1	Domestic res trademark app./bn PPP$ GDP	122.5	8	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.2	55	
7.1.3	ICTs & business model creation†	60.7	50	
7.1.4	ICTs & organizational model creation†	61.5	31	
7.2	Creative goods & services	33.6	33	
7.2.1	Cultural & creative services exports, % total trade	0.2	39	
7.2.2	National feature films/mn pop. 15–69	0.6	86	○
7.2.3	Global ent. & media output/th pop. 15–69	0.1	49	○
7.2.4	Printing & publishing manufactures, %	0.0	83	○
7.2.5	Creative goods exports, % total trade	14.9	1	●
7.3	Online creativity	11.2	87	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.2	86	
7.3.2	Country-code TLDs/th pop. 15–69	31.2	55	
7.3.3	Wikipedia edits/pop. 15–69	190.1	117	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Colombia

Key indicators

Population (millions)	47.7
GDP (US$ billions)	381.8
GDP per capita, PPP$	11,188.8
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**35.5**	**68**	
Innovation Output Sub-Index		27.6	77	
Innovation Input Sub-Index		43.4	58	
Innovation Efficiency Ratio		0.6	102	
Global Innovation Index 2013 (out of 142)		37.4	60	
1	**Institutions**	**60.4**	**71**	
1.1	Political environment	45.0	107	
1.1.1	Political stability*	31.3	134	○
1.1.2	Government effectiveness*	41.2	66	
1.1.3	Press freedom*	62.5	105	
1.2	Regulatory environment	64.9	76	
1.2.1	Regulatory quality*	58.9	58	
1.2.2	Rule of law*	35.6	83	
1.2.3	Cost of redundancy dismissal, salary weeks	16.7	78	
1.3	Business environment	71.4	40	
1.3.1	Ease of starting a business*	81.6	81	
1.3.2	Ease of resolving insolvency*	74.5	23	●
1.3.3	Ease of paying taxes*	58.0	107	
2	**Human capital & research**	**29.4**	**65**	
2.1	Education	33.1	104	
2.1.1	Expenditure on education, % GDP	4.4	77	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.2	84	
2.1.3	School life expectancy, years	13.2	68	
2.1.4	PISA scales in reading, maths, & science	392.9	58	○
2.1.5	Pupil-teacher ratio, secondary	25.4	91	○
2.2	Tertiary education	39.9	46	
2.2.1	Tertiary enrolment, % gross	45.0	57	
2.2.2	Graduates in science & engineering, %	21.5	44	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	15.3	56	
2.3.1	Researchers, headcounts/mn pop.	346.4	76	
2.3.2	Gross expenditure on R&D, % GDP	0.2	90	
2.3.3	QS university ranking, average score top 3*	39.1	34	
3	**Infrastructure**	**44.8**	**40**	
3.1	Information & communication technologies (ICTs)	56.0	33	
3.1.1	ICT access*	43.5	75	
3.1.2	ICT use*	22.6	76	
3.1.3	Government's online service*	84.3	16	●
3.1.4	E-participation*	73.7	11	●
3.2	General infrastructure	29.7	87	
3.2.1	Electricity output, kWh/cap	1,317.3	88	
3.2.2	Logistics performance*	50.0	64	
3.2.3	Gross capital formation, % GDP	23.7	64	
3.3	Ecological sustainability	48.7	31	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	13.2	2	●
3.3.2	Environmental performance*	50.8	77	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.9	36	
4	**Market sophistication**	**51.8**	**48**	
4.1	Credit	33.4	79	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	48.9	69	
4.1.3	Microfinance gross loans, % GDP	1.8	26	
4.2	Investment	43.2	44	
4.2.1	Ease of protecting investors*	83.3	6	●
4.2.2	Market capitalization, % GDP	70.9	25	●
4.2.3	Total value of stocks traded, % GDP	7.0	45	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	59	○
4.3	Trade & competition	78.6	33	
4.3.1	Applied tariff rate, weighted mean, %	5.6	89	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	28	●
4.3.3	Intensity of local competition†	67.7	61	
5	**Business sophistication**	**30.8**	**76**	
5.1	Knowledge workers	38.5	71	
5.1.1	Knowledge-intensive employment, %	16.8	84	
5.1.2	Firms offering formal training, % firms	56.7	13	●
5.1.3	GERD performed by business, % GDP	0.0	69	○
5.1.4	GERD financed by business, %	26.2	58	
5.1.5	GMAT test takers/mn pop. 20–34	65.6	66	
5.2	Innovation linkages	21.7	122	○
5.2.1	University/industry research collaboration†	47.5	51	
5.2.2	State of cluster development†	46.5	71	
5.2.3	GERD financed by abroad, %	3.5	69	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	107	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	90	
5.3	Knowledge absorption	32.1	36	
5.3.1	Royalty & license fees payments, % total trade	0.8	39	
5.3.2	High-tech imports less re-imports, %	13.0	18	●
5.3.3	Comm., computer & info. services imp., % total trade	0.7	74	
5.3.4	FDI net inflows, % GDP	4.3	50	
6	**Knowledge & technology outputs**	**24.4**	**85**	
6.1	Knowledge creation	7.4	93	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	80	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	67	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.5	39	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.1	97	
6.1.5	Citable documents H index	133.0	47	
6.2	Knowledge impact	39.7	66	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.6	43	
6.2.2	New businesses/th pop. 15–64	2.0	43	
6.2.3	Computer software spending, % GDP	0.2	65	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	19.9	21	●
6.2.5	High- & medium-high-tech manufactures, %	22.1	47	
6.3	Knowledge diffusion	26.1	101	
6.3.1	Royalty & license fees receipts, % total trade	0.1	43	
6.3.2	High-tech exports less re-exports, %	0.9	72	
6.3.3	Comm., computer & info. services exp., % total trade	0.5	102	
6.3.4	FDI net outflows, % GDP	–0.1	112	○
7	**Creative outputs**	**30.7**	**76**	
7.1	Intangible assets	37.2	105	
7.1.1	Domestic res trademark app./bn PPP$ GDP	37.4	68	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	73	○
7.1.3	ICTs & business model creation†	59.2	59	
7.1.4	ICTs & organizational model creation†	56.5	54	
7.2	Creative goods & services	16.4	76	
7.2.1	Cultural & creative services exports, % total trade	0.2	42	
7.2.2	National feature films/mn pop. 15–69	0.6	85	○
7.2.3	Global ent. & media output/th pop. 15–69	0.2	44	
7.2.4	Printing & publishing manufactures, %	0.0	23	
7.2.5	Creative goods exports, % total trade	0.3	70	
7.3	Online creativity	32.2	45	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.8	66	
7.3.2	Country-code TLDs/th pop. 15–69	51.8	35	
7.3.3	Wikipedia edits/pop. 15–69	3,505.2	64	
7.3.4	Video uploads on YouTube/pop. 15–69	67.3	46	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Costa Rica

Key indicators

Population (millions)	4.8
GDP (US$ billions)	49.6
GDP per capita, PPP$	12,942.1
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
	Global Innovation Index (out of 143)	**37.3**	**57**	
	Innovation Output Sub-Index	33.3	51	
	Innovation Input Sub-Index	41.3	66	
	Innovation Efficiency Ratio	0.8	38	
	Global Innovation Index 2013 (out of 142)	41.5	39	
1	**Institutions**	**66.7**	**56**	
1.1	Political environment	74.3	35	●
1.1.1	Political stability*	81.1	40	
1.1.2	Government effectiveness*	53.9	46	
1.1.3	Press freedom*	87.9	16	●
1.2	Regulatory environment	70.0	54	
1.2.1	Regulatory quality*	63.6	45	
1.2.2	Rule of law*	59.4	46	
1.2.3	Cost of redundancy dismissal, salary weeks	18.7	87	
1.3	Business environment	55.9	95	
1.3.1	Ease of starting a business*	79.4	92	
1.3.2	Ease of resolving insolvency*	26.0	108	
1.3.3	Ease of paying taxes*	62.2	96	
2	**Human capital & research**	**25.0**	**87**	
2.1	Education	43.0	68	
2.1.1	Expenditure on education, % GDP	6.3	22	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	14.4	86	
2.1.3	School life expectancy, years	13.7	61	
2.1.4	PISA scales in reading, maths, & science	425.6	46	
2.1.5	Pupil-teacher ratio, secondary	14.9	62	
2.2	Tertiary education	22.7	94	
2.2.1	Tertiary enrolment, % gross	46.7	53	
2.2.2	Graduates in science & engineering, %	11.9	97	○
2.2.3	Tertiary inbound mobility, %	1.4	72	
2.3	Research & development (R&D)	9.4	69	
2.3.1	Researchers, headcounts/mn pop.	1,867.6	43	
2.3.2	Gross expenditure on R&D, % GDP	0.5	61	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**38.1**	**64**	
3.1	Information & communication technologies (ICTs)	41.8	60	
3.1.1	ICT access*	55.3	61	
3.1.2	ICT use*	30.6	60	
3.1.3	Government's online service*	49.7	68	
3.1.4	E-participation*	31.6	48	
3.2	General infrastructure	26.9	102	
3.2.1	Electricity output, kWh/cap	2,078.9	77	
3.2.2	Logistics performance*	45.2	81	
3.2.3	Gross capital formation, % GDP	21.3	76	
3.3	Ecological sustainability	45.5	40	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.9	11	●
3.3.2	Environmental performance*	58.5	52	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.4	55	
4	**Market sophistication**	**40.7**	**121**	○
4.1	Credit	24.3	110	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	49.1	68	
4.1.3	Microfinance gross loans, % GDP	0.1	64	
4.2	Investment	15.6	142	○
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	4.5	102	○
4.2.3	Total value of stocks traded, % GDP	0.1	101	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	82.2	17	●
4.3.1	Applied tariff rate, weighted mean, %	3.1	57	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	13	●
4.3.3	Intensity of local competition†	70.0	50	
5	**Business sophistication**	**35.9**	**47**	
5.1	Knowledge workers	37.2	79	
5.1.1	Knowledge-intensive employment, %	23.9	61	
5.1.2	Firms offering formal training, % firms	48.9	28	
5.1.3	GERD performed by business, % GDP	0.1	63	
5.1.4	GERD financed by business, %	15.9	67	○
5.1.5	GMAT test takers/mn pop. 20–34	59.3	69	
5.2	Innovation linkages	26.5	93	
5.2.1	University/industry research collaboration†	56.8	32	●
5.2.2	State of cluster development†	52.0	43	
5.2.3	GERD financed by abroad, %	6.5	55	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	90	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	78	
5.3	Knowledge absorption	44.0	8	●
5.3.1	Royalty & license fees payments, % total trade	0.5	55	
5.3.2	High-tech imports less re-imports, %	21.8	3	●
5.3.3	Comm., computer & info. services imp., % total trade	0.7	80	
5.3.4	FDI net inflows, % GDP	5.3	36	
6	**Knowledge & technology outputs**	**30.3**	**57**	
6.1	Knowledge creation	4.4	118	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	94	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	79	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	56	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.5	95	
6.1.5	Citable documents H index	103.0	64	
6.2	Knowledge impact	34.4	86	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.1	36	
6.2.2	New businesses/th pop. 15–64	3.5	30	
6.2.3	Computer software spending, % GDP	0.3	44	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.0	74	
6.2.5	High- & medium-high-tech manufactures, %	11.6	72	
6.3	Knowledge diffusion	52.0	8	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	81	
6.3.2	High-tech exports less re-exports, %	15.3	9	●
6.3.3	Comm., computer & info. services exp., % total trade	10.5	1	●
6.3.4	FDI net outflows, % GDP	1.7	39	
7	**Creative outputs**	**36.3**	**55**	
7.1	Intangible assets	55.4	17	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	111.1	12	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	62.5	43	
7.1.4	ICTs & organizational model creation†	60.5	37	
7.2	Creative goods & services	19.4	62	
7.2.1	Cultural & creative services exports, % total trade	0.0	85	○
7.2.2	National feature films/mn pop. 15–69	0.9	75	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	24	
7.2.5	Creative goods exports, % total trade	0.7	48	
7.3	Online creativity	15.2	77	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	15.7	33	●
7.3.2	Country-code TLDs/th pop. 15–69	22.6	72	
7.3.3	Wikipedia edits/pop. 15–69	4,284.2	59	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Côte d'Ivoire

Key indicators

Population (millions)	19.8
GDP (US$ billions)	28.3
GDP per capita, PPP$	1,818.1
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.0**	**116**	
Innovation Output Sub-Index		26.0	88	
Innovation Input Sub-Index		28.0	135	○
Innovation Efficiency Ratio		0.9	10	●
Global Innovation Index 2013 (out of 142)		23.4	136	
1	**Institutions**	**48.8**	**112**	
1.1	Political environment	38.8	130	○
1.1.1	Political stability*	34.8	127	
1.1.2	Government effectiveness*	11.3	135	○
1.1.3	Press freedom*	70.2	77	●
1.2	Regulatory environment	56.1	99	
1.2.1	Regulatory quality*	28.7	122	
1.2.2	Rule of law*	15.9	130	○
1.2.3	Cost of redundancy dismissal, salary weeks	13.1	58	●
1.3	Business environment	51.6	115	
1.3.1	Ease of starting a business*	77.8	98	
1.3.2	Ease of resolving insolvency*	33.7	85	●
1.3.3	Ease of paying taxes*	43.3	130	○
2	**Human capital & research**	**13.0**	**131**	○
2.1	Education	31.3	111	
2.1.1	Expenditure on education, % GDP	4.6	71	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	7.0	129	○
2.2.1	Tertiary enrolment, % gross	8.4	116	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.3	78	
2.3	Research & development (R&D)	0.6	122	
2.3.1	Researchers, headcounts/mn pop.	137.8	94	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**20.1**	**131**	○
3.1	Information & communication technologies (ICTs)	18.3	117	
3.1.1	ICT access*	25.8	108	
3.1.2	ICT use*	0.9	130	○
3.1.3	Government's online service*	33.3	110	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	20.9	130	○
3.2.1	Electricity output, kWh/cap	302.7	108	
3.2.2	Logistics performance*	44.4	84	
3.2.3	Gross capital formation, % GDP	17.9	111	
3.3	Ecological sustainability	21.1	127	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.8	114	○
3.3.2	Environmental performance*	39.7	109	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	92	
4	**Market sophistication**	**37.7**	**133**	○
4.1	Credit	16.9	132	○
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	18.3	123	
4.1.3	Microfinance gross loans, % GDP	0.2	61	
4.2	Investment	21.4	135	○
4.2.1	Ease of protecting investors*	33.3	125	○
4.2.2	Market capitalization, % GDP	31.7	57	●
4.2.3	Total value of stocks traded, % GDP	0.7	76	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	74.8	78	●
4.3.1	Applied tariff rate, weighted mean, %	6.8	104	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.9	69	●
4.3.3	Intensity of local competition†	66.2	68	●
5	**Business sophistication**	**20.5**	**130**	○
5.1	Knowledge workers	23.3	114	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	21.3	89	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	25.3	106	
5.2	Innovation linkages	23.6	112	
5.2.1	University/industry research collaboration†	30.2	119	
5.2.2	State of cluster development†	32.2	124	○
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	14.5	126	
5.3.1	Royalty & license fees payments, % total trade	0.2	86	
5.3.2	High-tech imports less re-imports, %	4.7	104	
5.3.3	Comm., computer & info. services imp., % total trade	0.8	71	●
5.3.4	FDI net inflows, % GDP	1.4	103	
6	**Knowledge & technology outputs**	**27.2**	**67**	●
6.1	Knowledge creation	4.5	116	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.7	74	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	102	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.3	113	
6.1.5	Citable documents H index	68.0	90	
6.2	Knowledge impact	54.0	16	●
6.2.1	Growth rate of PPP$ GDP/worker, %	5.3	7	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	114	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	23.2	117	
6.3.1	Royalty & license fees receipts, % total trade	0.0	106	○
6.3.2	High-tech exports less re-exports, %	0.9	71	●
6.3.3	Comm., computer & info. services exp., % total trade	0.9	86	
6.3.4	FDI net outflows, % GDP	0.2	81	
7	**Creative outputs**	**24.8**	**103**	
7.1	Intangible assets	47.9	50	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	50.7	92	
7.1.4	ICTs & organizational model creation†	45.2	100	
7.2	Creative goods & services	1.6	129	○
7.2.1	Cultural & creative services exports, % total trade	0.0	69	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	112	
7.3	Online creativity	1.9	120	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	122	
7.3.2	Country-code TLDs/th pop. 15–69	3.3	117	
7.3.3	Wikipedia edits/pop. 15–69	n/a	n/a	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Croatia

Key indicators

Population (millions)	4.3
GDP (US$ billions)	58.1
GDP per capita, PPP$	18,190.9
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.7**	**42**	
Innovation Output Sub-Index		36.4	40	
Innovation Input Sub-Index		45.1	50	
Innovation Efficiency Ratio		0.8	36	
Global Innovation Index 2013 (out of 142)		41.9	37	
1	**Institutions**	**69.8**	**45**	
1.1	Political environment	70.9	46	
1.1.1	Political stability*	79.8	43	
1.1.2	Government effectiveness*	59.4	41	
1.1.3	Press freedom*	73.4	54	
1.2	Regulatory environment	71.0	48	
1.2.1	Regulatory quality*	60.2	53	
1.2.2	Rule of law*	52.2	55	
1.2.3	Cost of redundancy dismissal, salary weeks	15.1	69	
1.3	Business environment	67.4	61	
1.3.1	Ease of starting a business*	88.3	51	
1.3.2	Ease of resolving insolvency*	32.1	87	
1.3.3	Ease of paying taxes*	81.9	30	●
2	**Human capital & research**	**35.3**	**48**	
2.1	Education	56.7	17	●
2.1.1	Expenditure on education, % GDP	4.3	81	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.5	47	
2.1.4	PISA scales in reading, maths, & science	482.4	33	
2.1.5	Pupil-teacher ratio, secondary	8.0	5	●
2.2	Tertiary education	32.7	69	
2.2.1	Tertiary enrolment, % gross	58.8	41	
2.2.2	Graduates in science & engineering, %	20.1	56	
2.2.3	Tertiary inbound mobility, %	0.4	94	○
2.3	Research & development (R&D)	16.5	49	
2.3.1	Researchers, headcounts/mn pop.	2,649.0	32	
2.3.2	Gross expenditure on R&D, % GDP	0.8	44	
2.3.3	QS university ranking, average score top 3*	7.7	62	
3	**Infrastructure**	**45.4**	**37**	
3.1	Information & communication technologies (ICTs)	52.4	39	
3.1.1	ICT access*	66.6	37	
3.1.2	ICT use*	49.9	32	●
3.1.3	Government's online service*	64.1	40	
3.1.4	E-participation*	29.0	53	
3.2	General infrastructure	30.6	81	
3.2.1	Electricity output, kWh/cap	2,426.8	69	
3.2.2	Logistics performance*	61.5	42	
3.2.3	Gross capital formation, % GDP	20.5	85	
3.3	Ecological sustainability	53.3	16	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.3	34	
3.3.2	Environmental performance*	62.2	45	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	9.8	11	●
4	**Market sophistication**	**42.5**	**113**	○
4.1	Credit	32.1	85	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	68.0	49	
4.1.3	Microfinance gross loans, % GDP	0.0	89	○
4.2	Investment	18.4	139	○
4.2.1	Ease of protecting investors*	33.3	125	○
4.2.2	Market capitalization, % GDP	38.2	52	
4.2.3	Total value of stocks traded, % GDP	0.9	70	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	51	○
4.3	Trade & competition	77.0	53	
4.3.1	Applied tariff rate, weighted mean, %	1.3	38	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	50	
4.3.3	Intensity of local competition†	58.7	102	○
5	**Business sophistication**	**32.5**	**69**	
5.1	Knowledge workers	41.3	62	
5.1.1	Knowledge-intensive employment, %	32.2	40	
5.1.2	Firms offering formal training, % firms	28.9	69	○
5.1.3	GERD performed by business, % GDP	0.3	39	
5.1.4	GERD financed by business, %	45.8	39	
5.1.5	GMAT test takers/mn pop. 20–34	97.0	53	
5.2	Innovation linkages	26.6	92	○
5.2.1	University/industry research collaboration†	41.0	74	
5.2.2	State of cluster development†	37.2	108	○
5.2.3	GERD financed by abroad, %	14.4	33	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	43	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	47	
5.3	Knowledge absorption	29.7	44	
5.3.1	Royalty & license fees payments, % total trade	1.2	22	●
5.3.2	High-tech imports less re-imports, %	6.8	69	
5.3.3	Comm., computer & info. services imp., % total trade	1.8	15	●
5.3.4	FDI net inflows, % GDP	2.3	84	
6	**Knowledge & technology outputs**	**34.9**	**40**	
6.1	Knowledge creation	22.0	45	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.8	39	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.4	43	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.1	32	
6.1.4	Scientific & technical articles/bn PPP$ GDP	40.6	17	●
6.1.5	Citable documents H index	143.0	42	
6.2	Knowledge impact	49.3	29	●
6.2.1	Growth rate of PPP$ GDP/worker, %	−1.8	110	○
6.2.2	New businesses/th pop. 15–64	2.8	35	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	33.7	10	●
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.5	54	
6.3.1	Royalty & license fees receipts, % total trade	0.1	49	
6.3.2	High-tech exports less re-exports, %	3.8	38	
6.3.3	Comm., computer & info. services exp., % total trade	2.2	35	
6.3.4	FDI net outflows, % GDP	−0.2	115	○
7	**Creative outputs**	**37.9**	**47**	
7.1	Intangible assets	43.0	75	
7.1.1	Domestic res trademark app./bn PPP$ GDP	56.6	46	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.8	19	
7.1.3	ICTs & business model creation†	58.7	62	
7.1.4	ICTs & organizational model creation†	54.0	64	
7.2	Creative goods & services	35.9	26	●
7.2.1	Cultural & creative services exports, % total trade	1.4	3	●
7.2.2	National feature films/mn pop. 15–69	2.9	46	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.4	62	
7.3	Online creativity	29.6	50	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	14.9	36	
7.3.2	Country-code TLDs/th pop. 15–69	44.7	41	
7.3.3	Wikipedia edits/pop. 15–69	17,144.1	30	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Cyprus

Key indicators

Population (millions)	1.1
GDP (US$ billions)	21.8
GDP per capita, PPP$	25,265.4
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**45.8**	**30**	
Innovation Output Sub-Index		39.9	34	
Innovation Input Sub-Index		51.7	31	
Innovation Efficiency Ratio		0.8	56	
Global Innovation Index 2013 (out of 142)		49.3	27	
1	**Institutions**	**83.5**	**19**	●
1.1	Political environment	81.7	20	●
1.1.1	Political stability*	81.1	39	
1.1.2	Government effectiveness*	77.7	22	
1.1.3	Press freedom*	86.2	22	
1.2	Regulatory environment	88.5	20	●
1.2.1	Regulatory quality*	78.1	24	
1.2.2	Rule of law*	75.8	25	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	80.3	21	●
1.3.1	Ease of starting a business*	88.0	54	
1.3.2	Ease of resolving insolvency*	74.6	22	
1.3.3	Ease of paying taxes*	78.2	40	
2	**Human capital & research**	**39.4**	**39**	
2.1	Education	58.2	10	●
2.1.1	Expenditure on education, % GDP	7.3	10	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	40.7	5	●
2.1.3	School life expectancy, years	14.0	57	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	9.7	22	
2.2	Tertiary education	51.1	22	
2.2.1	Tertiary enrolment, % gross	46.5	54	
2.2.2	Graduates in science & engineering, %	17.2	68	
2.2.3	Tertiary inbound mobility, %	28.0	1	●
2.3	Research & development (R&D)	8.9	71	
2.3.1	Researchers, headcounts/mn pop.	1,734.9	45	
2.3.2	Gross expenditure on R&D, % GDP	0.5	62	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**37.6**	**66**	
3.1	Information & communication technologies (ICTs)	42.7	59	
3.1.1	ICT access*	64.5	44	
3.1.2	ICT use*	42.3	42	
3.1.3	Government's online service*	56.2	51	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	25.4	108	
3.2.1	Electricity output, kWh/cap	6,161.3	33	
3.2.2	Logistics performance*	64.7	35	
3.2.3	Gross capital formation, % GDP	10.5	140	○
3.3	Ecological sustainability	44.6	42	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.9	25	
3.3.2	Environmental performance*	66.2	38	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.4	56	
4	**Market sophistication**	**64.4**	**16**	●
4.1	Credit	84.4	1	●
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	302.2	1	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	33.2	83	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	8.7	92	○
4.2.3	Total value of stocks traded, % GDP	1.3	63	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.7	70	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	70.8	45	
5	**Business sophistication**	**33.8**	**63**	
5.1	Knowledge workers	39.6	68	
5.1.1	Knowledge-intensive employment, %	35.0	34	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	66	
5.1.4	GERD financed by business, %	13.9	71	○
5.1.5	GMAT test takers/mn pop. 20–34	170.6	29	
5.2	Innovation linkages	39.2	45	
5.2.1	University/industry research collaboration†	46.5	52	
5.2.2	State of cluster development†	51.0	49	
5.2.3	GERD financed by abroad, %	14.1	34	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	16	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.5	26	
5.3	Knowledge absorption	22.6	88	
5.3.1	Royalty & license fees payments, % total trade	0.3	69	
5.3.2	High-tech imports less re-imports, %	4.6	106	○
5.3.3	Comm., computer & info. services imp., % total trade	1.4	39	
5.3.4	FDI net inflows, % GDP	4.3	48	
6	**Knowledge & technology outputs**	**34.6**	**42**	
6.1	Knowledge creation	28.1	36	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	92	○
6.1.2	PCT resident patent app./tr PPP$ GDP	2.1	22	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	44.9	13	●
6.1.5	Citable documents H index	86.0	72	
6.2	Knowledge impact	51.2	23	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.8	103	○
6.2.2	New businesses/th pop. 15–64	22.5	1	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.7	38	
6.2.5	High- & medium-high-tech manufactures, %	13.8	67	
6.3	Knowledge diffusion	24.4	115	
6.3.1	Royalty & license fees receipts, % total trade	0.0	80	
6.3.2	High-tech exports less re-exports, %	0.6	78	
6.3.3	Comm., computer & info. services exp., % total trade	1.2	79	
6.3.4	FDI net outflows, % GDP	–1.5	120	○
7	**Creative outputs**	**45.3**	**24**	
7.1	Intangible assets	53.3	27	
7.1.1	Domestic res trademark app./bn PPP$ GDP	81.1	26	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	8.6	1	●
7.1.3	ICTs & business model creation†	54.8	73	
7.1.4	ICTs & organizational model creation†	50.3	79	
7.2	Creative goods & services	25.8	48	
7.2.1	Cultural & creative services exports, % total trade	0.7	16	●
7.2.2	National feature films/mn pop. 15–69	3.6	39	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	15	
7.2.5	Creative goods exports, % total trade	0.0	111	○
7.3	Online creativity	48.6	28	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	90.6	7	●
7.3.2	Country-code TLDs/th pop. 15–69	37.4	48	
7.3.3	Wikipedia edits/pop. 15–69	10,397.0	44	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Czech Republic

Key indicators

Population (millions)	10.5
GDP (US$ billions)	198.3
GDP per capita, PPP$	27,200.1
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**50.2**	**26**	
Innovation Output Sub-Index		46.8	17	
Innovation Input Sub-Index		53.6	27	
Innovation Efficiency Ratio		0.9	18	
Global Innovation Index 2013 (out of 142)		48.4	28	
1	**Institutions**	**76.2**	**31**	
1.1	Political environment	82.1	19	
1.1.1	Political stability*	91.2	16	
1.1.2	Government effectiveness*	65.4	36	
1.1.3	Press freedom*	89.8	14	●
1.2	Regulatory environment	75.4	40	
1.2.1	Regulatory quality*	76.5	29	
1.2.2	Rule of law*	74.1	29	
1.2.3	Cost of redundancy dismissal, salary weeks	20.2	94	○
1.3	Business environment	71.0	43	
1.3.1	Ease of starting a business*	79.1	94	○
1.3.2	Ease of resolving insolvency*	68.9	27	
1.3.3	Ease of paying taxes*	65.0	87	○
2	**Human capital & research**	**45.7**	**29**	
2.1	Education	51.6	41	
2.1.1	Expenditure on education, % GDP	4.2	82	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.4	44	
2.1.3	School life expectancy, years	16.4	17	
2.1.4	PISA scales in reading, maths, & science	500.0	19	
2.1.5	Pupil-teacher ratio, secondary	11.2	30	
2.2	Tertiary education	46.0	31	
2.2.1	Tertiary enrolment, % gross	64.6	28	
2.2.2	Graduates in science & engineering, %	21.8	40	
2.2.3	Tertiary inbound mobility, %	8.5	18	
2.3	Research & development (R&D)	39.5	28	
2.3.1	Researchers, headcounts/mn pop.	4,442.5	25	
2.3.2	Gross expenditure on R&D, % GDP	1.9	20	
2.3.3	QS university ranking, average score top 3*	34.0	37	
3	**Infrastructure**	**50.8**	**25**	
3.1	Information & communication technologies (ICTs)	49.6	45	
3.1.1	ICT access*	66.0	38	
3.1.2	ICT use*	51.7	30	
3.1.3	Government's online service*	54.3	53	
3.1.4	E-participation*	26.3	56	
3.2	General infrastructure	39.8	44	
3.2.1	Electricity output, kWh/cap	8,264.0	21	
3.2.2	Logistics performance*	60.7	44	
3.2.3	Gross capital formation, % GDP	22.7	71	
3.3	Ecological sustainability	63.0	5	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.8	73	
3.3.2	Environmental performance*	81.5	5	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	14.9	1	●
4	**Market sophistication**	**49.1**	**62**	
4.1	Credit	43.2	50	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	56.9	56	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	23.6	126	○
4.2.1	Ease of protecting investors*	50.0	81	○
4.2.2	Market capitalization, % GDP	19.0	74	○
4.2.3	Total value of stocks traded, % GDP	5.2	48	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	52	○
4.3	Trade & competition	80.5	27	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	80.5	9	●
5	**Business sophistication**	**46.2**	**20**	
5.1	Knowledge workers	61.2	26	
5.1.1	Knowledge-intensive employment, %	37.3	26	
5.1.2	Firms offering formal training, % firms	69.6	4	●
5.1.3	GERD performed by business, % GDP	1.0	22	
5.1.4	GERD financed by business, %	53.6	31	
5.1.5	GMAT test takers/mn pop. 20–34	37.3	83	
5.2	Innovation linkages	35.8	56	
5.2.1	University/industry research collaboration†	56.8	32	
5.2.2	State of cluster development†	52.3	41	
5.2.3	GERD financed by abroad, %	25.9	16	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	104	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	37	
5.3	Knowledge absorption	41.5	11	●
5.3.1	Royalty & license fees payments, % total trade	0.5	49	
5.3.2	High-tech imports less re-imports, %	16.2	10	●
5.3.3	Comm., computer & info. services imp., % total trade	1.4	37	
5.3.4	FDI net inflows, % GDP	5.4	34	
6	**Knowledge & technology outputs**	**46.4**	**15**	
6.1	Knowledge creation	46.7	19	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.1	37	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.6	36	
6.1.3	Domestic res utility model app./tr PPP$ GDP	6.3	7	
6.1.4	Scientific & technical articles/bn PPP$ GDP	34.8	25	
6.1.5	Citable documents H index	239.0	31	
6.2	Knowledge impact	50.6	25	
6.2.1	Growth rate of PPP$ GDP/worker, %	−1.1	105	○
6.2.2	New businesses/th pop. 15–64	3.0	32	
6.2.3	Computer software spending, % GDP	0.3	34	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	37.7	8	●
6.2.5	High- & medium-high-tech manufactures, %	48.8	10	●
6.3	Knowledge diffusion	41.8	27	
6.3.1	Royalty & license fees receipts, % total trade	0.1	42	
6.3.2	High-tech exports less re-exports, %	17.1	7	●
6.3.3	Comm., computer & info. services exp., % total trade	1.7	52	
6.3.4	FDI net outflows, % GDP	0.7	56	
7	**Creative outputs**	**47.3**	**18**	
7.1	Intangible assets	47.3	53	
7.1.1	Domestic res trademark app./bn PPP$ GDP	115.2	11	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.5	23	
7.1.3	ICTs & business model creation†	54.7	74	
7.1.4	ICTs & organizational model creation†	52.5	70	
7.2	Creative goods & services	43.5	11	●
7.2.1	Cultural & creative services exports, % total trade	0.1	48	
7.2.2	National feature films/mn pop. 15–69	5.6	25	
7.2.3	Global ent. & media output/th pop. 15–69	0.6	26	
7.2.4	Printing & publishing manufactures, %	0.0	31	
7.2.5	Creative goods exports, % total trade	11.3	2	●
7.3	Online creativity	51.2	24	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	15.1	35	
7.3.2	Country-code TLDs/th pop. 15–69	66.5	15	
7.3.3	Wikipedia edits/pop. 15–69	21,838.6	19	
7.3.4	Video uploads on YouTube/pop. 15–69	86.2	18	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Denmark

Key indicators

Population (millions)	5.6
GDP (US$ billions)	331.0
GDP per capita, PPP$	37,900.5
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**57.5**	**8**	
Innovation Output Sub-Index		49.5	12	
Innovation Input Sub-Index		65.5	9	
Innovation Efficiency Ratio		0.8	61	
Global Innovation Index 2013 (out of 142)		58.3	9	
1	**Institutions**	**93.6**	**4**	●
1.1	Political environment	91.4	8	
1.1.1	Political stability*	87.8	27	
1.1.2	Government effectiveness*	93.3	3	●
1.1.3	Press freedom*	92.9	5	●
1.2	Regulatory environment	98.2	3	●
1.2.1	Regulatory quality*	95.7	6	●
1.2.2	Rule of law*	97.3	5	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	91.3	6	●
1.3.1	Ease of starting a business*	92.4	23	
1.3.2	Ease of resolving insolvency*	92.1	10	
1.3.3	Ease of paying taxes*	89.5	11	
2	**Human capital & research**	**61.5**	**9**	
2.1	Education	60.8	7	
2.1.1	Expenditure on education, % GDP	8.7	3	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	33.0	16	
2.1.3	School life expectancy, years	16.9	10	
2.1.4	PISA scales in reading, maths, & science	498.2	22	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	45.4	33	
2.2.1	Tertiary enrolment, % gross	73.6	19	
2.2.2	Graduates in science & engineering, %	20.2	55	○
2.2.3	Tertiary inbound mobility, %	7.5	23	
2.3	Research & development (R&D)	78.2	4	●
2.3.1	Researchers, headcounts/mn pop.	10,182.8	3	●
2.3.2	Gross expenditure on R&D, % GDP	3.0	6	
2.3.3	QS university ranking, average score top 3*	70.9	13	
3	**Infrastructure**	**59.1**	**9**	
3.1	Information & communication technologies (ICTs)	76.0	13	
3.1.1	ICT access*	81.8	12	
3.1.2	ICT use*	81.5	3	●
3.1.3	Government's online service*	85.6	13	
3.1.4	E-participation*	55.3	28	
3.2	General infrastructure	39.5	46	
3.2.1	Electricity output, kWh/cap	5,438.8	38	
3.2.2	Logistics performance*	95.6	5	
3.2.3	Gross capital formation, % GDP	17.4	114	○
3.3	Ecological sustainability	61.7	6	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.6	13	
3.3.2	Environmental performance*	76.9	13	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	8.4	14	
4	**Market sophistication**	**67.8**	**11**	
4.1	Credit	74.4	5	●
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	205.8	2	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	51.3	27	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	71.6	24	
4.2.3	Total value of stocks traded, % GDP	33.6	27	
4.2.4	Venture capital deals/tr PPP$ GDP	0.2	13	
4.3	Trade & competition	77.6	45	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	74.7	25	
5	**Business sophistication**	**45.6**	**22**	
5.1	Knowledge workers	68.8	11	
5.1.1	Knowledge-intensive employment, %	45.2	9	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.0	8	
5.1.4	GERD financed by business, %	65.7	16	
5.1.5	GMAT test takers/mn pop. 20–34	106.3	50	
5.2	Innovation linkages	41.6	38	
5.2.1	University/industry research collaboration†	63.5	21	
5.2.2	State of cluster development†	55.0	32	
5.2.3	GERD financed by abroad, %	7.2	53	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	23	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.2	15	
5.3	Knowledge absorption	26.5	62	
5.3.1	Royalty & license fees payments, % total trade	1.1	23	
5.3.2	High-tech imports less re-imports, %	6.8	70	○
5.3.3	Comm., computer & info. services imp., % total trade	1.7	21	
5.3.4	FDI net inflows, % GDP	0.4	128	○
6	**Knowledge & technology outputs**	**46.6**	**14**	
6.1	Knowledge creation	46.7	20	
6.1.1	Domestic resident patent app./tr PPP$ GDP	6.8	17	
6.1.2	PCT resident patent app./tr PPP$ GDP	6.8	7	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.8	36	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	67.1	3	●
6.1.5	Citable documents H index	427.0	14	
6.2	Knowledge impact	49.7	28	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	79	○
6.2.2	New businesses/th pop. 15–64	4.4	26	
6.2.3	Computer software spending, % GDP	0.6	14	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	13.3	36	
6.2.5	High- & medium-high-tech manufactures, %	44.8	14	
6.3	Knowledge diffusion	43.6	25	
6.3.1	Royalty & license fees receipts, % total trade	1.5	13	
6.3.2	High-tech exports less re-exports, %	6.1	27	
6.3.3	Comm., computer & info. services exp., % total trade	1.6	58	
6.3.4	FDI net outflows, % GDP	1.7	38	
7	**Creative outputs**	**52.4**	**13**	
7.1	Intangible assets	50.6	38	
7.1.1	Domestic res trademark app./bn PPP$ GDP	55.9	49	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.9	8	
7.1.3	ICTs & business model creation†	65.8	32	
7.1.4	ICTs & organizational model creation†	63.7	26	
7.2	Creative goods & services	42.2	13	
7.2.1	Cultural & creative services exports, % total trade	0.6	18	
7.2.2	National feature films/mn pop. 15–69	10.9	11	
7.2.3	Global ent. & media output/th pop. 15–69	2.0	7	
7.2.4	Printing & publishing manufactures, %	0.0	44	○
7.2.5	Creative goods exports, % total trade	1.7	32	
7.3	Online creativity	66.1	12	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	58.7	17	
7.3.2	Country-code TLDs/th pop. 15–69	77.6	3	●
7.3.3	Wikipedia edits/pop. 15–69	21,687.3	21	
7.3.4	Video uploads on YouTube/pop. 15–69	91.1	9	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Dominican Republic

Key indicators

Population (millions)	10.3
GDP (US$ billions)	60.8
GDP per capita, PPP$	9,910.5
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.3**	**83**	
Innovation Output Sub-Index		29.6	71	
Innovation Input Sub-Index		34.9	101	
Innovation Efficiency Ratio		0.8	21	●
Global Innovation Index 2013 (out of 142)		33.3	79	
1	**Institutions**	**53.4**	**99**	
1.1	Political environment	56.4	74	
1.1.1	Political stability*	71.4	57	●
1.1.2	Government effectiveness*	26.2	104	
1.1.3	Press freedom*	71.7	66	
1.2	Regulatory environment	49.8	116	
1.2.1	Regulatory quality*	45.1	85	
1.2.2	Rule of law*	27.0	105	
1.2.3	Cost of redundancy dismissal, salary weeks	26.2	116	
1.3	Business environment	53.9	107	
1.3.1	Ease of starting a business*	81.0	85	
1.3.2	Ease of resolving insolvency*	9.3	135	○
1.3.3	Ease of paying taxes*	71.3	60	
2	**Human capital & research**	**7.1**	**142**	○
2.1	Education	14.2	137	○
2.1.1	Expenditure on education, % GDP	2.2	127	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	8.5	102	○
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	29.2	101	○
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**34.0**	**80**	
3.1	Information & communication technologies (ICTs)	39.3	66	
3.1.1	ICT access*	33.5	97	
3.1.2	ICT use*	22.7	74	
3.1.3	Government's online service*	53.6	56	
3.1.4	E-participation*	47.4	34	●
3.2	General infrastructure	19.1	132	○
3.2.1	Electricity output, kWh/cap	1,289.8	90	
3.2.2	Logistics performance*	43.3	86	
3.2.3	Gross capital formation, % GDP	15.3	126	○
3.3	Ecological sustainability	43.6	47	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	11.8	8	●
3.3.2	Environmental performance*	53.2	68	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	95	
4	**Market sophistication**	**50.4**	**55**	●
4.1	Credit	25.6	108	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	23.1	113	
4.1.3	Microfinance gross loans, % GDP	1.1	35	●
4.2	Investment	50.0	30	●
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.6	71	
4.3.1	Applied tariff rate, weighted mean, %	6.1	96	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.6	57	●
4.3.3	Intensity of local competition†	65.3	72	
5	**Business sophistication**	**29.9**	**82**	
5.1	Knowledge workers	44.4	53	●
5.1.1	Knowledge-intensive employment, %	17.3	80	
5.1.2	Firms offering formal training, % firms	55.9	15	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	26.6	101	
5.2	Innovation linkages	26.2	96	
5.2.1	University/industry research collaboration†	38.5	88	
5.2.2	State of cluster development†	43.5	82	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	99	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	83	
5.3	Knowledge absorption	19.0	109	
5.3.1	Royalty & license fees payments, % total trade	0.4	61	
5.3.2	High-tech imports less re-imports, %	6.0	85	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	97	
5.3.4	FDI net inflows, % GDP	4.1	52	●
6	**Knowledge & technology outputs**	**22.8**	**95**	
6.1	Knowledge creation	1.7	141	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	90	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	95	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	0.7	140	○
6.1.5	Citable documents H index	41.0	120	○
6.2	Knowledge impact	35.9	77	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.1	53	
6.2.2	New businesses/th pop. 15–64	1.0	59	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.9	100	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	30.8	74	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.8	74	
6.3.3	Comm., computer & info. services exp., % total trade	1.4	67	
6.3.4	FDI net outflows, % GDP	0.5	65	
7	**Creative outputs**	**36.4**	**53**	●
7.1	Intangible assets	59.3	10	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.7	55	●
7.1.4	ICTs & organizational model creation†	59.0	41	●
7.2	Creative goods & services	18.2	67	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.9	72	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	1.0	39	●
7.3	Online creativity	8.9	96	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.1	73	
7.3.2	Country-code TLDs/th pop. 15–69	20.6	77	
7.3.3	Wikipedia edits/pop. 15–69	1,760.0	84	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Ecuador

Key indicators

Population (millions)	15.5
GDP (US$ billions)	94.1
GDP per capita, PPP$	10,080.2
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.5**	**115**	
Innovation Output Sub-Index		21.3	113	
Innovation Input Sub-Index		33.7	105	
Innovation Efficiency Ratio		0.6	104	
Global Innovation Index 2013 (out of 142)		32.8	83	
1	**Institutions**	**43.6**	**130**	○
1.1	Political environment	47.8	97	
1.1.1	Political stability*	50.9	103	
1.1.2	Government effectiveness*	27.2	99	
1.1.3	Press freedom*	65.3	98	
1.2	Regulatory environment	35.2	136	○
1.2.1	Regulatory quality*	21.7	133	○
1.2.2	Rule of law*	14.5	132	○
1.2.3	Cost of redundancy dismissal, salary weeks	31.8	133	○
1.3	Business environment	47.9	125	
1.3.1	Ease of starting a business*	63.3	128	○
1.3.2	Ease of resolving insolvency*	18.9	122	
1.3.3	Ease of paying taxes*	61.6	98	
2	**Human capital & research**	**21.6**	**98**	
2.1	Education	36.1	93	
2.1.1	Expenditure on education, % GDP	4.4	78	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.6	68	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	11.5	35	●
2.2	Tertiary education	26.4	87	
2.2.1	Tertiary enrolment, % gross	38.9	67	
2.2.2	Graduates in science & engineering, %	12.8	92	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	2.2	104	
2.3.1	Researchers, headcounts/mn pop.	180.7	90	
2.3.2	Gross expenditure on R&D, % GDP	0.2	83	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**35.9**	**74**	
3.1	Information & communication technologies (ICTs)	33.8	80	
3.1.1	ICT access*	43.4	76	
3.1.2	ICT use*	22.2	78	
3.1.3	Government's online service*	45.8	82	
3.1.4	E-participation*	23.7	60	
3.2	General infrastructure	33.4	70	
3.2.1	Electricity output, kWh/cap	1,381.5	85	
3.2.2	Logistics performance*	45.6	80	
3.2.3	Gross capital formation, % GDP	28.2	28	●
3.3	Ecological sustainability	40.7	54	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.7	30	●
3.3.2	Environmental performance*	58.5	51	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.0	64	
4	**Market sophistication**	**43.7**	**103**	
4.1	Credit	35.2	70	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	28.3	102	
4.1.3	Microfinance gross loans, % GDP	3.3	16	●
4.2	Investment	21.0	137	○
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	7.0	95	
4.2.3	Total value of stocks traded, % GDP	0.2	96	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	74.7	80	
4.3.1	Applied tariff rate, weighted mean, %	4.1	73	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	40	●
4.3.3	Intensity of local competition†	58.2	106	
5	**Business sophistication**	**23.8**	**120**	
5.1	Knowledge workers	33.1	88	
5.1.1	Knowledge-intensive employment, %	14.7	94	
5.1.2	Firms offering formal training, % firms	56.4	14	●
5.1.3	GERD performed by business, % GDP	0.0	76	
5.1.4	GERD financed by business, %	8.5	77	○
5.1.5	GMAT test takers/mn pop. 20–34	41.4	79	
5.2	Innovation linkages	22.0	120	
5.2.1	University/industry research collaboration†	49.0	48	●
5.2.2	State of cluster development†	47.5	66	
5.2.3	GERD financed by abroad, %	0.5	88	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	86	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	75	
5.3	Knowledge absorption	16.3	120	
5.3.1	Royalty & license fees payments, % total trade	0.3	66	
5.3.2	High-tech imports less re-imports, %	9.1	42	●
5.3.3	Comm., computer & info. services imp., % total trade	0.1	135	○
5.3.4	FDI net inflows, % GDP	0.8	118	
6	**Knowledge & technology outputs**	**14.4**	**130**	○
6.1	Knowledge creation	4.0	125	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.0	108	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	54	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	53	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.7	128	○
6.1.5	Citable documents H index	83.0	76	
6.2	Knowledge impact	34.8	84	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.9	56	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.2	70	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.3	58	
6.2.5	High- & medium-high-tech manufactures, %	14.0	66	
6.3	Knowledge diffusion	4.6	136	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.2	95	
6.3.3	Comm., computer & info. services exp., % total trade	0.5	101	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**28.1**	**86**	
7.1	Intangible assets	44.8	70	
7.1.1	Domestic res trademark app./bn PPP$ GDP	68.8	36	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	53.7	80	
7.1.4	ICTs & organizational model creation†	54.0	64	
7.2	Creative goods & services	14.1	83	
7.2.1	Cultural & creative services exports, % total trade	0.4	27	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	55	
7.2.5	Creative goods exports, % total trade	0.1	99	
7.3	Online creativity	8.7	97	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.9	94	
7.3.2	Country-code TLDs/th pop. 15–69	19.9	81	
7.3.3	Wikipedia edits/pop. 15–69	2,516.4	72	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Egypt

Key indicators

Population (millions)	80.7
GDP (US$ billions)	271.4
GDP per capita, PPP$	6,578.5
Income group	Lower-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
	Global Innovation Index (out of 143)	**30.0**	**99**	
	Innovation Output Sub-Index	26.0	89	
	Innovation Input Sub-Index	34.1	104	
	Innovation Efficiency Ratio	0.8	59	
	Global Innovation Index 2013 (out of 142)	28.5	108	
1	**Institutions**	**42.1**	**133**	○
1.1	Political environment	33.7	136	○
1.1.1	Political stability*	29.4	135	○
1.1.2	Government effectiveness*	20.3	118	
1.1.3	Press freedom*	51.3	130	○
1.2	Regulatory environment	38.5	131	○
1.2.1	Regulatory quality*	36.0	109	
1.2.2	Rule of law*	33.9	88	
1.2.3	Cost of redundancy dismissal, salary weeks	36.8	135	○
1.3	Business environment	54.0	105	
1.3.1	Ease of starting a business*	86.5	61	
1.3.2	Ease of resolving insolvency*	17.9	125	○
1.3.3	Ease of paying taxes*	57.6	110	
2	**Human capital & research**	**27.8**	**75**	
2.1	Education	48.3	53	
2.1.1	Expenditure on education, % GDP	3.8	93	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	13.1	71	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	12.1	39	●
2.2	Tertiary education	19.0	102	
2.2.1	Tertiary enrolment, % gross	28.8	76	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.9	62	
2.3	Research & development (R&D)	16.2	50	
2.3.1	Researchers, headcounts/mn pop.	1,146.1	54	
2.3.2	Gross expenditure on R&D, % GDP	0.4	67	
2.3.3	QS university ranking, average score top 3*	28.2	44	●
3	**Infrastructure**	**36.1**	**73**	
3.1	Information & communication technologies (ICTs)	48.9	48	●
3.1.1	ICT access*	42.0	77	
3.1.2	ICT use*	25.1	70	
3.1.3	Government's online service*	60.1	42	●
3.1.4	E-participation*	68.4	15	●
3.2	General infrastructure	23.0	121	
3.2.1	Electricity output, kWh/cap	1,897.1	78	
3.2.2	Logistics performance*	54.4	56	
3.2.3	Gross capital formation, % GDP	15.6	125	○
3.3	Ecological sustainability	36.5	65	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.9	69	
3.3.2	Environmental performance*	61.1	48	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.1	61	
4	**Market sophistication**	**35.4**	**141**	○
4.1	Credit	21.8	123	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	29.7	99	
4.1.3	Microfinance gross loans, % GDP	0.0	77	
4.2	Investment	18.9	138	○
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	22.5	65	
4.2.3	Total value of stocks traded, % GDP	7.8	44	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	64	○
4.3	Trade & competition	65.4	124	
4.3.1	Applied tariff rate, weighted mean, %	8.1	112	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.1	78	
4.3.3	Intensity of local competition†	51.0	123	○
5	**Business sophistication**	**28.9**	**89**	
5.1	Knowledge workers	38.8	69	
5.1.1	Knowledge-intensive employment, %	34.0	36	●
5.1.2	Firms offering formal training, % firms	21.7	88	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	35.2	87	
5.2	Innovation linkages	31.3	70	
5.2.1	University/industry research collaboration†	27.5	127	○
5.2.2	State of cluster development†	51.5	45	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	35	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	99	
5.3	Knowledge absorption	16.6	119	
5.3.1	Royalty & license fees payments, % total trade	0.4	59	
5.3.2	High-tech imports less re-imports, %	6.5	77	
5.3.3	Comm., computer & info. services imp., % total trade	0.8	69	
5.3.4	FDI net inflows, % GDP	–0.2	138	○
6	**Knowledge & technology outputs**	**25.4**	**80**	
6.1	Knowledge creation	11.5	71	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.3	61	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	81	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	13.6	64	
6.1.5	Citable documents H index	132.0	48	●
6.2	Knowledge impact	33.2	89	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.0	90	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.2	64	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.5	69	
6.2.5	High- & medium-high-tech manufactures, %	21.4	52	
6.3	Knowledge diffusion	31.4	69	
6.3.1	Royalty & license fees receipts, % total trade	0.3	34	●
6.3.2	High-tech exports less re-exports, %	0.1	105	
6.3.3	Comm., computer & info. services exp., % total trade	1.7	53	
6.3.4	FDI net outflows, % GDP	0.1	92	
7	**Creative outputs**	**26.6**	**97**	
7.1	Intangible assets	40.1	89	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	62	
7.1.3	ICTs & business model creation†	49.0	98	
7.1.4	ICTs & organizational model creation†	50.8	75	
7.2	Creative goods & services	9.7	98	
7.2.1	Cultural & creative services exports, % total trade	0.3	31	●
7.2.2	National feature films/mn pop. 15–69	0.5	87	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	52	○
7.2.4	Printing & publishing manufactures, %	0.0	80	
7.2.5	Creative goods exports, % total trade	0.5	58	
7.3	Online creativity	16.6	74	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.7	98	
7.3.2	Country-code TLDs/th pop. 15–69	1.4	129	○
7.3.3	Wikipedia edits/pop. 15–69	1,006.2	96	
7.3.4	Video uploads on YouTube/pop. 15–69	61.7	50	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

El Salvador

Key indicators

Population (millions)	6.3
GDP (US$ billions)	24.5
GDP per capita, PPP$	7,515.1
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.1**	**103**	
Innovation Output Sub-Index		21.7	110	
Innovation Input Sub-Index		36.4	97	
Innovation Efficiency Ratio		0.6	116	
Global Innovation Index 2013 (out of 142)		31.3	88	
1	**Institutions**	**57.4**	**84**	
1.1	Political environment	61.7	57	
1.1.1	Political stability*	70.8	58	
1.1.2	Government effectiveness*	37.0	80	
1.1.3	Press freedom*	77.1	34	●
1.2	Regulatory environment	55.8	102	
1.2.1	Regulatory quality*	57.2	62	
1.2.2	Rule of law*	25.9	109	
1.2.3	Cost of redundancy dismissal, salary weeks	22.9	106	
1.3	Business environment	54.6	102	
1.3.1	Ease of starting a business*	78.4	95	
1.3.2	Ease of resolving insolvency*	34.8	80	
1.3.3	Ease of paying taxes*	50.6	121	
2	**Human capital & research**	**18.5**	**105**	
2.1	Education	29.6	120	
2.1.1	Expenditure on education, % GDP	3.4	103	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	11.3	92	
2.1.3	School life expectancy, years	12.3	86	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	24.3	86	
2.2	Tertiary education	25.5	89	
2.2.1	Tertiary enrolment, % gross	25.5	83	
2.2.2	Graduates in science & engineering, %	21.5	42	
2.2.3	Tertiary inbound mobility, %	0.4	95	
2.3	Research & development (R&D)	0.4	125	
2.3.1	Researchers, headcounts/mn pop.	96.1	103	
2.3.2	Gross expenditure on R&D, % GDP	0.0	115	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**31.3**	**89**	
3.1	Information & communication technologies (ICTs)	43.6	55	
3.1.1	ICT access*	39.5	84	
3.1.2	ICT use*	12.5	99	
3.1.3	Government's online service*	67.3	32	●
3.1.4	E-participation*	55.3	28	●
3.2	General infrastructure	16.4	138	○
3.2.1	Electricity output, kWh/cap	931.8	92	
3.2.2	Logistics performance*	39.3	93	
3.2.3	Gross capital formation, % GDP	14.0	133	○
3.3	Ecological sustainability	33.9	78	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.7	29	●
3.3.2	Environmental performance*	43.8	100	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	98	
4	**Market sophistication**	**43.1**	**106**	
4.1	Credit	34.4	74	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	40.1	82	
4.1.3	Microfinance gross loans, % GDP	1.8	28	●
4.2	Investment	21.6	134	○
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	45.2	43	
4.2.3	Total value of stocks traded, % GDP	0.2	89	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	73.3	88	
4.3.1	Applied tariff rate, weighted mean, %	5.5	87	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	54	
4.3.3	Intensity of local competition†	59.2	100	
5	**Business sophistication**	**31.8**	**71**	
5.1	Knowledge workers	42.9	57	
5.1.1	Knowledge-intensive employment, %	11.9	96	
5.1.2	Firms offering formal training, % firms	60.4	9	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	25.7	103	
5.2	Innovation linkages	31.9	69	
5.2.1	University/industry research collaboration†	37.5	94	
5.2.2	State of cluster development†	51.2	48	●
5.2.3	GERD financed by abroad, %	18.1	22	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	74	
5.3	Knowledge absorption	20.8	97	
5.3.1	Royalty & license fees payments, % total trade	0.5	51	
5.3.2	High-tech imports less re-imports, %	8.9	45	●
5.3.3	Comm., computer & info. services imp., % total trade	0.6	83	
5.3.4	FDI net inflows, % GDP	1.1	113	
6	**Knowledge & technology outputs**	**13.6**	**134**	○
6.1	Knowledge creation	1.3	142	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	105	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	0.7	139	○
6.1.5	Citable documents H index	31.0	132	○
6.2	Knowledge impact	6.2	130	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.5	78	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.1	73	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.4	56	
6.3.1	Royalty & license fees receipts, % total trade	0.1	46	
6.3.2	High-tech exports less re-exports, %	2.5	48	
6.3.3	Comm., computer & info. services exp., % total trade	2.4	29	●
6.3.4	FDI net outflows, % GDP	–0.2	114	○
7	**Creative outputs**	**29.8**	**78**	
7.1	Intangible assets	51.3	36	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	51.8	85	
7.1.4	ICTs & organizational model creation†	50.7	76	
7.2	Creative goods & services	10.3	94	
7.2.1	Cultural & creative services exports, % total trade	0.0	102	○
7.2.2	National feature films/mn pop. 15–69	0.3	94	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.7	46	
7.3	Online creativity	6.5	102	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.6	82	
7.3.2	Country-code TLDs/th pop. 15–69	13.6	91	
7.3.3	Wikipedia edits/pop. 15–69	2,044.0	81	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Estonia

Key indicators

Population (millions)	1.3
GDP (US$ billions)	24.5
GDP per capita, PPP$	23,144.0
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**51.5**	**24**	
Innovation Output Sub-Index		46.3	19	
Innovation Input Sub-Index		56.8	23	
Innovation Efficiency Ratio		0.8	34	
Global Innovation Index 2013 (out of 142)		50.6	25	
1	**Institutions**	**78.6**	**24**	
1.1	Political environment	79.2	26	
1.1.1	Political stability*	80.4	42	
1.1.2	Government effectiveness*	66.5	33	
1.1.3	Press freedom*	90.7	9	●
1.2	Regulatory environment	85.8	23	
1.2.1	Regulatory quality*	85.5	18	
1.2.2	Rule of law*	77.4	24	
1.2.3	Cost of redundancy dismissal, salary weeks	12.9	54	
1.3	Business environment	70.7	46	
1.3.1	Ease of starting a business*	90.4	37	
1.3.2	Ease of resolving insolvency*	41.2	58	
1.3.3	Ease of paying taxes*	80.7	31	
2	**Human capital & research**	**46.3**	**28**	
2.1	Education	59.2	8	●
2.1.1	Expenditure on education, % GDP	5.7	38	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	31.9	17	
2.1.3	School life expectancy, years	16.5	15	
2.1.4	PISA scales in reading, maths, & science	526.1	7	
2.1.5	Pupil-teacher ratio, secondary	8.8	13	
2.2	Tertiary education	38.1	54	
2.2.1	Tertiary enrolment, % gross	71.7	23	
2.2.2	Graduates in science & engineering, %	20.6	50	
2.2.3	Tertiary inbound mobility, %	1.8	65	○
2.3	Research & development (R&D)	41.7	27	
2.3.1	Researchers, headcounts/mn pop.	5,906.5	17	
2.3.2	Gross expenditure on R&D, % GDP	2.2	17	
2.3.3	QS university ranking, average score top 3*	20.0	51	
3	**Infrastructure**	**57.4**	**15**	
3.1	Information & communication technologies (ICTs)	74.1	16	
3.1.1	ICT access*	72.7	26	
3.1.2	ICT use*	65.2	18	
3.1.3	Government's online service*	82.4	18	
3.1.4	E-participation*	76.3	8	●
3.2	General infrastructure	42.4	34	
3.2.1	Electricity output, kWh/cap	8,929.9	15	
3.2.2	Logistics performance*	49.6	65	
3.2.3	Gross capital formation, % GDP	27.0	35	
3.3	Ecological sustainability	55.7	11	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.4	92	○
3.3.2	Environmental performance*	74.7	20	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	13.5	5	●
4	**Market sophistication**	**55.4**	**36**	
4.1	Credit	50.0	34	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	79.3	40	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	37.6	58	
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	10.7	88	○
4.2.3	Total value of stocks traded, % GDP	0.8	71	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.3	12	
4.3	Trade & competition	78.5	36	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	76.5	20	
5	**Business sophistication**	**46.3**	**19**	
5.1	Knowledge workers	68.6	12	●
5.1.1	Knowledge-intensive employment, %	41.8	20	
5.1.2	Firms offering formal training, % firms	69.3	5	●
5.1.3	GERD performed by business, % GDP	1.3	18	
5.1.4	GERD financed by business, %	57.4	25	
5.1.5	GMAT test takers/mn pop. 20–34	144.7	38	
5.2	Innovation linkages	31.9	68	
5.2.1	University/industry research collaboration†	56.5	35	
5.2.2	State of cluster development†	44.7	76	○
5.2.3	GERD financed by abroad, %	10.0	42	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	69	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.5	25	
5.3	Knowledge absorption	38.5	20	
5.3.1	Royalty & license fees payments, % total trade	0.3	71	○
5.3.2	High-tech imports less re-imports, %	12.0	22	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	23	
5.3.4	FDI net inflows, % GDP	7.4	24	
6	**Knowledge & technology outputs**	**39.1**	**29**	
6.1	Knowledge creation	29.8	34	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.7	73	○
6.1.2	PCT resident patent app./tr PPP$ GDP	1.2	31	
6.1.3	Domestic res utility model app./tr PPP$ GDP	2.2	15	
6.1.4	Scientific & technical articles/bn PPP$ GDP	53.1	9	●
6.1.5	Citable documents H index	130.0	50	
6.2	Knowledge impact	49.1	30	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.0	55	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	30.3	14	●
6.2.5	High- & medium-high-tech manufactures, %	31.4	34	
6.3	Knowledge diffusion	38.5	36	
6.3.1	Royalty & license fees receipts, % total trade	0.1	62	
6.3.2	High-tech exports less re-exports, %	11.1	20	
6.3.3	Comm., computer & info. services exp., % total trade	2.3	32	
6.3.4	FDI net outflows, % GDP	4.9	14	
7	**Creative outputs**	**53.4**	**11**	●
7.1	Intangible assets	58.5	12	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	81.1	27	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.7	10	
7.1.3	ICTs & business model creation†	74.8	9	●
7.1.4	ICTs & organizational model creation†	74.3	3	●
7.2	Creative goods & services	38.8	21	
7.2.1	Cultural & creative services exports, % total trade	0.1	59	○
7.2.2	National feature films/mn pop. 15–69	14.0	7	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	22	
7.2.5	Creative goods exports, % total trade	1.3	36	
7.3	Online creativity	57.9	21	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	14.3	37	
7.3.2	Country-code TLDs/th pop. 15–69	59.2	21	
7.3.3	Wikipedia edits/pop. 15–69	58,894.5	1	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Ethiopia

Key indicators

Population (millions)	91.7
GDP (US$ billions)	48.1
GDP per capita, PPP$	1,366.0
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.4**	**126**	
Innovation Output Sub-Index		20.4	118	
Innovation Input Sub-Index		30.4	128	
Innovation Efficiency Ratio		0.7	97	
Global Innovation Index 2013 (out of 142)		24.8	129	
1	**Institutions**	**48.7**	**113**	
1.1	Political environment	39.2	126	
1.1.1	Political stability*	28.1	136	
1.1.2	Government effectiveness*	29.2	93	
1.1.3	Press freedom*	60.4	112	
1.2	Regulatory environment	51.1	112	
1.2.1	Regulatory quality*	21.0	134	
1.2.2	Rule of law*	28.3	102	
1.2.3	Cost of redundancy dismissal, salary weeks	19.1	90	
1.3	Business environment	55.7	97	
1.3.1	Ease of starting a business*	61.4	130	
1.3.2	Ease of resolving insolvency*	39.1	67	●
1.3.3	Ease of paying taxes*	66.5	84	
2	**Human capital & research**	**11.4**	**137**	
2.1	Education	14.8	136	
2.1.1	Expenditure on education, % GDP	4.7	68	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	10.4	95	
2.1.3	School life expectancy, years	6.6	127	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	39.7	113	○
2.2	Tertiary education	17.3	106	
2.2.1	Tertiary enrolment, % gross	2.8	131	○
2.2.2	Graduates in science & engineering, %	15.2	85	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	2.0	107	
2.3.1	Researchers, headcounts/mn pop.	83.6	105	
2.3.2	Gross expenditure on R&D, % GDP	0.2	82	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**25.2**	**117**	
3.1	Information & communication technologies (ICTs)	24.6	101	
3.1.1	ICT access*	16.4	133	○
3.1.2	ICT use*	0.7	131	○
3.1.3	Government's online service*	47.1	78	
3.1.4	E-participation*	34.2	45	●
3.2	General infrastructure	31.2	78	
3.2.1	Electricity output, kWh/cap	60.9	122	○
3.2.2	Logistics performance*	25.0	133	○
3.2.3	Gross capital formation, % GDP	32.6	18	●
3.3	Ecological sustainability	19.7	136	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.4	116	
3.3.2	Environmental performance*	39.4	110	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	129	○
4	**Market sophistication**	**41.0**	**119**	
4.1	Credit	23.6	114	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	17.8	125	
4.1.3	Microfinance gross loans, % GDP	1.3	31	●
4.2	Investment	33.3	76	
4.2.1	Ease of protecting investors*	33.3	125	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	65.9	123	
4.3.1	Applied tariff rate, weighted mean, %	10.4	127	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	22	●
4.3.3	Intensity of local competition†	50.5	125	
5	**Business sophistication**	**25.6**	**109**	
5.1	Knowledge workers	18.0	128	
5.1.1	Knowledge-intensive employment, %	15.9	87	
5.1.2	Firms offering formal training, % firms	23.0	85	
5.1.3	GERD performed by business, % GDP	0.0	71	
5.1.4	GERD financed by business, %	15.5	69	
5.1.5	GMAT test takers/mn pop. 20–34	3.0	136	
5.2	Innovation linkages	32.4	67	●
5.2.1	University/industry research collaboration†	41.5	73	
5.2.2	State of cluster development†	34.3	117	
5.2.3	GERD financed by abroad, %	30.0	15	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	73	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	26.6	60	●
5.3.1	Royalty & license fees payments, % total trade	0.0	116	
5.3.2	High-tech imports less re-imports, %	5.9	87	
5.3.3	Comm., computer & info. services imp., % total trade	2.4	8	●
5.3.4	FDI net inflows, % GDP	2.0	88	
6	**Knowledge & technology outputs**	**17.5**	**120**	
6.1	Knowledge creation	9.8	82	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	88	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.2	31	
6.1.4	Scientific & technical articles/bn PPP$ GDP	7.0	90	
6.1.5	Citable documents H index	73.0	85	
6.2	Knowledge impact	32.1	96	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.7	23	●
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.6	128	
6.2.5	High- & medium-high-tech manufactures, %	10.9	73	
6.3	Knowledge diffusion	10.5	134	
6.3.1	Royalty & license fees receipts, % total trade	0.0	100	
6.3.2	High-tech exports less re-exports, %	0.1	113	
6.3.3	Comm., computer & info. services exp., % total trade	1.9	44	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**23.2**	**111**	
7.1	Intangible assets	38.8	98	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	40.2	126	
7.1.4	ICTs & organizational model creation†	37.5	124	
7.2	Creative goods & services	15.1	80	
7.2.1	Cultural & creative services exports, % total trade	0.0	98	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	20	●
7.2.5	Creative goods exports, % total trade	0.0	113	
7.3	Online creativity	0.1	141	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.0	143	○
7.3.2	Country-code TLDs/th pop. 15–69	0.3	134	
7.3.3	Wikipedia edits/pop. 15–69	28.6	136	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Fiji

Key indicators

Population (millions)	0.9
GDP (US$ billions)	4.0
GDP per capita, PPP$	5,084.6
Income group	Upper-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.4**	**95**	
Innovation Output Sub-Index		15.6	136	○
Innovation Input Sub-Index		45.2	49	
Innovation Efficiency Ratio		0.3	141	○
Global Innovation Index 2013 (out of 142)		28.1	97	
1	**Institutions**	**57.9**	**82**	
1.1	Political environment	49.6	90	
1.1.1	Political stability*	64.7	76	
1.1.2	Government effectiveness*	16.8	124	○
1.1.3	Press freedom*	67.3	86	
1.2	Regulatory environment	62.7	81	
1.2.1	Regulatory quality*	33.1	113	
1.2.2	Rule of law*	24.3	114	
1.2.3	Cost of redundancy dismissal, salary weeks	9.7	34	●
1.3	Business environment	61.3	78	
1.3.1	Ease of starting a business*	66.6	124	○
1.3.2	Ease of resolving insolvency*	48.2	44	●
1.3.3	Ease of paying taxes*	69.2	74	
2	**Human capital & research**	**38.9**	**40**	●
2.1	Education	35.4	98	
2.1.1	Expenditure on education, % GDP	4.2	86	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	5.8	109	○
2.1.3	School life expectancy, years	15.7	26	●
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	26.5	96	
2.2	Tertiary education	81.3	3	●
2.2.1	Tertiary enrolment, % gross	61.9	32	●
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	32.9	1	●
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**31.2**	**91**	
3.1	Information & communication technologies (ICTs)	25.6	100	
3.1.1	ICT access*	38.6	87	
3.1.2	ICT use*	19.9	82	
3.1.3	Government's online service*	36.0	104	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	31.0	80	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	32.1	118	○
3.2.3	Gross capital formation, % GDP	23.4	68	
3.3	Ecological sustainability	36.9	61	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	53.1	69	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	72	
4	**Market sophistication**	**46.8**	**82**	
4.1	Credit	31.3	88	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	78.4	41	●
4.1.3	Microfinance gross loans, % GDP	0.0	82	○
4.2	Investment	31.7	86	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	11.7	86	
4.2.3	Total value of stocks traded, % GDP	0.2	94	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	77.5	50	
4.3.1	Applied tariff rate, weighted mean, %	9.9	123	○
4.3.2	Non-agricultural mkt access weighted tariff, %	1.0	74	
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**51.3**	**12**	●
5.1	Knowledge workers	54.5	34	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	58.1	10	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	18.1	111	
5.2	Innovation linkages	n/a	n/a	
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	48.1	5	●
5.3.1	Royalty & license fees payments, % total trade	0.0	112	○
5.3.2	High-tech imports less re-imports, %	8.5	48	
5.3.3	Comm., computer & info. services imp., % total trade	4.5	1	●
5.3.4	FDI net inflows, % GDP	5.4	35	●
6	**Knowledge & technology outputs**	**16.8**	**123**	
6.1	Knowledge creation	19.9	50	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	24.5	40	●
6.1.5	Citable documents H index	40.0	122	
6.2	Knowledge impact	7.6	127	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.1	86	
6.2.5	High- & medium-high-tech manufactures, %	6.9	83	○
6.3	Knowledge diffusion	22.9	118	
6.3.1	Royalty & license fees receipts, % total trade	0.0	77	
6.3.2	High-tech exports less re-exports, %	0.2	99	
6.3.3	Comm., computer & info. services exp., % total trade	0.6	97	
6.3.4	FDI net outflows, % GDP	0.2	82	
7	**Creative outputs**	**14.3**	**135**	○
7.1	Intangible assets	n/a	n/a	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	17.7	71	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.7	57	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	30	
7.2.5	Creative goods exports, % total trade	0.3	75	
7.3	Online creativity	10.9	88	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.9	78	
7.3.2	Country-code TLDs/th pop. 15–69	27.2	67	
7.3.3	Wikipedia edits/pop. 15–69	1,651.0	85	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Finland

Key indicators

Population (millions)	5.4
GDP (US$ billions)	256.9
GDP per capita, PPP$	35,616.6
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**60.7**	**4**	
Innovation Output Sub-Index		53.8	6	
Innovation Input Sub-Index		67.5	5	
Innovation Efficiency Ratio		0.8	41	
Global Innovation Index 2013 (out of 142)		59.5	6	
1	**Institutions**	**95.3**	**1**	●
1.1	Political environment	97.7	1	●
1.1.1	Political stability*	99.5	2	●
1.1.2	Government effectiveness*	100.0	1	●
1.1.3	Press freedom*	93.6	1	●
1.2	Regulatory environment	96.9	6	
1.2.1	Regulatory quality*	96.3	5	
1.2.2	Rule of law*	99.8	2	●
1.2.3	Cost of redundancy dismissal, salary weeks	10.1	38	
1.3	Business environment	91.2	7	
1.3.1	Ease of starting a business*	93.0	20	
1.3.2	Ease of resolving insolvency*	95.6	3	
1.3.3	Ease of paying taxes*	85.0	22	
2	**Human capital & research**	**66.5**	**1**	●
2.1	Education	63.8	4	
2.1.1	Expenditure on education, % GDP	6.8	16	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	36.5	9	
2.1.3	School life expectancy, years	17.0	8	
2.1.4	PISA scales in reading, maths, & science	529.4	6	
2.1.5	Pupil-teacher ratio, secondary	9.5	18	
2.2	Tertiary education	55.5	15	
2.2.1	Tertiary enrolment, % gross	95.5	2	●
2.2.2	Graduates in science & engineering, %	27.7	15	
2.2.3	Tertiary inbound mobility, %	5.1	34	
2.3	Research & development (R&D)	80.2	3	
2.3.1	Researchers, headcounts/mn pop.	10,678.8	1	●
2.3.2	Gross expenditure on R&D, % GDP	3.5	3	
2.3.3	QS university ranking, average score top 3*	59.4	17	
3	**Infrastructure**	**59.7**	**8**	
3.1	Information & communication technologies (ICTs)	79.8	6	
3.1.1	ICT access*	76.6	19	
3.1.2	ICT use*	80.5	4	
3.1.3	Government's online service*	88.2	7	
3.1.4	E-participation*	73.7	11	
3.2	General infrastructure	50.8	15	
3.2.1	Electricity output, kWh/cap	13,007.8	8	
3.2.2	Logistics performance*	96.8	3	
3.2.3	Gross capital formation, % GDP	19.0	102	○
3.3	Ecological sustainability	48.5	32	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.1	81	○
3.3.2	Environmental performance*	75.7	18	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6.7	20	
4	**Market sophistication**	**61.4**	**22**	
4.1	Credit	53.2	27	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	98.2	31	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	59.1	18	
4.2.1	Ease of protecting investors*	56.7	55	○
4.2.2	Market capitalization, % GDP	63.5	29	
4.2.3	Total value of stocks traded, % GDP	50.4	17	
4.2.4	Venture capital deals/tr PPP$ GDP	0.4	6	
4.3	Trade & competition	71.8	99	○
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	63.0	83	○
5	**Business sophistication**	**54.8**	**7**	
5.1	Knowledge workers	75.9	5	
5.1.1	Knowledge-intensive employment, %	43.9	12	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.4	4	
5.1.4	GERD financed by business, %	68.7	11	
5.1.5	GMAT test takers/mn pop. 20–34	338.0	13	
5.2	Innovation linkages	50.3	16	
5.2.1	University/industry research collaboration†	80.3	2	●
5.2.2	State of cluster development†	68.0	11	
5.2.3	GERD financed by abroad, %	8.8	46	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	36	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	3.3	5	
5.3	Knowledge absorption	38.1	21	
5.3.1	Royalty & license fees payments, % total trade	1.4	13	
5.3.2	High-tech imports less re-imports, %	7.4	61	○
5.3.3	Comm., computer & info. services imp., % total trade	3.2	3	
5.3.4	FDI net inflows, % GDP	0.7	121	○
6	**Knowledge & technology outputs**	**54.2**	**8**	
6.1	Knowledge creation	53.9	10	
6.1.1	Domestic resident patent app./tr PPP$ GDP	8.7	10	
6.1.2	PCT resident patent app./tr PPP$ GDP	12.0	2	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	2.3	12	
6.1.4	Scientific & technical articles/bn PPP$ GDP	55.5	8	
6.1.5	Citable documents H index	372.0	18	
6.2	Knowledge impact	46.5	41	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.2	87	○
6.2.2	New businesses/th pop. 15–64	2.3	39	
6.2.3	Computer software spending, % GDP	0.6	17	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.4	43	
6.2.5	High- & medium-high-tech manufactures, %	45.0	13	
6.3	Knowledge diffusion	62.3	4	
6.3.1	Royalty & license fees receipts, % total trade	3.5	4	
6.3.2	High-tech exports less re-exports, %	5.3	28	
6.3.3	Comm., computer & info. services exp., % total trade	6.0	1	
6.3.4	FDI net outflows, % GDP	3.4	21	
7	**Creative outputs**	**53.4**	**10**	
7.1	Intangible assets	58.7	11	
7.1.1	Domestic res trademark app./bn PPP$ GDP	69.3	35	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.1	14	
7.1.3	ICTs & business model creation†	80.5	1	●
7.1.4	ICTs & organizational model creation†	79.0	1	●
7.2	Creative goods & services	32.2	35	
7.2.1	Cultural & creative services exports, % total trade	0.2	40	
7.2.2	National feature films/mn pop. 15–69	11.0	10	
7.2.3	Global ent. & media output/th pop. 15–69	1.8	10	
7.2.4	Printing & publishing manufactures, %	0.0	54	○
7.2.5	Creative goods exports, % total trade	0.7	47	
7.3	Online creativity	64.2	14	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	28.8	26	
7.3.2	Country-code TLDs/th pop. 15–69	60.4	18	
7.3.3	Wikipedia edits/pop. 15–69	42,876.2	3	
7.3.4	Video uploads on YouTube/pop. 15–69	94.7	5	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

France

Key indicators

Population (millions)	65.7
GDP (US$ billions)	2,737.4
GDP per capita, PPP$	35,784.0
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**52.2**	**22**	
Innovation Output Sub-Index		44.8	26	
Innovation Input Sub-Index		59.5	20	
Innovation Efficiency Ratio		0.8	64	
Global Innovation Index 2013 (out of 142)		52.8	20	
1	**Institutions**	**78.6**	**25**	
1.1	Political environment	78.0	30	
1.1.1	Political stability*	79.2	45	
1.1.2	Government effectiveness*	76.4	23	
1.1.3	Press freedom*	78.4	33	
1.2	Regulatory environment	87.0	21	
1.2.1	Regulatory quality*	77.8	26	
1.2.2	Rule of law*	85.7	19	
1.2.3	Cost of redundancy dismissal, salary weeks	11.8	50	
1.3	Business environment	70.7	47	
1.3.1	Ease of starting a business*	91.4	27	
1.3.2	Ease of resolving insolvency*	51.2	41	
1.3.3	Ease of paying taxes*	69.5	71	
2	**Human capital & research**	**55.9**	**15**	
2.1	Education	55.1	26	
2.1.1	Expenditure on education, % GDP	5.9	32	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	29.2	25	
2.1.3	School life expectancy, years	16.0	23	
2.1.4	PISA scales in reading, maths, & science	499.8	20	
2.1.5	Pupil-teacher ratio, secondary	12.8	41	
2.2	Tertiary education	52.5	18	
2.2.1	Tertiary enrolment, % gross	57.1	42	
2.2.2	Graduates in science & engineering, %	26.1	21	
2.2.3	Tertiary inbound mobility, %	11.9	14	
2.3	Research & development (R&D)	60.0	15	
2.3.1	Researchers, headcounts/mn pop.	5,327.9	20	
2.3.2	Gross expenditure on R&D, % GDP	2.3	14	
2.3.3	QS university ranking, average score top 3*	78.3	8	●
3	**Infrastructure**	**54.7**	**19**	
3.1	Information & communication technologies (ICTs)	72.7	17	
3.1.1	ICT access*	79.5	14	●
3.1.2	ICT use*	66.0	16	
3.1.3	Government's online service*	87.6	8	●
3.1.4	E-participation*	57.9	25	
3.2	General infrastructure	43.9	30	
3.2.1	Electricity output, kWh/cap	8,506.4	20	
3.2.2	Logistics performance*	88.9	12	●
3.2.3	Gross capital formation, % GDP	19.6	94	○
3.3	Ecological sustainability	47.4	34	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.8	41	
3.3.2	Environmental performance*	71.1	27	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.6	29	
4	**Market sophistication**	**61.0**	**24**	
4.1	Credit	53.1	28	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	116.0	27	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	52.0	25	
4.2.1	Ease of protecting investors*	53.3	66	○
4.2.2	Market capitalization, % GDP	69.8	26	
4.2.3	Total value of stocks traded, % GDP	43.1	20	
4.2.4	Venture capital deals/tr PPP$ GDP	0.3	10	
4.3	Trade & competition	77.9	42	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	75.3	24	
5	**Business sophistication**	**47.4**	**16**	
5.1	Knowledge workers	69.1	10	●
5.1.1	Knowledge-intensive employment, %	44.8	10	●
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.5	14	
5.1.4	GERD financed by business, %	64.2	18	
5.1.5	GMAT test takers/mn pop. 20–34	300.6	17	
5.2	Innovation linkages	39.5	43	
5.2.1	University/industry research collaboration†	57.7	31	
5.2.2	State of cluster development†	56.8	29	
5.2.3	GERD financed by abroad, %	7.7	51	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	46	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.6	10	●
5.3	Knowledge absorption	33.7	31	
5.3.1	Royalty & license fees payments, % total trade	1.1	25	
5.3.2	High-tech imports less re-imports, %	11.9	23	
5.3.3	Comm., computer & info. services imp., % total trade	1.3	46	
5.3.4	FDI net inflows, % GDP	2.5	73	○
6	**Knowledge & technology outputs**	**44.2**	**20**	
6.1	Knowledge creation	36.7	25	
6.1.1	Domestic resident patent app./tr PPP$ GDP	6.5	20	
6.1.2	PCT resident patent app./tr PPP$ GDP	3.5	14	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	59	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	28.5	33	
6.1.5	Citable documents H index	681.0	4	●
6.2	Knowledge impact	47.2	36	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.3	95	○
6.2.2	New businesses/th pop. 15–64	2.9	34	
6.2.3	Computer software spending, % GDP	0.6	11	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	14.1	32	
6.2.5	High- & medium-high-tech manufactures, %	42.6	18	
6.3	Knowledge diffusion	48.7	16	
6.3.1	Royalty & license fees receipts, % total trade	1.6	12	●
6.3.2	High-tech exports less re-exports, %	14.3	12	●
6.3.3	Comm., computer & info. services exp., % total trade	1.3	72	○
6.3.4	FDI net outflows, % GDP	1.5	40	
7	**Creative outputs**	**45.5**	**23**	
7.1	Intangible assets	42.9	76	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	10.9	94	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.8	17	
7.1.3	ICTs & business model creation†	70.2	20	
7.1.4	ICTs & organizational model creation†	59.5	40	
7.2	Creative goods & services	36.7	23	
7.2.1	Cultural & creative services exports, % total trade	0.8	12	
7.2.2	National feature films/mn pop. 15–69	6.2	20	
7.2.3	Global ent. & media output/th pop. 15–69	1.6	14	
7.2.4	Printing & publishing manufactures, %	0.0	53	○
7.2.5	Creative goods exports, % total trade	1.7	34	
7.3	Online creativity	59.5	18	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	48.6	20	
7.3.2	Country-code TLDs/th pop. 15–69	55.7	29	
7.3.3	Wikipedia edits/pop. 15–69	27,124.1	13	●
7.3.4	Video uploads on YouTube/pop. 15–69	87.6	13	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Gambia

Key indicators

Population (millions)	1.8
GDP (US$ billions)	0.9
GDP per capita, PPP$	1,962.2
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.0**	**104**	
Innovation Output Sub-Index		25.1	93	
Innovation Input Sub-Index		32.9	111	
Innovation Efficiency Ratio		0.8	58	●
Global Innovation Index 2013 (out of 142)		26.4	122	
1	**Institutions**	**45.8**	**126**	
1.1	Political environment	49.3	92	
1.1.1	Political stability*	65.8	71	
1.1.2	Government effectiveness*	27.2	100	
1.1.3	Press freedom*	54.9	124	
1.2	Regulatory environment	50.5	114	
1.2.1	Regulatory quality*	42.8	90	
1.2.2	Rule of law*	31.4	93	
1.2.3	Cost of redundancy dismissal, salary weeks	26.0	113	
1.3	Business environment	37.7	139	○
1.3.1	Ease of starting a business*	60.8	132	
1.3.2	Ease of resolving insolvency*	29.4	96	
1.3.3	Ease of paying taxes*	23.0	138	○
2	**Human capital & research**	**15.5**	**118**	
2.1	Education	21.4	131	
2.1.1	Expenditure on education, % GDP	4.1	90	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	13.1	89	
2.1.3	School life expectancy, years	9.1	119	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	24.1	91	
2.2.1	Tertiary enrolment, % gross	4.5	126	○
2.2.2	Graduates in science & engineering, %	20.0	57	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	1.0	117	
2.3.1	Researchers, headcounts/mn pop.	34.6	117	○
2.3.2	Gross expenditure on R&D, % GDP	0.1	98	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**22.5**	**122**	
3.1	Information & communication technologies (ICTs)	15.2	125	
3.1.1	ICT access*	24.2	114	
3.1.2	ICT use*	4.6	119	
3.1.3	Government's online service*	32.0	114	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	23.0	120	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	33.7	113	
3.2.3	Gross capital formation, % GDP	17.3	115	
3.3	Ecological sustainability	29.3	96	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	29.3	131	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**47.4**	**75**	
4.1	Credit	45.0	45	●
4.1.1	Ease of getting credit*	31.3	133	○
4.1.2	Domestic credit to private sector, % GDP	15.5	129	
4.1.3	Microfinance gross loans, % GDP	14.3	1	●
4.2	Investment	26.7	115	
4.2.1	Ease of protecting investors*	26.7	140	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	70.7	106	
4.3.1	Applied tariff rate, weighted mean, %	12.5	134	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	10	●
4.3.3	Intensity of local competition†	63.5	81	
5	**Business sophistication**	**33.3**	**65**	●
5.1	Knowledge workers	27.2	104	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	25.6	77	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	25.6	104	
5.2	Innovation linkages	35.8	55	●
5.2.1	University/industry research collaboration†	44.2	61	●
5.2.2	State of cluster development†	47.2	69	
5.2.3	GERD financed by abroad, %	15.9	25	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	36.9	24	●
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	4.0	114	
5.3.3	Comm., computer & info. services imp., % total trade	3.2	2	●
5.3.4	FDI net inflows, % GDP	4.0	55	●
6	**Knowledge & technology outputs**	**29.4**	**60**	●
6.1	Knowledge creation	26.1	38	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	29.1	32	●
6.1.5	Citable documents H index	80.0	79	
6.2	Knowledge impact	12.3	124	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.9	123	
6.2.5	High- & medium-high-tech manufactures, %	16.8	59	
6.3	Knowledge diffusion	49.8	12	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.0	119	○
6.3.3	Comm., computer & info. services exp., % total trade	6.0	6	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**20.9**	**121**	
7.1	Intangible assets	40.0	90	
7.1.1	Domestic res trademark app./bn PPP$ GDP	16.1	88	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.2	59	●
7.1.4	ICTs & organizational model creation†	54.5	62	●
7.2	Creative goods & services	0.2	139	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	93	○
7.2.5	Creative goods exports, % total trade	0.0	117	
7.3	Online creativity	3.6	115	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	128	
7.3.2	Country-code TLDs/th pop. 15–69	10.5	102	
7.3.3	Wikipedia edits/pop. 15–69	61.6	130	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Georgia

Key indicators

Population (millions)	4.5
GDP (US$ billions)	16.2
GDP per capita, PPP$	6,144.8
Income group	Lower-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**34.5**	**74**	
Innovation Output Sub-Index		28.0	75	
Innovation Input Sub-Index		41.1	68	
Innovation Efficiency Ratio		0.7	90	
Global Innovation Index 2013 (out of 142)		35.6	73	
1	**Institutions**	**69.7**	**46**	
1.1	Political environment	58.4	67	
1.1.1	Political stability*	49.2	106	
1.1.2	Government effectiveness*	56.0	44	
1.1.3	Press freedom*	69.9	80	
1.2	Regulatory environment	78.0	34	
1.2.1	Regulatory quality*	66.5	42	
1.2.2	Rule of law*	45.6	61	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	72.8	37	
1.3.1	Ease of starting a business*	97.5	4	●
1.3.2	Ease of resolving insolvency*	35.5	78	
1.3.3	Ease of paying taxes*	85.5	20	●
2	**Human capital & research**	**23.5**	**90**	
2.1	Education	36.5	90	
2.1.1	Expenditure on education, % GDP	2.0	129	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.5	82	
2.1.3	School life expectancy, years	13.2	67	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	7.6	2	●
2.2	Tertiary education	26.9	84	
2.2.1	Tertiary enrolment, % gross	27.9	79	
2.2.2	Graduates in science & engineering, %	20.7	48	
2.2.3	Tertiary inbound mobility, %	1.7	68	
2.3	Research & development (R&D)	6.9	76	
2.3.1	Researchers, headcounts/mn pop.	1,812.6	44	
2.3.2	Gross expenditure on R&D, % GDP	0.2	89	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**33.3**	**82**	
3.1	Information & communication technologies (ICTs)	40.0	64	
3.1.1	ICT access*	50.6	68	
3.1.2	ICT use*	28.2	62	
3.1.3	Government's online service*	60.1	42	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	29.7	88	
3.2.1	Electricity output, kWh/cap	2,270.4	73	
3.2.2	Logistics performance*	46.0	78	
3.2.3	Gross capital formation, % GDP	23.6	65	
3.3	Ecological sustainability	30.1	93	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.1	67	
3.3.2	Environmental performance*	47.2	91	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	117	○
4	**Market sophistication**	**55.2**	**37**	
4.1	Credit	54.3	25	
4.1.1	Ease of getting credit*	93.8	3	●
4.1.2	Domestic credit to private sector, % GDP	34.5	91	
4.1.3	Microfinance gross loans, % GDP	4.7	11	●
4.2	Investment	35.8	65	
4.2.1	Ease of protecting investors*	70.0	16	●
4.2.2	Market capitalization, % GDP	6.0	99	○
4.2.3	Total value of stocks traded, % GDP	0.0	105	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.4	73	
4.3.1	Applied tariff rate, weighted mean, %	0.7	6	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.6	55	
4.3.3	Intensity of local competition†	55.3	116	○
5	**Business sophistication**	**23.9**	**119**	
5.1	Knowledge workers	29.4	97	
5.1.1	Knowledge-intensive employment, %	22.2	65	
5.1.2	Firms offering formal training, % firms	14.9	98	○
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	74.4	58	
5.2	Innovation linkages	23.2	115	
5.2.1	University/industry research collaboration†	27.8	126	○
5.2.2	State of cluster development†	37.2	108	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	83	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	56	
5.3	Knowledge absorption	19.1	108	
5.3.1	Royalty & license fees payments, % total trade	0.1	106	○
5.3.2	High-tech imports less re-imports, %	6.6	76	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	102	
5.3.4	FDI net inflows, % GDP	5.0	39	
6	**Knowledge & technology outputs**	**30.0**	**58**	
6.1	Knowledge creation	20.4	49	
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.3	24	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.2	64	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.8	18	
6.1.4	Scientific & technical articles/bn PPP$ GDP	19.3	47	
6.1.5	Citable documents H index	78.0	82	
6.2	Knowledge impact	45.4	44	
6.2.1	Growth rate of PPP$ GDP/worker, %	6.7	3	●
6.2.2	New businesses/th pop. 15–64	4.9	20	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.0	87	
6.2.5	High- & medium-high-tech manufactures, %	13.2	69	
6.3	Knowledge diffusion	24.1	116	
6.3.1	Royalty & license fees receipts, % total trade	0.0	69	
6.3.2	High-tech exports less re-exports, %	0.3	91	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	91	
6.3.4	FDI net outflows, % GDP	1.4	42	
7	**Creative outputs**	**25.9**	**99**	
7.1	Intangible assets	32.5	122	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	46.2	59	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.5	38	
7.1.3	ICTs & business model creation†	48.8	99	
7.1.4	ICTs & organizational model creation†	42.3	114	○
7.2	Creative goods & services	22.1	55	
7.2.1	Cultural & creative services exports, % total trade	0.1	63	
7.2.2	National feature films/mn pop. 15–69	4.5	29	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	13	●
7.2.5	Creative goods exports, % total trade	0.1	100	
7.3	Online creativity	16.5	75	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.0	93	
7.3.2	Country-code TLDs/th pop. 15–69	27.4	64	
7.3.3	Wikipedia edits/pop. 15–69	11,912.3	41	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Germany

Key indicators

Population (millions)	81.9
GDP (US$ billions)	3,636.0
GDP per capita, PPP$	40,006.7
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**56.0**	**13**	
Innovation Output Sub-Index		51.7	8	●
Innovation Input Sub-Index		60.3	19	
Innovation Efficiency Ratio		0.9	19	
Global Innovation Index 2013 (out of 142)		55.8	15	
1	**Institutions**	**82.7**	**21**	
1.1	Political environment	85.8	16	
1.1.1	Political stability*	84.6	32	
1.1.2	Government effectiveness*	82.9	14	
1.1.3	Press freedom*	89.8	15	
1.2	Regulatory environment	81.5	29	
1.2.1	Regulatory quality*	88.8	15	
1.2.2	Rule of law*	91.4	16	
1.2.3	Cost of redundancy dismissal, salary weeks	21.6	99	○
1.3	Business environment	81.0	19	
1.3.1	Ease of starting a business*	82.1	76	
1.3.2	Ease of resolving insolvency*	87.8	13	
1.3.3	Ease of paying taxes*	73.1	54	
2	**Human capital & research**	**56.3**	**14**	
2.1	Education	53.4	36	
2.1.1	Expenditure on education, % GDP	5.1	58	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.7	41	
2.1.3	School life expectancy, years	16.3	19	
2.1.4	PISA scales in reading, maths, & science	515.1	13	
2.1.5	Pupil-teacher ratio, secondary	12.9	42	
2.2	Tertiary education	47.7	27	
2.2.1	Tertiary enrolment, % gross	56.5	43	
2.2.2	Graduates in science & engineering, %	26.9	19	
2.2.3	Tertiary inbound mobility, %	7.5	24	
2.3	Research & development (R&D)	67.7	10	
2.3.1	Researchers, headcounts/mn pop.	6,279.9	13	
2.3.2	Gross expenditure on R&D, % GDP	2.9	7	●
2.3.3	QS university ranking, average score top 3*	77.4	9	
3	**Infrastructure**	**56.3**	**17**	
3.1	Information & communication technologies (ICTs)	74.3	15	
3.1.1	ICT access*	85.1	5	●
3.1.2	ICT use*	60.5	21	
3.1.3	Government's online service*	75.2	24	
3.1.4	E-participation*	76.3	8	
3.2	General infrastructure	42.3	35	
3.2.1	Electricity output, kWh/cap	7,483.4	27	
3.2.2	Logistics performance*	96.0	4	●
3.2.3	Gross capital formation, % GDP	17.6	112	○
3.3	Ecological sustainability	52.2	21	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.3	21	
3.3.2	Environmental performance*	80.5	6	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	44	
4	**Market sophistication**	**60.1**	**25**	
4.1	Credit	57.0	22	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	101.9	29	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	42.7	47	
4.2.1	Ease of protecting investors*	50.0	81	○
4.2.2	Market capitalization, % GDP	43.7	46	
4.2.3	Total value of stocks traded, % GDP	36.0	25	
4.2.4	Venture capital deals/tr PPP$ GDP	0.2	14	
4.3	Trade & competition	80.8	26	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	81.0	8	●
5	**Business sophistication**	**46.1**	**21**	
5.1	Knowledge workers	62.8	23	
5.1.1	Knowledge-intensive employment, %	43.5	14	
5.1.2	Firms offering formal training, % firms	35.4	49	
5.1.3	GERD performed by business, % GDP	2.0	9	
5.1.4	GERD financed by business, %	66.9	15	
5.1.5	GMAT test takers/mn pop. 20–34	270.0	21	
5.2	Innovation linkages	46.4	24	
5.2.1	University/industry research collaboration†	73.2	9	
5.2.2	State of cluster development†	73.0	3	●
5.2.3	GERD financed by abroad, %	4.2	64	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	59	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	2.8	7	●
5.3	Knowledge absorption	29.2	46	
5.3.1	Royalty & license fees payments, % total trade	0.7	41	
5.3.2	High-tech imports less re-imports, %	9.6	36	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	20	
5.3.4	FDI net inflows, % GDP	0.8	120	○
6	**Knowledge & technology outputs**	**53.1**	**11**	
6.1	Knowledge creation	65.0	6	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	14.7	5	●
6.1.2	PCT resident patent app./tr PPP$ GDP	5.9	9	
6.1.3	Domestic res utility model app./tr PPP$ GDP	3.8	10	
6.1.4	Scientific & technical articles/bn PPP$ GDP	29.1	31	
6.1.5	Citable documents H index	740.0	1	●
6.2	Knowledge impact	48.4	35	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.3	97	○
6.2.2	New businesses/th pop. 15–64	1.3	52	
6.2.3	Computer software spending, % GDP	0.6	16	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	16.4	29	
6.2.5	High- & medium-high-tech manufactures, %	53.6	6	●
6.3	Knowledge diffusion	45.9	20	
6.3.1	Royalty & license fees receipts, % total trade	0.8	18	
6.3.2	High-tech exports less re-exports, %	11.9	19	
6.3.3	Comm., computer & info. services exp., % total trade	1.9	43	
6.3.4	FDI net outflows, % GDP	2.6	28	
7	**Creative outputs**	**50.4**	**14**	
7.1	Intangible assets	53.6	25	
7.1.1	Domestic res trademark app./bn PPP$ GDP	75.5	30	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.1	15	
7.1.3	ICTs & business model creation†	72.2	14	
7.1.4	ICTs & organizational model creation†	67.8	16	
7.2	Creative goods & services	27.6	42	
7.2.1	Cultural & creative services exports, % total trade	0.1	68	○
7.2.2	National feature films/mn pop. 15–69	3.6	40	
7.2.3	Global ent. & media output/th pop. 15–69	1.7	11	
7.2.4	Printing & publishing manufactures, %	0.0	56	○
7.2.5	Creative goods exports, % total trade	1.9	29	
7.3	Online creativity	66.7	11	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	65.7	15	
7.3.2	Country-code TLDs/th pop. 15–69	75.3	5	●
7.3.3	Wikipedia edits/pop. 15–69	24,636.9	15	
7.3.4	Video uploads on YouTube/pop. 15–69	83.9	20	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Ghana

Key indicators

Population (millions)	25.4
GDP (US$ billions)	44.2
GDP per capita, PPP$	3,461.1
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.3**	**96**	
Innovation Output Sub-Index		27.0	82	
Innovation Input Sub-Index		33.5	106	
Innovation Efficiency Ratio		0.8	37	●
Global Innovation Index 2013 (out of 142)		30.6	94	
1	**Institutions**	**52.3**	**104**	
1.1	Political environment	63.3	55	●
1.1.1	Political stability*	68.1	64	
1.1.2	Government effectiveness*	38.9	74	
1.1.3	Press freedom*	82.7	28	●
1.2	Regulatory environment	32.4	137	○
1.2.1	Regulatory quality*	51.9	68	
1.2.2	Rule of law*	45.5	62	●
1.2.3	Cost of redundancy dismissal, salary weeks	49.8	137	○
1.3	Business environment	61.2	80	
1.3.1	Ease of starting a business*	82.5	75	
1.3.2	Ease of resolving insolvency*	27.7	102	
1.3.3	Ease of paying taxes*	73.4	53	●
2	**Human capital & research**	**22.8**	**94**	
2.1	Education	47.1	56	●
2.1.1	Expenditure on education, % GDP	8.1	7	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	26.1	32	●
2.1.3	School life expectancy, years	11.5	96	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	17.5	73	
2.2	Tertiary education	18.2	103	
2.2.1	Tertiary enrolment, % gross	12.2	102	
2.2.2	Graduates in science & engineering, %	14.2	87	
2.2.3	Tertiary inbound mobility, %	3.1	51	
2.3	Research & development (R&D)	3.1	94	
2.3.1	Researchers, headcounts/mn pop.	104.8	102	
2.3.2	Gross expenditure on R&D, % GDP	0.4	71	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**20.6**	**129**	
3.1	Information & communication technologies (ICTs)	20.4	108	
3.1.1	ICT access*	24.0	115	
3.1.2	ICT use*	17.1	89	
3.1.3	Government's online service*	30.1	120	
3.1.4	E-participation*	10.5	94	
3.2	General infrastructure	21.5	127	
3.2.1	Electricity output, kWh/cap	448.5	107	
3.2.2	Logistics performance*	35.7	106	
3.2.3	Gross capital formation, % GDP	20.3	88	
3.3	Ecological sustainability	19.8	133	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.9	98	
3.3.2	Environmental performance*	32.1	126	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	112	
4	**Market sophistication**	**42.5**	**112**	
4.1	Credit	28.9	97	
4.1.1	Ease of getting credit*	81.3	27	●
4.1.2	Domestic credit to private sector, % GDP	16.1	128	
4.1.3	Microfinance gross loans, % GDP	0.1	65	
4.2	Investment	27.7	110	
4.2.1	Ease of protecting investors*	63.3	32	●
4.2.2	Market capitalization, % GDP	8.5	93	
4.2.3	Total value of stocks traded, % GDP	0.1	97	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	41	
4.3	Trade & competition	70.8	104	
4.3.1	Applied tariff rate, weighted mean, %	8.6	116	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.9	91	
4.3.3	Intensity of local competition†	67.0	64	
5	**Business sophistication**	**29.3**	**84**	
5.1	Knowledge workers	22.1	117	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	31.1	61	
5.1.3	GERD performed by business, % GDP	0.0	84	○
5.1.4	GERD financed by business, %	0.2	86	○
5.1.5	GMAT test takers/mn pop. 20–34	61.4	68	
5.2	Innovation linkages	30.1	76	
5.2.1	University/industry research collaboration†	40.5	76	
5.2.2	State of cluster development†	44.2	78	
5.2.3	GERD financed by abroad, %	31.2	14	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	94	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	35.7	27	●
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	6.9	67	
5.3.3	Comm., computer & info. services imp., % total trade	n/a	n/a	
5.3.4	FDI net inflows, % GDP	8.1	19	●
6	**Knowledge & technology outputs**	**31.1**	**54**	●
6.1	Knowledge creation	6.2	102	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	109	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.9	91	
6.1.5	Citable documents H index	73.0	85	
6.2	Knowledge impact	54.2	14	●
6.2.1	Growth rate of PPP$ GDP/worker, %	5.6	5	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.5	129	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.0	61	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.4	84	
6.3.3	Comm., computer & info. services exp., % total trade	n/a	n/a	
6.3.4	FDI net outflows, % GDP	0.0	103	
7	**Creative outputs**	**22.9**	**112**	
7.1	Intangible assets	42.6	78	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	51	
7.1.3	ICTs & business model creation†	55.3	72	
7.1.4	ICTs & organizational model creation†	48.5	85	
7.2	Creative goods & services	0.6	136	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	114	○
7.3	Online creativity	6.0	105	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.8	107	
7.3.2	Country-code TLDs/th pop. 15–69	0.0	141	○
7.3.3	Wikipedia edits/pop. 15–69	278.4	113	
7.3.4	Video uploads on YouTube/pop. 15–69	22.6	62	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Greece

Key indicators

Population (millions)	11.3
GDP (US$ billions)	241.8
GDP per capita, PPP$	24,012.0
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.9**	**50**	
Innovation Output Sub-Index		32.0	58	
Innovation Input Sub-Index		45.9	44	
Innovation Efficiency Ratio		0.7	85	
Global Innovation Index 2013 (out of 142)		37.7	55	
1	**Institutions**	**66.6**	**57**	
1.1	Political environment	60.2	60	
1.1.1	Political stability*	60.1	84	
1.1.2	Government effectiveness*	49.1	57	
1.1.3	Press freedom*	71.5	70	
1.2	Regulatory environment	71.8	46	
1.2.1	Regulatory quality*	61.8	49	
1.2.2	Rule of law*	57.2	48	
1.2.3	Cost of redundancy dismissal, salary weeks	15.9	74	
1.3	Business environment	67.7	59	
1.3.1	Ease of starting a business*	89.4	43	
1.3.2	Ease of resolving insolvency*	36.0	77	
1.3.3	Ease of paying taxes*	77.9	41	
2	**Human capital & research**	**43.5**	**31**	
2.1	Education	50.1	46	
2.1.1	Expenditure on education, % GDP	4.1	89	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	21.5	52	
2.1.3	School life expectancy, years	16.5	14	●
2.1.4	PISA scales in reading, maths, & science	465.6	39	
2.1.5	Pupil-teacher ratio, secondary	7.9	3	●
2.2	Tertiary education	53.1	17	●
2.2.1	Tertiary enrolment, % gross	91.4	5	●
2.2.2	Graduates in science & engineering, %	27.5	16	●
2.2.3	Tertiary inbound mobility, %	4.2	39	
2.3	Research & development (R&D)	27.3	37	
2.3.1	Researchers, headcounts/mn pop.	4,068.8	26	
2.3.2	Gross expenditure on R&D, % GDP	0.7	50	
2.3.3	QS university ranking, average score top 3*	28.3	43	
3	**Infrastructure**	**41.1**	**52**	
3.1	Information & communication technologies (ICTs)	51.3	42	
3.1.1	ICT access*	66.9	36	
3.1.2	ICT use*	46.5	38	
3.1.3	Government's online service*	57.5	48	
3.1.4	E-participation*	34.2	45	
3.2	General infrastructure	22.9	124	○
3.2.1	Electricity output, kWh/cap	5,080.8	45	
3.2.2	Logistics performance*	48.4	69	
3.2.3	Gross capital formation, % GDP	13.2	137	○
3.3	Ecological sustainability	49.2	30	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.1	22	
3.3.2	Environmental performance*	73.3	23	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.4	40	
4	**Market sophistication**	**47.9**	**73**	
4.1	Credit	47.6	37	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	120.7	23	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	24.6	122	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	17.9	76	
4.2.3	Total value of stocks traded, % GDP	6.0	46	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	69	○
4.3	Trade & competition	71.5	101	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	62.5	84	
5	**Business sophistication**	**30.6**	**78**	
5.1	Knowledge workers	39.7	67	
5.1.1	Knowledge-intensive employment, %	31.1	43	
5.1.2	Firms offering formal training, % firms	20.0	92	○
5.1.3	GERD performed by business, % GDP	0.2	45	
5.1.4	GERD financed by business, %	34.3	52	
5.1.5	GMAT test takers/mn pop. 20–34	534.2	8	●
5.2	Innovation linkages	29.0	83	
5.2.1	University/industry research collaboration†	33.5	115	
5.2.2	State of cluster development†	33.0	121	○
5.2.3	GERD financed by abroad, %	15.8	26	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	13	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	61	
5.3	Knowledge absorption	23.0	84	
5.3.1	Royalty & license fees payments, % total trade	0.6	48	
5.3.2	High-tech imports less re-imports, %	6.8	71	
5.3.3	Comm., computer & info. services imp., % total trade	1.4	40	
5.3.4	FDI net inflows, % GDP	1.2	109	
6	**Knowledge & technology outputs**	**30.6**	**55**	
6.1	Knowledge creation	18.6	55	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.3	49	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	46	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	60	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	36.2	21	●
6.1.5	Citable documents H index	266.0	29	
6.2	Knowledge impact	44.0	50	
6.2.1	Growth rate of PPP$ GDP/worker, %	–1.3	106	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.6	15	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	17.8	26	
6.2.5	High- & medium-high-tech manufactures, %	14.1	65	
6.3	Knowledge diffusion	29.3	82	
6.3.1	Royalty & license fees receipts, % total trade	0.1	50	
6.3.2	High-tech exports less re-exports, %	1.8	55	
6.3.3	Comm., computer & info. services exp., % total trade	1.4	66	
6.3.4	FDI net outflows, % GDP	0.3	76	
7	**Creative outputs**	**33.3**	**65**	
7.1	Intangible assets	24.1	135	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	5.0	98	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	45	
7.1.3	ICTs & business model creation†	41.7	123	○
7.1.4	ICTs & organizational model creation†	37.8	123	○
7.2	Creative goods & services	40.9	17	●
7.2.1	Cultural & creative services exports, % total trade	0.0	77	
7.2.2	National feature films/mn pop. 15–69	5.5	26	
7.2.3	Global ent. & media output/th pop. 15–69	0.6	28	
7.2.4	Printing & publishing manufactures, %	0.1	1	●
7.2.5	Creative goods exports, % total trade	0.5	55	
7.3	Online creativity	43.9	33	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	14.0	38	
7.3.2	Country-code TLDs/th pop. 15–69	53.8	31	
7.3.3	Wikipedia edits/pop. 15–69	14,207.3	35	
7.3.4	Video uploads on YouTube/pop. 15–69	83.7	21	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Guatemala

Key indicators

Population (millions)	15.1
GDP (US$ billions)	54.4
GDP per capita, PPP$	5,282.4
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.8**	**93**	
Innovation Output Sub-Index		24.8	97	
Innovation Input Sub-Index		36.7	94	
Innovation Efficiency Ratio		0.7	95	
Global Innovation Index 2013 (out of 142)		31.5	87	
1	**Institutions**	**57.8**	**83**	
1.1	Political environment	46.9	99	
1.1.1	Political stability*	49.7	105	
1.1.2	Government effectiveness*	20.5	117	
1.1.3	Press freedom*	70.6	76	
1.2	Regulatory environment	46.0	121	
1.2.1	Regulatory quality*	44.2	87	
1.2.2	Rule of law*	16.2	129	
1.2.3	Cost of redundancy dismissal, salary weeks	27.0	117	
1.3	Business environment	80.4	20	●
1.3.1	Ease of starting a business*	80.4	89	
1.3.2	Ease of resolving insolvency*	n/a	n/a	
1.3.3	Ease of paying taxes*	n/a	n/a	
2	**Human capital & research**	**17.3**	**113**	
2.1	Education	27.1	124	
2.1.1	Expenditure on education, % GDP	3.0	112	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	4.8	110	○
2.1.3	School life expectancy, years	10.6	109	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.5	54	
2.2	Tertiary education	24.4	90	
2.2.1	Tertiary enrolment, % gross	17.9	93	
2.2.2	Graduates in science & engineering, %	16.8	71	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.4	126	
2.3.1	Researchers, headcounts/mn pop.	40.9	115	○
2.3.2	Gross expenditure on R&D, % GDP	0.0	111	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.1**	**100**	
3.1	Information & communication technologies (ICTs)	35.0	77	
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	46.4	79	
3.1.4	E-participation*	23.7	60	
3.2	General infrastructure	18.4	133	○
3.2.1	Electricity output, kWh/cap	551.9	105	
3.2.2	Logistics performance*	47.2	75	
3.2.3	Gross capital formation, % GDP	14.6	129	
3.3	Ecological sustainability	30.8	89	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.3	60	
3.3.2	Environmental performance*	48.1	88	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	114	
4	**Market sophistication**	**49.5**	**61**	
4.1	Credit	34.0	77	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	31.8	94	
4.1.3	Microfinance gross loans, % GDP	0.4	50	
4.2	Investment	33.3	76	
4.2.1	Ease of protecting investors*	33.3	125	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	81.2	24	●
4.3.1	Applied tariff rate, weighted mean, %	2.3	50	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	58	
4.3.3	Intensity of local competition†	70.0	50	
5	**Business sophistication**	**30.7**	**77**	
5.1	Knowledge workers	22.8	115	
5.1.1	Knowledge-intensive employment, %	9.4	98	
5.1.2	Firms offering formal training, % firms	43.6	38	●
5.1.3	GERD performed by business, % GDP	0.0	87	○
5.1.4	GERD financed by business, %	0.3	84	○
5.1.5	GMAT test takers/mn pop. 20–34	23.5	108	
5.2	Innovation linkages	47.9	20	●
5.2.1	University/industry research collaboration†	45.8	55	
5.2.2	State of cluster development†	52.0	43	●
5.2.3	GERD financed by abroad, %	52.4	4	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	82	
5.3	Knowledge absorption	21.5	92	
5.3.1	Royalty & license fees payments, % total trade	0.7	40	●
5.3.2	High-tech imports less re-imports, %	8.6	46	●
5.3.3	Comm., computer & info. services imp., % total trade	0.4	103	
5.3.4	FDI net inflows, % GDP	2.3	82	
6	**Knowledge & technology outputs**	**22.3**	**98**	
6.1	Knowledge creation	2.1	139	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	103	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	108	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	50	
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.6	135	○
6.1.5	Citable documents H index	53.0	106	
6.2	Knowledge impact	31.1	100	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.1	88	
6.2.2	New businesses/th pop. 15–64	0.5	75	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.3	94	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.9	51	●
6.3.1	Royalty & license fees receipts, % total trade	0.1	45	
6.3.2	High-tech exports less re-exports, %	1.3	62	
6.3.3	Comm., computer & info. services exp., % total trade	2.8	22	●
6.3.4	FDI net outflows, % GDP	0.0	109	
7	**Creative outputs**	**27.3**	**94**	
7.1	Intangible assets	46.2	60	
7.1.1	Domestic res trademark app./bn PPP$ GDP	54.0	50	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.5	56	
7.1.4	ICTs & organizational model creation†	58.0	48	●
7.2	Creative goods & services	9.8	97	
7.2.1	Cultural & creative services exports, % total trade	0.0	75	
7.2.2	National feature films/mn pop. 15–69	1.3	65	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.5	57	
7.3	Online creativity	7.1	101	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.7	55	●
7.3.2	Country-code TLDs/th pop. 15–69	12.4	94	
7.3.3	Wikipedia edits/pop. 15–69	1,239.7	92	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Guinea

Key indicators

Population (millions)	11.5
GDP (US$ billions)	6.3
GDP per capita, PPP$	1,125.1
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**20.2**	**139**	
Innovation Output Sub-Index		15.4	138	
Innovation Input Sub-Index		25.1	140	
Innovation Efficiency Ratio		0.6	109	
Global Innovation Index 2013 (out of 142)		25.7	126	
1	**Institutions**	**42.6**	**132**	
1.1	Political environment	37.6	131	
1.1.1	Political stability*	34.3	128	
1.1.2	Government effectiveness*	6.9	138	
1.1.3	Press freedom*	71.5	71	●
1.2	Regulatory environment	57.3	96	●
1.2.1	Regulatory quality*	22.2	132	
1.2.2	Rule of law*	6.8	141	○
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	33.0	142	○
1.3.1	Ease of starting a business*	64.3	126	
1.3.2	Ease of resolving insolvency*	18.7	124	
1.3.3	Ease of paying taxes*	16.1	140	○
2	**Human capital & research**	**7.7**	**140**	
2.1	Education	16.2	135	
2.1.1	Expenditure on education, % GDP	2.5	121	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	9.9	99	
2.1.3	School life expectancy, years	8.7	121	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	33.1	109	
2.2	Tertiary education	7.0	131	
2.2.1	Tertiary enrolment, % gross	9.9	110	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.9	82	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**16.5**	**139**	
3.1	Information & communication technologies (ICTs)	4.4	143	○
3.1.1	ICT access*	17.1	130	
3.1.2	ICT use*	0.5	134	○
3.1.3	Government's online service*	0.0	142	○
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	26.0	106	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	34.5	110	
3.2.3	Gross capital formation, % GDP	19.2	100	
3.3	Ecological sustainability	19.2	137	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	28.0	133	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	105	
4	**Market sophistication**	**32.5**	**142**	○
4.1	Credit	13.9	139	
4.1.1	Ease of getting credit*	37.5	130	
4.1.2	Domestic credit to private sector, % GDP	9.1	140	○
4.1.3	Microfinance gross loans, % GDP	0.2	57	●
4.2	Investment	26.7	115	
4.2.1	Ease of protecting investors*	26.7	140	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	56.9	134	
4.3.1	Applied tariff rate, weighted mean, %	11.9	131	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.1	95	●
4.3.3	Intensity of local competition†	51.0	123	
5	**Business sophistication**	**26.3**	**107**	
5.1	Knowledge workers	9.9	140	
5.1.1	Knowledge-intensive employment, %	0.7	110	○
5.1.2	Firms offering formal training, % firms	21.1	91	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	4.0	134	
5.2	Innovation linkages	27.2	91	●
5.2.1	University/industry research collaboration†	19.8	132	
5.2.2	State of cluster development†	36.2	113	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	44	●
5.3	Knowledge absorption	41.9	10	●
5.3.1	Royalty & license fees payments, % total trade	0.0	114	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	88	●
5.3.4	FDI net inflows, % GDP	18.8	5	●
6	**Knowledge & technology outputs**	**12.5**	**138**	
6.1	Knowledge creation	3.2	130	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	75	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.9	125	
6.1.5	Citable documents H index	34.0	130	
6.2	Knowledge impact	3.0	137	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.2	84	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.1	97	●
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	31.2	70	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	96	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	1.6	57	●
6.3.4	FDI net outflows, % GDP	0.0	100	
7	**Creative outputs**	**18.2**	**126**	
7.1	Intangible assets	34.7	117	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	38.0	129	
7.1.4	ICTs & organizational model creation†	31.3	134	○
7.2	Creative goods & services	3.4	116	
7.2.1	Cultural & creative services exports, % total trade	0.0	82	
7.2.2	National feature films/mn pop. 15–69	0.8	77	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	0.1	139	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	137	
7.3.2	Country-code TLDs/th pop. 15–69	0.3	135	
7.3.3	Wikipedia edits/pop. 15–69	5.3	142	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Guyana

Key indicators

Population (millions)	0.8
GDP (US$ billions)	3.0
GDP per capita, PPP$	8,250.2
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.5**	**80**	
Innovation Output Sub-Index		27.7	76	
Innovation Input Sub-Index		37.3	92	
Innovation Efficiency Ratio		0.7	68	
Global Innovation Index 2013 (out of 142)		34.4	78	
1	**Institutions**	**55.9**	**89**	
1.1	Political environment	54.6	79	
1.1.1	Political stability*	53.9	94	
1.1.2	Government effectiveness*	37.1	79	
1.1.3	Press freedom*	72.9	56	
1.2	Regulatory environment	57.4	95	
1.2.1	Regulatory quality*	32.3	116	
1.2.2	Rule of law*	32.1	92	
1.2.3	Cost of redundancy dismissal, salary weeks	16.7	78	
1.3	Business environment	55.8	96	
1.3.1	Ease of starting a business*	81.8	79	
1.3.2	Ease of resolving insolvency*	19.0	121	
1.3.3	Ease of paying taxes*	66.7	81	
2	**Human capital & research**	**13.5**	**130**	○
2.1	Education	26.3	126	
2.1.1	Expenditure on education, % GDP	3.2	107	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	9.8	100	
2.1.3	School life expectancy, years	10.3	112	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	20.3	82	
2.2	Tertiary education	14.2	114	
2.2.1	Tertiary enrolment, % gross	12.9	100	
2.2.2	Graduates in science & engineering, %	13.4	91	
2.2.3	Tertiary inbound mobility, %	0.4	96	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**25.3**	**116**	
3.1	Information & communication technologies (ICTs)	17.7	119	
3.1.1	ICT access*	31.8	99	
3.1.2	ICT use*	13.6	97	
3.1.3	Government's online service*	25.5	128	○
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	32.6	72	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	28.6	123	○
3.2.3	Gross capital formation, % GDP	25.3	48	●
3.3	Ecological sustainability	25.7	114	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	38.1	115	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	115	
4	**Market sophistication**	**40.4**	**123**	
4.1	Credit	14.0	138	○
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	41.0	81	
4.1.3	Microfinance gross loans, % GDP	0.4	52	
4.2	Investment	29.8	99	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	21.4	67	
4.2.3	Total value of stocks traded, % GDP	0.0	104	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	77.5	49	●
4.3.1	Applied tariff rate, weighted mean, %	6.5	101	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	8	●
4.3.3	Intensity of local competition†	66.5	66	
5	**Business sophistication**	**51.2**	**13**	●
5.1	Knowledge workers	59.7	28	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	53.4	18	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	99.1	52	●
5.2	Innovation linkages	47.9	21	●
5.2.1	University/industry research collaboration†	44.3	60	
5.2.2	State of cluster development†	49.7	56	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	46.0	7	●
5.3.1	Royalty & license fees payments, % total trade	2.0	7	●
5.3.2	High-tech imports less re-imports, %	8.4	50	
5.3.3	Comm., computer & info. services imp., % total trade	2.6	5	●
5.3.4	FDI net inflows, % GDP	6.4	30	●
6	**Knowledge & technology outputs**	**18.6**	**117**	
6.1	Knowledge creation	2.4	137	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.1	132	○
6.1.5	Citable documents H index	27.0	136	○
6.2	Knowledge impact	3.1	136	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.5	115	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	50.3	11	●
6.3.1	Royalty & license fees receipts, % total trade	3.4	5	●
6.3.2	High-tech exports less re-exports, %	0.0	123	○
6.3.3	Comm., computer & info. services exp., % total trade	3.7	14	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**36.7**	**52**	●
7.1	Intangible assets	51.7	33	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	51.2	90	
7.1.4	ICTs & organizational model creation†	52.2	71	
7.2	Creative goods & services	33.6	34	●
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	22.9	1	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	120	○
7.3	Online creativity	10.0	92	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.2	69	
7.3.2	Country-code TLDs/th pop. 15–69	25.8	68	
7.3.3	Wikipedia edits/pop. 15–69	541.4	105	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Honduras

Key indicators

Population (millions)	7.9
GDP (US$ billions)	18.8
GDP per capita, PPP$	4,839.4
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**26.7**	**118**	
Innovation Output Sub-Index		18.6	126	○
Innovation Input Sub-Index		34.8	102	
Innovation Efficiency Ratio		0.5	128	○
Global Innovation Index 2013 (out of 142)		28.8	107	
1	**Institutions**	**46.1**	**125**	○
1.1	Political environment	46.9	100	
1.1.1	Political stability*	55.9	88	
1.1.2	Government effectiveness*	21.7	116	
1.1.3	Press freedom*	63.1	104	
1.2	Regulatory environment	42.0	127	○
1.2.1	Regulatory quality*	43.6	88	
1.2.2	Rule of law*	14.2	133	○
1.2.3	Cost of redundancy dismissal, salary weeks	30.3	129	○
1.3	Business environment	49.3	119	
1.3.1	Ease of starting a business*	69.4	116	
1.3.2	Ease of resolving insolvency*	20.6	118	
1.3.3	Ease of paying taxes*	57.8	109	
2	**Human capital & research**	**19.7**	**103**	
2.1	Education	41.4	80	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.4	97	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	17.5	105	
2.2.1	Tertiary enrolment, % gross	20.4	91	
2.2.2	Graduates in science & engineering, %	14.1	88	
2.2.3	Tertiary inbound mobility, %	0.9	83	
2.3	Research & development (R&D)	0.3	127	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.0	113	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**26.6**	**111**	
3.1	Information & communication technologies (ICTs)	22.4	102	
3.1.1	ICT access*	30.5	102	
3.1.2	ICT use*	8.1	108	
3.1.3	Government's online service*	37.9	97	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	26.9	103	
3.2.1	Electricity output, kWh/cap	918.3	93	
3.2.2	Logistics performance*	36.5	103	
3.2.3	Gross capital formation, % GDP	24.7	51	●
3.3	Ecological sustainability	30.6	90	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.8	71	
3.3.2	Environmental performance*	48.9	87	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	85	
4	**Market sophistication**	**48.9**	**64**	●
4.1	Credit	42.8	52	●
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	51.8	64	●
4.1.3	Microfinance gross loans, % GDP	2.0	25	●
4.2	Investment	30.0	95	
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	73.9	85	
4.3.1	Applied tariff rate, weighted mean, %	6.5	100	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	15	●
4.3.3	Intensity of local competition†	59.3	99	
5	**Business sophistication**	**32.9**	**67**	●
5.1	Knowledge workers	30.5	93	
5.1.1	Knowledge-intensive employment, %	12.8	95	○
5.1.2	Firms offering formal training, % firms	33.8	52	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	38.0	82	
5.2	Innovation linkages	45.7	29	●
5.2.1	University/industry research collaboration†	39.0	83	
5.2.2	State of cluster development†	49.0	60	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	22.4	89	
5.3.1	Royalty & license fees payments, % total trade	0.4	64	●
5.3.2	High-tech imports less re-imports, %	6.4	80	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	81	
5.3.4	FDI net inflows, % GDP	5.9	33	●
6	**Knowledge & technology outputs**	**16.2**	**125**	○
6.1	Knowledge creation	2.1	138	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	87	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	101	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	45	
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.4	137	○
6.1.5	Citable documents H index	39.0	124	○
6.2	Knowledge impact	12.8	123	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.3	46	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.7	79	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.6	53	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.4	86	
6.3.3	Comm., computer & info. services exp., % total trade	2.1	37	●
6.3.4	FDI net outflows, % GDP	0.1	91	
7	**Creative outputs**	**21.1**	**120**	
7.1	Intangible assets	38.4	101	
7.1.1	Domestic res trademark app./bn PPP$ GDP	51.3	55	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	47.8	105	
7.1.4	ICTs & organizational model creation†	47.3	91	
7.2	Creative goods & services	2.7	119	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.2	96	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	91	
7.3	Online creativity	4.9	110	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.8	109	
7.3.2	Country-code TLDs/th pop. 15–69	11.6	98	
7.3.3	Wikipedia edits/pop. 15–69	1,398.7	87	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Hong Kong (China)

Key indicators

Population (millions)	7.2
GDP (US$ billions)	273.7
GDP per capita, PPP$	52,722.0
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**56.8**	**10**	
Innovation Output Sub-Index		45.1	24	
Innovation Input Sub-Index		68.6	2	●
Innovation Efficiency Ratio		0.7	99	○
Global Innovation Index 2013 (out of 142)		44.7	7	
1	**Institutions**	**91.4**	**8**	
1.1	Political environment	84.3	18	
1.1.1	Political stability*	89.6	20	
1.1.2	Government effectiveness*	89.6	7	
1.1.3	Press freedom*	73.8	49	
1.2	Regulatory environment	97.2	5	
1.2.1	Regulatory quality*	99.5	2	●
1.2.2	Rule of law*	89.2	18	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	92.7	4	
1.3.1	Ease of starting a business*	95.9	10	
1.3.2	Ease of resolving insolvency*	86.0	18	
1.3.3	Ease of paying taxes*	96.3	4	
2	**Human capital & research**	**49.5**	**23**	
2.1	Education	46.9	57	
2.1.1	Expenditure on education, % GDP	3.5	97	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.3	70	○
2.1.3	School life expectancy, years	15.6	31	
2.1.4	PISA scales in reading, maths, & science	553.6	3	
2.1.5	Pupil-teacher ratio, secondary	17.8	75	○
2.2	Tertiary education	56.7	11	
2.2.1	Tertiary enrolment, % gross	60.1	37	
2.2.2	Graduates in science & engineering, %	34.7	8	
2.2.3	Tertiary inbound mobility, %	7.8	22	
2.3	Research & development (R&D)	44.8	24	
2.3.1	Researchers, headcounts/mn pop.	3,471.2	29	
2.3.2	Gross expenditure on R&D, % GDP	0.7	45	
2.3.3	QS university ranking, average score top 3*	85.1	6	
3	**Infrastructure**	**67.4**	**1**	●
3.1	Information & communication technologies (ICTs)	79.0	8	
3.1.1	ICT access*	91.8	1	●
3.1.2	ICT use*	66.2	15	
3.1.3	Government's online service*	n/a	n/a	
3.1.4	E-participation*	n/a	n/a	
3.2	General infrastructure	50.0	18	
3.2.1	Electricity output, kWh/cap	5,520.5	37	
3.2.2	Logistics performance*	99.6	2	●
3.2.3	Gross capital formation, % GDP	26.3	40	
3.3	Ecological sustainability	73.2	1	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	21.2	1	●
3.3.2	Environmental performance*	n/a	n/a	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.9	35	
4	**Market sophistication**	**79.7**	**3**	●
4.1	Credit	79.4	2	●
4.1.1	Ease of getting credit*	93.8	3	
4.1.2	Domestic credit to private sector, % GDP	198.1	4	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	77.4	5	
4.2.1	Ease of protecting investors*	90.0	3	●
4.2.2	Market capitalization, % GDP	420.9	1	●
4.2.3	Total value of stocks traded, % GDP	467.0	1	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	40	
4.3	Trade & competition	82.3	14	
4.3.1	Applied tariff rate, weighted mean, %	0.0	1	●
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	96	○
4.3.3	Intensity of local competition†	82.0	6	
5	**Business sophistication**	**54.9**	**6**	
5.1	Knowledge workers	57.2	30	
5.1.1	Knowledge-intensive employment, %	36.2	29	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.3	42	
5.1.4	GERD financed by business, %	43.3	42	
5.1.5	GMAT test takers/mn pop. 20–34	1,326.1	2	●
5.2	Innovation linkages	45.7	28	
5.2.1	University/industry research collaboration†	64.3	20	
5.2.2	State of cluster development†	68.8	10	
5.2.3	GERD financed by abroad, %	4.9	63	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	8	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.3	28	
5.3	Knowledge absorption	61.7	2	●
5.3.1	Royalty & license fees payments, % total trade	0.4	63	
5.3.2	High-tech imports less re-imports, %	41.8	1	●
5.3.3	Comm., computer & info. services imp., % total trade	0.5	98	○
5.3.4	FDI net inflows, % GDP	38.7	1	●
6	**Knowledge & technology outputs**	**33.3**	**45**	
6.1	Knowledge creation	18.0	60	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.5	78	○
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.2	28	
6.1.4	Scientific & technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5	Citable documents H index	292.0	25	
6.2	Knowledge impact	52.5	20	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.7	58	
6.2.2	New businesses/th pop. 15–64	28.1	1	●
6.2.3	Computer software spending, % GDP	0.4	22	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	10.1	48	
6.2.5	High- & medium-high-tech manufactures, %	23.5	46	
6.3	Knowledge diffusion	29.4	80	
6.3.1	Royalty & license fees receipts, % total trade	0.1	57	
6.3.2	High-tech exports less re-exports, %	0.2	101	○
6.3.3	Comm., computer & info. services exp., % total trade	0.5	103	○
6.3.4	FDI net outflows, % GDP	31.9	3	
7	**Creative outputs**	**56.8**	**6**	
7.1	Intangible assets	55.1	21	
7.1.1	Domestic res trademark app./bn PPP$ GDP	68.8	37	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	71.0	17	
7.1.4	ICTs & organizational model creation†	67.7	17	
7.2	Creative goods & services	48.0	8	
7.2.1	Cultural & creative services exports, % total trade	0.2	45	
7.2.2	National feature films/mn pop. 15–69	9.5	14	
7.2.3	Global ent. & media output/th pop. 15–69	1.4	18	
7.2.4	Printing & publishing manufactures, %	0.2	1	●
7.2.5	Creative goods exports, % total trade	0.3	73	○
7.3	Online creativity	69.1	9	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	84.6	9	
7.3.2	Country-code TLDs/th pop. 15–69	44.5	42	
7.3.3	Wikipedia edits/pop. 15–69	30,069.0	8	
7.3.4	Video uploads on YouTube/pop. 15–69	96.2	2	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Hungary

Key indicators

Population (millions)	9.9
GDP (US$ billions)	132.4
GDP per capita, PPP$	20,065.1
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**44.6**	**35**	
Innovation Output Sub-Index		42.2	29	
Innovation Input Sub-Index		47.0	41	
Innovation Efficiency Ratio		0.9	15	●
Global Innovation Index 2013 (out of 142)		46.9	31	
1	**Institutions**	**72.3**	**40**	
1.1	Political environment	71.1	45	
1.1.1	Political stability*	82.0	37	
1.1.2	Government effectiveness*	57.4	43	
1.1.3	Press freedom*	73.9	47	
1.2	Regulatory environment	78.8	33	
1.2.1	Regulatory quality*	74.1	33	
1.2.2	Rule of law*	62.7	40	
1.2.3	Cost of redundancy dismissal, salary weeks	13.4	60	
1.3	Business environment	67.0	63	
1.3.1	Ease of starting a business*	92.2	25	
1.3.2	Ease of resolving insolvency*	40.6	62	
1.3.3	Ease of paying taxes*	68.4	78	
2	**Human capital & research**	**37.9**	**42**	
2.1	Education	50.1	45	
2.1.1	Expenditure on education, % GDP	4.9	64	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	21.8	51	
2.1.3	School life expectancy, years	15.4	37	
2.1.4	PISA scales in reading, maths, & science	486.6	30	
2.1.5	Pupil-teacher ratio, secondary	10.0	26	
2.2	Tertiary education	34.2	65	
2.2.1	Tertiary enrolment, % gross	59.5	40	
2.2.2	Graduates in science & engineering, %	16.5	75	
2.2.3	Tertiary inbound mobility, %	4.3	36	
2.3	Research & development (R&D)	29.4	36	
2.3.1	Researchers, headcounts/mn pop.	3,695.9	27	
2.3.2	Gross expenditure on R&D, % GDP	1.3	28	
2.3.3	QS university ranking, average score top 3*	24.1	46	
3	**Infrastructure**	**45.6**	**36**	
3.1	Information & communication technologies (ICTs)	55.7	34	
3.1.1	ICT access*	64.6	42	
3.1.2	ICT use*	44.8	39	
3.1.3	Government's online service*	68.6	31	
3.1.4	E-participation*	44.7	36	
3.2	General infrastructure	28.0	97	
3.2.1	Electricity output, kWh/cap	3,461.6	57	
3.2.2	Logistics performance*	61.9	39	
3.2.3	Gross capital formation, % GDP	16.7	117	○
3.3	Ecological sustainability	53.2	18	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.2	47	
3.3.2	Environmental performance*	70.3	28	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	8.9	13	●
4	**Market sophistication**	**42.1**	**115**	○
4.1	Credit	28.7	98	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	56.4	57	
4.1.3	Microfinance gross loans, % GDP	0.0	90	○
4.2	Investment	21.8	132	○
4.2.1	Ease of protecting investors*	43.3	105	○
4.2.2	Market capitalization, % GDP	16.8	78	○
4.2.3	Total value of stocks traded, % GDP	8.7	43	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	47	
4.3	Trade & competition	75.9	64	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	71.3	41	
5	**Business sophistication**	**37.2**	**45**	
5.1	Knowledge workers	43.2	55	
5.1.1	Knowledge-intensive employment, %	35.4	32	
5.1.2	Firms offering formal training, % firms	14.6	99	○
5.1.3	GERD performed by business, % GDP	0.9	26	
5.1.4	GERD financed by business, %	65.6	17	
5.1.5	GMAT test takers/mn pop. 20–34	105.0	51	
5.2	Innovation linkages	28.0	85	
5.2.1	University/industry research collaboration†	54.3	40	
5.2.2	State of cluster development†	37.8	106	○
5.2.3	GERD financed by abroad, %	15.4	28	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	98	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	34	
5.3	Knowledge absorption	40.5	15	●
5.3.1	Royalty & license fees payments, % total trade	1.1	24	
5.3.2	High-tech imports less re-imports, %	14.1	14	●
5.3.3	Comm., computer & info. services imp., % total trade	1.1	59	
5.3.4	FDI net inflows, % GDP	6.8	28	
6	**Knowledge & technology outputs**	**41.9**	**24**	
6.1	Knowledge creation	24.8	42	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.6	33	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.8	34	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.2	29	
6.1.4	Scientific & technical articles/bn PPP$ GDP	30.7	29	
6.1.5	Citable documents H index	254.0	30	
6.2	Knowledge impact	52.7	18	●
6.2.1	Growth rate of PPP$ GDP/worker, %	–2.1	112	○
6.2.2	New businesses/th pop. 15–64	4.8	21	
6.2.3	Computer software spending, % GDP	0.3	38	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	37.5	9	●
6.2.5	High- & medium-high-tech manufactures, %	56.4	4	●
6.3	Knowledge diffusion	48.2	18	●
6.3.1	Royalty & license fees receipts, % total trade	1.0	16	●
6.3.2	High-tech exports less re-exports, %	15.4	8	●
6.3.3	Comm., computer & info. services exp., % total trade	1.4	64	
6.3.4	FDI net outflows, % GDP	4.7	15	●
7	**Creative outputs**	**42.5**	**35**	
7.1	Intangible assets	40.8	87	
7.1.1	Domestic res trademark app./bn PPP$ GDP	53.5	51	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.3	25	
7.1.3	ICTs & business model creation†	58.3	63	
7.1.4	ICTs & organizational model creation†	52.2	71	
7.2	Creative goods & services	39.6	19	●
7.2.1	Cultural & creative services exports, % total trade	1.0	8	●
7.2.2	National feature films/mn pop. 15–69	3.2	43	
7.2.3	Global ent. & media output/th pop. 15–69	0.4	31	
7.2.4	Printing & publishing manufactures, %	0.0	71	○
7.2.5	Creative goods exports, % total trade	6.9	8	●
7.3	Online creativity	48.6	27	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	12.5	44	
7.3.2	Country-code TLDs/th pop. 15–69	60.4	17	●
7.3.3	Wikipedia edits/pop. 15–69	21,090.5	23	
7.3.4	Video uploads on YouTube/pop. 15–69	85.7	19	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Iceland

Key indicators

Population (millions)	0.3
GDP (US$ billions)	14.7
GDP per capita, PPP$	40,999.6
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**54.1**	**19**	
Innovation Output Sub-Index		51.3	9	
Innovation Input Sub-Index		56.8	24	
Innovation Efficiency Ratio		0.9	13	
Global Innovation Index 2013 (out of 142)		56.4	13	
1	**Institutions**	**88.6**	**14**	
1.1	Political environment	89.2	10	
1.1.1	Political stability*	95.5	8	
1.1.2	Government effectiveness*	80.5	19	
1.1.3	Press freedom*	91.5	7	●
1.2	Regulatory environment	90.1	19	
1.2.1	Regulatory quality*	76.6	28	
1.2.2	Rule of law*	92.4	15	
1.2.3	Cost of redundancy dismissal, salary weeks	10.1	38	
1.3	Business environment	86.4	13	
1.3.1	Ease of starting a business*	91.1	29	
1.3.2	Ease of resolving insolvency*	89.5	11	
1.3.3	Ease of paying taxes*	78.6	39	
2	**Human capital & research**	**49.4**	**24**	
2.1	Education	56.7	18	
2.1.1	Expenditure on education, % GDP	7.6	8	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	21.1	54	
2.1.3	School life expectancy, years	18.7	3	●
2.1.4	PISA scales in reading, maths, & science	484.5	31	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	40.7	43	
2.2.1	Tertiary enrolment, % gross	80.9	9	
2.2.2	Graduates in science & engineering, %	15.6	81	○
2.2.3	Tertiary inbound mobility, %	5.8	30	
2.3	Research & development (R&D)	50.8	20	
2.3.1	Researchers, headcounts/mn pop.	10,402.0	2	●
2.3.2	Gross expenditure on R&D, % GDP	2.4	12	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**47.4**	**30**	
3.1	Information & communication technologies (ICTs)	58.2	30	
3.1.1	ICT access*	87.7	3	●
3.1.2	ICT use*	75.0	7	
3.1.3	Government's online service*	54.3	53	
3.1.4	E-participation*	15.8	79	
3.2	General infrastructure	47.6	20	
3.2.1	Electricity output, kWh/cap	54,840.6	1	●
3.2.2	Logistics performance*	70.6	32	
3.2.3	Gross capital formation, % GDP	13.6	136	○
3.3	Ecological sustainability	36.4	66	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	1.8	121	○
3.3.2	Environmental performance*	76.5	14	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.3	42	
4	**Market sophistication**	**54.1**	**41**	
4.1	Credit	53.0	29	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	96.8	32	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	30.7	92	○
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	20.7	70	○
4.2.3	Total value of stocks traded, % GDP	5.0	50	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	27	
4.3	Trade & competition	78.6	34	
4.3.1	Applied tariff rate, weighted mean, %	1.0	8	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.0	72	
4.3.3	Intensity of local competition†	64.0	80	○
5	**Business sophistication**	**44.4**	**25**	
5.1	Knowledge workers	69.3	9	
5.1.1	Knowledge-intensive employment, %	46.9	6	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.3	17	
5.1.4	GERD financed by business, %	52.6	33	
5.1.5	GMAT test takers/mn pop. 20–34	586.6	7	●
5.2	Innovation linkages	35.0	59	
5.2.1	University/industry research collaboration†	62.8	24	
5.2.2	State of cluster development†	50.5	52	
5.2.3	GERD financed by abroad, %	8.4	49	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	35	
5.3	Knowledge absorption	28.9	48	
5.3.1	Royalty & license fees payments, % total trade	1.3	17	
5.3.2	High-tech imports less re-imports, %	5.8	88	○
5.3.3	Comm., computer & info. services imp., % total trade	1.6	32	
5.3.4	FDI net inflows, % GDP	3.8	57	
6	**Knowledge & technology outputs**	**36.6**	**36**	
6.1	Knowledge creation	45.9	21	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.9	38	
6.1.2	PCT resident patent app./tr PPP$ GDP	3.4	15	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	67.5	1	●
6.1.5	Citable documents H index	160.0	39	
6.2	Knowledge impact	41.6	59	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.5	46	
6.2.2	New businesses/th pop. 15–64	8.2	12	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.3	70	
6.2.5	High- & medium-high-tech manufactures, %	7.1	82	○
6.3	Knowledge diffusion	22.3	120	○
6.3.1	Royalty & license fees receipts, % total trade	2.8	8	
6.3.2	High-tech exports less re-exports, %	1.5	60	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	74	
6.3.4	FDI net outflows, % GDP	–23.5	125	○
7	**Creative outputs**	**66.1**	**1**	●
7.1	Intangible assets	66.0	6	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	124.6	7	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	9.5	1	●
7.1.3	ICTs & business model creation†	66.8	29	
7.1.4	ICTs & organizational model creation†	65.7	20	
7.2	Creative goods & services	50.9	6	●
7.2.1	Cultural & creative services exports, % total trade	0.3	36	
7.2.2	National feature films/mn pop. 15–69	57.2	1	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.1	4	●
7.2.5	Creative goods exports, % total trade	0.2	83	○
7.3	Online creativity	81.4	1	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	100.0	1	●
7.3.2	Country-code TLDs/th pop. 15–69	71.6	8	
7.3.3	Wikipedia edits/pop. 15–69	42,761.2	4	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

India

Key indicators

Population (millions)	1,236.7
GDP (US$ billions)	1,870.7
GDP per capita, PPP$	4,077.1
Income group	Lower-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**33.7**	**76**	
Innovation Output Sub-Index		30.4	65	
Innovation Input Sub-Index		37.0	93	
Innovation Efficiency Ratio		0.8	31	●
Global Innovation Index 2013 (out of 142)		36.2	66	
1	**Institutions**	**50.8**	**106**	
1.1	Political environment	43.3	120	
1.1.1	Political stability*	35.2	126	○
1.1.2	Government effectiveness*	36.0	82	
1.1.3	Press freedom*	58.8	115	
1.2	Regulatory environment	62.2	83	
1.2.1	Regulatory quality*	36.5	108	
1.2.2	Rule of law*	43.5	64	
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	73	
1.3	Business environment	47.0	128	○
1.3.1	Ease of starting a business*	62.7	129	○
1.3.2	Ease of resolving insolvency*	27.1	105	
1.3.3	Ease of paying taxes*	51.0	120	
2	**Human capital & research**	**22.7**	**96**	
2.1	Education	24.2	128	○
2.1.1	Expenditure on education, % GDP	3.2	109	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	12.6	90	
2.1.3	School life expectancy, years	11.7	91	
2.1.4	PISA scales in reading, maths, & science	336.0	62	○
2.1.5	Pupil-teacher ratio, secondary	25.9	92	
2.2	Tertiary education	11.7	122	○
2.2.1	Tertiary enrolment, % gross	23.3	86	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.1	106	○
2.3	Research & development (R&D)	32.0	31	●
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.8	41	
2.3.3	QS university ranking, average score top 3*	45.7	27	●
3	**Infrastructure**	**32.1**	**87**	
3.1	Information & communication technologies (ICTs)	25.9	99	
3.1.1	ICT access*	25.0	111	
3.1.2	ICT use*	6.5	112	
3.1.3	Government's online service*	53.6	56	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	43.1	33	●
3.2.1	Electricity output, kWh/cap	847.6	95	
3.2.2	Logistics performance*	58.3	46	
3.2.3	Gross capital formation, % GDP	35.0	14	●
3.3	Ecological sustainability	27.4	106	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.3	80	
3.3.2	Environmental performance*	31.2	128	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**51.2**	**50**	
4.1	Credit	33.3	80	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	51.5	65	
4.1.3	Microfinance gross loans, % GDP	0.2	55	
4.2	Investment	44.2	41	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	68.6	27	●
4.2.3	Total value of stocks traded, % GDP	33.8	26	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	24	
4.3	Trade & competition	76.1	59	
4.3.1	Applied tariff rate, weighted mean, %	8.2	113	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.8	89	
4.3.3	Intensity of local competition†	75.8	22	●
5	**Business sophistication**	**28.0**	**93**	
5.1	Knowledge workers	25.0	110	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	15.9	97	○
5.1.3	GERD performed by business, % GDP	0.3	43	
5.1.4	GERD financed by business, %	35.5	50	
5.1.5	GMAT test takers/mn pop. 20–34	78.7	57	
5.2	Innovation linkages	38.9	46	
5.2.1	University/industry research collaboration†	50.0	43	
5.2.2	State of cluster development†	64.7	15	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	54	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	84	
5.3	Knowledge absorption	20.2	100	
5.3.1	Royalty & license fees payments, % total trade	0.8	35	
5.3.2	High-tech imports less re-imports, %	6.7	73	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	75	
5.3.4	FDI net inflows, % GDP	1.7	89	
6	**Knowledge & technology outputs**	**32.2**	**50**	
6.1	Knowledge creation	18.4	57	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.0	52	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	59	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.8	74	
6.1.5	Citable documents H index	301.0	24	●
6.2	Knowledge impact	34.1	87	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.7	24	●
6.2.2	New businesses/th pop. 15–64	0.1	87	
6.2.3	Computer software spending, % GDP	0.1	74	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.2	59	
6.2.5	High- & medium-high-tech manufactures, %	31.8	33	
6.3	Knowledge diffusion	44.1	24	●
6.3.1	Royalty & license fees receipts, % total trade	0.1	61	
6.3.2	High-tech exports less re-exports, %	2.8	45	
6.3.3	Comm., computer & info. services exp., % total trade	9.8	1	●
6.3.4	FDI net outflows, % GDP	0.5	64	
7	**Creative outputs**	**28.6**	**82**	
7.1	Intangible assets	39.4	94	
7.1.1	Domestic res trademark app./bn PPP$ GDP	37.3	69	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	72	○
7.1.3	ICTs & business model creation†	63.5	39	
7.1.4	ICTs & organizational model creation†	60.0	38	
7.2	Creative goods & services	21.1	58	
7.2.1	Cultural & creative services exports, % total trade	0.1	65	
7.2.2	National feature films/mn pop. 15–69	1.5	58	
7.2.3	Global ent. & media output/th pop. 15–69	0.0	58	○
7.2.4	Printing & publishing manufactures, %	0.0	82	○
7.2.5	Creative goods exports, % total trade	4.3	13	●
7.3	Online creativity	14.7	78	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.2	102	
7.3.2	Country-code TLDs/th pop. 15–69	14.9	88	
7.3.3	Wikipedia edits/pop. 15–69	536.9	106	
7.3.4	Video uploads on YouTube/pop. 15–69	41.6	58	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Indonesia

Key indicators

Population (millions)	246.9
GDP (US$ billions)	870.3
GDP per capita, PPP$	5,214.1
Income group	Lower-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.8**	**87**	
Innovation Output Sub-Index		31.2	60	
Innovation Input Sub-Index		32.4	117	
Innovation Efficiency Ratio		1.0	4	●
Global Innovation Index 2013 (out of 142)		35.8	85	
1	**Institutions**	**38.1**	**137**	○
1.1	Political environment	47.9	96	
1.1.1	Political stability*	51.6	101	
1.1.2	Government effectiveness*	33.1	87	
1.1.3	Press freedom*	59.0	114	
1.2	Regulatory environment	17.9	140	○
1.2.1	Regulatory quality*	41.6	93	
1.2.2	Rule of law*	29.9	98	
1.2.3	Cost of redundancy dismissal, salary weeks	57.8	139	○
1.3	Business environment	48.5	123	
1.3.1	Ease of starting a business*	69.2	117	
1.3.2	Ease of resolving insolvency*	18.9	123	
1.3.3	Ease of paying taxes*	57.4	111	
2	**Human capital & research**	**22.8**	**92**	
2.1	Education	30.1	117	
2.1.1	Expenditure on education, % GDP	2.8	114	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	7.7	105	○
2.1.3	School life expectancy, years	12.7	78	
2.1.4	PISA scales in reading, maths, & science	384.4	59	○
2.1.5	Pupil-teacher ratio, secondary	14.8	59	
2.2	Tertiary education	26.8	86	
2.2.1	Tertiary enrolment, % gross	27.2	81	
2.2.2	Graduates in science & engineering, %	22.8	35	
2.2.3	Tertiary inbound mobility, %	0.1	105	○
2.3	Research & development (R&D)	11.6	65	
2.3.1	Researchers, headcounts/mn pop.	173.2	91	
2.3.2	Gross expenditure on R&D, % GDP	0.1	105	
2.3.3	QS university ranking, average score top 3*	31.6	40	●
3	**Infrastructure**	**33.1**	**83**	
3.1	Information & communication technologies (ICTs)	30.8	88	
3.1.1	ICT access*	36.2	90	
3.1.2	ICT use*	16.4	90	
3.1.3	Government's online service*	49.7	68	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	41.1	42	
3.2.1	Electricity output, kWh/cap	752.6	97	
3.2.2	Logistics performance*	52.8	59	
3.2.3	Gross capital formation, % GDP	34.6	15	●
3.3	Ecological sustainability	27.2	108	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.7	86	
3.3.2	Environmental performance*	44.4	97	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	66	
4	**Market sophistication**	**45.3**	**88**	
4.1	Credit	27.3	102	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	34.9	90	
4.1.3	Microfinance gross loans, % GDP	1.2	34	
4.2	Investment	31.4	89	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	45.2	42	
4.2.3	Total value of stocks traded, % GDP	10.4	40	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	67	○
4.3	Trade & competition	77.1	51	
4.3.1	Applied tariff rate, weighted mean, %	2.6	54	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.6	87	
4.3.3	Intensity of local competition†	67.2	63	
5	**Business sophistication**	**22.8**	**124**	
5.1	Knowledge workers	7.6	142	○
5.1.1	Knowledge-intensive employment, %	8.6	99	
5.1.2	Firms offering formal training, % firms	4.8	105	○
5.1.3	GERD performed by business, % GDP	0.0	81	○
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	14.3	113	
5.2	Innovation linkages	36.1	53	
5.2.1	University/industry research collaboration†	58.2	29	●
5.2.2	State of cluster development†	57.2	27	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	71	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	105	○
5.3	Knowledge absorption	24.7	76	
5.3.1	Royalty & license fees payments, % total trade	0.8	33	●
5.3.2	High-tech imports less re-imports, %	9.4	38	
5.3.3	Comm., computer & info. services imp., % total trade	0.7	78	
5.3.4	FDI net inflows, % GDP	2.3	83	
6	**Knowledge & technology outputs**	**23.2**	**93**	
6.1	Knowledge creation	3.8	127	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.5	76	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	110	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	47	
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.1	138	○
6.1.5	Citable documents H index	112.0	55	
6.2	Knowledge impact	40.5	63	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.2	19	●
6.2.2	New businesses/th pop. 15–64	0.3	80	
6.2.3	Computer software spending, % GDP	0.4	21	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.5	68	
6.2.5	High- & medium-high-tech manufactures, %	32.0	32	
6.3	Knowledge diffusion	25.3	108	
6.3.1	Royalty & license fees receipts, % total trade	0.0	78	
6.3.2	High-tech exports less re-exports, %	3.4	39	
6.3.3	Comm., computer & info. services exp., % total trade	0.6	98	
6.3.4	FDI net outflows, % GDP	0.6	60	
7	**Creative outputs**	**39.2**	**43**	
7.1	Intangible assets	61.9	8	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	64.2	37	●
7.1.4	ICTs & organizational model creation†	59.7	39	●
7.2	Creative goods & services	18.5	65	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.5	88	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	53	
7.2.4	Printing & publishing manufactures, %	0.0	69	
7.2.5	Creative goods exports, % total trade	2.1	25	●
7.3	Online creativity	14.6	79	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.9	96	
7.3.2	Country-code TLDs/th pop. 15–69	6.4	109	
7.3.3	Wikipedia edits/pop. 15–69	836.9	101	
7.3.4	Video uploads on YouTube/pop. 15–69	48.7	55	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Iran, Islamic Republic of

Key indicators

Population (millions)	76.4
GDP (US$ billions)	366.3
GDP per capita, PPP$	12,264.1
Income group	Upper-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**26.1**	**120**	
Innovation Output Sub-Index		19.0	125	
Innovation Input Sub-Index		33.2	107	
Innovation Efficiency Ratio		0.6	122	
Global Innovation Index 2013 (out of 142)		27.3	113	
1	**Institutions**	**43.0**	**131**	
1.1	Political environment	28.8	140	○
1.1.1	Political stability*	33.3	130	
1.1.2	Government effectiveness*	26.4	102	
1.1.3	Press freedom*	26.6	142	○
1.2	Regulatory environment	43.1	126	
1.2.1	Regulatory quality*	11.6	138	○
1.2.2	Rule of law*	21.6	120	
1.2.3	Cost of redundancy dismissal, salary weeks	23.1	108	
1.3	Business environment	57.2	91	
1.3.1	Ease of starting a business*	83.7	72	
1.3.2	Ease of resolving insolvency*	23.7	111	
1.3.3	Ease of paying taxes*	64.0	92	
2	**Human capital & research**	**36.4**	**46**	●
2.1	Education	35.6	95	
2.1.1	Expenditure on education, % GDP	3.7	95	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	16.3	76	
2.1.3	School life expectancy, years	15.2	41	●
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	58.1	10	●
2.2.1	Tertiary enrolment, % gross	55.2	46	●
2.2.2	Graduates in science & engineering, %	47.2	2	●
2.2.3	Tertiary inbound mobility, %	0.1	107	○
2.3	Research & development (R&D)	15.4	55	●
2.3.1	Researchers, headcounts/mn pop.	1,483.7	48	
2.3.2	Gross expenditure on R&D, % GDP	0.7	46	●
2.3.3	QS university ranking, average score top 3*	15.4	56	●
3	**Infrastructure**	**33.6**	**81**	
3.1	Information & communication technologies (ICTs)	31.4	87	
3.1.1	ICT access*	46.8	71	
3.1.2	ICT use*	11.4	103	
3.1.3	Government's online service*	49.0	72	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	41.3	41	●
3.2.1	Electricity output, kWh/cap	3,204.6	60	
3.2.2	Logistics performance*	34.9	107	
3.2.3	Gross capital formation, % GDP	36.2	11	●
3.3	Ecological sustainability	28.0	101	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.9	99	
3.3.2	Environmental performance*	51.1	75	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	76	
4	**Market sophistication**	**35.9**	**139**	○
4.1	Credit	29.5	95	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	12.9	136	○
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	22.3	131	
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	20.9	69	
4.2.3	Total value of stocks traded, % GDP	3.9	52	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	56.0	136	○
4.3.1	Applied tariff rate, weighted mean, %	21.8	141	○
4.3.2	Non-agricultural mkt access weighted tariff, %	1.0	76	
4.3.3	Intensity of local competition†	55.7	115	
5	**Business sophistication**	**17.3**	**136**	○
5.1	Knowledge workers	16.6	131	
5.1.1	Knowledge-intensive employment, %	15.3	89	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	61	
5.1.4	GERD financed by business, %	10.6	74	
5.1.5	GMAT test takers/mn pop. 20–34	n/a	n/a	
5.2	Innovation linkages	24.1	109	
5.2.1	University/industry research collaboration†	38.7	86	
5.2.2	State of cluster development†	40.7	95	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	106	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	104	
5.3	Knowledge absorption	11.2	136	○
5.3.1	Royalty & license fees payments, % total trade	0.2	82	
5.3.2	High-tech imports less re-imports, %	3.6	117	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	84	
5.3.4	FDI net inflows, % GDP	0.8	119	
6	**Knowledge & technology outputs**	**20.0**	**113**	
6.1	Knowledge creation	25.3	40	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	8.0	13	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	113	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	24.7	39	●
6.1.5	Citable documents H index	135.0	45	●
6.2	Knowledge impact	32.8	91	
6.2.1	Growth rate of PPP$ GDP/worker, %	–2.4	113	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.2	66	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.8	89	
6.2.5	High- & medium-high-tech manufactures, %	36.3	25	●
6.3	Knowledge diffusion	1.9	139	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	94	
6.3.2	High-tech exports less re-exports, %	0.5	81	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	128	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**18.1**	**128**	
7.1	Intangible assets	26.3	132	
7.1.1	Domestic res trademark app./bn PPP$ GDP	0.0	102	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	67	
7.1.3	ICTs & business model creation†	48.3	102	
7.1.4	ICTs & organizational model creation†	43.7	104	
7.2	Creative goods & services	7.3	105	
7.2.1	Cultural & creative services exports, % total trade	0.0	71	
7.2.2	National feature films/mn pop. 15–69	1.4	61	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	92	○
7.2.5	Creative goods exports, % total trade	0.5	59	
7.3	Online creativity	12.3	85	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.3	84	
7.3.2	Country-code TLDs/th pop. 15–69	30.0	60	
7.3.3	Wikipedia edits/pop. 15–69	2,736.4	70	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Ireland

Key indicators

Population (millions)	4.6
GDP (US$ billions)	217.9
GDP per capita, PPP$	39,547.4
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**56.7**	**11**	
Innovation Output Sub-Index		50.0	11	
Innovation Input Sub-Index		63.3	12	
Innovation Efficiency Ratio		0.8	47	
Global Innovation Index 2013 (out of 142)		57.9	10	
1	**Institutions**	**90.4**	**9**	
1.1	Political environment	86.7	13	
1.1.1	Political stability*	88.4	24	
1.1.2	Government effectiveness*	81.7	16	
1.1.3	Press freedom*	89.9	13	
1.2	Regulatory environment	91.7	15	
1.2.1	Regulatory quality*	89.5	13	
1.2.2	Rule of law*	94.0	13	
1.2.3	Cost of redundancy dismissal, salary weeks	12.2	52	
1.3	Business environment	92.8	3	●
1.3.1	Ease of starting a business*	92.5	21	
1.3.2	Ease of resolving insolvency*	92.8	8	
1.3.3	Ease of paying taxes*	92.9	6	●
2	**Human capital & research**	**53.2**	**18**	
2.1	Education	58.1	14	
2.1.1	Expenditure on education, % GDP	6.4	20	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	28.8	27	
2.1.3	School life expectancy, years	18.6	4	●
2.1.4	PISA scales in reading, maths, & science	515.6	12	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	52.4	19	
2.2.1	Tertiary enrolment, % gross	73.5	20	
2.2.2	Graduates in science & engineering, %	23.2	34	
2.2.3	Tertiary inbound mobility, %	10.7	15	
2.3	Research & development (R&D)	49.2	21	
2.3.1	Researchers, headcounts/mn pop.	4,893.2	22	
2.3.2	Gross expenditure on R&D, % GDP	1.7	22	
2.3.3	QS university ranking, average score top 3*	62.3	16	
3	**Infrastructure**	**45.3**	**38**	
3.1	Information & communication technologies (ICTs)	50.9	44	
3.1.1	ICT access*	75.9	22	
3.1.2	ICT use*	60.8	20	
3.1.3	Government's online service*	53.6	56	
3.1.4	E-participation*	13.2	84	○
3.2	General infrastructure	28.5	93	○
3.2.1	Electricity output, kWh/cap	5,992.2	35	
3.2.2	Logistics performance*	75.8	24	
3.2.3	Gross capital formation, % GDP	11.0	139	○
3.3	Ecological sustainability	56.4	10	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	12.6	4	●
3.3.2	Environmental performance*	74.7	19	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	43	
4	**Market sophistication**	**70.3**	**7**	●
4.1	Credit	74.2	6	●
4.1.1	Ease of getting credit*	87.5	13	
4.1.2	Domestic credit to private sector, % GDP	186.1	7	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	60.5	16	
4.2.1	Ease of protecting investors*	83.3	6	
4.2.2	Market capitalization, % GDP	51.8	38	
4.2.3	Total value of stocks traded, % GDP	5.8	47	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.7	1	●
4.3	Trade & competition	76.0	62	○
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	71.5	40	
5	**Business sophistication**	**57.4**	**4**	●
5.1	Knowledge workers	73.1	8	
5.1.1	Knowledge-intensive employment, %	41.2	22	
5.1.2	Firms offering formal training, % firms	73.2	3	●
5.1.3	GERD performed by business, % GDP	1.2	20	
5.1.4	GERD financed by business, %	69.4	9	
5.1.5	GMAT test takers/mn pop. 20–34	253.9	22	
5.2	Innovation linkages	50.0	17	
5.2.1	University/industry research collaboration†	70.0	12	
5.2.2	State of cluster development†	63.3	20	
5.2.3	GERD financed by abroad, %	20.4	19	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	14	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.8	23	
5.3	Knowledge absorption	49.3	4	●
5.3.1	Royalty & license fees payments, % total trade	20.4	1	●
5.3.2	High-tech imports less re-imports, %	6.0	82	○
5.3.3	Comm., computer & info. services imp., % total trade	1.1	58	
5.3.4	FDI net inflows, % GDP	15.7	8	
6	**Knowledge & technology outputs**	**53.2**	**10**	
6.1	Knowledge creation	34.9	28	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.6	42	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.1	23	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	36.2	22	
6.1.5	Citable documents H index	271.0	27	
6.2	Knowledge impact	58.1	7	●
6.2.1	Growth rate of PPP$ GDP/worker, %	1.1	65	○
6.2.2	New businesses/th pop. 15–64	4.5	23	
6.2.3	Computer software spending, % GDP	0.8	2	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.5	42	
6.2.5	High- & medium-high-tech manufactures, %	62.3	3	●
6.3	Knowledge diffusion	66.7	1	●
6.3.1	Royalty & license fees receipts, % total trade	2.4	9	
6.3.2	High-tech exports less re-exports, %	12.2	18	
6.3.3	Comm., computer & info. services exp., % total trade	23.7	1	●
6.3.4	FDI net outflows, % GDP	10.1	4	●
7	**Creative outputs**	**46.9**	**19**	
7.1	Intangible assets	43.4	73	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	13.8	90	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.6	37	○
7.1.3	ICTs & business model creation†	72.5	13	
7.1.4	ICTs & organizational model creation†	68.2	14	
7.2	Creative goods & services	35.3	28	
7.2.1	Cultural & creative services exports, % total trade	0.1	51	○
7.2.2	National feature films/mn pop. 15–69	10.0	13	
7.2.3	Global ent. & media output/th pop. 15–69	1.4	17	
7.2.4	Printing & publishing manufactures, %	0.0	49	○
7.2.5	Creative goods exports, % total trade	2.2	23	
7.3	Online creativity	65.4	13	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	74.1	13	
7.3.2	Country-code TLDs/th pop. 15–69	55.0	30	
7.3.3	Wikipedia edits/pop. 15–69	24,573.8	16	
7.3.4	Video uploads on YouTube/pop. 15–69	90.7	10	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Israel

Key indicators

Population (millions)	7.9
GDP (US$ billions)	291.5
GDP per capita, PPP$	34,770.1
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**55.5**	**15**	
Innovation Output Sub-Index		49.1	13	
Innovation Input Sub-Index		61.8	17	
Innovation Efficiency Ratio		0.8	42	
Global Innovation Index 2013 (out of 142)		56.0	14	
1	**Institutions**	**67.7**	**54**	
1.1	Political environment	60.3	59	
1.1.1	Political stability*	39.6	119	○
1.1.2	Government effectiveness*	74.3	25	
1.1.3	Press freedom*	67.0	91	○
1.2	Regulatory environment	68.1	61	
1.2.1	Regulatory quality*	79.1	22	
1.2.2	Rule of law*	71.6	34	
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	124	○
1.3	Business environment	74.6	30	
1.3.1	Ease of starting a business*	89.4	41	
1.3.2	Ease of resolving insolvency*	64.2	31	
1.3.3	Ease of paying taxes*	70.3	65	
2	**Human capital & research**	**61.9**	**5**	●
2.1	Education	49.7	51	
2.1.1	Expenditure on education, % GDP	5.6	39	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.4	83	○
2.1.3	School life expectancy, years	15.7	28	
2.1.4	PISA scales in reading, maths, & science	474.1	36	○
2.1.5	Pupil-teacher ratio, secondary	9.8	24	
2.2	Tertiary education	63.0	6	●
2.2.1	Tertiary enrolment, % gross	62.4	31	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	73.1	7	●
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	3.9	2	●
2.3.3	QS university ranking, average score top 3*	56.0	21	
3	**Infrastructure**	**53.7**	**20**	
3.1	Information & communication technologies (ICTs)	77.2	12	
3.1.1	ICT access*	75.7	23	
3.1.2	ICT use*	58.6	24	
3.1.3	Government's online service*	85.0	15	
3.1.4	E-participation*	89.5	7	●
3.2	General infrastructure	37.5	53	
3.2.1	Electricity output, kWh/cap	7,675.6	23	
3.2.2	Logistics performance*	71.4	31	
3.2.3	Gross capital formation, % GDP	18.6	106	○
3.3	Ecological sustainability	46.4	38	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.0	23	
3.3.2	Environmental performance*	65.8	39	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.7	37	
4	**Market sophistication**	**67.5**	**12**	
4.1	Credit	58.0	20	
4.1.1	Ease of getting credit*	87.5	13	
4.1.2	Domestic credit to private sector, % GDP	89.5	36	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	68.8	8	●
4.2.1	Ease of protecting investors*	83.3	6	●
4.2.2	Market capitalization, % GDP	59.7	33	
4.2.3	Total value of stocks traded, % GDP	43.4	19	
4.2.4	Venture capital deals/tr PPP$ GDP	1.0	1	●
4.3	Trade & competition	75.7	69	
4.3.1	Applied tariff rate, weighted mean, %	3.5	62	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	62	
4.3.3	Intensity of local competition†	61.5	91	○
5	**Business sophistication**	**58.2**	**3**	●
5.1	Knowledge workers	88.7	1	●
5.1.1	Knowledge-intensive employment, %	42.4	19	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	3.3	1	●
5.1.4	GERD financed by business, %	84.4	1	●
5.1.5	GMAT test takers/mn pop. 20–34	1,112.8	3	●
5.2	Innovation linkages	59.4	4	●
5.2.1	University/industry research collaboration†	73.3	8	●
5.2.2	State of cluster development†	52.8	37	
5.2.3	GERD financed by abroad, %	47.3	7	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	25	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	2.9	6	●
5.3	Knowledge absorption	26.4	63	
5.3.1	Royalty & license fees payments, % total trade	1.2	21	
5.3.2	High-tech imports less re-imports, %	9.5	37	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	115	○
5.3.4	FDI net inflows, % GDP	4.3	49	
6	**Knowledge & technology outputs**	**54.3**	**7**	●
6.1	Knowledge creation	51.5	12	
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.1	27	
6.1.2	PCT resident patent app./tr PPP$ GDP	5.3	11	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	42.9	16	
6.1.5	Citable documents H index	414.0	15	
6.2	Knowledge impact	48.7	32	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.6	60	○
6.2.2	New businesses/th pop. 15–64	3.0	33	
6.2.3	Computer software spending, % GDP	0.3	29	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	32.0	13	
6.2.5	High- & medium-high-tech manufactures, %	32.9	31	
6.3	Knowledge diffusion	62.6	3	●
6.3.1	Royalty & license fees receipts, % total trade	1.3	15	
6.3.2	High-tech exports less re-exports, %	13.1	16	
6.3.3	Comm., computer & info. services exp., % total trade	12.7	1	●
6.3.4	FDI net outflows, % GDP	2.1	35	
7	**Creative outputs**	**43.9**	**30**	
7.1	Intangible assets	41.7	84	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	12.4	92	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.7	36	
7.1.3	ICTs & business model creation†	68.7	25	
7.1.4	ICTs & organizational model creation†	66.5	18	
7.2	Creative goods & services	31.4	38	
7.2.1	Cultural & creative services exports, % total trade	0.1	53	
7.2.2	National feature films/mn pop. 15–69	5.3	27	
7.2.3	Global ent. & media output/th pop. 15–69	0.9	22	
7.2.4	Printing & publishing manufactures, %	0.0	18	
7.2.5	Creative goods exports, % total trade	1.8	31	
7.3	Online creativity	61.0	17	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	32.1	23	
7.3.2	Country-code TLDs/th pop. 15–69	51.9	34	
7.3.3	Wikipedia edits/pop. 15–69	38,503.3	6	●
7.3.4	Video uploads on YouTube/pop. 15–69	94.7	5	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Italy

Key indicators

Population (millions)	60.9
GDP (US$ billions)	2,072.0
GDP per capita, PPP$	30,289.4
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**45.7**	**31**	
Innovation Output Sub-Index		40.1	33	
Innovation Input Sub-Index		51.2	32	
Innovation Efficiency Ratio		0.8	52	
Global Innovation Index 2013 (out of 142)		47.8	29	
1	**Institutions**	**73.2**	**39**	
1.1	Political environment	67.9	49	
1.1.1	Political stability*	78.0	46	
1.1.2	Government effectiveness*	51.8	50	
1.1.3	Press freedom*	73.9	48	
1.2	Regulatory environment	81.1	30	
1.2.1	Regulatory quality*	67.9	39	
1.2.2	Rule of law*	56.3	51	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	70.7	48	
1.3.1	Ease of starting a business*	87.7	58	
1.3.2	Ease of resolving insolvency*	66.4	29	
1.3.3	Ease of paying taxes*	57.9	108	○
2	**Human capital & research**	**42.1**	**33**	
2.1	Education	52.1	40	
2.1.1	Expenditure on education, % GDP	4.5	75	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.3	37	
2.1.3	School life expectancy, years	16.3	18	●
2.1.4	PISA scales in reading, maths, & science	489.5	28	
2.1.5	Pupil-teacher ratio, secondary	10.1	28	
2.2	Tertiary education	39.7	48	
2.2.1	Tertiary enrolment, % gross	63.9	29	
2.2.2	Graduates in science & engineering, %	21.7	41	
2.2.3	Tertiary inbound mobility, %	3.7	46	
2.3	Research & development (R&D)	34.5	29	
2.3.1	Researchers, headcounts/mn pop.	2,496.3	36	
2.3.2	Gross expenditure on R&D, % GDP	1.3	30	
2.3.3	QS university ranking, average score top 3*	51.3	24	
3	**Infrastructure**	**49.8**	**26**	
3.1	Information & communication technologies (ICTs)	51.1	43	
3.1.1	ICT access*	71.5	30	
3.1.2	ICT use*	48.9	34	
3.1.3	Government's online service*	57.5	48	
3.1.4	E-participation*	26.3	56	
3.2	General infrastructure	35.4	59	
3.2.1	Electricity output, kWh/cap	4,871.2	46	
3.2.2	Logistics performance*	81.7	22	
3.2.3	Gross capital formation, % GDP	17.4	113	○
3.3	Ecological sustainability	63.0	4	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.1	15	●
3.3.2	Environmental performance*	74.4	22	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	10.9	7	●
4	**Market sophistication**	**51.0**	**52**	
4.1	Credit	45.1	44	
4.1.1	Ease of getting credit*	50.0	96	○
4.1.2	Domestic credit to private sector, % GDP	124.5	21	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	34.7	71	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	23.9	63	
4.2.3	Total value of stocks traded, % GDP	37.7	22	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	50	○
4.3	Trade & competition	73.2	89	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	65.8	70	
5	**Business sophistication**	**40.0**	**35**	
5.1	Knowledge workers	53.1	37	
5.1.1	Knowledge-intensive employment, %	34.5	35	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.7	28	
5.1.4	GERD financed by business, %	54.5	30	
5.1.5	GMAT test takers/mn pop. 20–34	187.4	26	
5.2	Innovation linkages	39.4	44	
5.2.1	University/industry research collaboration†	45.2	57	
5.2.2	State of cluster development†	74.8	1	●
5.2.3	GERD financed by abroad, %	9.1	44	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	70	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.7	24	
5.3	Knowledge absorption	27.4	56	
5.3.1	Royalty & license fees payments, % total trade	1.0	26	
5.3.2	High-tech imports less re-imports, %	7.5	60	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	19	●
5.3.4	FDI net inflows, % GDP	0.4	129	○
6	**Knowledge & technology outputs**	**42.7**	**23**	
6.1	Knowledge creation	36.4	27	
6.1.1	Domestic resident patent app./tr PPP$ GDP	4.7	28	
6.1.2	PCT resident patent app./tr PPP$ GDP	1.6	28	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.4	23	
6.1.4	Scientific & technical articles/bn PPP$ GDP	31.0	28	
6.1.5	Citable documents H index	588.0	7	●
6.2	Knowledge impact	53.8	17	●
6.2.1	Growth rate of PPP$ GDP/worker, %	−1.5	108	○
6.2.2	New businesses/th pop. 15–64	1.9	44	
6.2.3	Computer software spending, % GDP	0.6	12	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	75.8	1	●
6.2.5	High- & medium-high-tech manufactures, %	36.2	26	
6.3	Knowledge diffusion	37.8	38	
6.3.1	Royalty & license fees receipts, % total trade	0.6	21	
6.3.2	High-tech exports less re-exports, %	5.0	30	
6.3.3	Comm., computer & info. services exp., % total trade	1.4	65	
6.3.4	FDI net outflows, % GDP	0.7	54	
7	**Creative outputs**	**37.5**	**48**	
7.1	Intangible assets	35.3	113	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	56.0	48	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.5	24	
7.1.3	ICTs & business model creation†	47.3	108	○
7.1.4	ICTs & organizational model creation†	40.8	116	○
7.2	Creative goods & services	28.6	41	
7.2.1	Cultural & creative services exports, % total trade	0.3	29	
7.2.2	National feature films/mn pop. 15–69	3.6	38	
7.2.3	Global ent. & media output/th pop. 15–69	1.0	21	
7.2.4	Printing & publishing manufactures, %	0.0	51	
7.2.5	Creative goods exports, % total trade	2.1	24	
7.3	Online creativity	51.0	25	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	25.1	27	
7.3.2	Country-code TLDs/th pop. 15–69	55.7	28	
7.3.3	Wikipedia edits/pop. 15–69	24,558.7	17	●
7.3.4	Video uploads on YouTube/pop. 15–69	81.5	26	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Jamaica

Key indicators

Population (millions)	2.7
GDP (US$ billions)	14.3
GDP per capita, PPP$	9,048.1
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.4**	**82**	
Innovation Output Sub-Index		25.7	91	
Innovation Input Sub-Index		39.2	84	
Innovation Efficiency Ratio		0.7	100	
Global Innovation Index 2013 (out of 142)		32.9	82	
1	**Institutions**	**67.9**	**53**	
1.1	Political environment	66.2	50	
1.1.1	Political stability*	68.2	63	
1.1.2	Government effectiveness*	40.3	69	
1.1.3	Press freedom*	90.1	11	●
1.2	Regulatory environment	66.4	68	
1.2.1	Regulatory quality*	54.9	63	
1.2.2	Rule of law*	35.0	86	
1.2.3	Cost of redundancy dismissal, salary weeks	14.0	64	
1.3	Business environment	71.0	44	●
1.3.1	Ease of starting a business*	90.9	32	●
1.3.2	Ease of resolving insolvency*	68.0	28	●
1.3.3	Ease of paying taxes*	54.0	117	
2	**Human capital & research**	**25.1**	**84**	
2.1	Education	44.5	64	
2.1.1	Expenditure on education, % GDP	6.1	27	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.8	35	●
2.1.3	School life expectancy, years	12.5	80	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	16.8	71	
2.2	Tertiary education	30.7	75	
2.2.1	Tertiary enrolment, % gross	30.8	75	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**26.8**	**109**	
3.1	Information & communication technologies (ICTs)	22.1	104	
3.1.1	ICT access*	39.3	86	
3.1.2	ICT use*	18.4	85	
3.1.3	Government's online service*	30.7	119	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	23.3	119	
3.2.1	Electricity output, kWh/cap	1,897.0	79	
3.2.2	Logistics performance*	32.1	118	○
3.2.3	Gross capital formation, % GDP	21.2	78	
3.3	Ecological sustainability	34.9	73	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.2	64	
3.3.2	Environmental performance*	58.3	53	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	91	
4	**Market sophistication**	**44.6**	**94**	
4.1	Credit	22.2	121	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	28.8	101	
4.1.3	Microfinance gross loans, % GDP	0.7	46	
4.2	Investment	33.3	82	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	43.1	48	
4.2.3	Total value of stocks traded, % GDP	1.4	62	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	78.4	38	●
4.3.1	Applied tariff rate, weighted mean, %	7.5	109	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	70.0	50	
5	**Business sophistication**	**31.5**	**72**	
5.1	Knowledge workers	37.8	77	
5.1.1	Knowledge-intensive employment, %	20.1	73	
5.1.2	Firms offering formal training, % firms	26.1	74	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	210.4	24	●
5.2	Innovation linkages	36.0	54	
5.2.1	University/industry research collaboration†	43.3	64	
5.2.2	State of cluster development†	50.3	54	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	20.8	96	
5.3.1	Royalty & license fees payments, % total trade	0.8	37	●
5.3.2	High-tech imports less re-imports, %	3.4	118	○
5.3.3	Comm., computer & info. services imp., % total trade	1.7	28	●
5.3.4	FDI net inflows, % GDP	1.2	108	
6	**Knowledge & technology outputs**	**21.9**	**100**	
6.1	Knowledge creation	6.2	101	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.8	71	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.4	105	
6.1.5	Citable documents H index	57.0	100	
6.2	Knowledge impact	28.7	111	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.6	100	○
6.2.2	New businesses/th pop. 15–64	1.1	56	
6.2.3	Computer software spending, % GDP	0.3	28	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.1	121	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	30.9	72	
6.3.1	Royalty & license fees receipts, % total trade	0.1	59	
6.3.2	High-tech exports less re-exports, %	0.1	112	○
6.3.3	Comm., computer & info. services exp., % total trade	2.5	25	●
6.3.4	FDI net outflows, % GDP	–0.2	113	○
7	**Creative outputs**	**29.4**	**80**	
7.1	Intangible assets	53.8	24	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	53.0	82	
7.1.4	ICTs & organizational model creation†	54.7	61	
7.2	Creative goods & services	1.3	132	○
7.2.1	Cultural & creative services exports, % total trade	0.0	97	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	104	
7.3	Online creativity	8.6	99	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.2	71	
7.3.2	Country-code TLDs/th pop. 15–69	20.0	80	
7.3.3	Wikipedia edits/pop. 15–69	1,541.4	86	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Japan

Key indicators

Population (millions)	127.6
GDP (US$ billions)	4,901.5
GDP per capita, PPP$	36,899.4
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**52.4**	**21**	
Innovation Output Sub-Index		42.6	27	
Innovation Input Sub-Index		62.2	15	
Innovation Efficiency Ratio		0.7	88	
Global Innovation Index 2013 (out of 142)		59.4	22	
1	**Institutions**	**84.1**	**18**	
1.1	Political environment	80.5	23	
1.1.1	Political stability*	88.6	23	
1.1.2	Government effectiveness*	78.2	21	
1.1.3	Press freedom*	74.8	44	
1.2	Regulatory environment	90.2	18	
1.2.1	Regulatory quality*	78.1	25	
1.2.2	Rule of law*	82.8	23	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	81.7	18	
1.3.1	Ease of starting a business*	81.9	78	
1.3.2	Ease of resolving insolvency*	98.3	1	●
1.3.3	Ease of paying taxes*	64.8	88	
2	**Human capital & research**	**54.4**	**17**	
2.1	Education	50.8	42	
2.1.1	Expenditure on education, % GDP	3.8	92	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.3	36	
2.1.3	School life expectancy, years	15.3	38	
2.1.4	PISA scales in reading, maths, & science	540.4	5	
2.1.5	Pupil-teacher ratio, secondary	11.8	37	
2.2	Tertiary education	37.5	57	
2.2.1	Tertiary enrolment, % gross	59.9	38	
2.2.2	Graduates in science & engineering, %	20.3	53	
2.2.3	Tertiary inbound mobility, %	3.9	42	
2.3	Research & development (R&D)	74.8	6	●
2.3.1	Researchers, headcounts/mn pop.	7,011.4	10	
2.3.2	Gross expenditure on R&D, % GDP	3.3	5	●
2.3.3	QS university ranking, average score top 3*	82.2	7	
3	**Infrastructure**	**58.9**	**11**	
3.1	Information & communication technologies (ICTs)	78.1	10	
3.1.1	ICT access*	77.3	15	
3.1.2	ICT use*	75.1	6	●
3.1.3	Government's online service*	86.3	9	
3.1.4	E-participation*	73.7	11	
3.2	General infrastructure	45.3	25	
3.2.1	Electricity output, kWh/cap	8,060.6	22	
3.2.2	Logistics performance*	92.1	8	
3.2.3	Gross capital formation, % GDP	20.7	84	
3.3	Ecological sustainability	53.4	15	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.9	24	
3.3.2	Environmental performance*	72.4	26	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6.1	22	
4	**Market sophistication**	**66.8**	**13**	
4.1	Credit	69.5	8	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	176.7	10	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	48.9	34	
4.2.1	Ease of protecting investors*	70.0	16	
4.2.2	Market capitalization, % GDP	61.8	32	
4.2.3	Total value of stocks traded, % GDP	60.5	13	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	34	
4.3	Trade & competition	82.1	18	
4.3.1	Applied tariff rate, weighted mean, %	1.3	38	
4.3.2	Non-agricultural mkt access weighted tariff, %	4.0	129	○
4.3.3	Intensity of local competition†	87.3	1	●
5	**Business sophistication**	**46.8**	**17**	
5.1	Knowledge workers	61.7	25	
5.1.1	Knowledge-intensive employment, %	24.9	55	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.6	3	●
5.1.4	GERD financed by business, %	77.0	3	●
5.1.5	GMAT test takers/mn pop. 20–34	128.0	41	
5.2	Innovation linkages	46.3	26	
5.2.1	University/industry research collaboration†	66.0	16	
5.2.2	State of cluster development†	70.3	6	●
5.2.3	GERD financed by abroad, %	0.5	89	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	45	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	5.3	1	●
5.3	Knowledge absorption	32.3	35	
5.3.1	Royalty & license fees payments, % total trade	2.1	6	
5.3.2	High-tech imports less re-imports, %	13.2	17	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	87	○
5.3.4	FDI net inflows, % GDP	0.0	135	○
6	**Knowledge & technology outputs**	**47.2**	**12**	
6.1	Knowledge creation	52.8	11	
6.1.1	Domestic resident patent app./tr PPP$ GDP	62.7	1	●
6.1.2	PCT resident patent app./tr PPP$ GDP	9.5	4	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.4	24	
6.1.4	Scientific & technical articles/bn PPP$ GDP	15.7	57	
6.1.5	Citable documents H index	635.0	6	●
6.2	Knowledge impact	40.5	65	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.5	76	○
6.2.2	New businesses/th pop. 15–64	1.2	54	
6.2.3	Computer software spending, % GDP	0.3	47	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	11.0	46	
6.2.5	High- & medium-high-tech manufactures, %	52.0	8	
6.3	Knowledge diffusion	48.2	17	
6.3.1	Royalty & license fees receipts, % total trade	3.3	6	
6.3.2	High-tech exports less re-exports, %	13.4	15	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	119	○
6.3.4	FDI net outflows, % GDP	2.1	34	
7	**Creative outputs**	**38.1**	**46**	
7.1	Intangible assets	38.8	99	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	0.0	101	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.5	41	
7.1.3	ICTs & business model creation†	70.7	19	
7.1.4	ICTs & organizational model creation†	61.2	35	
7.2	Creative goods & services	36.4	24	
7.2.1	Cultural & creative services exports, % total trade	0.0	87	○
7.2.2	National feature films/mn pop. 15–69	5.0	28	
7.2.3	Global ent. & media output/th pop. 15–69	2.2	5	
7.2.4	Printing & publishing manufactures, %	0.0	29	
7.2.5	Creative goods exports, % total trade	2.7	20	
7.3	Online creativity	38.2	37	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	20.3	31	
7.3.2	Country-code TLDs/th pop. 15–69	37.7	47	
7.3.3	Wikipedia edits/pop. 15–69	9,289.2	46	
7.3.4	Video uploads on YouTube/pop. 15–69	79.0	30	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Jordan

Key indicators

Population (millions)	6.3
GDP (US$ billions)	33.9
GDP per capita, PPP$	6,115.0
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.2**	**64**	
Innovation Output Sub-Index		32.1	57	
Innovation Input Sub-Index		40.3	72	
Innovation Efficiency Ratio		0.8	40	
Global Innovation Index 2013 (out of 142)		37.3	61	
1	**Institutions**	**64.3**	**61**	
1.1	Political environment	51.5	83	
1.1.1	Political stability*	53.0	96	
1.1.2	Government effectiveness*	39.9	71	
1.1.3	Press freedom*	61.5	109	○
1.2	Regulatory environment	77.5	36	●
1.2.1	Regulatory quality*	53.5	66	
1.2.2	Rule of law*	56.6	50	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	64.0	73	
1.3.1	Ease of starting a business*	84.1	71	
1.3.2	Ease of resolving insolvency*	28.8	100	
1.3.3	Ease of paying taxes*	79.2	36	●
2	**Human capital & research**	**28.3**	**72**	
2.1	Education	35.5	97	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	22.0	50	
2.1.3	School life expectancy, years	13.3	65	
2.1.4	PISA scales in reading, maths, & science	398.0	54	○
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	35.9	60	
2.2.1	Tertiary enrolment, % gross	39.9	64	
2.2.2	Graduates in science & engineering, %	16.1	77	
2.2.3	Tertiary inbound mobility, %	9.9	17	●
2.3	Research & development (R&D)	13.5	59	
2.3.1	Researchers, headcounts/mn pop.	1,913.3	41	
2.3.2	Gross expenditure on R&D, % GDP	0.4	64	
2.3.3	QS university ranking, average score top 3*	13.0	57	
3	**Infrastructure**	**31.1**	**92**	
3.1	Information & communication technologies (ICTs)	29.6	91	
3.1.1	ICT access*	49.5	69	
3.1.2	ICT use*	19.2	84	
3.1.3	Government's online service*	39.2	96	
3.1.4	E-participation*	10.5	94	
3.2	General infrastructure	31.7	75	
3.2.1	Electricity output, kWh/cap	2,370.1	71	
3.2.2	Logistics performance*	37.7	97	
3.2.3	Gross capital formation, % GDP	27.3	32	●
3.3	Ecological sustainability	31.9	85	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.6	88	
3.3.2	Environmental performance*	55.8	56	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.1	63	
4	**Market sophistication**	**39.9**	**126**	○
4.1	Credit	19.0	127	○
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	72.4	45	
4.1.3	Microfinance gross loans, % GDP	0.7	43	
4.2	Investment	26.0	117	○
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	86.4	19	●
4.2.3	Total value of stocks traded, % GDP	8.9	42	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	29	
4.3	Trade & competition	74.9	77	
4.3.1	Applied tariff rate, weighted mean, %	5.2	85	
4.3.2	Non-agricultural mkt access weighted tariff, %	2.3	93	
4.3.3	Intensity of local competition†	71.2	42	
5	**Business sophistication**	**37.8**	**41**	
5.1	Knowledge workers	34.5	84	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	23.9	84	○
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	119.0	43	
5.2	Innovation linkages	53.4	9	●
5.2.1	University/industry research collaboration†	39.3	81	
5.2.2	State of cluster development†	58.3	25	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.3	1	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	54	
5.3	Knowledge absorption	25.5	69	
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	5.4	94	○
5.3.3	Comm., computer & info. services imp., % total trade	n/a	n/a	
5.3.4	FDI net inflows, % GDP	5.1	38	
6	**Knowledge & technology outputs**	**29.4**	**59**	
6.1	Knowledge creation	19.6	52	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.3	62	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	28.4	34	●
6.1.5	Citable documents H index	82.0	78	
6.2	Knowledge impact	35.3	80	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.6	44	
6.2.2	New businesses/th pop. 15–64	1.0	60	
6.2.3	Computer software spending, % GDP	0.3	36	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	9.5	50	
6.2.5	High- & medium-high-tech manufactures, %	19.8	55	
6.3	Knowledge diffusion	33.3	57	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.6	76	
6.3.3	Comm., computer & info. services exp., % total trade	n/a	n/a	
6.3.4	FDI net outflows, % GDP	0.0	101	○
7	**Creative outputs**	**34.9**	**61**	
7.1	Intangible assets	49.8	44	
7.1.1	Domestic res trademark app./bn PPP$ GDP	59.8	43	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	64.7	34	●
7.1.4	ICTs & organizational model creation†	61.5	31	●
7.2	Creative goods & services	18.8	64	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	50	○
7.2.4	Printing & publishing manufactures, %	0.0	34	
7.2.5	Creative goods exports, % total trade	0.8	45	
7.3	Online creativity	21.1	64	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	10.0	49	
7.3.2	Country-code TLDs/th pop. 15–69	8.7	106	○
7.3.3	Wikipedia edits/pop. 15–69	2,151.8	80	
7.3.4	Video uploads on YouTube/pop. 15–69	62.1	49	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Kazakhstan

Key indicators

Population (millions)	16.8
GDP (US$ billions)	220.3
GDP per capita, PPP$	14,391.1
Income group	Upper-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.8**	**79**	
Innovation Output Sub-Index		24.4	101	
Innovation Input Sub-Index		41.1	69	
Innovation Efficiency Ratio		0.6	118	
Global Innovation Index 2013 (out of 142)		32.7	84	
1	**Institutions**	**61.1**	**67**	
1.1	Political environment	43.5	119	
1.1.1	Political stability*	56.5	86	
1.1.2	Government effectiveness*	29.1	94	
1.1.3	Press freedom*	44.9	132	○
1.2	Regulatory environment	66.0	71	
1.2.1	Regulatory quality*	38.7	101	
1.2.2	Rule of law*	28.1	103	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	●
1.3	Business environment	73.9	35	●
1.3.1	Ease of starting a business*	88.5	50	
1.3.2	Ease of resolving insolvency*	45.7	48	
1.3.3	Ease of paying taxes*	87.4	14	●
2	**Human capital & research**	**30.0**	**63**	
2.1	Education	49.8	49	
2.1.1	Expenditure on education, % GDP	3.1	110	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.0	43	
2.1.4	PISA scales in reading, maths, & science	416.4	48	
2.1.5	Pupil-teacher ratio, secondary	8.6	11	●
2.2	Tertiary education	25.8	88	
2.2.1	Tertiary enrolment, % gross	44.5	58	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.4	76	
2.3	Research & development (R&D)	14.4	58	
2.3.1	Researchers, headcounts/mn pop.	713.6	64	
2.3.2	Gross expenditure on R&D, % GDP	0.2	91	
2.3.3	QS university ranking, average score top 3*	33.4	38	●
3	**Infrastructure**	**43.8**	**44**	
3.1	Information & communication technologies (ICTs)	69.1	20	●
3.1.1	ICT access*	66.0	38	
3.1.2	ICT use*	37.1	49	
3.1.3	Government's online service*	78.4	21	●
3.1.4	E-participation*	94.7	3	●
3.2	General infrastructure	31.9	74	
3.2.1	Electricity output, kWh/cap	5,228.6	40	
3.2.2	Logistics performance*	42.9	87	
3.2.3	Gross capital formation, % GDP	23.0	70	
3.3	Ecological sustainability	30.5	91	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.5	115	○
3.3.2	Environmental performance*	51.1	76	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**44.1**	**98**	
4.1	Credit	23.2	116	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	37.2	87	
4.1.3	Microfinance gross loans, % GDP	0.2	63	
4.2	Investment	35.1	68	
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	11.6	87	
4.2.3	Total value of stocks traded, % GDP	0.6	77	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	74.2	83	
4.3.1	Applied tariff rate, weighted mean, %	3.4	60	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	41	
4.3.3	Intensity of local competition†	55.8	113	○
5	**Business sophistication**	**26.4**	**106**	
5.1	Knowledge workers	43.2	56	
5.1.1	Knowledge-intensive employment, %	29.3	49	
5.1.2	Firms offering formal training, % firms	41.7	40	
5.1.3	GERD performed by business, % GDP	0.1	60	
5.1.4	GERD financed by business, %	51.6	36	
5.1.5	GMAT test takers/mn pop. 20–34	56.8	71	
5.2	Innovation linkages	16.5	136	○
5.2.1	University/industry research collaboration†	40.5	76	
5.2.2	State of cluster development†	34.2	119	○
5.2.3	GERD financed by abroad, %	0.3	91	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	80	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	98	○
5.3	Knowledge absorption	19.5	105	
5.3.1	Royalty & license fees payments, % total trade	0.2	81	
5.3.2	High-tech imports less re-imports, %	5.3	95	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	116	○
5.3.4	FDI net inflows, % GDP	7.1	26	●
6	**Knowledge & technology outputs**	**24.8**	**82**	
6.1	Knowledge creation	9.7	83	
6.1.1	Domestic resident patent app./tr PPP$ GDP	6.6	19	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	89	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.4	40	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.1	134	○
6.1.5	Citable documents H index	52.0	109	
6.2	Knowledge impact	35.5	79	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.5	11	●
6.2.2	New businesses/th pop. 15–64	1.7	46	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.5	93	
6.2.5	High- & medium-high-tech manufactures, %	6.8	84	○
6.3	Knowledge diffusion	29.4	81	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	4.5	36	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	127	○
6.3.4	FDI net outflows, % GDP	1.3	44	
7	**Creative outputs**	**23.9**	**106**	
7.1	Intangible assets	34.8	116	
7.1.1	Domestic res trademark app./bn PPP$ GDP	28.9	74	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	46	
7.1.3	ICTs & business model creation†	54.3	77	
7.1.4	ICTs & organizational model creation†	53.2	68	
7.2	Creative goods & services	13.4	84	
7.2.1	Cultural & creative services exports, % total trade	0.1	67	
7.2.2	National feature films/mn pop. 15–69	1.1	69	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	47	
7.2.5	Creative goods exports, % total trade	0.4	64	
7.3	Online creativity	12.9	82	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	117	
7.3.2	Country-code TLDs/th pop. 15–69	30.9	57	
7.3.3	Wikipedia edits/pop. 15–69	4,267.0	60	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Kenya

Key indicators

Population (millions)	43.2
GDP (US$ billions)	45.1
GDP per capita, PPP$	1,812.0
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.9**	**85**	
Innovation Output Sub-Index		29.0	73	
Innovation Input Sub-Index		34.7	103	
Innovation Efficiency Ratio		0.8	26	●
Global Innovation Index 2013 (out of 142)		30.3	99	
1	**Institutions**	**53.6**	**97**	
1.1	Political environment	44.2	114	
1.1.1	Political stability*	34.0	129	○
1.1.2	Government effectiveness*	26.3	103	
1.1.3	Press freedom*	72.2	58	
1.2	Regulatory environment	65.8	74	
1.2.1	Regulatory quality*	40.7	96	
1.2.2	Rule of law*	22.6	117	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	50.9	116	
1.3.1	Ease of starting a business*	72.5	111	
1.3.2	Ease of resolving insolvency*	26.2	107	
1.3.3	Ease of paying taxes*	54.2	115	
2	**Human capital & research**	**15.8**	**117**	
2.1	Education	35.9	94	
2.1.1	Expenditure on education, % GDP	6.7	18	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	21.2	53	
2.1.3	School life expectancy, years	11.0	105	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	29.7	103	○
2.2	Tertiary education	3.3	134	○
2.2.1	Tertiary enrolment, % gross	4.0	128	○
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	8.4	73	
2.3.1	Researchers, headcounts/mn pop.	318.1	79	
2.3.2	Gross expenditure on R&D, % GDP	1.0	35	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**21.1**	**127**	○
3.1	Information & communication technologies (ICTs)	21.8	106	
3.1.1	ICT access*	27.3	104	
3.1.2	ICT use*	11.5	102	
3.1.3	Government's online service*	43.1	88	
3.1.4	E-participation*	5.3	111	
3.2	General infrastructure	21.0	128	○
3.2.1	Electricity output, kWh/cap	188.6	115	○
3.2.2	Logistics performance*	32.5	117	
3.2.3	Gross capital formation, % GDP	20.9	82	
3.3	Ecological sustainability	20.6	131	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.1	108	
3.3.2	Environmental performance*	37.0	118	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	87	
4	**Market sophistication**	**54.4**	**40**	
4.1	Credit	51.8	32	●
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	36.6	88	
4.1.3	Microfinance gross loans, % GDP	4.6	12	●
4.2	Investment	30.1	94	
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	39.7	50	
4.2.3	Total value of stocks traded, % GDP	2.7	58	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	21	
4.3	Trade & competition	81.2	25	●
4.3.1	Applied tariff rate, weighted mean, %	6.1	95	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	73.2	33	●
5	**Business sophistication**	**28.5**	**91**	
5.1	Knowledge workers	16.4	132	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	58	
5.1.4	GERD financed by business, %	8.7	76	○
5.1.5	GMAT test takers/mn pop. 20–34	51.9	73	
5.2	Innovation linkages	42.0	37	
5.2.1	University/industry research collaboration†	54.7	37	
5.2.2	State of cluster development†	50.8	50	
5.2.3	GERD financed by abroad, %	47.1	8	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	53	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	76	
5.3	Knowledge absorption	27.1	58	
5.3.1	Royalty & license fees payments, % total trade	0.1	97	
5.3.2	High-tech imports less re-imports, %	15.5	12	●
5.3.3	Comm., computer & info. services imp., % total trade	0.5	100	
5.3.4	FDI net inflows, % GDP	1.0	115	
6	**Knowledge & technology outputs**	**26.9**	**70**	
6.1	Knowledge creation	12.3	68	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.6	57	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	84	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.9	34	
6.1.4	Scientific & technical articles/bn PPP$ GDP	15.8	54	
6.1.5	Citable documents H index	131.0	49	
6.2	Knowledge impact	29.3	108	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.4	48	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	0.3	54	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.1	60	
6.2.5	High- & medium-high-tech manufactures, %	9.9	77	
6.3	Knowledge diffusion	39.0	35	
6.3.1	Royalty & license fees receipts, % total trade	0.4	25	●
6.3.2	High-tech exports less re-exports, %	1.1	66	
6.3.3	Comm., computer & info. services exp., % total trade	3.1	20	●
6.3.4	FDI net outflows, % GDP	0.0	96	
7	**Creative outputs**	**31.2**	**73**	
7.1	Intangible assets	48.6	48	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	65	
7.1.3	ICTs & business model creation†	63.5	39	
7.1.4	ICTs & organizational model creation†	57.7	50	
7.2	Creative goods & services	16.9	74	
7.2.1	Cultural & creative services exports, % total trade	0.0	104	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	55	○
7.2.4	Printing & publishing manufactures, %	0.0	25	
7.2.5	Creative goods exports, % total trade	0.5	56	
7.3	Online creativity	10.5	90	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.9	105	
7.3.2	Country-code TLDs/th pop. 15–69	10.8	100	
7.3.3	Wikipedia edits/pop. 15–69	234.3	116	
7.3.4	Video uploads on YouTube/pop. 15–69	29.9	61	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Korea, Republic of

Key indicators

Population (millions)	50.0
GDP (US$ billions)	1,221.8
GDP per capita, PPP$	33,189.1
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**55.3**	**16**	
Innovation Output Sub-Index		48.4	15	
Innovation Input Sub-Index		62.2	16	
Innovation Efficiency Ratio		0.8	54	
Global Innovation Index 2013 (out of 142)		54.5	18	
1	**Institutions**	**75.8**	**32**	
1.1	Political environment	72.7	40	
1.1.1	Political stability*	69.7	60	
1.1.2	Government effectiveness*	72.9	27	
1.1.3	Press freedom*	75.5	42	
1.2	Regulatory environment	66.8	67	
1.2.1	Regulatory quality*	71.9	36	
1.2.2	Rule of law*	73.0	32	
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	120	○
1.3	Business environment	87.8	11	
1.3.1	Ease of starting a business*	90.0	38	
1.3.2	Ease of resolving insolvency*	87.1	15	
1.3.3	Ease of paying taxes*	86.3	18	
2	**Human capital & research**	**64.1**	**3**	●
2.1	Education	54.4	31	
2.1.1	Expenditure on education, % GDP	5.0	59	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	23.8	47	
2.1.3	School life expectancy, years	17.0	9	
2.1.4	PISA scales in reading, maths, & science	542.4	4	
2.1.5	Pupil-teacher ratio, secondary	16.2	66	
2.2	Tertiary education	55.3	16	
2.2.1	Tertiary enrolment, % gross	98.5	1	●
2.2.2	Graduates in science & engineering, %	31.1	11	
2.2.3	Tertiary inbound mobility, %	1.8	66	
2.3	Research & development (R&D)	82.6	1	●
2.3.1	Researchers, headcounts/mn pop.	7,698.7	8	
2.3.2	Gross expenditure on R&D, % GDP	4.4	1	●
2.3.3	QS university ranking, average score top 3*	75.8	11	
3	**Infrastructure**	**62.8**	**5**	
3.1	Information & communication technologies (ICTs)	91.3	1	●
3.1.1	ICT access*	82.8	9	
3.1.2	ICT use*	82.2	2	●
3.1.3	Government's online service*	100.0	1	●
3.1.4	E-participation*	100.0	1	●
3.2	General infrastructure	52.6	13	
3.2.1	Electricity output, kWh/cap	10,576.6	11	
3.2.2	Logistics performance*	82.9	19	
3.2.3	Gross capital formation, % GDP	26.8	37	
3.3	Ecological sustainability	44.6	41	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.3	79	○
3.3.2	Environmental performance*	63.8	43	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	7.2	18	
4	**Market sophistication**	**65.4**	**14**	
4.1	Credit	67.8	10	
4.1.1	Ease of getting credit*	87.5	13	
4.1.2	Domestic credit to private sector, % GDP	148.0	15	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	57.3	19	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	104.5	16	
4.2.3	Total value of stocks traded, % GDP	134.0	1	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	45	
4.3	Trade & competition	71.2	103	○
4.3.1	Applied tariff rate, weighted mean, %	8.7	120	○
4.3.2	Non-agricultural mkt access weighted tariff, %	4.5	130	○
4.3.3	Intensity of local competition†	81.5	7	
5	**Business sophistication**	**42.7**	**30**	
5.1	Knowledge workers	61.2	27	
5.1.1	Knowledge-intensive employment, %	21.5	67	
5.1.2	Firms offering formal training, % firms	39.5	42	
5.1.3	GERD performed by business, % GDP	3.1	2	●
5.1.4	GERD financed by business, %	76.5	4	
5.1.5	GMAT test takers/mn pop. 20–34	433.4	10	
5.2	Innovation linkages	40.7	41	
5.2.1	University/industry research collaboration†	61.3	25	
5.2.2	State of cluster development†	57.7	26	
5.2.3	GERD financed by abroad, %	0.2	92	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	66	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	5.0	2	●
5.3	Knowledge absorption	26.3	64	
5.3.1	Royalty & license fees payments, % total trade	1.3	16	
5.3.2	High-tech imports less re-imports, %	12.2	20	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	114	○
5.3.4	FDI net inflows, % GDP	0.4	127	○
6	**Knowledge & technology outputs**	**54.5**	**6**	
6.1	Knowledge creation	74.8	1	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	92.7	1	●
6.1.2	PCT resident patent app./tr PPP$ GDP	7.4	6	
6.1.3	Domestic res utility model app./tr PPP$ GDP	7.4	6	
6.1.4	Scientific & technical articles/bn PPP$ GDP	29.5	30	
6.1.5	Citable documents H index	333.0	19	
6.2	Knowledge impact	44.3	47	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.8	72	
6.2.2	New businesses/th pop. 15–64	2.0	42	
6.2.3	Computer software spending, % GDP	0.3	30	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	16.1	30	
6.2.5	High- & medium-high-tech manufactures, %	48.9	9	
6.3	Knowledge diffusion	44.6	22	
6.3.1	Royalty & license fees receipts, % total trade	0.5	22	
6.3.2	High-tech exports less re-exports, %	20.4	4	●
6.3.3	Comm., computer & info. services exp., % total trade	0.2	123	○
6.3.4	FDI net outflows, % GDP	2.1	33	
7	**Creative outputs**	**42.2**	**37**	
7.1	Intangible assets	52.4	29	
7.1.1	Domestic res trademark app./bn PPP$ GDP	88.2	23	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	50	○
7.1.3	ICTs & business model creation†	78.3	2	●
7.1.4	ICTs & organizational model creation†	68.2	14	
7.2	Creative goods & services	27.2	43	
7.2.1	Cultural & creative services exports, % total trade	0.3	33	
7.2.2	National feature films/mn pop. 15–69	5.8	24	
7.2.3	Global ent. & media output/th pop. 15–69	1.2	20	
7.2.4	Printing & publishing manufactures, %	0.0	89	○
7.2.5	Creative goods exports, % total trade	2.5	22	
7.3	Online creativity	36.7	40	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	10.2	48	
7.3.2	Country-code TLDs/th pop. 15–69	45.4	40	
7.3.3	Wikipedia edits/pop. 15–69	7,577.3	50	
7.3.4	Video uploads on YouTube/pop. 15–69	78.6	32	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Kuwait

Key indicators

Population (millions)	3.3
GDP (US$ billions)	185.3
GDP per capita, PPP$	39,706.1
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**35.2**	**69**	
Innovation Output Sub-Index		30.9	62	
Innovation Input Sub-Index		39.4	79	
Innovation Efficiency Ratio		0.8	50	
Global Innovation Index 2013 (out of 142)		40.0	50	
1	**Institutions**	**60.2**	**72**	
1.1	Political environment	60.2	61	
1.1.1	Political stability*	70.1	59	
1.1.2	Government effectiveness*	38.8	76	
1.1.3	Press freedom*	71.7	63	
1.2	Regulatory environment	55.9	100	
1.2.1	Regulatory quality*	47.6	74	
1.2.2	Rule of law*	57.0	49	
1.2.3	Cost of redundancy dismissal, salary weeks	28.1	126	○
1.3	Business environment	64.6	71	
1.3.1	Ease of starting a business*	69.5	115	
1.3.2	Ease of resolving insolvency*	33.9	84	
1.3.3	Ease of paying taxes*	90.4	10	●
2	**Human capital & research**	**23.3**	**91**	
2.1	Education	45.1	61	
2.1.1	Expenditure on education, % GDP	3.8	94	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	20.9	55	
2.1.3	School life expectancy, years	14.6	45	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	8.2	6	●
2.2	Tertiary education	22.0	97	
2.2.1	Tertiary enrolment, % gross	22.3	88	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	2.6	98	
2.3.1	Researchers, headcounts/mn pop.	131.5	96	
2.3.2	Gross expenditure on R&D, % GDP	0.1	104	○
2.3.3	QS university ranking, average score top 3*	4.9	67	
3	**Infrastructure**	**39.0**	**61**	
3.1	Information & communication technologies (ICTs)	38.3	69	
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	58.2	47	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	45.0	28	●
3.2.1	Electricity output, kWh/cap	20,374.8	1	●
3.2.2	Logistics performance*	48.4	69	
3.2.3	Gross capital formation, % GDP	16.4	120	○
3.3	Ecological sustainability	33.7	79	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.2	96	
3.3.2	Environmental performance*	63.9	42	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	74	
4	**Market sophistication**	**47.0**	**79**	
4.1	Credit	31.5	87	
4.1.1	Ease of getting credit*	43.8	112	○
4.1.2	Domestic credit to private sector, % GDP	61.7	53	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	38.0	57	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	57.1	35	
4.2.3	Total value of stocks traded, % GDP	12.1	37	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	71.6	100	
4.3.1	Applied tariff rate, weighted mean, %	4.1	76	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.5	86	
4.3.3	Intensity of local competition†	58.5	103	
5	**Business sophistication**	**27.7**	**98**	
5.1	Knowledge workers	47.9	46	
5.1.1	Knowledge-intensive employment, %	18.7	77	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	510.3	9	●
5.2	Innovation linkages	25.7	99	
5.2.1	University/industry research collaboration†	32.8	116	○
5.2.2	State of cluster development†	42.3	86	
5.2.3	GERD financed by abroad, %	1.2	78	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	12	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	94	
5.3	Knowledge absorption	9.5	138	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	117	○
5.3.4	FDI net inflows, % GDP	0.2	131	○
6	**Knowledge & technology outputs**	**33.8**	**43**	●
6.1	Knowledge creation	7.7	91	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.1	116	
6.1.5	Citable documents H index	83.0	76	
6.2	Knowledge impact	37.3	73	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.2	18	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.3	45	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.8	90	
6.2.5	High- & medium-high-tech manufactures, %	10.0	76	
6.3	Knowledge diffusion	56.4	6	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	4.0	11	●
6.3.4	FDI net outflows, % GDP	5.5	12	●
7	**Creative outputs**	**28.1**	**87**	
7.1	Intangible assets	36.6	107	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	38.7	128	○
7.1.4	ICTs & organizational model creation†	34.5	127	○
7.2	Creative goods & services	11.6	87	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.6	27	
7.2.4	Printing & publishing manufactures, %	0.0	78	○
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	27.4	55	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	12.3	45	●
7.3.2	Country-code TLDs/th pop. 15–69	12.1	95	
7.3.3	Wikipedia edits/pop. 15–69	5,220.2	54	
7.3.4	Video uploads on YouTube/pop. 15–69	76.5	36	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Kyrgyzstan

Key indicators

Population (millions)	5.6
GDP (US$ billions)	7.2
GDP per capita, PPP$	2,610.6
Income group	Low income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.8**	**112**	
Innovation Output Sub-Index		17.6	131	
Innovation Input Sub-Index		37.9	90	
Innovation Efficiency Ratio		0.5	136	○
Global Innovation Index 2013 (out of 142)		27.0	117	
1	**Institutions**	**52.9**	**102**	
1.1	Political environment	45.0	108	
1.1.1	Political stability*	43.9	115	
1.1.2	Government effectiveness*	23.3	113	
1.1.3	Press freedom*	67.8	85	
1.2	Regulatory environment	54.2	105	
1.2.1	Regulatory quality*	39.8	98	
1.2.2	Rule of law*	14.7	131	
1.2.3	Cost of redundancy dismissal, salary weeks	17.3	81	
1.3	Business environment	59.6	86	
1.3.1	Ease of starting a business*	96.3	7	●
1.3.2	Ease of resolving insolvency*	22.9	114	
1.3.3	Ease of paying taxes*	59.6	104	
2	**Human capital & research**	**29.4**	**66**	
2.1	Education	54.8	27	●
2.1.1	Expenditure on education, % GDP	6.8	17	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	12.5	79	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	15.2	63	
2.2	Tertiary education	31.2	73	
2.2.1	Tertiary enrolment, % gross	41.3	61	
2.2.2	Graduates in science & engineering, %	15.6	80	
2.2.3	Tertiary inbound mobility, %	6.3	26	●
2.3	Research & development (R&D)	2.4	102	
2.3.1	Researchers, headcounts/mn pop.	411.6	72	
2.3.2	Gross expenditure on R&D, % GDP	0.2	94	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**31.3**	**90**	
3.1	Information & communication technologies (ICTs)	35.7	74	
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	42.5	90	
3.1.4	E-participation*	29.0	53	
3.2	General infrastructure	29.7	86	
3.2.1	Electricity output, kWh/cap	2,751.0	65	
3.2.2	Logistics performance*	29.4	122	
3.2.3	Gross capital formation, % GDP	27.0	36	●
3.3	Ecological sustainability	28.4	99	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.8	100	
3.3.2	Environmental performance*	40.6	106	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**53.6**	**43**	
4.1	Credit	55.1	24	●
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	15.1	130	
4.1.3	Microfinance gross loans, % GDP	5.9	7	●
4.2	Investment	33.7	74	
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	2.5	106	○
4.2.3	Total value of stocks traded, % GDP	0.1	100	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	72.0	96	
4.3.1	Applied tariff rate, weighted mean, %	2.4	52	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.2	81	
4.3.3	Intensity of local competition†	54.7	118	
5	**Business sophistication**	**22.4**	**125**	
5.1	Knowledge workers	25.9	106	
5.1.1	Knowledge-intensive employment, %	17.6	79	
5.1.2	Firms offering formal training, % firms	29.7	67	
5.1.3	GERD performed by business, % GDP	0.0	73	
5.1.4	GERD financed by business, %	23.3	61	
5.1.5	GMAT test takers/mn pop. 20–34	26.6	100	
5.2	Innovation linkages	16.3	137	○
5.2.1	University/industry research collaboration†	20.3	131	○
5.2.2	State of cluster development†	28.3	131	○
5.2.3	GERD financed by abroad, %	0.9	83	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	22	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	25.0	74	
5.3.1	Royalty & license fees payments, % total trade	0.1	89	
5.3.2	High-tech imports less re-imports, %	5.3	96	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	101	
5.3.4	FDI net inflows, % GDP	11.2	12	●
6	**Knowledge & technology outputs**	**21.1**	**107**	
6.1	Knowledge creation	17.2	63	
6.1.1	Domestic resident patent app./tr PPP$ GDP	8.4	11	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	52	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.3	25	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.4	96	
6.1.5	Citable documents H index	31.0	132	○
6.2	Knowledge impact	24.0	117	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.6	98	
6.2.2	New businesses/th pop. 15–64	0.9	61	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.5	132	
6.2.5	High- & medium-high-tech manufactures, %	3.3	90	○
6.3	Knowledge diffusion	22.1	122	
6.3.1	Royalty & license fees receipts, % total trade	0.0	74	
6.3.2	High-tech exports less re-exports, %	0.3	89	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	117	
6.3.4	FDI net outflows, % GDP	0.0	106	
7	**Creative outputs**	**14.1**	**137**	○
7.1	Intangible assets	22.6	136	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	17.5	85	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.2	53	
7.1.3	ICTs & business model creation†	37.5	131	○
7.1.4	ICTs & organizational model creation†	32.7	128	○
7.2	Creative goods & services	6.1	109	
7.2.1	Cultural & creative services exports, % total trade	0.1	56	
7.2.2	National feature films/mn pop. 15–69	0.0	101	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	72	
7.2.5	Creative goods exports, % total trade	0.1	92	
7.3	Online creativity	4.9	109	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	120	
7.3.2	Country-code TLDs/th pop. 15–69	12.0	97	
7.3.3	Wikipedia edits/pop. 15–69	1,342.6	90	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Latvia

Key indicators

Population (millions)	2.0
GDP (US$ billions)	31.0
GDP per capita, PPP$	19,119.5
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**44.8**	**34**	
Innovation Output Sub-Index		40.4	32	
Innovation Input Sub-Index		49.2	35	
Innovation Efficiency Ratio		0.8	32	
Global Innovation Index 2013 (out of 142)		45.2	33	
1	**Institutions**	**76.8**	**29**	
1.1	Political environment	72.1	41	
1.1.1	Political stability*	76.2	49	
1.1.2	Government effectiveness*	63.0	38	
1.1.3	Press freedom*	77.1	35	
1.2	Regulatory environment	83.9	25	
1.2.1	Regulatory quality*	75.0	31	
1.2.2	Rule of law*	67.2	37	
1.2.3	Cost of redundancy dismissal, salary weeks	9.7	34	
1.3	Business environment	74.2	32	
1.3.1	Ease of starting a business*	91.8	26	
1.3.2	Ease of resolving insolvency*	51.3	38	
1.3.3	Ease of paying taxes*	79.6	34	
2	**Human capital & research**	**34.1**	**51**	
2.1	Education	54.0	34	
2.1.1	Expenditure on education, % GDP	5.0	61	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	29.3	24	
2.1.3	School life expectancy, years	15.5	33	
2.1.4	PISA scales in reading, maths, & science	493.8	24	
2.1.5	Pupil-teacher ratio, secondary	8.3	7	●
2.2	Tertiary education	32.3	71	
2.2.1	Tertiary enrolment, % gross	67.3	26	
2.2.2	Graduates in science & engineering, %	15.7	79	○
2.2.3	Tertiary inbound mobility, %	1.9	61	
2.3	Research & development (R&D)	16.0	52	
2.3.1	Researchers, headcounts/mn pop.	3,557.9	28	
2.3.2	Gross expenditure on R&D, % GDP	0.7	52	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**42.9**	**46**	
3.1	Information & communication technologies (ICTs)	49.2	47	
3.1.1	ICT access*	62.5	49	
3.1.2	ICT use*	54.5	28	
3.1.3	Government's online service*	58.8	45	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	32.6	71	
3.2.1	Electricity output, kWh/cap	2,745.0	66	
3.2.2	Logistics performance*	46.4	77	
3.2.3	Gross capital formation, % GDP	25.7	45	
3.3	Ecological sustainability	47.0	35	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.0	50	
3.3.2	Environmental performance*	64.1	40	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6.4	21	
4	**Market sophistication**	**54.0**	**42**	
4.1	Credit	57.5	21	●
4.1.1	Ease of getting credit*	93.8	3	●
4.1.2	Domestic credit to private sector, % GDP	67.7	50	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	27.7	112	○
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	3.9	104	○
4.2.3	Total value of stocks traded, % GDP	0.1	98	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	22	
4.3	Trade & competition	76.9	54	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	73.3	32	
5	**Business sophistication**	**38.2**	**39**	
5.1	Knowledge workers	46.2	51	
5.1.1	Knowledge-intensive employment, %	39.5	24	
5.1.2	Firms offering formal training, % firms	41.4	41	
5.1.3	GERD performed by business, % GDP	0.1	53	○
5.1.4	GERD financed by business, %	22.6	62	○
5.1.5	GMAT test takers/mn pop. 20–34	153.0	34	
5.2	Innovation linkages	44.8	30	
5.2.1	University/industry research collaboration†	43.3	64	
5.2.2	State of cluster development†	40.2	99	○
5.2.3	GERD financed by abroad, %	50.4	5	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	45	
5.3	Knowledge absorption	23.6	82	
5.3.1	Royalty & license fees payments, % total trade	0.2	75	
5.3.2	High-tech imports less re-imports, %	6.4	79	○
5.3.3	Comm., computer & info. services imp., % total trade	1.4	41	
5.3.4	FDI net inflows, % GDP	3.2	63	
6	**Knowledge & technology outputs**	**36.8**	**35**	
6.1	Knowledge creation	21.0	47	
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.2	25	
6.1.2	PCT resident patent app./tr PPP$ GDP	1.0	32	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	14.8	60	
6.1.5	Citable documents H index	85.0	74	
6.2	Knowledge impact	58.4	6	●
6.2.1	Growth rate of PPP$ GDP/worker, %	3.6	25	
6.2.2	New businesses/th pop. 15–64	11.6	9	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	21.5	20	●
6.2.5	High- & medium-high-tech manufactures, %	15.2	62	○
6.3	Knowledge diffusion	30.9	73	
6.3.1	Royalty & license fees receipts, % total trade	0.1	66	
6.3.2	High-tech exports less re-exports, %	4.4	37	
6.3.3	Comm., computer & info. services exp., % total trade	1.8	47	
6.3.4	FDI net outflows, % GDP	0.6	62	
7	**Creative outputs**	**44.1**	**29**	
7.1	Intangible assets	45.6	64	
7.1.1	Domestic res trademark app./bn PPP$ GDP	70.7	34	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.4	11	●
7.1.3	ICTs & business model creation†	56.5	66	
7.1.4	ICTs & organizational model creation†	54.2	63	
7.2	Creative goods & services	49.0	7	●
7.2.1	Cultural & creative services exports, % total trade	1.3	4	●
7.2.2	National feature films/mn pop. 15–69	4.0	33	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	26	
7.2.5	Creative goods exports, % total trade	3.2	16	●
7.3	Online creativity	35.9	43	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	12.6	43	
7.3.2	Country-code TLDs/th pop. 15–69	58.3	23	●
7.3.3	Wikipedia edits/pop. 15–69	21,760.9	20	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Lebanon

Key indicators

Population (millions)	4.4
GDP (US$ billions)	44.3
GDP per capita, PPP$	14,845.0
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**33.6**	**77**	
Innovation Output Sub-Index		25.0	95	
Innovation Input Sub-Index		42.2	61	
Innovation Efficiency Ratio		0.6	119	○
Global Innovation Index 2013 (out of 142)		35.5	75	
1	**Institutions**	**58.1**	**81**	
1.1	Political environment	42.3	121	○
1.1.1	Political stability*	25.3	137	○
1.1.2	Government effectiveness*	31.7	89	
1.1.3	Press freedom*	69.9	81	
1.2	Regulatory environment	67.1	66	
1.2.1	Regulatory quality*	45.6	84	
1.2.2	Rule of law*	25.7	110	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	●
1.3	Business environment	64.9	70	
1.3.1	Ease of starting a business*	80.1	90	
1.3.2	Ease of resolving insolvency*	34.3	83	
1.3.3	Ease of paying taxes*	80.4	32	●
2	**Human capital & research**	**34.4**	**50**	
2.1	Education	32.1	107	
2.1.1	Expenditure on education, % GDP	2.2	126	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	3.7	111	○
2.1.3	School life expectancy, years	13.2	69	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	9.3	17	●
2.2	Tertiary education	48.3	26	●
2.2.1	Tertiary enrolment, % gross	46.3	55	
2.2.2	Graduates in science & engineering, %	23.3	32	
2.2.3	Tertiary inbound mobility, %	12.8	13	●
2.3	Research & development (R&D)	22.7	41	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	22.7	49	
3	**Infrastructure**	**34.9**	**77**	
3.1	Information & communication technologies (ICTs)	43.8	53	
3.1.1	ICT access*	60.4	52	
3.1.2	ICT use*	35.4	53	
3.1.3	Government's online service*	47.7	76	
3.1.4	E-participation*	31.6	48	
3.2	General infrastructure	24.8	115	○
3.2.1	Electricity output, kWh/cap	3,841.5	55	
3.2.2	Logistics performance*	38.5	94	
3.2.3	Gross capital formation, % GDP	18.8	104	
3.3	Ecological sustainability	36.2	68	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.7	31	
3.3.2	Environmental performance*	50.2	82	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	106	○
4	**Market sophistication**	**44.6**	**95**	
4.1	Credit	26.9	105	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	92.2	33	●
4.1.3	Microfinance gross loans, % GDP	0.1	68	
4.2	Investment	28.7	106	
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	24.0	62	
4.2.3	Total value of stocks traded, % GDP	0.9	67	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	78.1	41	
4.3.1	Applied tariff rate, weighted mean, %	4.8	82	
4.3.2	Non-agricultural mkt access weighted tariff, %	n/a	n/a	
4.3.3	Intensity of local competition†	75.7	23	●
5	**Business sophistication**	**39.1**	**38**	
5.1	Knowledge workers	65.5	18	●
5.1.1	Knowledge-intensive employment, %	31.9	41	
5.1.2	Firms offering formal training, % firms	52.4	21	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	804.8	5	●
5.2	Innovation linkages	27.7	87	
5.2.1	University/industry research collaboration†	35.5	106	○
5.2.2	State of cluster development†	37.0	110	○
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	39	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	64	
5.3	Knowledge absorption	24.0	78	
5.3.1	Royalty & license fees payments, % total trade	0.1	107	○
5.3.2	High-tech imports less re-imports, %	2.7	123	○
5.3.3	Comm., computer & info. services imp., % total trade	1.4	42	
5.3.4	FDI net inflows, % GDP	8.7	17	●
6	**Knowledge & technology outputs**	**22.6**	**96**	
6.1	Knowledge creation	16.3	64	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	14.4	61	
6.1.5	Citable documents H index	97.0	67	
6.2	Knowledge impact	24.7	116	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	8.3	53	
6.2.5	High- & medium-high-tech manufactures, %	22.0	48	
6.3	Knowledge diffusion	26.7	97	
6.3.1	Royalty & license fees receipts, % total trade	0.0	79	
6.3.2	High-tech exports less re-exports, %	0.2	93	
6.3.3	Comm., computer & info. services exp., % total trade	1.7	50	
6.3.4	FDI net outflows, % GDP	1.3	43	
7	**Creative outputs**	**27.4**	**93**	
7.1	Intangible assets	35.9	111	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	39.7	127	○
7.1.4	ICTs & organizational model creation†	32.2	131	○
7.2	Creative goods & services	29.5	39	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	4.3	30	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	45	
7.2.4	Printing & publishing manufactures, %	0.0	9	●
7.2.5	Creative goods exports, % total trade	0.5	60	
7.3	Online creativity	8.2	100	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	11.6	46	
7.3.2	Country-code TLDs/th pop. 15–69	9.1	105	
7.3.3	Wikipedia edits/pop. 15–69	2,259.8	78	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Lesotho

Key indicators

Population (millions)	2.1
GDP (US$ billions)	2.3
GDP per capita, PPP$	2,255.2
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.0**	**117**	
Innovation Output Sub-Index		15.5	137	○
Innovation Input Sub-Index		38.6	87	
Innovation Efficiency Ratio		0.4	140	○
Global Innovation Index 2013 (out of 142)		26.3	124	
1	**Institutions**	**59.8**	**74**	
1.1	Political environment	58.1	68	●
1.1.1	Political stability*	71.9	55	●
1.1.2	Government effectiveness*	30.7	91	
1.1.3	Press freedom*	71.6	67	●
1.2	Regulatory environment	61.3	85	
1.2.1	Regulatory quality*	34.8	110	
1.2.2	Rule of law*	38.5	77	
1.2.3	Cost of redundancy dismissal, salary weeks	15.0	68	●
1.3	Business environment	60.0	85	
1.3.1	Ease of starting a business*	81.7	80	
1.3.2	Ease of resolving insolvency*	30.3	93	
1.3.3	Ease of paying taxes*	68.1	79	
2	**Human capital & research**	**25.5**	**81**	
2.1	Education	63.5	5	●
2.1.1	Expenditure on education, % GDP	13.0	1	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	51.2	2	●
2.1.3	School life expectancy, years	11.1	103	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	24.7	88	
2.2	Tertiary education	13.0	118	
2.2.1	Tertiary enrolment, % gross	10.8	106	
2.2.2	Graduates in science & engineering, %	12.6	94	
2.2.3	Tertiary inbound mobility, %	0.5	93	
2.3	Research & development (R&D)	0.0	130	
2.3.1	Researchers, headcounts/mn pop.	20.7	118	○
2.3.2	Gross expenditure on R&D, % GDP	0.0	117	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.8**	**98**	
3.1	Information & communication technologies (ICTs)	15.0	127	
3.1.1	ICT access*	22.6	118	
3.1.2	ICT use*	4.8	117	
3.1.3	Government's online service*	30.1	120	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	50.5	17	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	25.0	133	○
3.2.3	Gross capital formation, % GDP	38.9	7	●
3.3	Ecological sustainability	20.8	130	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	20.8	140	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**47.5**	**74**	
4.1	Credit	21.1	126	
4.1.1	Ease of getting credit*	37.5	130	○
4.1.2	Domestic credit to private sector, % GDP	18.8	121	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	50.0	30	●
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	71.4	102	
4.3.1	Applied tariff rate, weighted mean, %	10.7	129	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	24	●
4.3.3	Intensity of local competition†	62.0	90	
5	**Business sophistication**	**31.3**	**73**	
5.1	Knowledge workers	49.3	42	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	54.4	16	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	11.6	118	
5.2	Innovation linkages	24.8	104	
5.2.1	University/industry research collaboration†	28.7	122	
5.2.2	State of cluster development†	43.3	83	
5.2.3	GERD financed by abroad, %	3.4	70	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	19.8	102	
5.3.1	Royalty & license fees payments, % total trade	0.3	72	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	93	
5.3.4	FDI net inflows, % GDP	5.2	37	●
6	**Knowledge & technology outputs**	**14.6**	**129**	
6.1	Knowledge creation	4.5	117	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.4	104	
6.1.5	Citable documents H index	22.0	140	○
6.2	Knowledge impact	5.1	131	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	1.5	49	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.2	138	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	34.3	47	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	111	
6.3.4	FDI net outflows, % GDP	0.1	88	
7	**Creative outputs**	**16.3**	**131**	
7.1	Intangible assets	31.5	126	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	34.0	133	○
7.1.4	ICTs & organizational model creation†	29.0	135	○
7.2	Creative goods & services	0.4	138	○
7.2.1	Cultural & creative services exports, % total trade	0.0	93	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	1.8	121	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	126	
7.3.2	Country-code TLDs/th pop. 15–69	5.0	113	
7.3.3	Wikipedia edits/pop. 15–69	43.5	131	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Lithuania

Key indicators

Population (millions)	3.0
GDP (US$ billions)	47.6
GDP per capita, PPP$	22,747.2
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**41.0**	**39**	
Innovation Output Sub-Index		33.3	52	
Innovation Input Sub-Index		48.7	36	
Innovation Efficiency Ratio		0.7	89	
Global Innovation Index 2013 (out of 142)		41.4	40	
1	**Institutions**	**73.4**	**38**	
1.1	Political environment	76.2	31	
1.1.1	Political stability*	84.0	34	
1.1.2	Government effectiveness*	63.0	39	
1.1.3	Press freedom*	81.8	30	
1.2	Regulatory environment	69.9	55	
1.2.1	Regulatory quality*	77.6	27	
1.2.2	Rule of law*	68.6	36	
1.2.3	Cost of redundancy dismissal, salary weeks	24.6	111	○
1.3	Business environment	74.0	34	
1.3.1	Ease of starting a business*	93.2	19	●
1.3.2	Ease of resolving insolvency*	51.3	39	
1.3.3	Ease of paying taxes*	77.6	42	
2	**Human capital & research**	**41.6**	**34**	
2.1	Education	54.3	32	
2.1.1	Expenditure on education, % GDP	5.4	46	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	23.3	48	
2.1.3	School life expectancy, years	16.7	12	●
2.1.4	PISA scales in reading, maths, & science	483.9	32	
2.1.5	Pupil-teacher ratio, secondary	8.6	10	●
2.2	Tertiary education	40.0	44	
2.2.1	Tertiary enrolment, % gross	76.6	13	●
2.2.2	Graduates in science & engineering, %	21.5	43	
2.2.3	Tertiary inbound mobility, %	1.6	69	
2.3	Research & development (R&D)	30.5	33	
2.3.1	Researchers, headcounts/mn pop.	5,702.4	19	●
2.3.2	Gross expenditure on R&D, % GDP	0.9	36	
2.3.3	QS university ranking, average score top 3*	17.6	54	
3	**Infrastructure**	**44.4**	**42**	
3.1	Information & communication technologies (ICTs)	56.2	32	
3.1.1	ICT access*	64.7	41	
3.1.2	ICT use*	37.6	47	
3.1.3	Government's online service*	69.9	29	
3.1.4	E-participation*	52.6	30	
3.2	General infrastructure	24.6	116	○
3.2.1	Electricity output, kWh/cap	1,326.9	87	
3.2.2	Logistics performance*	53.2	58	
3.2.3	Gross capital formation, % GDP	18.1	108	○
3.3	Ecological sustainability	52.2	20	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.4	45	
3.3.2	Environmental performance*	61.3	47	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	10.6	8	●
4	**Market sophistication**	**52.1**	**46**	
4.1	Credit	48.5	35	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	51.3	66	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	31.1	91	
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	9.4	91	○
4.2.3	Total value of stocks traded, % GDP	0.4	81	
4.2.4	Venture capital deals/tr PPP$ GDP	0.2	16	
4.3	Trade & competition	76.8	56	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	73.0	34	
5	**Business sophistication**	**32.2**	**70**	
5.1	Knowledge workers	50.1	41	
5.1.1	Knowledge-intensive employment, %	42.8	18	●
5.1.2	Firms offering formal training, % firms	46.8	33	
5.1.3	GERD performed by business, % GDP	0.2	44	
5.1.4	GERD financed by business, %	26.6	57	
5.1.5	GMAT test takers/mn pop. 20–34	110.2	48	
5.2	Innovation linkages	33.7	63	
5.2.1	University/industry research collaboration†	59.3	27	
5.2.2	State of cluster development†	38.5	105	○
5.2.3	GERD financed by abroad, %	33.3	13	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	74	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	62	
5.3	Knowledge absorption	12.7	132	○
5.3.1	Royalty & license fees payments, % total trade	0.1	100	○
5.3.2	High-tech imports less re-imports, %	4.5	107	○
5.3.3	Comm., computer & info. services imp., % total trade	0.5	92	
5.3.4	FDI net inflows, % GDP	1.6	96	
6	**Knowledge & technology outputs**	**30.3**	**56**	
6.1	Knowledge creation	18.5	56	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.7	55	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.5	40	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	26.4	37	
6.1.5	Citable documents H index	109.0	57	
6.2	Knowledge impact	46.8	40	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.3	50	
6.2.2	New businesses/th pop. 15–64	4.7	22	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	18.1	24	●
6.2.5	High- & medium-high-tech manufactures, %	19.6	57	
6.3	Knowledge diffusion	25.7	106	
6.3.1	Royalty & license fees receipts, % total trade	0.0	90	○
6.3.2	High-tech exports less re-exports, %	4.8	31	
6.3.3	Comm., computer & info. services exp., % total trade	0.6	100	
6.3.4	FDI net outflows, % GDP	0.6	57	
7	**Creative outputs**	**36.2**	**56**	
7.1	Intangible assets	47.7	51	
7.1.1	Domestic res trademark app./bn PPP$ GDP	57.3	45	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.6	22	
7.1.3	ICTs & business model creation†	66.0	31	
7.1.4	ICTs & organizational model creation†	64.5	24	●
7.2	Creative goods & services	16.0	78	
7.2.1	Cultural & creative services exports, % total trade	0.0	96	○
7.2.2	National feature films/mn pop. 15–69	0.9	74	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	74	○
7.2.5	Creative goods exports, % total trade	1.6	35	
7.3	Online creativity	33.5	44	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	15.1	34	
7.3.2	Country-code TLDs/th pop. 15–69	57.9	26	
7.3.3	Wikipedia edits/pop. 15–69	16,213.1	31	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Luxembourg

Key indicators

Population (millions)	0.5
GDP (US$ billions)	59.8
GDP per capita, PPP$	78,669.8
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**56.9**	**9**	
Innovation Output Sub-Index		54.9	5	●
Innovation Input Sub-Index		58.8	21	
Innovation Efficiency Ratio		0.9	9	
Global Innovation Index 2013 (out of 142)		56.6	12	
1	**Institutions**	**82.9**	**20**	
1.1	Political environment	92.3	6	
1.1.1	Political stability*	98.4	5	●
1.1.2	Government effectiveness*	85.2	11	
1.1.3	Press freedom*	93.3	4	●
1.2	Regulatory environment	83.7	26	
1.2.1	Regulatory quality*	94.7	8	
1.2.2	Rule of law*	95.2	9	
1.2.3	Cost of redundancy dismissal, salary weeks	21.7	100	○
1.3	Business environment	72.8	38	
1.3.1	Ease of starting a business*	85.9	65	
1.3.2	Ease of resolving insolvency*	46.1	47	
1.3.3	Ease of paying taxes*	86.4	17	
2	**Human capital & research**	**47.2**	**27**	
2.1	Education	52.6	39	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	20.3	58	
2.1.3	School life expectancy, years	13.9	58	
2.1.4	PISA scales in reading, maths, & science	489.6	26	
2.1.5	Pupil-teacher ratio, secondary	8.5	9	
2.2	Tertiary education	59.0	8	
2.2.1	Tertiary enrolment, % gross	18.2	92	○
2.2.2	Graduates in science & engineering, %	32.5	10	
2.2.3	Tertiary inbound mobility, %	41.4	1	●
2.3	Research & development (R&D)	29.9	35	
2.3.1	Researchers, headcounts/mn pop.	5,924.3	16	
2.3.2	Gross expenditure on R&D, % GDP	1.5	25	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**53.4**	**22**	
3.1	Information & communication technologies (ICTs)	67.9	22	
3.1.1	ICT access*	89.3	2	●
3.1.2	ICT use*	72.9	10	
3.1.3	Government's online service*	69.9	29	
3.1.4	E-participation*	39.5	38	
3.2	General infrastructure	41.4	40	
3.2.1	Electricity output, kWh/cap	5,173.6	43	
3.2.2	Logistics performance*	87.7	15	
3.2.3	Gross capital formation, % GDP	21.3	75	
3.3	Ecological sustainability	50.9	24	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.7	28	
3.3.2	Environmental performance*	83.3	2	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.2	58	
4	**Market sophistication**	**49.7**	**59**	
4.1	Credit	39.5	58	
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	165.4	12	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	34.9	69	
4.2.1	Ease of protecting investors*	43.3	105	○
4.2.2	Market capitalization, % GDP	123.1	8	
4.2.3	Total value of stocks traded, % GDP	0.2	91	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	28	
4.3	Trade & competition	74.6	82	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	68.7	56	
5	**Business sophistication**	**60.8**	**2**	●
5.1	Knowledge workers	75.0	6	
5.1.1	Knowledge-intensive employment, %	57.2	1	●
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.0	23	
5.1.4	GERD financed by business, %	67.6	14	
5.1.5	GMAT test takers/mn pop. 20–34	233.6	23	
5.2	Innovation linkages	55.0	6	
5.2.1	University/industry research collaboration†	65.0	18	
5.2.2	State of cluster development†	62.3	21	
5.2.3	GERD financed by abroad, %	20.7	18	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	11	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	2.8	8	
5.3	Knowledge absorption	52.4	3	●
5.3.1	Royalty & license fees payments, % total trade	0.7	44	
5.3.2	High-tech imports less re-imports, %	4.6	105	○
5.3.3	Comm., computer & info. services imp., % total trade	2.7	4	●
5.3.4	FDI net inflows, % GDP	31.0	1	●
6	**Knowledge & technology outputs**	**45.8**	**16**	
6.1	Knowledge creation	28.8	35	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.6	43	
6.1.2	PCT resident patent app./tr PPP$ GDP	6.4	8	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	19.2	48	
6.1.5	Citable documents H index	80.0	79	
6.2	Knowledge impact	42.6	54	
6.2.1	Growth rate of PPP$ GDP/worker, %	–1.6	109	○
6.2.2	New businesses/th pop. 15–64	21.0	1	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.9	76	
6.2.5	High- & medium-high-tech manufactures, %	2.7	92	○
6.3	Knowledge diffusion	66.1	2	●
6.3.1	Royalty & license fees receipts, % total trade	0.9	17	
6.3.2	High-tech exports less re-exports, %	1.2	65	
6.3.3	Comm., computer & info. services exp., % total trade	4.7	7	
6.3.4	FDI net outflows, % GDP	487.1	2	●
7	**Creative outputs**	**64.1**	**3**	●
7.1	Intangible assets	70.6	2	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	135.7	6	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	6.4	1	●
7.1.3	ICTs & business model creation†	76.2	5	
7.1.4	ICTs & organizational model creation†	68.3	13	
7.2	Creative goods & services	42.1	14	
7.2.1	Cultural & creative services exports, % total trade	3.9	1	●
7.2.2	National feature films/mn pop. 15–69	42.9	1	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	52	
7.2.5	Creative goods exports, % total trade	0.2	80	
7.3	Online creativity	73.0	5	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	100.0	1	●
7.3.2	Country-code TLDs/th pop. 15–69	71.9	7	
7.3.3	Wikipedia edits/pop. 15–69	27,784.6	10	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Madagascar

Key indicators

Population (millions)	22.3
GDP (US$ billions)	11.2
GDP per capita, PPP$	970.1
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.5**	**124**	
Innovation Output Sub-Index		19.6	121	
Innovation Input Sub-Index		31.4	123	
Innovation Efficiency Ratio		0.6	105	
Global Innovation Index 2013 (out of 142)		22.9	140	
1	**Institutions**	**55.1**	**91**	
1.1	Political environment	45.0	106	
1.1.1	Political stability*	51.8	100	
1.1.2	Government effectiveness*	11.9	134	
1.1.3	Press freedom*	71.4	73	
1.2	Regulatory environment	59.6	89	
1.2.1	Regulatory quality*	33.7	112	
1.2.2	Rule of law*	21.9	119	
1.2.3	Cost of redundancy dismissal, salary weeks	12.3	53	●
1.3	Business environment	60.8	83	
1.3.1	Ease of starting a business*	95.0	12	●
1.3.2	Ease of resolving insolvency*	12.4	134	
1.3.3	Ease of paying taxes*	74.9	50	●
2	**Human capital & research**	**14.5**	**124**	
2.1	Education	21.8	129	
2.1.1	Expenditure on education, % GDP	2.7	116	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	8.3	103	
2.1.3	School life expectancy, years	10.3	111	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	27.6	99	
2.2	Tertiary education	20.6	100	
2.2.1	Tertiary enrolment, % gross	4.1	127	
2.2.2	Graduates in science & engineering, %	20.5	51	
2.2.3	Tertiary inbound mobility, %	1.7	67	
2.3	Research & development (R&D)	1.0	116	
2.3.1	Researchers, headcounts/mn pop.	109.0	101	
2.3.2	Gross expenditure on R&D, % GDP	0.1	103	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**22.4**	**123**	
3.1	Information & communication technologies (ICTs)	12.5	135	
3.1.1	ICT access*	14.8	135	○
3.1.2	ICT use*	0.7	131	○
3.1.3	Government's online service*	32.0	114	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	36.6	55	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	44.0	85	
3.2.3	Gross capital formation, % GDP	24.5	55	●
3.3	Ecological sustainability	18.0	139	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	26.7	136	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	123	○
4	**Market sophistication**	**41.8**	**116**	
4.1	Credit	9.7	141	○
4.1.1	Ease of getting credit*	18.8	142	○
4.1.2	Domestic credit to private sector, % GDP	11.0	139	○
4.1.3	Microfinance gross loans, % GDP	0.7	45	
4.2	Investment	41.0	49	●
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	33	
4.3	Trade & competition	74.6	81	
4.3.1	Applied tariff rate, weighted mean, %	6.1	97	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.8	67	
4.3.3	Intensity of local competition†	64.2	78	
5	**Business sophistication**	**23.3**	**122**	
5.1	Knowledge workers	14.2	136	
5.1.1	Knowledge-intensive employment, %	2.8	107	○
5.1.2	Firms offering formal training, % firms	27.4	71	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	2.5	139	○
5.2	Innovation linkages	26.2	95	
5.2.1	University/industry research collaboration†	37.8	92	
5.2.2	State of cluster development†	33.2	120	
5.2.3	GERD financed by abroad, %	10.6	41	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	29.4	45	●
5.3.1	Royalty & license fees payments, % total trade	0.2	74	
5.3.2	High-tech imports less re-imports, %	4.3	110	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	27	●
5.3.4	FDI net inflows, % GDP	9.2	16	●
6	**Knowledge & technology outputs**	**16.7**	**124**	
6.1	Knowledge creation	5.8	107	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	89	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	73	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.3	81	
6.1.5	Citable documents H index	56.0	102	
6.2	Knowledge impact	22.0	118	
6.2.1	Growth rate of PPP$ GDP/worker, %	−1.4	107	
6.2.2	New businesses/th pop. 15–64	0.1	90	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.0	98	
6.2.5	High- & medium-high-tech manufactures, %	2.4	93	○
6.3	Knowledge diffusion	22.4	119	
6.3.1	Royalty & license fees receipts, % total trade	0.5	23	●
6.3.2	High-tech exports less re-exports, %	0.1	116	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	71	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**22.5**	**115**	
7.1	Intangible assets	36.7	106	
7.1.1	Domestic res trademark app./bn PPP$ GDP	94.3	18	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	57	
7.1.3	ICTs & business model creation†	46.0	111	
7.1.4	ICTs & organizational model creation†	44.7	102	
7.2	Creative goods & services	15.7	79	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	32	●
7.2.5	Creative goods exports, % total trade	0.1	89	
7.3	Online creativity	0.7	130	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	132	
7.3.2	Country-code TLDs/th pop. 15–69	2.0	124	
7.3.3	Wikipedia edits/pop. 15–69	37.7	132	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Malawi

Key indicators

Population (millions)	15.9
GDP (US$ billions)	3.8
GDP per capita, PPP$	878.7
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.6**	**113**	
Innovation Output Sub-Index		22.2	108	
Innovation Input Sub-Index		33.0	109	
Innovation Efficiency Ratio		0.7	96	
Global Innovation Index 2013 (out of 142)		26.7	119	
1	**Institutions**	**54.2**	**95**	
1.1	Political environment	55.0	77	
1.1.1	Political stability*	65.5	74	
1.1.2	Government effectiveness*	27.6	97	
1.1.3	Press freedom*	71.8	62	●
1.2	Regulatory environment	58.7	93	
1.2.1	Regulatory quality*	30.1	119	
1.2.2	Rule of law*	39.7	75	
1.2.3	Cost of redundancy dismissal, salary weeks	16.7	78	
1.3	Business environment	48.8	121	
1.3.1	Ease of starting a business*	60.9	131	○
1.3.2	Ease of resolving insolvency*	16.5	128	
1.3.3	Ease of paying taxes*	69.2	73	●
2	**Human capital & research**	**11.7**	**136**	○
2.1	Education	31.6	110	
2.1.1	Expenditure on education, % GDP	5.4	49	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	33.2	14	●
2.1.3	School life expectancy, years	10.8	108	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	41.5	114	○
2.2	Tertiary education	2.8	136	○
2.2.1	Tertiary enrolment, % gross	0.8	134	○
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.1	80	
2.3	Research & development (R&D)	0.5	123	
2.3.1	Researchers, headcounts/mn pop.	122.8	98	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**24.1**	**118**	
3.1	Information & communication technologies (ICTs)	10.3	138	○
3.1.1	ICT access*	17.2	129	○
3.1.2	ICT use*	2.6	123	
3.1.3	Government's online service*	21.6	133	○
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	34.3	65	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	47.6	74	
3.2.3	Gross capital formation, % GDP	22.0	73	●
3.3	Ecological sustainability	27.6	103	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	40.1	108	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	88	
4	**Market sophistication**	**39.6**	**128**	
4.1	Credit	17.7	129	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	20.6	118	
4.1.3	Microfinance gross loans, % GDP	0.3	53	
4.2	Investment	29.3	101	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	17.7	77	
4.2.3	Total value of stocks traded, % GDP	0.4	83	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	71.8	98	
4.3.1	Applied tariff rate, weighted mean, %	6.2	99	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	54.5	119	
5	**Business sophistication**	**35.3**	**50**	●
5.1	Knowledge workers	40.8	64	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	47.6	32	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	5.3	130	
5.2	Innovation linkages	41.3	39	●
5.2.1	University/industry research collaboration†	35.0	107	
5.2.2	State of cluster development†	44.5	77	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	23.8	81	
5.3.1	Royalty & license fees payments, % total trade	0.0	118	○
5.3.2	High-tech imports less re-imports, %	13.2	16	●
5.3.3	Comm., computer & info. services imp., % total trade	0.4	111	
5.3.4	FDI net inflows, % GDP	1.6	93	
6	**Knowledge & technology outputs**	**24.7**	**84**	
6.1	Knowledge creation	19.9	51	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	20.8	43	●
6.1.5	Citable documents H index	80.0	79	
6.2	Knowledge impact	27.4	112	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.1	63	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.4	116	
6.2.5	High- & medium-high-tech manufactures, %	7.9	81	
6.3	Knowledge diffusion	26.9	96	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	1.0	68	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	115	
6.3.4	FDI net outflows, % GDP	1.2	45	●
7	**Creative outputs**	**19.8**	**125**	
7.1	Intangible assets	33.2	120	
7.1.1	Domestic res trademark app./bn PPP$ GDP	25.5	80	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	45.8	112	
7.1.4	ICTs & organizational model creation†	43.8	103	
7.2	Creative goods & services	11.6	88	
7.2.1	Cultural & creative services exports, % total trade	0.0	76	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	37	●
7.2.5	Creative goods exports, % total trade	0.1	93	
7.3	Online creativity	1.1	127	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	127	
7.3.2	Country-code TLDs/th pop. 15–69	3.0	120	
7.3.3	Wikipedia edits/pop. 15–69	23.9	138	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Malaysia

Key indicators

Population (millions)	29.2
GDP (US$ billions)	312.4
GDP per capita, PPP$	17,748.0
Income group	Upper-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**45.6**	**33**	
Innovation Output Sub-Index		38.7	35	
Innovation Input Sub-Index		52.5	30	
Innovation Efficiency Ratio		0.7	72	
Global Innovation Index 2013 (out of 142)		46.9	32	
1	**Institutions**	**68.2**	**50**	
1.1	Political environment	63.6	52	
1.1.1	Political stability*	65.6	72	
1.1.2	Government effectiveness*	67.8	32	
1.1.3	Press freedom*	57.3	119	○
1.2	Regulatory environment	64.9	77	
1.2.1	Regulatory quality*	63.1	46	
1.2.2	Rule of law*	60.3	44	
1.2.3	Cost of redundancy dismissal, salary weeks	23.9	110	○
1.3	Business environment	76.2	25	
1.3.1	Ease of starting a business*	94.3	15	
1.3.2	Ease of resolving insolvency*	51.8	37	
1.3.3	Ease of paying taxes*	82.4	28	
2	**Human capital & research**	**41.6**	**35**	
2.1	Education	42.2	72	
2.1.1	Expenditure on education, % GDP	5.9	29	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.9	60	
2.1.3	School life expectancy, years	12.7	76	
2.1.4	PISA scales in reading, maths, & science	412.7	51	○
2.1.5	Pupil-teacher ratio, secondary	13.6	46	
2.2	Tertiary education	51.4	21	
2.2.1	Tertiary enrolment, % gross	36.0	70	
2.2.2	Graduates in science & engineering, %	37.7	6	●
2.2.3	Tertiary inbound mobility, %	6.1	28	
2.3	Research & development (R&D)	31.1	32	
2.3.1	Researchers, headcounts/mn pop.	2,564.5	35	
2.3.2	Gross expenditure on R&D, % GDP	1.1	34	
2.3.3	QS university ranking, average score top 3*	45.2	28	
3	**Infrastructure**	**45.7**	**35**	
3.1	Information & communication technologies (ICTs)	55.3	35	
3.1.1	ICT access*	60.9	51	
3.1.2	ICT use*	31.1	59	
3.1.3	Government's online service*	79.1	20	
3.1.4	E-participation*	50.0	31	
3.2	General infrastructure	43.3	31	
3.2.1	Electricity output, kWh/cap	4,507.6	47	
3.2.2	Logistics performance*	74.6	28	
3.2.3	Gross capital formation, % GDP	27.1	34	
3.3	Ecological sustainability	38.5	59	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.4	77	○
3.3.2	Environmental performance*	59.3	49	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.9	28	
4	**Market sophistication**	**63.9**	**17**	
4.1	Credit	46.6	41	
4.1.1	Ease of getting credit*	100.0	1	●
4.1.2	Domestic credit to private sector, % GDP	118.2	25	
4.1.3	Microfinance gross loans, % GDP	0.1	66	○
4.2	Investment	62.9	15	
4.2.1	Ease of protecting investors*	86.7	4	●
4.2.2	Market capitalization, % GDP	156.9	4	●
4.2.3	Total value of stocks traded, % GDP	41.0	21	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	35	
4.3	Trade & competition	82.4	12	●
4.3.1	Applied tariff rate, weighted mean, %	4.0	71	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.4	48	
4.3.3	Intensity of local competition†	74.0	29	
5	**Business sophistication**	**42.9**	**29**	
5.1	Knowledge workers	48.1	44	
5.1.1	Knowledge-intensive employment, %	27.5	50	
5.1.2	Firms offering formal training, % firms	50.1	27	
5.1.3	GERD performed by business, % GDP	0.6	31	
5.1.4	GERD financed by business, %	56.7	27	
5.1.5	GMAT test takers/mn pop. 20–34	45.9	78	
5.2	Innovation linkages	33.8	62	
5.2.1	University/industry research collaboration†	67.0	15	
5.2.2	State of cluster development†	67.3	13	
5.2.3	GERD financed by abroad, %	0.3	90	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	29	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	68	
5.3	Knowledge absorption	46.8	6	●
5.3.1	Royalty & license fees payments, % total trade	0.6	47	
5.3.2	High-tech imports less re-imports, %	22.1	1	●
5.3.3	Comm., computer & info. services imp., % total trade	1.1	56	
5.3.4	FDI net inflows, % GDP	4.2	51	
6	**Knowledge & technology outputs**	**35.5**	**39**	
6.1	Knowledge creation	11.5	72	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.3	50	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.6	35	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	58	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	16.9	53	
6.1.5	Citable documents H index	125.0	52	
6.2	Knowledge impact	48.9	31	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.6	42	
6.2.2	New businesses/th pop. 15–64	2.3	40	
6.2.3	Computer software spending, % GDP	0.4	23	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	23.7	18	
6.2.5	High- & medium-high-tech manufactures, %	41.0	19	
6.3	Knowledge diffusion	46.0	19	
6.3.1	Royalty & license fees receipts, % total trade	0.1	65	
6.3.2	High-tech exports less re-exports, %	26.9	2	●
6.3.3	Comm., computer & info. services exp., % total trade	1.1	80	
6.3.4	FDI net outflows, % GDP	5.5	11	●
7	**Creative outputs**	**42.0**	**39**	
7.1	Intangible assets	51.8	32	
7.1.1	Domestic res trademark app./bn PPP$ GDP	28.2	75	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	73.7	11	●
7.1.4	ICTs & organizational model creation†	70.8	11	●
7.2	Creative goods & services	36.0	25	
7.2.1	Cultural & creative services exports, % total trade	0.4	26	
7.2.2	National feature films/mn pop. 15–69	2.4	52	
7.2.3	Global ent. & media output/th pop. 15–69	0.4	33	
7.2.4	Printing & publishing manufactures, %	0.0	76	○
7.2.5	Creative goods exports, % total trade	10.6	4	●
7.3	Online creativity	28.5	52	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.1	57	
7.3.2	Country-code TLDs/th pop. 15–69	31.2	54	
7.3.3	Wikipedia edits/pop. 15–69	4,707.5	57	
7.3.4	Video uploads on YouTube/pop. 15–69	68.6	45	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Mali

Key indicators

Population (millions)	14.9
GDP (US$ billions)	11.1
GDP per capita, PPP$	1,103.4
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**26.2**	**119**	
Innovation Output Sub-Index		23.7	103	
Innovation Input Sub-Index		28.7	132	
Innovation Efficiency Ratio		0.8	30	●
Global Innovation Index 2013 (out of 142)		28.8	106	
1	**Institutions**	**47.8**	**117**	
1.1	Political environment	33.9	135	
1.1.1	Political stability*	17.2	139	○
1.1.2	Government effectiveness*	14.5	131	
1.1.3	Press freedom*	70.0	79	
1.2	Regulatory environment	60.6	86	
1.2.1	Regulatory quality*	37.8	104	
1.2.2	Rule of law*	27.3	104	
1.2.3	Cost of redundancy dismissal, salary weeks	13.7	62	●
1.3	Business environment	48.9	120	
1.3.1	Ease of starting a business*	66.8	123	
1.3.2	Ease of resolving insolvency*	23.5	113	
1.3.3	Ease of paying taxes*	56.3	114	
2	**Human capital & research**	**13.9**	**128**	
2.1	Education	32.0	108	
2.1.1	Expenditure on education, % GDP	4.8	66	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	31.2	21	●
2.1.3	School life expectancy, years	8.4	123	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	24.7	89	
2.2	Tertiary education	4.7	133	○
2.2.1	Tertiary enrolment, % gross	7.5	119	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.5	92	
2.3	Research & development (R&D)	5.1	84	
2.3.1	Researchers, headcounts/mn pop.	64.2	110	
2.3.2	Gross expenditure on R&D, % GDP	0.7	51	●
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**18.1**	**136**	
3.1	Information & communication technologies (ICTs)	14.4	130	
3.1.1	ICT access*	24.4	112	
3.1.2	ICT use*	1.0	129	
3.1.3	Government's online service*	32.0	114	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	27.5	99	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	26.2	130	
3.2.3	Gross capital formation, % GDP	22.2	72	
3.3	Ecological sustainability	12.4	143	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	18.4	141	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	124	
4	**Market sophistication**	**38.3**	**130**	
4.1	Credit	16.7	134	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	20.9	116	
4.1.3	Microfinance gross loans, % GDP	0.1	75	
4.2	Investment	36.7	59	●
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	61.7	128	
4.3.1	Applied tariff rate, weighted mean, %	8.4	114	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.8	128	
4.3.3	Intensity of local competition†	58.3	105	
5	**Business sophistication**	**25.1**	**112**	
5.1	Knowledge workers	19.4	125	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	36.7	45	●
5.1.3	GERD performed by business, % GDP	0.0	79	
5.1.4	GERD financed by business, %	3.0	79	
5.1.5	GMAT test takers/mn pop. 20–34	5.3	129	
5.2	Innovation linkages	26.1	98	
5.2.1	University/industry research collaboration†	31.5	118	
5.2.2	State of cluster development†	44.8	74	
5.2.3	GERD financed by abroad, %	8.8	45	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	51	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	30.0	43	●
5.3.1	Royalty & license fees payments, % total trade	0.1	109	
5.3.2	High-tech imports less re-imports, %	8.2	54	●
5.3.3	Comm., computer & info. services imp., % total trade	2.4	7	●
5.3.4	FDI net inflows, % GDP	1.7	92	
6	**Knowledge & technology outputs**	**18.7**	**116**	
6.1	Knowledge creation	6.3	100	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	78	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	7.2	88	
6.1.5	Citable documents H index	55.0	103	
6.2	Knowledge impact	18.0	120	
6.2.1	Growth rate of PPP$ GDP/worker, %	–7.3	115	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.2	139	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	31.9	68	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	95	
6.3.2	High-tech exports less re-exports, %	0.2	100	
6.3.3	Comm., computer & info. services exp., % total trade	3.9	12	●
6.3.4	FDI net outflows, % GDP	–3.9	124	○
7	**Creative outputs**	**28.7**	**81**	
7.1	Intangible assets	56.4	15	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.0	61	●
7.1.4	ICTs & organizational model creation†	53.8	66	
7.2	Creative goods & services	1.8	127	
7.2.1	Cultural & creative services exports, % total trade	0.1	57	
7.2.2	National feature films/mn pop. 15–69	0.1	98	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	122	○
7.3	Online creativity	0.1	142	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	134	
7.3.2	Country-code TLDs/th pop. 15–69	0.0	142	○
7.3.3	Wikipedia edits/pop. 15–69	26.7	137	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Malta

Key indicators

Population (millions)	0.4
GDP (US$ billions)	9.5
GDP per capita, PPP$	27,840.2
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**50.4**	**25**	
Innovation Output Sub-Index		50.3	10	●
Innovation Input Sub-Index		50.6	33	
Innovation Efficiency Ratio		1.0	3	●
Global Innovation Index 2013 (out of 142)		51.8	24	
1	**Institutions**	**79.2**	**22**	
1.1	Political environment	80.6	22	
1.1.1	Political stability*	91.1	17	
1.1.2	Government effectiveness*	74.0	26	
1.1.3	Press freedom*	76.7	40	
1.2	Regulatory environment	91.6	16	
1.2.1	Regulatory quality*	83.1	19	
1.2.2	Rule of law*	83.1	22	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	65.5	67	
1.3.1	Ease of starting a business*	72.3	113	○
1.3.2	Ease of resolving insolvency*	41.5	56	
1.3.3	Ease of paying taxes*	82.7	27	
2	**Human capital & research**	**34.6**	**49**	
2.1	Education	57.4	15	
2.1.1	Expenditure on education, % GDP	6.9	12	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	35.4	11	
2.1.3	School life expectancy, years	14.5	48	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	7.9	4	●
2.2	Tertiary education	30.6	76	
2.2.1	Tertiary enrolment, % gross	39.4	66	
2.2.2	Graduates in science & engineering, %	18.3	62	○
2.2.3	Tertiary inbound mobility, %	4.1	41	
2.3	Research & development (R&D)	15.7	54	
2.3.1	Researchers, headcounts/mn pop.	2,985.8	31	
2.3.2	Gross expenditure on R&D, % GDP	0.8	39	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**44.7**	**41**	
3.1	Information & communication technologies (ICTs)	57.7	31	
3.1.1	ICT access*	82.8	9	
3.1.2	ICT use*	60.4	22	
3.1.3	Government's online service*	61.4	41	
3.1.4	E-participation*	26.3	56	
3.2	General infrastructure	25.7	107	○
3.2.1	Electricity output, kWh/cap	5,223.8	41	
3.2.2	Logistics performance*	61.5	42	
3.2.3	Gross capital formation, % GDP	12.6	138	○
3.3	Ecological sustainability	50.6	25	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	11.2	10	●
3.3.2	Environmental performance*	67.4	34	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.1	48	
4	**Market sophistication**	**48.9**	**65**	
4.1	Credit	30.1	93	○
4.1.1	Ease of getting credit*	18.8	142	○
4.1.2	Domestic credit to private sector, % GDP	127.9	20	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	34.5	72	
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	41.6	49	
4.2.3	Total value of stocks traded, % GDP	0.5	78	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	82.0	19	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	83.5	3	●
5	**Business sophistication**	**45.5**	**23**	
5.1	Knowledge workers	54.9	32	
5.1.1	Knowledge-intensive employment, %	39.7	23	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.5	33	
5.1.4	GERD financed by business, %	60.0	22	
5.1.5	GMAT test takers/mn pop. 20–34	109.4	49	
5.2	Innovation linkages	41.0	40	
5.2.1	University/industry research collaboration†	46.2	53	
5.2.2	State of cluster development†	48.5	61	
5.2.3	GERD financed by abroad, %	17.3	23	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	20	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.9	21	
5.3	Knowledge absorption	40.7	13	
5.3.1	Royalty & license fees payments, % total trade	1.2	20	
5.3.2	High-tech imports less re-imports, %	13.0	19	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	22	
5.3.4	FDI net inflows, % GDP	4.7	43	
6	**Knowledge & technology outputs**	**45.1**	**18**	
6.1	Knowledge creation	17.4	61	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.0	69	○
6.1.2	PCT resident patent app./tr PPP$ GDP	1.6	27	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	19.0	49	
6.1.5	Citable documents H index	60.0	98	○
6.2	Knowledge impact	75.3	1	●
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	80	○
6.2.2	New businesses/th pop. 15–64	13.6	6	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	39.5	5	●
6.2.5	High- & medium-high-tech manufactures, %	53.4	7	●
6.3	Knowledge diffusion	42.5	26	
6.3.1	Royalty & license fees receipts, % total trade	0.2	35	
6.3.2	High-tech exports less re-exports, %	14.8	10	●
6.3.3	Comm., computer & info. services exp., % total trade	1.4	63	
6.3.4	FDI net outflows, % GDP	6.2	9	●
7	**Creative outputs**	**55.5**	**8**	●
7.1	Intangible assets	57.8	13	
7.1.1	Domestic res trademark app./bn PPP$ GDP	107.8	13	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	68.8	24	
7.1.4	ICTs & organizational model creation†	62.8	30	
7.2	Creative goods & services	44.9	10	●
7.2.1	Cultural & creative services exports, % total trade	0.2	46	
7.2.2	National feature films/mn pop. 15–69	3.2	44	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.1	3	●
7.2.5	Creative goods exports, % total trade	1.1	38	
7.3	Online creativity	61.6	16	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	97.5	5	●
7.3.2	Country-code TLDs/th pop. 15–69	40.6	46	
7.3.3	Wikipedia edits/pop. 15–69	27,516.4	12	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Mauritius

Key indicators

Population (millions)	1.3
GDP (US$ billions)	11.9
GDP per capita, PPP$	16,056.1
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.9**	**40**	
Innovation Output Sub-Index		35.0	43	
Innovation Input Sub-Index		46.9	42	
Innovation Efficiency Ratio		0.7	65	
Global Innovation Index 2013 (out of 142)		38.0	53	
1	**Institutions**	**78.3**	**27**	
1.1	Political environment	76.2	32	
1.1.1	Political stability*	89.3	21	●
1.1.2	Government effectiveness*	65.8	35	
1.1.3	Press freedom*	73.5	52	
1.2	Regulatory environment	84.0	24	●
1.2.1	Regulatory quality*	74.5	32	
1.2.2	Rule of law*	72.1	33	
1.2.3	Cost of redundancy dismissal, salary weeks	10.6	43	
1.3	Business environment	74.5	31	
1.3.1	Ease of starting a business*	91.2	28	
1.3.2	Ease of resolving insolvency*	43.5	53	
1.3.3	Ease of paying taxes*	88.9	12	●
2	**Human capital & research**	**25.9**	**80**	
2.1	Education	43.0	70	
2.1.1	Expenditure on education, % GDP	3.5	99	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.0	64	
2.1.3	School life expectancy, years	15.6	32	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.7	58	
2.2	Tertiary education	30.5	78	
2.2.1	Tertiary enrolment, % gross	39.9	65	
2.2.2	Graduates in science & engineering, %	20.4	52	
2.2.3	Tertiary inbound mobility, %	2.3	57	
2.3	Research & development (R&D)	4.1	88	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.4	72	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**37.1**	**67**	
3.1	Information & communication technologies (ICTs)	32.4	82	
3.1.1	ICT access*	51.7	65	
3.1.2	ICT use*	26.9	65	
3.1.3	Government's online service*	43.1	88	
3.1.4	E-participation*	7.9	98	○
3.2	General infrastructure	38.7	47	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	48.0	72	
3.2.3	Gross capital formation, % GDP	25.1	49	
3.3	Ecological sustainability	40.2	55	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	58.1	54	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	75	
4	**Market sophistication**	**63.0**	**20**	●
4.1	Credit	53.6	26	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	100.7	30	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	48.9	33	
4.2.1	Ease of protecting investors*	76.7	12	●
4.2.2	Market capitalization, % GDP	67.6	28	
4.2.3	Total value of stocks traded, % GDP	2.8	55	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	86.5	3	●
4.3.1	Applied tariff rate, weighted mean, %	0.7	5	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	12	●
4.3.3	Intensity of local competition†	74.3	28	
5	**Business sophistication**	**30.2**	**80**	
5.1	Knowledge workers	38.3	73	
5.1.1	Knowledge-intensive employment, %	20.4	71	
5.1.2	Firms offering formal training, % firms	28.8	70	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	156.9	32	
5.2	Innovation linkages	33.1	65	
5.2.1	University/industry research collaboration†	38.0	91	
5.2.2	State of cluster development†	50.7	51	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	72	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	39	
5.3	Knowledge absorption	19.3	106	
5.3.1	Royalty & license fees payments, % total trade	0.2	77	
5.3.2	High-tech imports less re-imports, %	5.3	97	○
5.3.3	Comm., computer & info. services imp., % total trade	1.2	53	
5.3.4	FDI net inflows, % GDP	2.4	76	
6	**Knowledge & technology outputs**	**26.6**	**72**	
6.1	Knowledge creation	3.7	128	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	99	○
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.6	111	○
6.1.5	Citable documents H index	41.0	120	○
6.2	Knowledge impact	26.7	114	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	7.4	15	●
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.0	44	
6.2.5	High- & medium-high-tech manufactures, %	3.3	89	○
6.3	Knowledge diffusion	49.5	13	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	88	○
6.3.2	High-tech exports less re-exports, %	0.2	104	○
6.3.3	Comm., computer & info. services exp., % total trade	2.6	24	●
6.3.4	FDI net outflows, % GDP	655.2	1	●
7	**Creative outputs**	**43.4**	**31**	
7.1	Intangible assets	57.6	14	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.5	56	
7.1.4	ICTs & organizational model creation†	55.7	58	
7.2	Creative goods & services	41.1	16	●
7.2.1	Cultural & creative services exports, % total trade	0.0	78	
7.2.2	National feature films/mn pop. 15–69	32.6	1	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	11	●
7.2.5	Creative goods exports, % total trade	0.9	41	
7.3	Online creativity	17.1	71	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	17.5	32	
7.3.2	Country-code TLDs/th pop. 15–69	29.6	62	
7.3.3	Wikipedia edits/pop. 15–69	2,545.2	71	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Mexico

Key indicators

Population (millions)	120.8
GDP (US$ billions)	1,258.5
GDP per capita, PPP$	15,562.6
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.0**	**66**	
Innovation Output Sub-Index		29.9	70	
Innovation Input Sub-Index		42.2	62	
Innovation Efficiency Ratio		0.7	79	
Global Innovation Index 2013 (out of 142)		36.8	63	
1	**Institutions**	**61.8**	**66**	
1.1	Political environment	51.1	85	
1.1.1	Political stability*	49.2	107	
1.1.2	Government effectiveness*	49.5	55	
1.1.3	Press freedom*	54.7	125	○
1.2	Regulatory environment	59.0	92	
1.2.1	Regulatory quality*	61.1	52	
1.2.2	Rule of law*	31.0	95	
1.2.3	Cost of redundancy dismissal, salary weeks	22.0	104	
1.3	Business environment	75.2	27	●
1.3.1	Ease of starting a business*	87.5	59	
1.3.2	Ease of resolving insolvency*	71.6	24	●
1.3.3	Ease of paying taxes*	66.6	83	
2	**Human capital & research**	**32.5**	**56**	
2.1	Education	38.3	89	
2.1.1	Expenditure on education, % GDP	5.2	52	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.9	78	
2.1.3	School life expectancy, years	12.8	75	
2.1.4	PISA scales in reading, maths, & science	417.3	47	
2.1.5	Pupil-teacher ratio, secondary	17.7	74	
2.2	Tertiary education	41.0	42	
2.2.1	Tertiary enrolment, % gross	27.7	80	
2.2.2	Graduates in science & engineering, %	26.8	20	●
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	18.0	47	
2.3.1	Researchers, headcounts/mn pop.	386.4	74	
2.3.2	Gross expenditure on R&D, % GDP	0.4	66	
2.3.3	QS university ranking, average score top 3*	41.0	33	●
3	**Infrastructure**	**39.9**	**55**	
3.1	Information & communication technologies (ICTs)	48.6	49	
3.1.1	ICT access*	41.1	80	
3.1.2	ICT use*	22.3	77	
3.1.3	Government's online service*	73.2	28	●
3.1.4	E-participation*	57.9	25	●
3.2	General infrastructure	33.7	67	
3.2.1	Electricity output, kWh/cap	2,687.1	68	
3.2.2	Logistics performance*	57.5	47	
3.2.3	Gross capital formation, % GDP	24.2	60	
3.3	Ecological sustainability	37.3	60	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.9	38	
3.3.2	Environmental performance*	55.0	60	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	77	
4	**Market sophistication**	**46.9**	**81**	
4.1	Credit	28.9	96	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	27.7	103	
4.1.3	Microfinance gross loans, % GDP	0.3	54	
4.2	Investment	30.4	93	
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	44.6	45	
4.2.3	Total value of stocks traded, % GDP	10.0	41	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	49	
4.3	Trade & competition	81.5	23	●
4.3.1	Applied tariff rate, weighted mean, %	2.2	48	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	30	●
4.3.3	Intensity of local competition†	67.5	62	
5	**Business sophistication**	**29.9**	**81**	
5.1	Knowledge workers	35.1	82	
5.1.1	Knowledge-intensive employment, %	14.7	93	○
5.1.2	Firms offering formal training, % firms	45.1	35	
5.1.3	GERD performed by business, % GDP	0.2	50	
5.1.4	GERD financed by business, %	39.0	46	
5.1.5	GMAT test takers/mn pop. 20–34	50.3	76	
5.2	Innovation linkages	24.3	107	
5.2.1	University/industry research collaboration†	51.3	42	
5.2.2	State of cluster development†	54.7	33	
5.2.3	GERD financed by abroad, %	0.7	84	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	96	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	73	
5.3	Knowledge absorption	30.4	41	
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	16.9	9	●
5.3.3	Comm., computer & info. services imp., % total trade	0.0	138	○
5.3.4	FDI net inflows, % GDP	1.1	112	○
6	**Knowledge & technology outputs**	**26.9**	**71**	
6.1	Knowledge creation	8.7	88	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.7	72	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	71	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.3	43	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.9	100	
6.1.5	Citable documents H index	232.0	33	●
6.2	Knowledge impact	33.5	88	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.7	73	
6.2.2	New businesses/th pop. 15–64	0.9	64	
6.2.3	Computer software spending, % GDP	0.2	68	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.1	85	
6.2.5	High- & medium-high-tech manufactures, %	40.3	20	●
6.3	Knowledge diffusion	38.3	37	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	14.7	11	●
6.3.3	Comm., computer & info. services exp., % total trade	0.1	135	○
6.3.4	FDI net outflows, % GDP	2.0	36	
7	**Creative outputs**	**32.9**	**68**	
7.1	Intangible assets	37.9	103	
7.1.1	Domestic res trademark app./bn PPP$ GDP	42.3	62	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	71	○
7.1.3	ICTs & business model creation†	59.8	53	
7.1.4	ICTs & organizational model creation†	56.5	54	
7.2	Creative goods & services	28.6	40	
7.2.1	Cultural & creative services exports, % total trade	0.0	80	
7.2.2	National feature films/mn pop. 15–69	0.9	73	
7.2.3	Global ent. & media output/th pop. 15–69	0.3	38	
7.2.4	Printing & publishing manufactures, %	0.0	87	○
7.2.5	Creative goods exports, % total trade	10.6	3	●
7.3	Online creativity	26.9	57	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.9	75	
7.3.2	Country-code TLDs/th pop. 15–69	30.1	59	
7.3.3	Wikipedia edits/pop. 15–69	2,306.9	76	
7.3.4	Video uploads on YouTube/pop. 15–69	70.9	40	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Moldova, Republic of

Key indicators

Population (millions)	3.6
GDP (US$ billions)	7.9
GDP per capita, PPP$	3,736.1
Income group	Lower-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.7**	**43**	
Innovation Output Sub-Index		42.1	30	
Innovation Input Sub-Index		39.4	80	
Innovation Efficiency Ratio		1.1	1	●
Global Innovation Index 2013 (out of 142)		40.9	45	
1	**Institutions**	**58.4**	**80**	
1.1	Political environment	55.5	75	
1.1.1	Political stability*	66.3	70	
1.1.2	Government effectiveness*	26.1	105	
1.1.3	Press freedom*	74.0	46	
1.2	Regulatory environment	55.9	101	
1.2.1	Regulatory quality*	45.8	81	
1.2.2	Rule of law*	36.5	80	
1.2.3	Cost of redundancy dismissal, salary weeks	22.6	105	
1.3	Business environment	63.7	74	
1.3.1	Ease of starting a business*	88.6	48	
1.3.2	Ease of resolving insolvency*	34.7	81	
1.3.3	Ease of paying taxes*	67.9	80	
2	**Human capital & research**	**28.6**	**71**	
2.1	Education	55.8	21	●
2.1.1	Expenditure on education, % GDP	8.4	4	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	37.9	6	●
2.1.3	School life expectancy, years	11.8	90	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	9.6	21	
2.2	Tertiary education	24.0	92	
2.2.1	Tertiary enrolment, % gross	40.1	63	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.6	71	
2.3	Research & development (R&D)	6.0	81	
2.3.1	Researchers, headcounts/mn pop.	951.8	57	
2.3.2	Gross expenditure on R&D, % GDP	0.4	70	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**31.9**	**88**	
3.1	Information & communication technologies (ICTs)	43.0	58	
3.1.1	ICT access*	58.1	55	
3.1.2	ICT use*	22.7	74	
3.1.3	Government's online service*	51.6	62	
3.1.4	E-participation*	39.5	38	
3.2	General infrastructure	25.2	111	
3.2.1	Electricity output, kWh/cap	1,625.3	82	
3.2.2	Logistics performance*	28.6	123	○
3.2.3	Gross capital formation, % GDP	24.1	61	
3.3	Ecological sustainability	27.5	104	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.2	107	○
3.3.2	Environmental performance*	53.4	67	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	79	
4	**Market sophistication**	**51.4**	**49**	
4.1	Credit	42.9	51	
4.1.1	Ease of getting credit*	87.5	13	
4.1.2	Domestic credit to private sector, % GDP	38.1	85	
4.1.3	Microfinance gross loans, % GDP	2.4	22	
4.2	Investment	35.6	66	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	0.2	88	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.7	68	
4.3.1	Applied tariff rate, weighted mean, %	2.5	53	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	55.8	113	○
5	**Business sophistication**	**26.8**	**102**	
5.1	Knowledge workers	36.0	81	
5.1.1	Knowledge-intensive employment, %	31.3	42	
5.1.2	Firms offering formal training, % firms	32.4	55	
5.1.3	GERD performed by business, % GDP	0.1	62	
5.1.4	GERD financed by business, %	19.0	65	
5.1.5	GMAT test takers/mn pop. 20–34	81.5	56	
5.2	Innovation linkages	18.7	132	○
5.2.1	University/industry research collaboration†	28.0	123	○
5.2.2	State of cluster development†	22.2	135	○
5.2.3	GERD financed by abroad, %	9.4	43	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	48	
5.3	Knowledge absorption	25.8	66	
5.3.1	Royalty & license fees payments, % total trade	0.4	62	
5.3.2	High-tech imports less re-imports, %	7.0	64	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	26	
5.3.4	FDI net inflows, % GDP	2.3	79	
6	**Knowledge & technology outputs**	**40.8**	**26**	
6.1	Knowledge creation	48.0	16	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	7.7	14	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.2	62	
6.1.3	Domestic res utility model app./tr PPP$ GDP	14.2	1	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	18.9	50	
6.1.5	Citable documents H index	60.0	98	
6.2	Knowledge impact	36.8	74	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.0	20	●
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	10.9	47	
6.2.5	High- & medium-high-tech manufactures, %	8.2	80	○
6.3	Knowledge diffusion	37.6	40	
6.3.1	Royalty & license fees receipts, % total trade	0.1	53	
6.3.2	High-tech exports less re-exports, %	0.6	77	
6.3.3	Comm., computer & info. services exp., % total trade	4.3	9	●
6.3.4	FDI net outflows, % GDP	0.4	68	
7	**Creative outputs**	**43.3**	**32**	
7.1	Intangible assets	68.4	3	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	257.8	1	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	5.7	1	●
7.1.3	ICTs & business model creation†	45.7	113	○
7.1.4	ICTs & organizational model creation†	43.7	104	
7.2	Creative goods & services	22.6	53	
7.2.1	Cultural & creative services exports, % total trade	0.8	13	●
7.2.2	National feature films/mn pop. 15–69	0.4	92	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	21	
7.2.5	Creative goods exports, % total trade	0.1	97	
7.3	Online creativity	14.0	80	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.8	79	
7.3.2	Country-code TLDs/th pop. 15–69	30.9	58	
7.3.3	Wikipedia edits/pop. 15–69	4,845.8	55	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Mongolia

Key indicators

Population (millions)	2.8
GDP (US$ billions)	11.5
GDP per capita, PPP$	5,885.2
Income group	Lower-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**37.5**	**56**	
Innovation Output Sub-Index		30.3	67	
Innovation Input Sub-Index		44.8	51	
Innovation Efficiency Ratio		0.7	94	
Global Innovation Index 2013 (out of 142)		37.6	72	
1	**Institutions**	**62.5**	**63**	
1.1	Political environment	56.9	72	
1.1.1	Political stability*	76.7	48	
1.1.2	Government effectiveness*	24.0	110	
1.1.3	Press freedom*	70.1	78	
1.2	Regulatory environment	69.4	56	
1.2.1	Regulatory quality*	44.5	86	
1.2.2	Rule of law*	35.9	81	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	
1.3	Business environment	61.1	81	
1.3.1	Ease of starting a business*	90.4	36	
1.3.2	Ease of resolving insolvency*	22.9	115	
1.3.3	Ease of paying taxes*	70.0	67	
2	**Human capital & research**	**26.9**	**79**	
2.1	Education	45.7	60	
2.1.1	Expenditure on education, % GDP	5.5	44	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	16.4	75	
2.1.3	School life expectancy, years	15.0	44	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.5	53	
2.2	Tertiary education	31.0	74	
2.2.1	Tertiary enrolment, % gross	61.1	34	
2.2.2	Graduates in science & engineering, %	17.6	66	
2.2.3	Tertiary inbound mobility, %	0.6	89	
2.3	Research & development (R&D)	4.0	90	
2.3.1	Researchers, headcounts/mn pop.	653.2	66	
2.3.2	Gross expenditure on R&D, % GDP	0.3	78	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**42.0**	**48**	
3.1	Information & communication technologies (ICTs)	44.0	51	
3.1.1	ICT access*	40.4	81	
3.1.2	ICT use*	16.4	90	
3.1.3	Government's online service*	58.8	45	
3.1.4	E-participation*	60.5	24	●
3.2	General infrastructure	58.4	7	●
3.2.1	Electricity output, kWh/cap	1,697.5	81	
3.2.2	Logistics performance*	25.4	132	○
3.2.3	Gross capital formation, % GDP	56.5	1	●
3.3	Ecological sustainability	23.5	125	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.2	104	
3.3.2	Environmental performance*	44.7	96	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	119	○
4	**Market sophistication**	**57.2**	**33**	
4.1	Credit	61.6	16	●
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	52.3	63	
4.1.3	Microfinance gross loans, % GDP	17.3	1	●
4.2	Investment	35.2	67	
4.2.1	Ease of protecting investors*	66.7	21	
4.2.2	Market capitalization, % GDP	12.6	84	
4.2.3	Total value of stocks traded, % GDP	0.4	82	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	74.8	79	
4.3.1	Applied tariff rate, weighted mean, %	5.1	84	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	39	
4.3.3	Intensity of local competition†	60.0	94	
5	**Business sophistication**	**35.2**	**51**	
5.1	Knowledge workers	42.4	58	
5.1.1	Knowledge-intensive employment, %	24.0	60	
5.1.2	Firms offering formal training, % firms	61.0	7	●
5.1.3	GERD performed by business, % GDP	0.0	77	○
5.1.4	GERD financed by business, %	6.8	78	○
5.1.5	GMAT test takers/mn pop. 20–34	138.2	39	
5.2	Innovation linkages	23.5	113	
5.2.1	University/industry research collaboration†	34.2	109	
5.2.2	State of cluster development†	30.0	129	○
5.2.3	GERD financed by abroad, %	3.9	67	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	19	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	42	
5.3	Knowledge absorption	39.8	18	●
5.3.1	Royalty & license fees payments, % total trade	0.1	99	
5.3.2	High-tech imports less re-imports, %	5.0	99	
5.3.3	Comm., computer & info. services imp., % total trade	1.1	60	
5.3.4	FDI net inflows, % GDP	53.8	1	●
6	**Knowledge & technology outputs**	**24.2**	**89**	
6.1	Knowledge creation	47.8	17	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	10.0	9	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	82	
6.1.3	Domestic res utility model app./tr PPP$ GDP	11.6	1	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	12.4	68	
6.1.5	Citable documents H index	55.0	103	
6.2	Knowledge impact	2.9	138	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.7	126	○
6.2.5	High- & medium-high-tech manufactures, %	4.2	88	○
6.3	Knowledge diffusion	21.9	123	
6.3.1	Royalty & license fees receipts, % total trade	0.0	82	
6.3.2	High-tech exports less re-exports, %	0.3	90	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	112	
6.3.4	FDI net outflows, % GDP	0.4	66	
7	**Creative outputs**	**36.4**	**54**	
7.1	Intangible assets	56.0	16	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	294.6	1	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	58	
7.1.3	ICTs & business model creation†	51.3	89	
7.1.4	ICTs & organizational model creation†	43.3	107	
7.2	Creative goods & services	22.6	54	
7.2.1	Cultural & creative services exports, % total trade	0.0	101	○
7.2.2	National feature films/mn pop. 15–69	6.7	18	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	14	●
7.2.5	Creative goods exports, % total trade	0.0	116	○
7.3	Online creativity	10.9	89	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.9	106	
7.3.2	Country-code TLDs/th pop. 15–69	24.2	70	
7.3.3	Wikipedia edits/pop. 15–69	4,504.6	58	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Montenegro

Key indicators

Population (millions)	0.6
GDP (US$ billions)	4.4
GDP per capita, PPP$	11,912.6
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**37.0**	**59**	
Innovation Output Sub-Index		28.4	74	
Innovation Input Sub-Index		45.6	46	
Innovation Efficiency Ratio		0.6	106	○
Global Innovation Index 2013 (out of 142)		41.0	44	
1	**Institutions**	**68.1**	**51**	
1.1	Political environment	63.6	53	
1.1.1	Political stability*	79.3	44	
1.1.2	Government effectiveness*	44.3	61	
1.1.3	Press freedom*	67.0	91	
1.2	Regulatory environment	70.6	51	
1.2.1	Regulatory quality*	49.1	73	
1.2.2	Rule of law*	46.2	60	
1.2.3	Cost of redundancy dismissal, salary weeks	11.2	46	
1.3	Business environment	70.2	50	
1.3.1	Ease of starting a business*	88.8	45	
1.3.2	Ease of resolving insolvency*	51.3	39	
1.3.3	Ease of paying taxes*	70.5	64	
2	**Human capital & research**	**40.7**	**37**	
2.1	Education	55.4	25	●
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.2	40	
2.1.4	PISA scales in reading, maths, & science	413.9	49	○
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	56.0	13	●
2.2.1	Tertiary enrolment, % gross	55.5	44	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	10.8	66	
2.3.1	Researchers, headcounts/mn pop.	2,491.0	37	
2.3.2	Gross expenditure on R&D, % GDP	0.4	69	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**34.2**	**78**	
3.1	Information & communication technologies (ICTs)	41.3	61	
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	51.0	65	
3.1.4	E-participation*	31.6	48	
3.2	General infrastructure	26.2	105	
3.2.1	Electricity output, kWh/cap	4,215.9	50	
3.2.2	Logistics performance*	33.3	115	○
3.2.3	Gross capital formation, % GDP	21.0	81	
3.3	Ecological sustainability	35.2	71	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.6	74	
3.3.2	Environmental performance*	55.5	58	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	45	
4	**Market sophistication**	**50.6**	**53**	
4.1	Credit	39.4	59	
4.1.1	Ease of getting credit*	93.8	3	●
4.1.2	Domestic credit to private sector, % GDP	52.7	62	
4.1.3	Microfinance gross loans, % GDP	0.7	47	
4.2	Investment	45.1	38	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	90.4	17	●
4.2.3	Total value of stocks traded, % GDP	1.0	66	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	67.2	121	○
4.3.1	Applied tariff rate, weighted mean, %	3.5	61	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.4	84	
4.3.3	Intensity of local competition†	47.8	127	○
5	**Business sophistication**	**34.4**	**58**	
5.1	Knowledge workers	38.5	70	
5.1.1	Knowledge-intensive employment, %	37.2	27	●
5.1.2	Firms offering formal training, % firms	25.2	78	○
5.1.3	GERD performed by business, % GDP	0.1	57	
5.1.4	GERD financed by business, %	22.3	63	
5.1.5	GMAT test takers/mn pop. 20–34	149.9	36	●
5.2	Innovation linkages	31.2	71	
5.2.1	University/industry research collaboration†	50.0	43	
5.2.2	State of cluster development†	36.2	113	○
5.2.3	GERD financed by abroad, %	15.3	29	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	33	
5.3	Knowledge absorption	33.6	33	●
5.3.1	Royalty & license fees payments, % total trade	0.1	98	○
5.3.2	High-tech imports less re-imports, %	4.5	108	○
5.3.3	Comm., computer & info. services imp., % total trade	1.8	17	●
5.3.4	FDI net inflows, % GDP	12.4	10	●
6	**Knowledge & technology outputs**	**20.9**	**109**	○
6.1	Knowledge creation	18.3	58	
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.1	26	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	58	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	23.2	41	
6.1.5	Citable documents H index	17.0	142	○
6.2	Knowledge impact	16.4	121	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	14.1	33	●
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	28.1	88	
6.3.1	Royalty & license fees receipts, % total trade	0.0	73	
6.3.2	High-tech exports less re-exports, %	0.4	82	
6.3.3	Comm., computer & info. services exp., % total trade	2.0	41	
6.3.4	FDI net outflows, % GDP	0.6	58	
7	**Creative outputs**	**35.9**	**57**	
7.1	Intangible assets	45.0	68	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.4	42	
7.1.3	ICTs & business model creation†	56.0	68	
7.1.4	ICTs & organizational model creation†	52.8	69	
7.2	Creative goods & services	12.0	86	
7.2.1	Cultural & creative services exports, % total trade	0.4	25	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	85	
7.3	Online creativity	41.5	34	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.3	68	
7.3.2	Country-code TLDs/th pop. 15–69	100.0	1	●
7.3.3	Wikipedia edits/pop. 15–69	12,433.8	38	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Morocco

Key indicators

Population (millions)	32.5
GDP (US$ billions)	105.1
GDP per capita, PPP$	5,455.8
Income group	Lower-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.2**	**84**	
Innovation Output Sub-Index		26.5	86	
Innovation Input Sub-Index		38.0	89	
Innovation Efficiency Ratio		0.7	83	
Global Innovation Index 2013 (out of 142)		30.9	92	
1	**Institutions**	**59.6**	**77**	
1.1	Political environment	51.7	82	
1.1.1	Political stability*	54.4	93	
1.1.2	Government effectiveness*	39.7	72	
1.1.3	Press freedom*	61.0	111	
1.2	Regulatory environment	59.1	91	
1.2.1	Regulatory quality*	46.4	78	
1.2.2	Rule of law*	41.0	71	
1.2.3	Cost of redundancy dismissal, salary weeks	20.7	96	
1.3	Business environment	68.0	58	
1.3.1	Ease of starting a business*	89.4	41	●
1.3.2	Ease of resolving insolvency*	40.6	61	
1.3.3	Ease of paying taxes*	73.9	51	
2	**Human capital & research**	**29.7**	**64**	
2.1	Education	41.9	76	
2.1.1	Expenditure on education, % GDP	5.4	48	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	30.7	22	●
2.1.3	School life expectancy, years	11.6	94	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	18.7	78	
2.2	Tertiary education	38.2	53	
2.2.1	Tertiary enrolment, % gross	16.2	95	
2.2.2	Graduates in science & engineering, %	34.9	7	●
2.2.3	Tertiary inbound mobility, %	1.9	60	
2.3	Research & development (R&D)	9.1	70	
2.3.1	Researchers, headcounts/mn pop.	1,145.7	55	
2.3.2	Gross expenditure on R&D, % GDP	0.7	48	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**39.6**	**58**	
3.1	Information & communication technologies (ICTs)	40.8	62	
3.1.1	ICT access*	46.7	72	
3.1.2	ICT use*	22.8	73	
3.1.3	Government's online service*	54.3	53	
3.1.4	E-participation*	39.5	38	●
3.2	General infrastructure	41.7	38	●
3.2.1	Electricity output, kWh/cap	770.7	96	
3.2.2	Logistics performance*	56.3	50	
3.2.3	Gross capital formation, % GDP	34.3	16	●
3.3	Ecological sustainability	36.3	67	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.3	35	●
3.3.2	Environmental performance*	51.9	73	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	103	
4	**Market sophistication**	**42.8**	**109**	
4.1	Credit	26.6	106	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	73.3	43	●
4.1.3	Microfinance gross loans, % GDP	0.5	48	
4.2	Investment	25.8	118	○
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	54.4	37	
4.2.3	Total value of stocks traded, % GDP	3.6	53	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	63	○
4.3	Trade & competition	76.0	61	
4.3.1	Applied tariff rate, weighted mean, %	7.1	106	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.8	66	
4.3.3	Intensity of local competition†	68.7	56	
5	**Business sophistication**	**18.2**	**134**	○
5.1	Knowledge workers	20.9	121	○
5.1.1	Knowledge-intensive employment, %	6.8	104	○
5.1.2	Firms offering formal training, % firms	24.7	80	
5.1.3	GERD performed by business, % GDP	0.2	47	
5.1.4	GERD financed by business, %	29.9	54	
5.1.5	GMAT test takers/mn pop. 20–34	33.0	92	
5.2	Innovation linkages	20.4	124	○
5.2.1	University/industry research collaboration†	34.0	111	○
5.2.2	State of cluster development†	49.5	57	
5.2.3	GERD financed by abroad, %	1.7	74	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	87	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	96	○
5.3	Knowledge absorption	13.3	130	○
5.3.1	Royalty & license fees payments, % total trade	0.1	92	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	107	
5.3.4	FDI net inflows, % GDP	2.5	72	
6	**Knowledge & technology outputs**	**25.5**	**78**	
6.1	Knowledge creation	9.3	86	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.2	63	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.2	63	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	8.4	84	
6.1.5	Citable documents H index	99.0	65	
6.2	Knowledge impact	31.0	101	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.3	61	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	0.3	57	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.6	80	
6.2.5	High- & medium-high-tech manufactures, %	27.4	39	
6.3	Knowledge diffusion	36.3	43	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	99	○
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	2.8	21	●
6.3.4	FDI net outflows, % GDP	0.4	71	
7	**Creative outputs**	**27.4**	**92**	
7.1	Intangible assets	38.8	97	
7.1.1	Domestic res trademark app./bn PPP$ GDP	88.8	22	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.4	44	
7.1.3	ICTs & business model creation†	52.8	83	
7.1.4	ICTs & organizational model creation†	45.5	95	
7.2	Creative goods & services	12.8	85	
7.2.1	Cultural & creative services exports, % total trade	0.4	23	●
7.2.2	National feature films/mn pop. 15–69	1.1	68	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	54	○
7.2.4	Printing & publishing manufactures, %	0.0	70	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	19.2	68	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.1	90	
7.3.2	Country-code TLDs/th pop. 15–69	14.4	89	
7.3.3	Wikipedia edits/pop. 15–69	967.8	98	
7.3.4	Video uploads on YouTube/pop. 15–69	58.9	52	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Mozambique

Key indicators

Population (millions)	25.2
GDP (US$ billions)	15.3
GDP per capita, PPP$	1,089.8
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**28.5**	**107**	
Innovation Output Sub-Index		20.6	115	
Innovation Input Sub-Index		36.4	96	
Innovation Efficiency Ratio		0.6	124	
Global Innovation Index 2013 (out of 142)		26.5	121	
1	**Institutions**	**49.2**	**110**	
1.1	Political environment	56.6	73	
1.1.1	Political stability*	74.1	52	●
1.1.2	Government effectiveness*	23.8	112	
1.1.3	Press freedom*	72.0	60	●
1.2	Regulatory environment	37.0	134	○
1.2.1	Regulatory quality*	36.8	106	
1.2.2	Rule of law*	29.9	99	
1.2.3	Cost of redundancy dismissal, salary weeks	37.5	136	○
1.3	Business environment	54.1	104	
1.3.1	Ease of starting a business*	80.7	87	
1.3.2	Ease of resolving insolvency*	17.5	126	
1.3.3	Ease of paying taxes*	63.9	93	
2	**Human capital & research**	**20.5**	**101**	
2.1	Education	50.2	44	●
2.1.1	Expenditure on education, % GDP	5.0	62	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	86.0	1	●
2.1.3	School life expectancy, years	9.5	116	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	33.1	107	○
2.2	Tertiary education	7.6	128	○
2.2.1	Tertiary enrolment, % gross	4.9	124	
2.2.2	Graduates in science & engineering, %	8.9	101	○
2.2.3	Tertiary inbound mobility, %	0.3	98	
2.3	Research & development (R&D)	3.6	91	
2.3.1	Researchers, headcounts/mn pop.	66.3	109	
2.3.2	Gross expenditure on R&D, % GDP	0.5	63	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**27.5**	**105**	
3.1	Information & communication technologies (ICTs)	17.2	120	
3.1.1	ICT access*	16.9	131	○
3.1.2	ICT use*	2.3	125	
3.1.3	Government's online service*	36.6	101	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	49.5	19	●
3.2.1	Electricity output, kWh/cap	703.3	100	
3.2.2	Logistics performance*	27.0	126	
3.2.3	Gross capital formation, % GDP	48.7	3	●
3.3	Ecological sustainability	15.9	140	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.0	120	○
3.3.2	Environmental performance*	30.0	130	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	80	
4	**Market sophistication**	**49.9**	**58**	●
4.1	Credit	17.3	130	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	25.3	107	
4.1.3	Microfinance gross loans, % GDP	0.1	71	
4.2	Investment	60.0	17	●
4.2.1	Ease of protecting investors*	60.0	42	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	72.3	94	
4.3.1	Applied tariff rate, weighted mean, %	4.8	80	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	21	●
4.3.3	Intensity of local competition†	53.3	120	
5	**Business sophistication**	**35.0**	**54**	●
5.1	Knowledge workers	15.6	133	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	22.0	87	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	1.2	142	○
5.2	Innovation linkages	57.5	5	●
5.2.1	University/industry research collaboration†	37.8	92	
5.2.2	State of cluster development†	40.5	97	
5.2.3	GERD financed by abroad, %	78.1	1	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	33	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	31.8	37	●
5.3.1	Royalty & license fees payments, % total trade	0.1	95	
5.3.2	High-tech imports less re-imports, %	3.0	121	○
5.3.3	Comm., computer & info. services imp., % total trade	1.0	62	
5.3.4	FDI net inflows, % GDP	16.5	7	●
6	**Knowledge & technology outputs**	**26.9**	**69**	
6.1	Knowledge creation	4.2	122	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.0	67	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	55	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.0	109	
6.1.5	Citable documents H index	53.0	106	
6.2	Knowledge impact	51.9	22	●
6.2.1	Growth rate of PPP$ GDP/worker, %	4.5	13	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.7	108	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	24.6	114	
6.3.1	Royalty & license fees receipts, % total trade	0.1	67	
6.3.2	High-tech exports less re-exports, %	1.6	57	
6.3.3	Comm., computer & info. services exp., % total trade	0.6	99	
6.3.4	FDI net outflows, % GDP	0.1	93	
7	**Creative outputs**	**14.3**	**136**	○
7.1	Intangible assets	27.4	131	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	30.2	72	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.1	60	
7.1.3	ICTs & business model creation†	43.8	118	
7.1.4	ICTs & organizational model creation†	39.7	120	
7.2	Creative goods & services	1.3	131	
7.2.1	Cultural & creative services exports, % total trade	0.0	70	
7.2.2	National feature films/mn pop. 15–69	0.1	100	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	115	
7.3	Online creativity	1.2	124	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	140	○
7.3.2	Country-code TLDs/th pop. 15–69	3.5	115	
7.3.3	Wikipedia edits/pop. 15–69	79.2	124	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Myanmar

Key indicators

Population (millions)	52.8
GDP (US$ billions)	56.4
GDP per capita, PPP$	1,739.8
Income group	Low income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**19.6**	**140**	
Innovation Output Sub-Index		16.3	133	
Innovation Input Sub-Index		23.0	143	○
Innovation Efficiency Ratio		0.7	80	●
Global Innovation Index 2013 (out of 142)		30.5	n/a	
1	**Institutions**	**35.3**	**140**	
1.1	Political environment	32.5	137	
1.1.1	Political stability*	42.1	117	
1.1.2	Government effectiveness*	0.0	143	○
1.1.3	Press freedom*	55.3	123	
1.2	Regulatory environment	40.0	130	
1.2.1	Regulatory quality*	0.0	143	○
1.2.2	Rule of law*	9.1	140	
1.2.3	Cost of redundancy dismissal, salary weeks	20.2	93	●
1.3	Business environment	33.4	141	
1.3.1	Ease of starting a business*	20.3	143	○
1.3.2	Ease of resolving insolvency*	15.5	132	
1.3.3	Ease of paying taxes*	64.3	91	●
2	**Human capital & research**	**17.4**	**112**	
2.1	Education	13.4	139	
2.1.1	Expenditure on education, % GDP	0.8	132	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	8.6	122	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	34.1	110	
2.2	Tertiary education	38.9	51	●
2.2.1	Tertiary enrolment, % gross	13.8	98	
2.2.2	Graduates in science & engineering, %	38.7	5	●
2.2.3	Tertiary inbound mobility, %	0.0	113	○
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**16.7**	**138**	
3.1	Information & communication technologies (ICTs)	6.8	142	
3.1.1	ICT access*	16.2	134	
3.1.2	ICT use*	0.4	135	○
3.1.3	Government's online service*	10.5	141	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	22.9	123	
3.2.1	Electricity output, kWh/cap	151.6	118	
3.2.2	Logistics performance*	30.2	121	
3.2.3	Gross capital formation, % GDP	23.3	69	●
3.3	Ecological sustainability	20.5	132	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.3	78	●
3.3.2	Environmental performance*	27.4	135	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	125	
4	**Market sophistication**	**36.9**	**135**	
4.1	Credit	12.5	140	
4.1.1	Ease of getting credit*	25.0	134	
4.1.2	Domestic credit to private sector, % GDP	4.7	141	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	23.3	128	
4.2.1	Ease of protecting investors*	23.3	142	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	74.9	76	●
4.3.1	Applied tariff rate, weighted mean, %	3.2	59	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.9	70	●
4.3.3	Intensity of local competition†	60.2	93	
5	**Business sophistication**	**8.8**	**143**	○
5.1	Knowledge workers	3.3	143	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	3.0	135	
5.2	Innovation linkages	23.0	116	
5.2.1	University/industry research collaboration†	17.7	136	○
5.2.2	State of cluster development†	24.2	134	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	15	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	88	
5.3	Knowledge absorption	0.0	143	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	2.0	126	○
5.3.3	Comm., computer & info. services imp., % total trade	n/a	n/a	
5.3.4	FDI net inflows, % GDP	n/a	n/a	
6	**Knowledge & technology outputs**	**17.7**	**118**	
6.1	Knowledge creation	1.9	140	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	0.5	141	
6.1.5	Citable documents H index	38.0	126	
6.2	Knowledge impact	51.2	24	●
6.2.1	Growth rate of PPP$ GDP/worker, %	4.6	10	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.4	134	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	0.0	142	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.0	126	
6.3.3	Comm., computer & info. services exp., % total trade	n/a	n/a	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**14.8**	**134**	
7.1	Intangible assets	28.3	130	
7.1.1	Domestic res trademark app./bn PPP$ GDP	43.1	60	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	35.7	132	
7.1.4	ICTs & organizational model creation†	32.7	128	
7.2	Creative goods & services	2.4	121	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.7	80	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	109	
7.3	Online creativity	0.1	138	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	139	
7.3.2	Country-code TLDs/th pop. 15–69	0.3	136	
7.3.3	Wikipedia edits/pop. 15–69	35.2	134	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Namibia

Key indicators

Population (millions)	2.3
GDP (US$ billions)	12.3
GDP per capita, PPP$	8,191.1
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**28.5**	**108**	
Innovation Output Sub-Index		20.3	119	
Innovation Input Sub-Index		36.7	95	
Innovation Efficiency Ratio		0.6	125	○
Global Innovation Index 2013 (out of 142)		28.4	109	
1	**Institutions**	**68.2**	**49**	
1.1	Political environment	73.5	38	●
1.1.1	Political stability*	88.8	22	●
1.1.2	Government effectiveness*	44.2	62	
1.1.3	Press freedom*	87.5	17	●
1.2	Regulatory environment	74.2	43	●
1.2.1	Regulatory quality*	50.5	71	
1.2.2	Rule of law*	52.9	54	
1.2.3	Cost of redundancy dismissal, salary weeks	9.7	34	●
1.3	Business environment	57.1	92	
1.3.1	Ease of starting a business*	67.9	121	
1.3.2	Ease of resolving insolvency*	37.0	74	
1.3.3	Ease of paying taxes*	66.4	85	
2	**Human capital & research**	**19.3**	**104**	
2.1	Education	40.8	81	
2.1.1	Expenditure on education, % GDP	8.4	5	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.8	80	
2.1.3	School life expectancy, years	11.3	98	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	24.6	87	
2.2	Tertiary education	15.0	112	
2.2.1	Tertiary enrolment, % gross	9.3	113	
2.2.2	Graduates in science & engineering, %	2.6	104	○
2.2.3	Tertiary inbound mobility, %	10.2	16	●
2.3	Research & development (R&D)	2.1	106	
2.3.1	Researchers, headcounts/mn pop.	343.3	77	
2.3.2	Gross expenditure on R&D, % GDP	0.1	97	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**25.8**	**113**	
3.1	Information & communication technologies (ICTs)	19.8	111	
3.1.1	ICT access*	30.9	101	
3.1.2	ICT use*	15.5	94	
3.1.3	Government's online service*	30.1	120	○
3.1.4	E-participation*	2.6	116	○
3.2	General infrastructure	23.6	118	
3.2.1	Electricity output, kWh/cap	616.4	103	
3.2.2	Logistics performance*	41.3	89	
3.2.3	Gross capital formation, % GDP	20.8	83	
3.3	Ecological sustainability	34.0	76	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.8	27	●
3.3.2	Environmental performance*	43.7	101	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	93	
4	**Market sophistication**	**44.4**	**96**	
4.1	Credit	27.9	101	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	48.4	71	
4.1.3	Microfinance gross loans, % GDP	0.0	81	○
4.2	Investment	28.1	108	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	10.2	89	
4.2.3	Total value of stocks traded, % GDP	0.2	95	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	77.1	52	
4.3.1	Applied tariff rate, weighted mean, %	1.1	9	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	63	
4.3.3	Intensity of local competition†	59.8	95	
5	**Business sophistication**	**25.7**	**108**	
5.1	Knowledge workers	29.4	98	
5.1.1	Knowledge-intensive employment, %	16.9	83	
5.1.2	Firms offering formal training, % firms	44.5	36	
5.1.3	GERD performed by business, % GDP	0.0	78	○
5.1.4	GERD financed by business, %	12.8	72	
5.1.5	GMAT test takers/mn pop. 20–34	26.7	99	
5.2	Innovation linkages	24.5	106	
5.2.1	University/industry research collaboration†	42.0	71	
5.2.2	State of cluster development†	44.2	78	
5.2.3	GERD financed by abroad, %	1.5	77	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	50	
5.3	Knowledge absorption	23.0	83	
5.3.1	Royalty & license fees payments, % total trade	0.1	108	
5.3.2	High-tech imports less re-imports, %	6.7	74	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	90	
5.3.4	FDI net inflows, % GDP	7.7	22	●
6	**Knowledge & technology outputs**	**12.7**	**137**	○
6.1	Knowledge creation	11.6	70	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.8	33	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	7.3	86	
6.1.5	Citable documents H index	55.0	103	
6.2	Knowledge impact	4.7	132	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.9	67	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.7	107	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	21.7	125	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	110	○
6.3.2	High-tech exports less re-exports, %	2.0	52	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	120	○
6.3.4	FDI net outflows, % GDP	0.2	84	
7	**Creative outputs**	**27.9**	**89**	
7.1	Intangible assets	48.3	49	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	51.0	91	
7.1.4	ICTs & organizational model creation†	45.5	95	
7.2	Creative goods & services	10.3	93	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.8	76	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.4	63	
7.3	Online creativity	4.8	112	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	11.0	47	●
7.3.2	Country-code TLDs/th pop. 15–69	1.9	125	○
7.3.3	Wikipedia edits/pop. 15–69	853.6	100	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Nepal

Key indicators

Population (millions)	27.5
GDP (US$ billions)	19.3
GDP per capita, PPP$	1,508.2
Income group	Low income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**23.8**	**136**	○
Innovation Output Sub-Index		15.7	135	○
Innovation Input Sub-Index		31.8	121	
Innovation Efficiency Ratio		0.5	134	○
Global Innovation Index 2013 (out of 142)		25.0	128	
1	**Institutions**	**46.1**	**123**	
1.1	Political environment	37.2	132	○
1.1.1	Political stability*	31.8	133	○
1.1.2	Government effectiveness*	14.5	130	○
1.1.3	Press freedom*	65.4	97	
1.2	Regulatory environment	43.8	124	
1.2.1	Regulatory quality*	27.6	123	
1.2.2	Rule of law*	24.7	111	
1.2.3	Cost of redundancy dismissal, salary weeks	27.2	118	
1.3	Business environment	57.3	90	
1.3.1	Ease of starting a business*	81.5	82	
1.3.2	Ease of resolving insolvency*	26.0	109	
1.3.3	Ease of paying taxes*	64.4	90	
2	**Human capital & research**	**15.5**	**119**	
2.1	Education	31.1	112	
2.1.1	Expenditure on education, % GDP	4.7	69	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	12.2	91	
2.1.3	School life expectancy, years	12.4	83	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	29.2	102	
2.2	Tertiary education	12.6	121	
2.2.1	Tertiary enrolment, % gross	14.5	97	
2.2.2	Graduates in science & engineering, %	11.8	98	○
2.2.3	Tertiary inbound mobility, %	0.0	112	○
2.3	Research & development (R&D)	2.8	95	
2.3.1	Researchers, headcounts/mn pop.	190.8	88	
2.3.2	Gross expenditure on R&D, % GDP	0.3	75	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**23.2**	**119**	
3.1	Information & communication technologies (ICTs)	15.7	124	
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	28.8	127	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	28.4	94	
3.2.1	Electricity output, kWh/cap	108.6	120	○
3.2.2	Logistics performance*	17.1	136	○
3.2.3	Gross capital formation, % GDP	31.8	19	●
3.3	Ecological sustainability	25.3	115	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.2	105	
3.3.2	Environmental performance*	37.0	117	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**43.1**	**105**	
4.1	Credit	31.9	86	
4.1.1	Ease of getting credit*	68.8	53	●
4.1.2	Domestic credit to private sector, % GDP	55.1	58	●
4.1.3	Microfinance gross loans, % GDP	0.8	42	●
4.2	Investment	29.8	98	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	21.4	68	
4.2.3	Total value of stocks traded, % GDP	0.3	87	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	67.6	118	
4.3.1	Applied tariff rate, weighted mean, %	12.0	133	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.4	46	●
4.3.3	Intensity of local competition†	58.5	103	
5	**Business sophistication**	**31.3**	**74**	
5.1	Knowledge workers	38.3	74	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	31.9	58	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	68.6	63	●
5.2	Innovation linkages	28.0	86	
5.2.1	University/industry research collaboration†	29.2	121	
5.2.2	State of cluster development†	39.7	103	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	91	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	27.6	54	●
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	8.9	44	●
5.3.3	Comm., computer & info. services imp., % total trade	1.6	31	●
5.3.4	FDI net inflows, % GDP	0.5	126	
6	**Knowledge & technology outputs**	**11.2**	**141**	○
6.1	Knowledge creation	11.4	73	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	10.2	73	●
6.1.5	Citable documents H index	71.0	89	
6.2	Knowledge impact	2.4	141	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.7	71	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.2	119	
6.2.5	High- & medium-high-tech manufactures, %	1.4	95	○
6.3	Knowledge diffusion	19.9	131	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.1	114	
6.3.3	Comm., computer & info. services exp., % total trade	2.4	28	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**20.3**	**124**	
7.1	Intangible assets	29.6	129	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	20.8	83	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	41.0	125	○
7.1.4	ICTs & organizational model creation†	39.8	118	
7.2	Creative goods & services	16.1	77	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	48	●
7.2.5	Creative goods exports, % total trade	0.4	66	
7.3	Online creativity	5.6	107	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.6	114	
7.3.2	Country-code TLDs/th pop. 15–69	14.9	87	
7.3.3	Wikipedia edits/pop. 15–69	751.4	102	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Netherlands

Key indicators

Population (millions)	16.8
GDP (US$ billions)	800.0
GDP per capita, PPP$	41,710.7
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**60.6**	**5**	●
Innovation Output Sub-Index		57.7	2	●
Innovation Input Sub-Index		63.5	11	
Innovation Efficiency Ratio		0.9	12	
Global Innovation Index 2013 (out of 142)		61.1	4	
1	**Institutions**	**93.3**	**5**	●
1.1	Political environment	92.3	7	
1.1.1	Political stability*	94.3	11	
1.1.2	Government effectiveness*	88.9	8	
1.1.3	Press freedom*	93.5	2	●
1.2	Regulatory environment	97.2	4	●
1.2.1	Regulatory quality*	94.6	9	
1.2.2	Rule of law*	97.0	7	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	
1.3	Business environment	90.4	9	
1.3.1	Ease of starting a business*	93.3	18	
1.3.2	Ease of resolving insolvency*	94.5	5	●
1.3.3	Ease of paying taxes*	83.3	24	
2	**Human capital & research**	**50.5**	**22**	
2.1	Education	58.2	11	
2.1.1	Expenditure on education, % GDP	5.9	30	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.9	33	
2.1.3	School life expectancy, years	17.9	5	
2.1.4	PISA scales in reading, maths, & science	518.8	10	
2.1.5	Pupil-teacher ratio, secondary	13.6	45	
2.2	Tertiary education	36.5	59	○
2.2.1	Tertiary enrolment, % gross	76.4	14	
2.2.2	Graduates in science & engineering, %	13.7	89	○
2.2.3	Tertiary inbound mobility, %	4.9	35	
2.3	Research & development (R&D)	56.6	18	
2.3.1	Researchers, headcounts/mn pop.	4,979.6	21	
2.3.2	Gross expenditure on R&D, % GDP	2.2	18	
2.3.3	QS university ranking, average score top 3*	74.0	12	
3	**Infrastructure**	**58.7**	**12**	
3.1	Information & communication technologies (ICTs)	88.0	2	●
3.1.1	ICT access*	82.8	9	
3.1.2	ICT use*	73.2	9	
3.1.3	Government's online service*	96.1	5	●
3.1.4	E-participation*	100.0	1	●
3.2	General infrastructure	38.5	48	
3.2.1	Electricity output, kWh/cap	6,098.6	34	
3.2.2	Logistics performance*	95.6	5	
3.2.3	Gross capital formation, % GDP	15.7	124	○
3.3	Ecological sustainability	49.4	29	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.8	40	
3.3.2	Environmental performance*	77.8	11	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.0	34	
4	**Market sophistication**	**63.6**	**19**	
4.1	Credit	64.1	14	
4.1.1	Ease of getting credit*	62.5	69	○
4.1.2	Domestic credit to private sector, % GDP	200.2	3	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	44.7	39	
4.2.1	Ease of protecting investors*	46.7	97	○
4.2.2	Market capitalization, % GDP	84.3	21	
4.2.3	Total value of stocks traded, % GDP	57.1	14	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	20	
4.3	Trade & competition	81.9	20	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	83.3	4	●
5	**Business sophistication**	**51.3**	**11**	
5.1	Knowledge workers	66.9	15	
5.1.1	Knowledge-intensive employment, %	45.9	8	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.2	19	
5.1.4	GERD financed by business, %	56.6	28	
5.1.5	GMAT test takers/mn pop. 20–34	319.1	14	
5.2	Innovation linkages	46.6	23	
5.2.1	University/industry research collaboration†	70.8	11	
5.2.2	State of cluster development†	69.5	8	
5.2.3	GERD financed by abroad, %	10.9	40	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	42	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.5	12	
5.3	Knowledge absorption	40.4	16	
5.3.1	Royalty & license fees payments, % total trade	3.1	4	●
5.3.2	High-tech imports less re-imports, %	12.2	21	
5.3.3	Comm., computer & info. services imp., % total trade	1.5	33	
5.3.4	FDI net inflows, % GDP	−1.1	140	○
6	**Knowledge & technology outputs**	**53.8**	**9**	
6.1	Knowledge creation	57.4	8	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.4	34	
6.1.2	PCT resident patent app./tr PPP$ GDP	5.9	10	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	48.6	11	
6.1.5	Citable documents H index	576.0	8	
6.2	Knowledge impact	50.1	27	
6.2.1	Growth rate of PPP$ GDP/worker, %	−0.2	91	○
6.2.2	New businesses/th pop. 15–64	4.4	24	
6.2.3	Computer software spending, % GDP	0.7	5	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	16.4	28	
6.2.5	High- & medium-high-tech manufactures, %	36.7	24	
6.3	Knowledge diffusion	53.9	7	
6.3.1	Royalty & license fees receipts, % total trade	4.7	3	●
6.3.2	High-tech exports less re-exports, %	12.6	17	
6.3.3	Comm., computer & info. services exp., % total trade	1.8	49	
6.3.4	FDI net outflows, % GDP	−0.9	117	○
7	**Creative outputs**	**61.7**	**4**	●
7.1	Intangible assets	55.1	20	
7.1.1	Domestic res trademark app./bn PPP$ GDP	70.8	33	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.8	18	
7.1.3	ICTs & business model creation†	75.8	6	
7.1.4	ICTs & organizational model creation†	73.5	5	●
7.2	Creative goods & services	55.5	3	●
7.2.1	Cultural & creative services exports, % total trade	0.5	22	
7.2.2	National feature films/mn pop. 15–69	6.1	22	
7.2.3	Global ent. & media output/th pop. 15–69	1.6	12	
7.2.4	Printing & publishing manufactures, %	0.0	8	
7.2.5	Creative goods exports, % total trade	5.9	9	
7.3	Online creativity	81.1	2	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	89.0	8	
7.3.2	Country-code TLDs/th pop. 15–69	82.4	2	●
7.3.3	Wikipedia edits/pop. 15–69	33,562.3	7	
7.3.4	Video uploads on YouTube/pop. 15–69	95.9	3	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

New Zealand

Key indicators

Population (millions)	4.4
GDP (US$ billions)	181.3
GDP per capita, PPP$	30,493.3
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**54.5**	**18**	
Innovation Output Sub-Index		46.6	18	
Innovation Input Sub-Index		62.5	13	
Innovation Efficiency Ratio		0.7	66	
Global Innovation Index 2013 (out of 142)		59.4	17	
1	**Institutions**	**94.3**	**2**	●
1.1	Political environment	93.1	4	●
1.1.1	Political stability*	99.0	3	●
1.1.2	Government effectiveness*	88.7	9	●
1.1.3	Press freedom*	91.6	6	●
1.2	Regulatory environment	98.7	2	●
1.2.1	Regulatory quality*	96.9	4	●
1.2.2	Rule of law*	98.0	4	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	
1.3	Business environment	91.1	8	●
1.3.1	Ease of starting a business*	100.0	1	●
1.3.2	Ease of resolving insolvency*	88.3	12	
1.3.3	Ease of paying taxes*	85.2	21	
2	**Human capital & research**	**55.5**	**16**	
2.1	Education	62.2	6	●
2.1.1	Expenditure on education, % GDP	7.4	9	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	23.2	49	
2.1.3	School life expectancy, years	19.4	2	●
2.1.4	PISA scales in reading, maths, & science	509.2	16	
2.1.5	Pupil-teacher ratio, secondary	14.4	52	
2.2	Tertiary education	55.5	14	
2.2.1	Tertiary enrolment, % gross	80.8	10	
2.2.2	Graduates in science & engineering, %	18.3	64	○
2.2.3	Tertiary inbound mobility, %	15.6	11	
2.3	Research & development (R&D)	48.9	22	
2.3.1	Researchers, headcounts/mn pop.	6,366.2	12	
2.3.2	Gross expenditure on R&D, % GDP	1.3	29	
2.3.3	QS university ranking, average score top 3*	58.1	19	
3	**Infrastructure**	**52.1**	**24**	
3.1	Information & communication technologies (ICTs)	70.1	19	
3.1.1	ICT access*	76.9	17	
3.1.2	ICT use*	67.2	14	
3.1.3	Government's online service*	78.4	21	
3.1.4	E-participation*	57.9	25	
3.2	General infrastructure	42.3	36	
3.2.1	Electricity output, kWh/cap	9,946.5	13	
3.2.2	Logistics performance*	71.8	30	
3.2.3	Gross capital formation, % GDP	20.4	87	○
3.3	Ecological sustainability	43.8	46	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.1	65	○
3.3.2	Environmental performance*	76.4	16	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.7	50	
4	**Market sophistication**	**68.9**	**8**	●
4.1	Credit	71.1	7	●
4.1.1	Ease of getting credit*	93.8	3	
4.1.2	Domestic credit to private sector, % GDP	149.0	14	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	51.4	26	
4.2.1	Ease of protecting investors*	96.7	1	●
4.2.2	Market capitalization, % GDP	51.4	39	
4.2.3	Total value of stocks traded, % GDP	12.8	35	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	25	
4.3	Trade & competition	84.2	7	●
4.3.1	Applied tariff rate, weighted mean, %	1.6	43	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	53	
4.3.3	Intensity of local competition†	74.0	29	
5	**Business sophistication**	**41.5**	**33**	
5.1	Knowledge workers	55.7	31	
5.1.1	Knowledge-intensive employment, %	42.9	15	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.6	32	
5.1.4	GERD financed by business, %	45.4	40	
5.1.5	GMAT test takers/mn pop. 20–34	165.3	30	
5.2	Innovation linkages	34.1	60	
5.2.1	University/industry research collaboration†	64.5	19	
5.2.2	State of cluster development†	46.8	70	
5.2.3	GERD financed by abroad, %	6.3	57	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	32	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.4	27	
5.3	Knowledge absorption	34.8	30	
5.3.1	Royalty & license fees payments, % total trade	1.8	10	
5.3.2	High-tech imports less re-imports, %	9.8	32	
5.3.3	Comm., computer & info. services imp., % total trade	1.4	36	
5.3.4	FDI net inflows, % GDP	2.7	67	
6	**Knowledge & technology outputs**	**45.3**	**17**	
6.1	Knowledge creation	56.6	9	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	10.9	8	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.3	19	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	58.4	6	●
6.1.5	Citable documents H index	282.0	26	
6.2	Knowledge impact	46.8	39	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.1	64	○
6.2.2	New businesses/th pop. 15–64	15.1	1	●
6.2.3	Computer software spending, % GDP	0.3	39	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	7.5	54	
6.2.5	High- & medium-high-tech manufactures, %	15.1	63	○
6.3	Knowledge diffusion	32.4	65	
6.3.1	Royalty & license fees receipts, % total trade	0.5	24	
6.3.2	High-tech exports less re-exports, %	1.6	58	
6.3.3	Comm., computer & info. services exp., % total trade	1.0	85	○
6.3.4	FDI net outflows, % GDP	–0.3	116	○
7	**Creative outputs**	**47.9**	**17**	
7.1	Intangible assets	53.3	26	
7.1.1	Domestic res trademark app./bn PPP$ GDP	121.3	10	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.2	52	○
7.1.3	ICTs & business model creation†	71.2	16	
7.1.4	ICTs & organizational model creation†	66.3	19	
7.2	Creative goods & services	26.2	45	
7.2.1	Cultural & creative services exports, % total trade	0.2	44	
7.2.2	National feature films/mn pop. 15–69	8.0	16	
7.2.3	Global ent. & media output/th pop. 15–69	1.5	16	
7.2.4	Printing & publishing manufactures, %	0.0	35	
7.2.5	Creative goods exports, % total trade	0.3	67	○
7.3	Online creativity	58.6	20	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	41.1	21	
7.3.2	Country-code TLDs/th pop. 15–69	69.4	12	
7.3.3	Wikipedia edits/pop. 15–69	21,448.6	22	
7.3.4	Video uploads on YouTube/pop. 15–69	87.4	15	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Nicaragua

Key indicators

Population (millions)	6.0
GDP (US$ billions)	11.3
GDP per capita, PPP$	4,554.0
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.5**	**125**	
Innovation Output Sub-Index		17.7	130	○
Innovation Input Sub-Index		33.2	108	
Innovation Efficiency Ratio		0.5	129	○
Global Innovation Index 2013 (out of 142)		27.1	115	
1	**Institutions**	**53.4**	**98**	
1.1	Political environment	48.5	93	
1.1.1	Political stability*	56.7	85	
1.1.2	Government effectiveness*	17.1	123	
1.1.3	Press freedom*	71.7	64	●
1.2	Regulatory environment	59.8	88	
1.2.1	Regulatory quality*	40.9	94	
1.2.2	Rule of law*	26.1	107	
1.2.3	Cost of redundancy dismissal, salary weeks	14.9	67	●
1.3	Business environment	52.0	110	
1.3.1	Ease of starting a business*	72.3	112	
1.3.2	Ease of resolving insolvency*	37.0	74	
1.3.3	Ease of paying taxes*	46.7	124	
2	**Human capital & research**	**10.5**	**138**	○
2.1	Education	20.7	133	○
2.1.1	Expenditure on education, % GDP	4.6	72	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	7.6	106	○
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	30.8	106	○
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.2	128	○
2.3.1	Researchers, headcounts/mn pop.	60.5	111	○
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.1**	**101**	
3.1	Information & communication technologies (ICTs)	20.1	109	
3.1.1	ICT access*	29.9	103	
3.1.2	ICT use*	5.8	115	
3.1.3	Government's online service*	31.4	117	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	32.1	73	
3.2.1	Electricity output, kWh/cap	651.6	102	
3.2.2	Logistics performance*	36.9	102	
3.2.3	Gross capital formation, % GDP	29.9	23	●
3.3	Ecological sustainability	32.2	84	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.5	56	●
3.3.2	Environmental performance*	50.3	81	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	108	
4	**Market sophistication**	**47.1**	**78**	
4.1	Credit	30.5	89	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	26.9	105	
4.1.3	Microfinance gross loans, % GDP	2.7	20	●
4.2	Investment	40.0	51	●
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	70.8	105	
4.3.1	Applied tariff rate, weighted mean, %	2.3	51	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	43	●
4.3.3	Intensity of local competition†	47.3	128	○
5	**Business sophistication**	**27.0**	**101**	
5.1	Knowledge workers	29.5	96	
5.1.1	Knowledge-intensive employment, %	14.8	92	
5.1.2	Firms offering formal training, % firms	35.2	50	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	12.8	116	
5.2	Innovation linkages	27.5	88	
5.2.1	University/industry research collaboration†	38.7	86	
5.2.2	State of cluster development†	40.7	95	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	44	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	23.9	80	
5.3.1	Royalty & license fees payments, % total trade	0.0	120	○
5.3.2	High-tech imports less re-imports, %	7.0	65	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	82	
5.3.4	FDI net inflows, % GDP	7.7	20	●
6	**Knowledge & technology outputs**	**12.1**	**140**	○
6.1	Knowledge creation	2.6	135	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	97	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	83	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.3	130	○
6.1.5	Citable documents H index	45.0	116	
6.2	Knowledge impact	3.8	134	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.7	106	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	29.8	79	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.1	106	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	75	
6.3.4	FDI net outflows, % GDP	0.4	67	
7	**Creative outputs**	**23.4**	**109**	
7.1	Intangible assets	42.7	77	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	42.5	121	○
7.1.4	ICTs & organizational model creation†	42.8	113	
7.2	Creative goods & services	1.8	128	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.3	93	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	105	
7.3	Online creativity	6.4	103	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.9	77	
7.3.2	Country-code TLDs/th pop. 15–69	13.9	90	
7.3.3	Wikipedia edits/pop. 15–69	1,360.0	89	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Niger

Key indicators

Population (millions)	17.2
GDP (US$ billions)	7.4
GDP per capita, PPP$	828.9
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.3**	**131**	
Innovation Output Sub-Index		16.2	134	
Innovation Input Sub-Index		32.3	118	
Innovation Efficiency Ratio		0.5	132	
Global Innovation Index 2013 (out of 142)		24.0	131	
1	**Institutions**	**49.6**	**109**	
1.1	Political environment	45.3	105	
1.1.1	Political stability*	37.0	123	
1.1.2	Government effectiveness*	22.1	115	
1.1.3	Press freedom*	76.9	38	●
1.2	Regulatory environment	62.6	82	
1.2.1	Regulatory quality*	32.9	114	
1.2.2	Rule of law*	26.1	108	
1.2.3	Cost of redundancy dismissal, salary weeks	10.1	41	●
1.3	Business environment	40.8	133	
1.3.1	Ease of starting a business*	52.8	137	
1.3.2	Ease of resolving insolvency*	15.8	131	
1.3.3	Ease of paying taxes*	53.9	118	
2	**Human capital & research**	**11.8**	**135**	
2.1	Education	26.8	125	
2.1.1	Expenditure on education, % GDP	4.2	85	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	49.2	3	●
2.1.3	School life expectancy, years	5.4	128	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	34.7	111	
2.2	Tertiary education	8.7	126	
2.2.1	Tertiary enrolment, % gross	1.8	132	○
2.2.2	Graduates in science & engineering, %	4.3	102	○
2.2.3	Tertiary inbound mobility, %	5.4	32	●
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	9.8	119	○
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.8**	**97**	
3.1	Information & communication technologies (ICTs)	9.2	140	
3.1.1	ICT access*	16.5	132	
3.1.2	ICT use*	0.7	131	○
3.1.3	Government's online service*	19.6	134	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	52.3	14	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	42.9	87	
3.2.3	Gross capital formation, % GDP	36.0	12	●
3.3	Ecological sustainability	24.9	119	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	36.3	120	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	97	
4	**Market sophistication**	**43.2**	**104**	
4.1	Credit	16.1	135	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	14.9	132	
4.1.3	Microfinance gross loans, % GDP	0.1	72	
4.2	Investment	33.3	76	
4.2.1	Ease of protecting investors*	33.3	125	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	80.3	29	●
4.3.1	Applied tariff rate, weighted mean, %	9.7	122	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	52	●
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**28.3**	**92**	
5.1	Knowledge workers	28.4	101	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	36.1	47	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	1.5	141	○
5.2	Innovation linkages	17.4	135	
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	41	●
5.3	Knowledge absorption	39.1	19	●
5.3.1	Royalty & license fees payments, % total trade	0.1	101	
5.3.2	High-tech imports less re-imports, %	4.9	101	
5.3.3	Comm., computer & info. services imp., % total trade	1.7	24	●
5.3.4	FDI net inflows, % GDP	16.8	6	●
6	**Knowledge & technology outputs**	**31.3**	**52**	●
6.1	Knowledge creation	5.9	106	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.2	66	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.0	99	
6.1.5	Citable documents H index	47.0	115	
6.2	Knowledge impact	66.9	2	●
6.2.1	Growth rate of PPP$ GDP/worker, %	10.2	1	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.5	131	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	21.0	127	
6.3.1	Royalty & license fees receipts, % total trade	0.0	111	
6.3.2	High-tech exports less re-exports, %	0.2	92	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	90	
6.3.4	FDI net outflows, % GDP	–3.6	123	○
7	**Creative outputs**	**1.1**	**142**	○
7.1	Intangible assets	n/a	n/a	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	1.5	130	
7.2.1	Cultural & creative services exports, % total trade	0.0	95	
7.2.2	National feature films/mn pop. 15–69	0.7	79	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	119	
7.3	Online creativity	0.8	129	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.0	91	
7.3.2	Country-code TLDs/th pop. 15–69	0.2	138	
7.3.3	Wikipedia edits/pop. 15–69	12.8	141	○
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Nigeria

Key indicators

Population (millions)	168.8
GDP (US$ billions)	286.5
GDP per capita, PPP$	2,831.5
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**27.8**	**110**	
Innovation Output Sub-Index		27.0	83	
Innovation Input Sub-Index		28.6	133	
Innovation Efficiency Ratio		0.9	8	●
Global Innovation Index 2013 (out of 142)		26.6	120	
1	**Institutions**	**44.0**	**129**	
1.1	Political environment	31.8	138	○
1.1.1	Political stability*	15.4	140	○
1.1.2	Government effectiveness*	14.2	132	
1.1.3	Press freedom*	65.9	94	
1.2	Regulatory environment	52.7	108	
1.2.1	Regulatory quality*	29.9	120	
1.2.2	Rule of law*	13.9	135	○
1.2.3	Cost of redundancy dismissal, salary weeks	16.2	77	
1.3	Business environment	47.4	127	
1.3.1	Ease of starting a business*	74.5	106	
1.3.2	Ease of resolving insolvency*	29.5	95	
1.3.3	Ease of paying taxes*	38.3	132	
2	**Human capital & research**	**12.2**	**134**	
2.1	Education	24.9	127	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	9.0	120	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	33.1	108	
2.2	Tertiary education	9.8	123	
2.2.1	Tertiary enrolment, % gross	10.4	107	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	1.9	108	
2.3.1	Researchers, headcounts/mn pop.	119.7	99	
2.3.2	Gross expenditure on R&D, % GDP	0.2	84	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**21.8**	**125**	
3.1	Information & communication technologies (ICTs)	19.4	112	
3.1.1	ICT access*	19.9	122	
3.1.2	ICT use*	17.2	88	
3.1.3	Government's online service*	22.2	132	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	25.0	113	
3.2.1	Electricity output, kWh/cap	166.4	117	○
3.2.2	Logistics performance*	33.3	115	
3.2.3	Gross capital formation, % GDP	24.6	53	●
3.3	Ecological sustainability	20.9	129	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.1	109	
3.3.2	Environmental performance*	39.2	112	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	122	○
4	**Market sophistication**	**43.9**	**101**	
4.1	Credit	32.8	83	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	20.8	117	
4.1.3	Microfinance gross loans, % GDP	0.4	49	
4.2	Investment	25.7	119	
4.2.1	Ease of protecting investors*	56.7	55	●
4.2.2	Market capitalization, % GDP	21.5	66	
4.2.3	Total value of stocks traded, % GDP	1.6	61	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	58	
4.3	Trade & competition	73.1	90	
4.3.1	Applied tariff rate, weighted mean, %	10.6	128	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	20	●
4.3.3	Intensity of local competition†	65.2	73	
5	**Business sophistication**	**21.3**	**128**	
5.1	Knowledge workers	28.8	99	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	25.7	76	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	34.2	89	
5.2	Innovation linkages	20.2	127	
5.2.1	University/industry research collaboration†	38.2	89	
5.2.2	State of cluster development†	48.3	62	●
5.2.3	GERD financed by abroad, %	1.0	79	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	89	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	102	
5.3	Knowledge absorption	14.8	124	
5.3.1	Royalty & license fees payments, % total trade	0.3	70	
5.3.2	High-tech imports less re-imports, %	3.0	122	○
5.3.3	Comm., computer & info. services imp., % total trade	0.7	79	
5.3.4	FDI net inflows, % GDP	3.6	59	●
6	**Knowledge & technology outputs**	**21.1**	**108**	
6.1	Knowledge creation	5.4	109	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	103	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.7	120	
6.1.5	Citable documents H index	89.0	70	
6.2	Knowledge impact	33.0	90	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.3	16	●
6.2.2	New businesses/th pop. 15–64	0.9	63	
6.2.3	Computer software spending, % GDP	0.2	71	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.1	142	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	24.8	111	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.1	109	
6.3.3	Comm., computer & info. services exp., % total trade	0.1	137	○
6.3.4	FDI net outflows, % GDP	0.6	61	●
7	**Creative outputs**	**32.8**	**69**	●
7.1	Intangible assets	55.2	19	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.8	53	●
7.1.4	ICTs & organizational model creation†	50.5	77	
7.2	Creative goods & services	20.4	59	●
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	11.2	9	●
7.2.3	Global ent. & media output/th pop. 15–69	0.0	56	○
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	96	
7.3	Online creativity	0.6	131	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.7	113	
7.3.2	Country-code TLDs/th pop. 15–69	1.7	127	
7.3.3	Wikipedia edits/pop. 15–69	62.0	129	
7.3.4	Video uploads on YouTube/pop. 15–69	0.0	64	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Norway

Key indicators

Population (millions)	5.0
GDP (US$ billions)	511.3
GDP per capita, PPP$	54,946.7
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**55.6**	**14**	
Innovation Output Sub-Index		48.8	14	
Innovation Input Sub-Index		62.4	14	
Innovation Efficiency Ratio		0.8	51	
Global Innovation Index 2013 (out of 142)		55.6	16	
1	**Institutions**	**94.1**	**3**	●
1.1	Political environment	94.2	2	●
1.1.1	Political stability*	97.7	7	
1.1.2	Government effectiveness*	91.4	5	●
1.1.3	Press freedom*	93.5	3	●
1.2	Regulatory environment	96.5	7	
1.2.1	Regulatory quality*	88.8	16	
1.2.2	Rule of law*	100.0	1	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	
1.3	Business environment	91.6	5	●
1.3.1	Ease of starting a business*	91.0	30	
1.3.2	Ease of resolving insolvency*	96.7	2	●
1.3.3	Ease of paying taxes*	87.2	15	
2	**Human capital & research**	**52.6**	**19**	
2.1	Education	55.5	23	
2.1.1	Expenditure on education, % GDP	6.9	15	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	27.3	30	
2.1.3	School life expectancy, years	17.6	6	
2.1.4	PISA scales in reading, maths, & science	495.9	23	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	41.6	39	
2.2.1	Tertiary enrolment, % gross	73.1	22	
2.2.2	Graduates in science & engineering, %	16.8	70	○
2.2.3	Tertiary inbound mobility, %	7.2	25	
2.3	Research & development (R&D)	60.8	14	
2.3.1	Researchers, headcounts/mn pop.	9,219.3	5	●
2.3.2	Gross expenditure on R&D, % GDP	1.7	24	
2.3.3	QS university ranking, average score top 3*	58.3	18	
3	**Infrastructure**	**63.9**	**3**	●
3.1	Information & communication technologies (ICTs)	77.9	11	
3.1.1	ICT access*	77.2	16	
3.1.2	ICT use*	80.5	4	●
3.1.3	Government's online service*	85.6	13	
3.1.4	E-participation*	68.4	15	
3.2	General infrastructure	63.9	3	●
3.2.1	Electricity output, kWh/cap	29,237.6	1	●
3.2.2	Logistics performance*	82.1	21	
3.2.3	Gross capital formation, % GDP	26.3	39	
3.3	Ecological sustainability	49.9	26	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.0	37	
3.3.2	Environmental performance*	78.0	10	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.0	33	
4	**Market sophistication**	**57.9**	**31**	
4.1	Credit	45.0	46	
4.1.1	Ease of getting credit*	62.5	69	○
4.1.2	Domestic credit to private sector, % GDP	86.2	38	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	44.3	40	
4.2.1	Ease of protecting investors*	66.7	21	
4.2.2	Market capitalization, % GDP	50.6	40	
4.2.3	Total value of stocks traded, % GDP	26.6	28	
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	18	
4.3	Trade & competition	84.5	6	
4.3.1	Applied tariff rate, weighted mean, %	0.5	4	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	49	
4.3.3	Intensity of local competition†	72.3	37	
5	**Business sophistication**	**43.2**	**28**	
5.1	Knowledge workers	63.4	21	
5.1.1	Knowledge-intensive employment, %	46.0	7	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.9	25	
5.1.4	GERD financed by business, %	52.4	34	
5.1.5	GMAT test takers/mn pop. 20–34	290.4	19	
5.2	Innovation linkages	43.5	34	
5.2.1	University/industry research collaboration†	68.0	13	
5.2.2	State of cluster development†	66.8	14	
5.2.3	GERD financed by abroad, %	7.8	50	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	30	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.8	22	
5.3	Knowledge absorption	22.8	86	○
5.3.1	Royalty & license fees payments, % total trade	0.3	68	○
5.3.2	High-tech imports less re-imports, %	5.9	86	○
5.3.3	Comm., computer & info. services imp., % total trade	1.7	25	
5.3.4	FDI net inflows, % GDP	1.5	99	○
6	**Knowledge & technology outputs**	**40.1**	**28**	
6.1	Knowledge creation	40.2	23	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.7	32	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.4	18	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	38.8	18	
6.1.5	Citable documents H index	327.0	20	
6.2	Knowledge impact	47.0	38	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.2	51	○
6.2.2	New businesses/th pop. 15–64	7.8	14	
6.2.3	Computer software spending, % GDP	0.6	18	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.8	62	○
6.2.5	High- & medium-high-tech manufactures, %	21.6	51	○
6.3	Knowledge diffusion	33.1	60	
6.3.1	Royalty & license fees receipts, % total trade	0.2	36	
6.3.2	High-tech exports less re-exports, %	3.0	42	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	68	○
6.3.4	FDI net outflows, % GDP	6.2	10	
7	**Creative outputs**	**57.5**	**5**	●
7.1	Intangible assets	51.1	37	
7.1.1	Domestic res trademark app./bn PPP$ GDP	59.9	42	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.2	27	
7.1.3	ICTs & business model creation†	73.7	11	
7.1.4	ICTs & organizational model creation†	71.8	8	
7.2	Creative goods & services	54.7	4	●
7.2.1	Cultural & creative services exports, % total trade	0.3	30	
7.2.2	National feature films/mn pop. 15–69	10.0	12	
7.2.3	Global ent. & media output/th pop. 15–69	3.3	1	●
7.2.4	Printing & publishing manufactures, %	0.1	6	
7.2.5	Creative goods exports, % total trade	0.5	54	
7.3	Online creativity	73.1	3	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	60.6	16	
7.3.2	Country-code TLDs/th pop. 15–69	69.3	13	
7.3.3	Wikipedia edits/pop. 15–69	43,209.9	2	●
7.3.4	Video uploads on YouTube/pop. 15–69	89.1	11	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Oman

Key indicators

Population (millions)	3.3
GDP (US$ billions)	80.6
GDP per capita, PPP$	29,813.2
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**33.9**	**75**	
Innovation Output Sub-Index		24.9	96	
Innovation Input Sub-Index		42.8	59	
Innovation Efficiency Ratio		0.6	121	
Global Innovation Index 2013 (out of 142)		33.3	80	
1	**Institutions**	**70.8**	**43**	
1.1	Political environment	61.2	58	
1.1.1	Political stability*	77.1	47	
1.1.2	Government effectiveness*	47.9	58	
1.1.3	Press freedom*	58.5	116	
1.2	Regulatory environment	80.9	31	●
1.2.1	Regulatory quality*	61.2	51	
1.2.2	Rule of law*	62.5	41	●
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	70.3	49	
1.3.1	Ease of starting a business*	80.6	88	
1.3.2	Ease of resolving insolvency*	39.5	64	
1.3.3	Ease of paying taxes*	90.7	9	●
2	**Human capital & research**	**28.3**	**73**	
2.1	Education	33.4	103	
2.1.1	Expenditure on education, % GDP	4.3	80	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.9	79	
2.1.3	School life expectancy, years	13.6	63	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	45.8	32	●
2.2.1	Tertiary enrolment, % gross	28.1	78	
2.2.2	Graduates in science & engineering, %	38.9	4	●
2.2.3	Tertiary inbound mobility, %	2.4	56	
2.3	Research & development (R&D)	5.5	83	
2.3.1	Researchers, headcounts/mn pop.	478.1	71	
2.3.2	Gross expenditure on R&D, % GDP	0.1	99	
2.3.3	QS university ranking, average score top 3*	9.4	59	
3	**Infrastructure**	**39.8**	**57**	
3.1	Information & communication technologies (ICTs)	52.4	38	●
3.1.1	ICT access*	57.4	57	
3.1.2	ICT use*	40.7	45	
3.1.3	Government's online service*	66.7	35	●
3.1.4	E-participation*	44.7	36	●
3.2	General infrastructure	42.2	37	●
3.2.1	Electricity output, kWh/cap	7,675.1	24	●
3.2.2	Logistics performance*	50.8	62	
3.2.3	Gross capital formation, % GDP	28.0	29	●
3.3	Ecological sustainability	24.8	120	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.9	113	○
3.3.2	Environmental performance*	47.8	89	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	71	
4	**Market sophistication**	**48.1**	**72**	
4.1	Credit	34.3	75	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	41.2	80	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	29.9	97	
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	27.5	60	
4.2.3	Total value of stocks traded, % GDP	3.6	54	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	80.2	30	●
4.3.1	Applied tariff rate, weighted mean, %	3.2	58	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	64	
4.3.3	Intensity of local competition†	70.0	50	
5	**Business sophistication**	**27.2**	**100**	
5.1	Knowledge workers	19.2	126	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.0	74	○
5.1.4	GERD financed by business, %	23.9	60	
5.1.5	GMAT test takers/mn pop. 20–34	31.7	95	
5.2	Innovation linkages	53.4	10	●
5.2.1	University/industry research collaboration†	50.0	43	
5.2.2	State of cluster development†	54.5	34	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.2	1	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	58	
5.3	Knowledge absorption	8.9	139	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	3.4	119	○
5.3.3	Comm., computer & info. services imp., % total trade	0.2	132	○
5.3.4	FDI net inflows, % GDP	1.1	110	
6	**Knowledge & technology outputs**	**21.2**	**105**	
6.1	Knowledge creation	5.3	111	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	91	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.3	106	
6.1.5	Citable documents H index	63.0	93	
6.2	Knowledge impact	32.8	92	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.4	47	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.0	75	
6.2.5	High- & medium-high-tech manufactures, %	14.9	64	
6.3	Knowledge diffusion	25.6	107	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.4	85	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	126	○
6.3.4	FDI net outflows, % GDP	0.8	51	
7	**Creative outputs**	**28.6**	**83**	
7.1	Intangible assets	47.4	52	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	68	○
7.1.3	ICTs & business model creation†	62.0	48	
7.1.4	ICTs & organizational model creation†	56.5	54	
7.2	Creative goods & services	2.6	120	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.0	101	○
7.2.3	Global ent. & media output/th pop. 15–69	0.3	39	
7.2.4	Printing & publishing manufactures, %	0.0	88	○
7.2.5	Creative goods exports, % total trade	0.0	118	○
7.3	Online creativity	17.0	72	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.0	74	
7.3.2	Country-code TLDs/th pop. 15–69	6.1	110	
7.3.3	Wikipedia edits/pop. 15–69	1,139.3	94	
7.3.4	Video uploads on YouTube/pop. 15–69	56.8	54	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Pakistan

Key indicators

Population (millions)	179.2
GDP (US$ billions)	238.7
GDP per capita, PPP$	3,149.4
Income group	Lower-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.0**	**134**	○
Innovation Output Sub-Index		22.6	107	
Innovation Input Sub-Index		25.4	139	○
Innovation Efficiency Ratio		0.9	16	●
Global Innovation Index 2013 (out of 142)		23.3	137	
1	**Institutions**	**40.1**	**135**	○
1.1	Political environment	22.8	141	○
1.1.1	Political stability*	0.0	143	○
1.1.2	Government effectiveness*	19.8	120	
1.1.3	Press freedom*	48.7	131	○
1.2	Regulatory environment	43.5	125	
1.2.1	Regulatory quality*	29.8	121	
1.2.2	Rule of law*	21.3	122	
1.2.3	Cost of redundancy dismissal, salary weeks	27.2	118	
1.3	Business environment	53.9	107	
1.3.1	Ease of starting a business*	78.2	96	
1.3.2	Ease of resolving insolvency*	40.0	63	●
1.3.3	Ease of paying taxes*	43.5	128	
2	**Human capital & research**	**9.8**	**139**	○
2.1	Education	10.7	141	○
2.1.1	Expenditure on education, % GDP	2.1	128	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	7.7	125	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	41.9	115	○
2.2	Tertiary education	8.9	124	
2.2.1	Tertiary enrolment, % gross	9.5	111	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	9.8	68	
2.3.1	Researchers, headcounts/mn pop.	294.9	80	
2.3.2	Gross expenditure on R&D, % GDP	0.3	74	
2.3.3	QS university ranking, average score top 3*	19.6	52	●
3	**Infrastructure**	**22.2**	**124**	
3.1	Information & communication technologies (ICTs)	19.8	110	
3.1.1	ICT access*	25.6	109	
3.1.2	ICT use*	3.8	121	
3.1.3	Government's online service*	36.6	101	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	18.4	134	○
3.2.1	Electricity output, kWh/cap	538.9	106	
3.2.2	Logistics performance*	48.4	69	
3.2.3	Gross capital formation, % GDP	14.2	131	○
3.3	Ecological sustainability	28.5	98	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.1	82	
3.3.2	Environmental performance*	34.6	124	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**35.8**	**140**	○
4.1	Credit	22.6	119	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	16.4	126	
4.1.3	Microfinance gross loans, % GDP	0.1	69	
4.2	Investment	28.6	107	
4.2.1	Ease of protecting investors*	63.3	32	●
4.2.2	Market capitalization, % GDP	18.9	75	
4.2.3	Total value of stocks traded, % GDP	5.2	49	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	65	
4.3	Trade & competition	56.2	135	○
4.3.1	Applied tariff rate, weighted mean, %	9.5	121	
4.3.2	Non-agricultural mkt access weighted tariff, %	6.8	135	○
4.3.3	Intensity of local competition†	64.8	76	
5	**Business sophistication**	**19.3**	**133**	○
5.1	Knowledge workers	17.5	129	
5.1.1	Knowledge-intensive employment, %	19.5	74	
5.1.2	Firms offering formal training, % firms	4.5	106	○
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	19.3	110	
5.2	Innovation linkages	20.1	128	
5.2.1	University/industry research collaboration†	37.5	94	
5.2.2	State of cluster development†	49.2	59	●
5.2.3	GERD financed by abroad, %	0.9	82	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	101	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	103	
5.3	Knowledge absorption	20.3	99	
5.3.1	Royalty & license fees payments, % total trade	0.4	60	
5.3.2	High-tech imports less re-imports, %	7.8	57	●
5.3.3	Comm., computer & info. services imp., % total trade	1.0	61	●
5.3.4	FDI net inflows, % GDP	0.4	130	
6	**Knowledge & technology outputs**	**21.9**	**101**	
6.1	Knowledge creation	10.0	79	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	91	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	10.6	71	
6.1.5	Citable documents H index	111.0	56	●
6.2	Knowledge impact	29.7	105	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.9	71	
6.2.2	New businesses/th pop. 15–64	0.0	91	
6.2.3	Computer software spending, % GDP	0.3	55	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.9	78	
6.2.5	High- & medium-high-tech manufactures, %	23.7	45	
6.3	Knowledge diffusion	26.0	103	
6.3.1	Royalty & license fees receipts, % total trade	0.0	89	
6.3.2	High-tech exports less re-exports, %	0.8	73	
6.3.3	Comm., computer & info. services exp., % total trade	1.5	59	●
6.3.4	FDI net outflows, % GDP	0.0	97	
7	**Creative outputs**	**23.2**	**110**	
7.1	Intangible assets	36.0	110	
7.1.1	Domestic res trademark app./bn PPP$ GDP	28.0	76	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	49.7	95	
7.1.4	ICTs & organizational model creation†	47.5	89	
7.2	Creative goods & services	19.0	63	●
7.2.1	Cultural & creative services exports, % total trade	0.1	55	
7.2.2	National feature films/mn pop. 15–69	0.3	95	○
7.2.3	Global ent. & media output/th pop. 15–69	0.0	59	○
7.2.4	Printing & publishing manufactures, %	0.0	91	○
7.2.5	Creative goods exports, % total trade	4.3	12	●
7.3	Online creativity	1.9	119	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.6	115	
7.3.2	Country-code TLDs/th pop. 15–69	4.4	114	
7.3.3	Wikipedia edits/pop. 15–69	467.2	107	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Panama

Key indicators

Population (millions)	3.8
GDP (US$ billions)	40.3
GDP per capita, PPP$	16,658.1
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.3**	**52**	
Innovation Output Sub-Index		35.2	42	
Innovation Input Sub-Index		41.4	64	
Innovation Efficiency Ratio		0.9	20	●
Global Innovation Index 2013 (out of 142)		31.8	86	
1	**Institutions**	**59.7**	**75**	
1.1	Political environment	59.4	64	
1.1.1	Political stability*	61.9	80	
1.1.2	Government effectiveness*	49.2	56	
1.1.3	Press freedom*	67.1	90	
1.2	Regulatory environment	64.6	79	
1.2.1	Regulatory quality*	59.0	57	
1.2.2	Rule of law*	40.0	72	
1.2.3	Cost of redundancy dismissal, salary weeks	18.1	86	
1.3	Business environment	55.0	101	
1.3.1	Ease of starting a business*	90.8	33	
1.3.2	Ease of resolving insolvency*	29.1	99	
1.3.3	Ease of paying taxes*	45.1	126	○
2	**Human capital & research**	**25.1**	**86**	
2.1	Education	33.9	100	
2.1.1	Expenditure on education, % GDP	3.5	98	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	10.3	97	○
2.1.3	School life expectancy, years	12.4	81	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.2	49	
2.2	Tertiary education	39.5	50	
2.2.1	Tertiary enrolment, % gross	41.8	60	
2.2.2	Graduates in science & engineering, %	22.0	39	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	1.8	109	
2.3.1	Researchers, headcounts/mn pop.	136.2	95	
2.3.2	Gross expenditure on R&D, % GDP	0.2	88	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**40.5**	**54**	
3.1	Information & communication technologies (ICTs)	39.4	65	
3.1.1	ICT access*	55.1	62	
3.1.2	ICT use*	24.6	71	
3.1.3	Government's online service*	46.4	79	
3.1.4	E-participation*	31.6	48	
3.2	General infrastructure	36.5	56	
3.2.1	Electricity output, kWh/cap	2,200.8	76	
3.2.2	Logistics performance*	52.4	61	
3.2.3	Gross capital formation, % GDP	28.6	25	●
3.3	Ecological sustainability	45.6	39	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	12.1	6	●
3.3.2	Environmental performance*	56.8	55	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	101	
4	**Market sophistication**	**44.1**	**100**	
4.1	Credit	36.3	66	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	89.6	35	
4.1.3	Microfinance gross loans, % GDP	0.9	38	
4.2	Investment	31.8	85	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	34.6	55	
4.2.3	Total value of stocks traded, % GDP	0.3	85	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	64.2	126	○
4.3.1	Applied tariff rate, weighted mean, %	7.6	110	
4.3.2	Non-agricultural mkt access weighted tariff, %	4.6	131	○
4.3.3	Intensity of local competition†	66.2	68	
5	**Business sophistication**	**37.7**	**42**	
5.1	Knowledge workers	19.4	124	
5.1.1	Knowledge-intensive employment, %	24.4	56	
5.1.2	Firms offering formal training, % firms	8.6	103	○
5.1.3	GERD performed by business, % GDP	0.0	86	○
5.1.4	GERD financed by business, %	0.2	85	○
5.1.5	GMAT test takers/mn pop. 20–34	67.4	64	
5.2	Innovation linkages	49.6	18	●
5.2.1	University/industry research collaboration†	54.2	41	
5.2.2	State of cluster development†	50.0	55	
5.2.3	GERD financed by abroad, %	49.5	6	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	43	
5.3	Knowledge absorption	44.0	9	●
5.3.1	Royalty & license fees payments, % total trade	0.2	87	
5.3.2	High-tech imports less re-imports, %	21.3	4	●
5.3.3	Comm., computer & info. services imp., % total trade	0.2	128	○
5.3.4	FDI net inflows, % GDP	9.3	15	●
6	**Knowledge & technology outputs**	**25.4**	**79**	
6.1	Knowledge creation	5.4	110	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	82	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	57	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.1	57	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.6	103	
6.1.5	Citable documents H index	106.0	60	
6.2	Knowledge impact	29.3	109	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	14.1	5	●
6.2.3	Computer software spending, % GDP	0.3	60	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.0	99	
6.2.5	High- & medium-high-tech manufactures, %	5.2	85	○
6.3	Knowledge diffusion	41.6	28	
6.3.1	Royalty & license fees receipts, % total trade	0.0	71	
6.3.2	High-tech exports less re-exports, %	19.4	5	●
6.3.3	Comm., computer & info. services exp., % total trade	1.9	45	
6.3.4	FDI net outflows, % GDP	1.0	48	
7	**Creative outputs**	**45.0**	**27**	
7.1	Intangible assets	51.3	35	
7.1.1	Domestic res trademark app./bn PPP$ GDP	80.0	28	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	64.3	36	
7.1.4	ICTs & organizational model creation†	58.5	45	
7.2	Creative goods & services	46.9	9	●
7.2.1	Cultural & creative services exports, % total trade	0.1	54	
7.2.2	National feature films/mn pop. 15–69	0.4	90	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.1	7	●
7.2.5	Creative goods exports, % total trade	4.7	11	●
7.3	Online creativity	30.4	48	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	67.3	14	●
7.3.2	Country-code TLDs/th pop. 15–69	20.2	79	
7.3.3	Wikipedia edits/pop. 15–69	2,261.7	77	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Paraguay

Key indicators

Population (millions)	6.7
GDP (US$ billions)	28.3
GDP per capita, PPP$	6,823.2
Income group	Lower-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.6**	**89**	
Innovation Output Sub-Index		27.2	79	
Innovation Input Sub-Index		36.0	99	
Innovation Efficiency Ratio		0.8	63	
Global Innovation Index 2013 (out of 142)		30.3	100	
1	**Institutions**	**47.9**	**116**	
1.1	Political environment	44.4	112	
1.1.1	Political stability*	45.1	113	
1.1.2	Government effectiveness*	16.8	125	
1.1.3	Press freedom*	71.2	74	
1.2	Regulatory environment	47.5	119	
1.2.1	Regulatory quality*	40.4	97	
1.2.2	Rule of law*	22.3	118	
1.2.3	Cost of redundancy dismissal, salary weeks	26.1	115	
1.3	Business environment	51.8	113	
1.3.1	Ease of starting a business*	76.4	101	
1.3.2	Ease of resolving insolvency*	16.1	130	
1.3.3	Ease of paying taxes*	62.9	94	
2	**Human capital & research**	**25.3**	**83**	
2.1	Education	40.5	84	
2.1.1	Expenditure on education, % GDP	4.8	67	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.0	72	
2.1.3	School life expectancy, years	11.9	89	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	8.9	14	●
2.2	Tertiary education	34.5	64	
2.2.1	Tertiary enrolment, % gross	34.5	72	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	0.9	119	
2.3.1	Researchers, headcounts/mn pop.	195.2	87	
2.3.2	Gross expenditure on R&D, % GDP	0.1	110	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**27.6**	**104**	
3.1	Information & communication technologies (ICTs)	27.3	96	
3.1.1	ICT access*	36.0	91	
3.1.2	ICT use*	11.7	101	
3.1.3	Government's online service*	45.8	82	
3.1.4	E-participation*	15.8	79	
3.2	General infrastructure	27.5	100	
3.2.1	Electricity output, kWh/cap	8,771.1	18	●
3.2.2	Logistics performance*	34.5	110	
3.2.3	Gross capital formation, % GDP	16.6	119	
3.3	Ecological sustainability	28.0	102	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.6	53	●
3.3.2	Environmental performance*	39.3	111	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	99	
4	**Market sophistication**	**50.2**	**57**	●
4.1	Credit	43.2	49	●
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	41.3	79	
4.1.3	Microfinance gross loans, % GDP	4.9	10	●
4.2	Investment	28.9	103	
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	3.8	105	○
4.2.3	Total value of stocks traded, % GDP	0.2	90	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	78.4	39	●
4.3.1	Applied tariff rate, weighted mean, %	4.5	79	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.0	73	
4.3.3	Intensity of local competition†	69.7	54	●
5	**Business sophistication**	**29.1**	**86**	
5.1	Knowledge workers	27.3	103	
5.1.1	Knowledge-intensive employment, %	15.4	88	
5.1.2	Firms offering formal training, % firms	51.7	24	●
5.1.3	GERD performed by business, % GDP	0.0	85	○
5.1.4	GERD financed by business, %	0.8	82	○
5.1.5	GMAT test takers/mn pop. 20–34	9.5	122	
5.2	Innovation linkages	28.9	84	
5.2.1	University/industry research collaboration†	29.3	120	
5.2.2	State of cluster development†	36.0	115	
5.2.3	GERD financed by abroad, %	16.9	24	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	31.1	40	●
5.3.1	Royalty & license fees payments, % total trade	0.0	117	○
5.3.2	High-tech imports less re-imports, %	19.9	6	●
5.3.3	Comm., computer & info. services imp., % total trade	0.0	136	○
5.3.4	FDI net inflows, % GDP	1.6	98	
6	**Knowledge & technology outputs**	**17.5**	**121**	
6.1	Knowledge creation	3.0	132	○
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.5	77	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.4	136	○
6.1.5	Citable documents H index	45.0	116	
6.2	Knowledge impact	12.9	122	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.6	63	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	36.5	42	●
6.3.1	Royalty & license fees receipts, % total trade	2.4	10	●
6.3.2	High-tech exports less re-exports, %	0.5	79	
6.3.3	Comm., computer & info. services exp., % total trade	0.1	130	○
6.3.4	FDI net outflows, % GDP	0.4	72	
7	**Creative outputs**	**36.9**	**50**	●
7.1	Intangible assets	67.9	4	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	347.6	1	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	53.8	79	
7.1.4	ICTs & organizational model creation†	49.8	82	
7.2	Creative goods & services	3.2	117	
7.2.1	Cultural & creative services exports, % total trade	0.0	99	○
7.2.2	National feature films/mn pop. 15–69	1.3	66	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	101	
7.3	Online creativity	8.6	98	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.2	87	
7.3.2	Country-code TLDs/th pop. 15–69	20.3	78	
7.3.3	Wikipedia edits/pop. 15–69	1,957.3	82	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Peru

Key indicators

Population (millions)	30.0
GDP (US$ billions)	206.5
GDP per capita, PPP$	11,123.7
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**34.7**	**73**	
Innovation Output Sub-Index		26.6	85	
Innovation Input Sub-Index		42.8	60	
Innovation Efficiency Ratio		0.6	107	
Global Innovation Index 2013 (out of 142)		36.0	69	
1	**Institutions**	**61.1**	**68**	
1.1	Political environment	49.8	89	
1.1.1	Political stability*	44.6	114	
1.1.2	Government effectiveness*	36.7	81	
1.1.3	Press freedom*	68.1	84	
1.2	Regulatory environment	69.3	58	
1.2.1	Regulatory quality*	61.6	50	
1.2.2	Rule of law*	29.5	100	
1.2.3	Cost of redundancy dismissal, salary weeks	11.4	47	
1.3	Business environment	64.2	72	
1.3.1	Ease of starting a business*	86.3	63	
1.3.2	Ease of resolving insolvency*	29.3	97	
1.3.3	Ease of paying taxes*	76.9	43	
2	**Human capital & research**	**27.2**	**76**	
2.1	Education	30.4	116	
2.1.1	Expenditure on education, % GDP	2.8	115	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	10.1	98	○
2.1.3	School life expectancy, years	13.1	72	
2.1.4	PISA scales in reading, maths, & science	375.1	61	○
2.1.5	Pupil-teacher ratio, secondary	16.8	69	
2.2	Tertiary education	42.8	37	●
2.2.1	Tertiary enrolment, % gross	42.6	59	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	8.4	72	
2.3.1	Researchers, headcounts/mn pop.	181.2	89	
2.3.2	Gross expenditure on R&D, % GDP	0.1	96	
2.3.3	QS university ranking, average score top 3*	20.6	50	
3	**Infrastructure**	**38.2**	**63**	
3.1	Information & communication technologies (ICTs)	36.5	72	
3.1.1	ICT access*	38.5	88	
3.1.2	ICT use*	16.3	92	
3.1.3	Government's online service*	51.6	62	
3.1.4	E-participation*	39.5	38	
3.2	General infrastructure	34.8	62	
3.2.1	Electricity output, kWh/cap	1,334.1	86	
3.2.2	Logistics performance*	52.8	59	
3.2.3	Gross capital formation, % GDP	27.9	30	●
3.3	Ecological sustainability	43.3	48	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	12.9	3	●
3.3.2	Environmental performance*	45.1	95	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	65	
4	**Market sophistication**	**58.5**	**29**	●
4.1	Credit	50.5	33	●
4.1.1	Ease of getting credit*	81.3	27	●
4.1.2	Domestic credit to private sector, % GDP	27.3	104	
4.1.3	Microfinance gross loans, % GDP	5.0	9	●
4.2	Investment	42.8	45	
4.2.1	Ease of protecting investors*	70.0	16	●
4.2.2	Market capitalization, % GDP	49.1	41	
4.2.3	Total value of stocks traded, % GDP	2.5	59	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	82.4	13	●
4.3.1	Applied tariff rate, weighted mean, %	1.5	40	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	33	●
4.3.3	Intensity of local competition†	68.3	58	
5	**Business sophistication**	**29.1**	**88**	
5.1	Knowledge workers	38.5	72	
5.1.1	Knowledge-intensive employment, %	15.3	90	
5.1.2	Firms offering formal training, % firms	57.0	12	●
5.1.3	GERD performed by business, % GDP	0.0	70	
5.1.4	GERD financed by business, %	29.2	55	
5.1.5	GMAT test takers/mn pop. 20–34	69.9	62	
5.2	Innovation linkages	23.5	114	
5.2.1	University/industry research collaboration†	35.7	105	
5.2.2	State of cluster development†	40.3	98	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	105	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	101	○
5.3	Knowledge absorption	25.2	71	
5.3.1	Royalty & license fees payments, % total trade	0.5	53	
5.3.2	High-tech imports less re-imports, %	8.4	51	
5.3.3	Comm., computer & info. services imp., % total trade	0.8	70	
5.3.4	FDI net inflows, % GDP	4.7	45	
6	**Knowledge & technology outputs**	**20.2**	**112**	
6.1	Knowledge creation	4.4	119	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	96	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	100	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.4	41	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.1	133	○
6.1.5	Citable documents H index	109.0	57	
6.2	Knowledge impact	35.0	81	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.5	14	●
6.2.2	New businesses/th pop. 15–64	3.8	28	●
6.2.3	Computer software spending, % GDP	0.3	61	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.9	88	
6.2.5	High- & medium-high-tech manufactures, %	10.0	75	
6.3	Knowledge diffusion	21.4	126	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	91	
6.3.2	High-tech exports less re-exports, %	0.4	83	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	113	
6.3.4	FDI net outflows, % GDP	0.0	110	○
7	**Creative outputs**	**33.1**	**66**	
7.1	Intangible assets	44.8	69	
7.1.1	Domestic res trademark app./bn PPP$ GDP	56.0	47	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	55.8	70	
7.1.4	ICTs & organizational model creation†	56.8	53	
7.2	Creative goods & services	17.3	72	
7.2.1	Cultural & creative services exports, % total trade	0.1	61	
7.2.2	National feature films/mn pop. 15–69	0.4	91	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	17	●
7.2.5	Creative goods exports, % total trade	0.3	71	
7.3	Online creativity	25.4	59	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.8	61	
7.3.2	Country-code TLDs/th pop. 15–69	20.8	75	
7.3.3	Wikipedia edits/pop. 15–69	3,190.1	68	
7.3.4	Video uploads on YouTube/pop. 15–69	70.4	41	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Philippines

Key indicators

Population (millions)	96.7
GDP (US$ billions)	272.0
GDP per capita, PPP$	4,682.0
Income group	Lower-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.9**	**100**	
Innovation Output Sub-Index		26.8	84	
Innovation Input Sub-Index		32.9	110	
Innovation Efficiency Ratio		0.8	35	●
Global Innovation Index 2013 (out of 142)		35.5	90	
1	**Institutions**	**49.6**	**108**	
1.1	Political environment	45.7	104	
1.1.1	Political stability*	37.3	121	
1.1.2	Government effectiveness*	42.9	64	
1.1.3	Press freedom*	56.9	120	
1.2	Regulatory environment	50.1	115	
1.2.1	Regulatory quality*	47.3	75	
1.2.2	Rule of law*	31.4	94	
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	124	○
1.3	Business environment	53.0	109	
1.3.1	Ease of starting a business*	65.0	125	○
1.3.2	Ease of resolving insolvency*	31.7	89	
1.3.3	Ease of paying taxes*	62.3	95	
2	**Human capital & research**	**15.2**	**121**	
2.1	Education	20.8	132	○
2.1.1	Expenditure on education, % GDP	2.7	117	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	9.1	101	○
2.1.3	School life expectancy, years	11.3	101	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	34.8	112	○
2.2	Tertiary education	14.3	113	
2.2.1	Tertiary enrolment, % gross	28.2	77	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.1	108	○
2.3	Research & development (R&D)	10.5	67	
2.3.1	Researchers, headcounts/mn pop.	129.3	97	
2.3.2	Gross expenditure on R&D, % GDP	0.1	102	○
2.3.3	QS university ranking, average score top 3*	28.0	45	●
3	**Infrastructure**	**30.0**	**94**	
3.1	Information & communication technologies (ICTs)	29.9	90	
3.1.1	ICT access*	34.1	95	
3.1.2	ICT use*	14.6	95	
3.1.3	Government's online service*	49.7	68	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	25.1	112	
3.2.1	Electricity output, kWh/cap	729.3	98	
3.2.2	Logistics performance*	56.0	52	
3.2.3	Gross capital formation, % GDP	18.6	107	
3.3	Ecological sustainability	35.0	72	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.5	32	●
3.3.2	Environmental performance*	44.0	99	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.3	57	
4	**Market sophistication**	**44.8**	**93**	
4.1	Credit	23.0	118	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	33.4	92	
4.1.3	Microfinance gross loans, % GDP	0.2	56	
4.2	Investment	34.0	73	
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	105.5	14	●
4.2.3	Total value of stocks traded, % GDP	13.9	32	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	38	
4.3	Trade & competition	77.6	47	●
4.3.1	Applied tariff rate, weighted mean, %	4.8	81	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.8	68	
4.3.3	Intensity of local competition†	67.8	60	
5	**Business sophistication**	**25.1**	**113**	
5.1	Knowledge workers	33.6	87	
5.1.1	Knowledge-intensive employment, %	22.5	64	
5.1.2	Firms offering formal training, % firms	31.1	61	
5.1.3	GERD performed by business, % GDP	0.1	67	
5.1.4	GERD financed by business, %	56.9	26	●
5.1.5	GMAT test takers/mn pop. 20–34	15.5	112	
5.2	Innovation linkages	26.2	97	
5.2.1	University/industry research collaboration†	43.0	67	
5.2.2	State of cluster development†	50.5	52	
5.2.3	GERD financed by abroad, %	4.1	65	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	34	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	87	
5.3	Knowledge absorption	15.4	123	
5.3.1	Royalty & license fees payments, % total trade	0.7	42	●
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	96	
5.3.4	FDI net inflows, % GDP	1.1	111	
6	**Knowledge & technology outputs**	**27.1**	**68**	
6.1	Knowledge creation	10.4	76	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	84	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	93	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.6	21	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.1	131	○
6.1.5	Citable documents H index	116.0	54	
6.2	Knowledge impact	30.8	103	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.5	45	
6.2.2	New businesses/th pop. 15–64	0.3	81	
6.2.3	Computer software spending, % GDP	0.3	53	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.5	67	
6.2.5	High- & medium-high-tech manufactures, %	16.3	60	
6.3	Knowledge diffusion	40.2	31	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	92	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	3.6	15	●
6.3.4	FDI net outflows, % GDP	0.7	53	
7	**Creative outputs**	**26.5**	**98**	
7.1	Intangible assets	40.7	88	
7.1.1	Domestic res trademark app./bn PPP$ GDP	39.2	64	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	64	
7.1.3	ICTs & business model creation†	63.3	41	●
7.1.4	ICTs & organizational model creation†	63.7	26	●
7.2	Creative goods & services	4.4	112	
7.2.1	Cultural & creative services exports, % total trade	0.1	62	
7.2.2	National feature films/mn pop. 15–69	1.3	63	
7.2.3	Global ent. & media output/th pop. 15–69	0.1	51	○
7.2.4	Printing & publishing manufactures, %	0.0	90	○
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	20.1	66	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.5	100	
7.3.2	Country-code TLDs/th pop. 15–69	10.1	103	
7.3.3	Wikipedia edits/pop. 15–69	2,190.9	79	
7.3.4	Video uploads on YouTube/pop. 15–69	65.1	48	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Poland

Key indicators

Population (millions)	38.5
GDP (US$ billions)	516.1
GDP per capita, PPP$	21,214.3
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.6**	**45**	
Innovation Output Sub-Index		34.0	48	
Innovation Input Sub-Index		47.3	40	
Innovation Efficiency Ratio		0.7	76	
Global Innovation Index 2013 (out of 142)		40.1	49	
1	**Institutions**	**74.7**	**35**	
1.1	Political environment	78.8	27	
1.1.1	Political stability*	90.9	18	●
1.1.2	Government effectiveness*	58.6	42	
1.1.3	Press freedom*	86.9	20	●
1.2	Regulatory environment	74.4	42	
1.2.1	Regulatory quality*	73.9	34	
1.2.2	Rule of law*	66.9	38	
1.2.3	Cost of redundancy dismissal, salary weeks	18.8	88	
1.3	Business environment	71.1	42	
1.3.1	Ease of starting a business*	85.9	66	
1.3.2	Ease of resolving insolvency*	58.0	33	
1.3.3	Ease of paying taxes*	69.3	72	
2	**Human capital & research**	**37.9**	**43**	
2.1	Education	54.0	33	
2.1.1	Expenditure on education, % GDP	5.2	53	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.7	43	
2.1.3	School life expectancy, years	15.5	34	
2.1.4	PISA scales in reading, maths, & science	520.5	9	●
2.1.5	Pupil-teacher ratio, secondary	8.7	12	●
2.2	Tertiary education	34.0	67	
2.2.1	Tertiary enrolment, % gross	73.2	21	●
2.2.2	Graduates in science & engineering, %	16.8	69	
2.2.3	Tertiary inbound mobility, %	1.2	79	○
2.3	Research & development (R&D)	25.7	38	
2.3.1	Researchers, headcounts/mn pop.	2,636.4	33	
2.3.2	Gross expenditure on R&D, % GDP	0.9	37	
2.3.3	QS university ranking, average score top 3*	31.9	39	
3	**Infrastructure**	**41.9**	**49**	
3.1	Information & communication technologies (ICTs)	46.3	50	
3.1.1	ICT access*	64.6	42	
3.1.2	ICT use*	48.4	35	
3.1.3	Government's online service*	53.6	56	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	35.1	61	
3.2.1	Electricity output, kWh/cap	4,202.9	51	
3.2.2	Logistics performance*	72.2	29	
3.2.3	Gross capital formation, % GDP	20.2	90	
3.3	Ecological sustainability	44.5	43	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.3	46	
3.3.2	Environmental performance*	69.5	30	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.5	38	
4	**Market sophistication**	**48.2**	**70**	
4.1	Credit	37.0	64	
4.1.1	Ease of getting credit*	93.8	3	●
4.1.2	Domestic credit to private sector, % GDP	53.8	61	
4.1.3	Microfinance gross loans, % GDP	0.1	76	○
4.2	Investment	31.2	90	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	36.3	54	
4.2.3	Total value of stocks traded, % GDP	13.7	33	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	55	○
4.3	Trade & competition	76.5	57	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	72.5	36	
5	**Business sophistication**	**33.7**	**64**	
5.1	Knowledge workers	50.6	40	
5.1.1	Knowledge-intensive employment, %	35.1	33	
5.1.2	Firms offering formal training, % firms	60.5	8	●
5.1.3	GERD performed by business, % GDP	0.3	41	
5.1.4	GERD financed by business, %	37.2	49	
5.1.5	GMAT test takers/mn pop. 20–34	32.7	93	
5.2	Innovation linkages	24.8	103	○
5.2.1	University/industry research collaboration†	42.3	70	
5.2.2	State of cluster development†	40.2	99	○
5.2.3	GERD financed by abroad, %	13.3	35	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	95	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	49	
5.3	Knowledge absorption	25.8	67	
5.3.1	Royalty & license fees payments, % total trade	1.0	28	
5.3.2	High-tech imports less re-imports, %	8.9	43	
5.3.3	Comm., computer & info. services imp., % total trade	1.1	55	
5.3.4	FDI net inflows, % GDP	0.6	123	○
6	**Knowledge & technology outputs**	**31.2**	**53**	
6.1	Knowledge creation	25.2	41	
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.6	23	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	51	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.2	30	
6.1.4	Scientific & technical articles/bn PPP$ GDP	26.6	36	
6.1.5	Citable documents H index	302.0	23	
6.2	Knowledge impact	37.7	71	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.1	54	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	0.3	48	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.8	37	
6.2.5	High- & medium-high-tech manufactures, %	33.8	30	
6.3	Knowledge diffusion	30.7	75	
6.3.1	Royalty & license fees receipts, % total trade	0.1	55	
6.3.2	High-tech exports less re-exports, %	4.7	33	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	69	
6.3.4	FDI net outflows, % GDP	0.3	75	
7	**Creative outputs**	**36.7**	**51**	
7.1	Intangible assets	34.1	118	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	53.2	52	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.5	40	
7.1.3	ICTs & business model creation†	48.3	102	○
7.1.4	ICTs & organizational model creation†	46.0	92	
7.2	Creative goods & services	34.7	29	
7.2.1	Cultural & creative services exports, % total trade	1.1	6	●
7.2.2	National feature films/mn pop. 15–69	1.8	55	
7.2.3	Global ent. & media output/th pop. 15–69	0.3	34	
7.2.4	Printing & publishing manufactures, %	0.0	64	○
7.2.5	Creative goods exports, % total trade	4.2	14	●
7.3	Online creativity	44.1	32	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	8.7	51	
7.3.2	Country-code TLDs/th pop. 15–69	60.2	19	●
7.3.3	Wikipedia edits/pop. 15–69	14,003.0	36	
7.3.4	Video uploads on YouTube/pop. 15–69	83.7	21	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Portugal

Key indicators

Population (millions)	10.5
GDP (US$ billions)	220.0
GDP per capita, PPP$	23,068.4
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**45.6**	**32**	
Innovation Output Sub-Index		38.7	36	
Innovation Input Sub-Index		52.6	29	
Innovation Efficiency Ratio		0.7	73	
Global Innovation Index 2013 (out of 142)		45.1	34	
1	**Institutions**	**77.3**	**28**	
1.1	Political environment	78.6	28	
1.1.1	Political stability*	84.0	35	
1.1.2	Government effectiveness*	68.5	30	
1.1.3	Press freedom*	83.3	26	
1.2	Regulatory environment	71.1	47	
1.2.1	Regulatory quality*	70.0	37	
1.2.2	Rule of law*	74.9	27	
1.2.3	Cost of redundancy dismissal, salary weeks	23.1	107	○
1.3	Business environment	82.2	17	●
1.3.1	Ease of starting a business*	95.7	11	●
1.3.2	Ease of resolving insolvency*	75.8	21	
1.3.3	Ease of paying taxes*	74.9	48	
2	**Human capital & research**	**51.3**	**21**	
2.1	Education	58.7	9	●
2.1.1	Expenditure on education, % GDP	5.6	40	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	36.5	8	●
2.1.3	School life expectancy, years	16.3	20	
2.1.4	PISA scales in reading, maths, & science	488.0	29	
2.1.5	Pupil-teacher ratio, secondary	7.3	1	●
2.2	Tertiary education	42.0	38	
2.2.1	Tertiary enrolment, % gross	65.9	27	
2.2.2	Graduates in science & engineering, %	24.6	30	
2.2.3	Tertiary inbound mobility, %	2.9	53	
2.3	Research & development (R&D)	53.1	19	
2.3.1	Researchers, headcounts/mn pop.	9,477.1	4	●
2.3.2	Gross expenditure on R&D, % GDP	1.5	26	
2.3.3	QS university ranking, average score top 3*	36.4	36	
3	**Infrastructure**	**46.6**	**32**	
3.1	Information & communication technologies (ICTs)	54.2	36	
3.1.1	ICT access*	70.0	33	
3.1.2	ICT use*	44.5	40	
3.1.3	Government's online service*	65.4	38	
3.1.4	E-participation*	36.8	42	
3.2	General infrastructure	30.2	83	
3.2.1	Electricity output, kWh/cap	4,279.7	48	
3.2.2	Logistics performance*	75.0	27	
3.2.3	Gross capital formation, % GDP	14.7	128	○
3.3	Ecological sustainability	55.4	13	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.1	16	●
3.3.2	Environmental performance*	75.8	17	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.8	25	
4	**Market sophistication**	**53.2**	**45**	
4.1	Credit	55.2	23	
4.1.1	Ease of getting credit*	50.0	96	○
4.1.2	Domestic credit to private sector, % GDP	184.2	8	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	31.6	88	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	30.8	58	
4.2.3	Total value of stocks traded, % GDP	12.5	36	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	39	
4.3	Trade & competition	72.8	93	○
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	65.0	74	
5	**Business sophistication**	**34.5**	**56**	
5.1	Knowledge workers	46.6	50	
5.1.1	Knowledge-intensive employment, %	31.0	44	
5.1.2	Firms offering formal training, % firms	31.9	58	
5.1.3	GERD performed by business, % GDP	0.7	27	
5.1.4	GERD financed by business, %	47.0	38	
5.1.5	GMAT test takers/mn pop. 20–34	288.1	20	
5.2	Innovation linkages	29.3	81	
5.2.1	University/industry research collaboration†	60.0	26	
5.2.2	State of cluster development†	52.7	38	
5.2.3	GERD financed by abroad, %	5.9	59	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	76	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	40	
5.3	Knowledge absorption	27.7	53	
5.3.1	Royalty & license fees payments, % total trade	0.5	50	
5.3.2	High-tech imports less re-imports, %	6.5	78	○
5.3.3	Comm., computer & info. services imp., % total trade	1.2	50	
5.3.4	FDI net inflows, % GDP	6.5	29	
6	**Knowledge & technology outputs**	**32.7**	**46**	
6.1	Knowledge creation	23.1	44	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.5	44	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.5	38	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.3	44	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	50.1	10	●
6.1.5	Citable documents H index	234.0	32	
6.2	Knowledge impact	46.3	42	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	83	○
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	0.7	8	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	27.2	17	●
6.2.5	High- & medium-high-tech manufactures, %	24.7	42	
6.3	Knowledge diffusion	28.9	85	
6.3.1	Royalty & license fees receipts, % total trade	0.1	64	
6.3.2	High-tech exports less re-exports, %	2.3	50	
6.3.3	Comm., computer & info. services exp., % total trade	1.5	61	
6.3.4	FDI net outflows, % GDP	2.4	32	
7	**Creative outputs**	**44.7**	**28**	
7.1	Intangible assets	50.5	39	
7.1.1	Domestic res trademark app./bn PPP$ GDP	93.8	19	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.8	33	
7.1.3	ICTs & business model creation†	69.2	21	
7.1.4	ICTs & organizational model creation†	64.0	25	
7.2	Creative goods & services	31.8	36	
7.2.1	Cultural & creative services exports, % total trade	0.6	21	
7.2.2	National feature films/mn pop. 15–69	3.9	34	
7.2.3	Global ent. & media output/th pop. 15–69	0.9	23	
7.2.4	Printing & publishing manufactures, %	0.0	39	
7.2.5	Creative goods exports, % total trade	2.0	26	
7.3	Online creativity	45.8	30	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	21.3	30	
7.3.2	Country-code TLDs/th pop. 15–69	59.1	22	
7.3.3	Wikipedia edits/pop. 15–69	11,967.6	40	
7.3.4	Video uploads on YouTube/pop. 15–69	82.5	24	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Qatar

Key indicators

Population (millions)	2.1
GDP (US$ billions)	202.6
GDP per capita, PPP$	98,813.7
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**40.3**	**47**	
Innovation Output Sub-Index		30.2	69	
Innovation Input Sub-Index		50.4	34	
Innovation Efficiency Ratio		0.6	114	
Global Innovation Index 2013 (out of 142)		41.0	43	
1	**Institutions**	**75.5**	**33**	
1.1	Political environment	76.2	33	
1.1.1	Political stability*	95.4	9	●
1.1.2	Government effectiveness*	66.1	34	
1.1.3	Press freedom*	67.1	89	
1.2	Regulatory environment	70.8	49	
1.2.1	Regulatory quality*	69.6	38	
1.2.2	Rule of law*	74.8	28	
1.2.3	Cost of redundancy dismissal, salary weeks	23.2	109	
1.3	Business environment	79.5	24	
1.3.1	Ease of starting a business*	82.1	77	
1.3.2	Ease of resolving insolvency*	58.9	32	
1.3.3	Ease of paying taxes*	97.5	2	●
2	**Human capital & research**	**33.6**	**53**	
2.1	Education	33.8	101	
2.1.1	Expenditure on education, % GDP	2.5	122	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	10.3	96	○
2.1.3	School life expectancy, years	13.8	59	
2.1.4	PISA scales in reading, maths, & science	382.5	60	○
2.1.5	Pupil-teacher ratio, secondary	9.7	23	
2.2	Tertiary education	58.5	9	●
2.2.1	Tertiary enrolment, % gross	12.1	103	
2.2.2	Graduates in science & engineering, %	33.6	9	●
2.2.3	Tertiary inbound mobility, %	41.4	1	●
2.3	Research & development (R&D)	8.3	74	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	8.3	60	
3	**Infrastructure**	**53.1**	**23**	
3.1	Information & communication technologies (ICTs)	66.5	23	
3.1.1	ICT access*	71.0	31	
3.1.2	ICT use*	57.9	25	
3.1.3	Government's online service*	73.9	27	
3.1.4	E-participation*	63.2	22	
3.2	General infrastructure	58.8	6	●
3.2.1	Electricity output, kWh/cap	16,433.2	6	●
3.2.2	Logistics performance*	67.9	33	
3.2.3	Gross capital formation, % GDP	29.5	24	
3.3	Ecological sustainability	34.0	77	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.4	93	
3.3.2	Environmental performance*	63.0	44	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.8	67	
4	**Market sophistication**	**46.3**	**84**	
4.1	Credit	27.2	104	
4.1.1	Ease of getting credit*	43.8	112	○
4.1.2	Domestic credit to private sector, % GDP	36.1	89	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	28.8	105	
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	72.5	23	
4.2.3	Total value of stocks traded, % GDP	13.4	34	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	54	
4.3	Trade & competition	83.1	9	●
4.3.1	Applied tariff rate, weighted mean, %	3.8	67	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.2	82	
4.3.3	Intensity of local competition†	79.3	14	
5	**Business sophistication**	**43.4**	**27**	
5.1	Knowledge workers	37.2	80	
5.1.1	Knowledge-intensive employment, %	24.2	58	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	32.1	94	
5.2	Innovation linkages	71.8	1	●
5.2.1	University/industry research collaboration†	74.5	7	●
5.2.2	State of cluster development†	69.3	9	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	6	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	21.4	93	
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	1.4	38	
5.3.4	FDI net inflows, % GDP	−0.1	137	○
6	**Knowledge & technology outputs**	**20.4**	**110**	
6.1	Knowledge creation	4.7	115	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.0	110	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	55	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	4.3	114	
6.1.5	Citable documents H index	50.0	111	
6.2	Knowledge impact	29.5	106	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.6	75	
6.2.2	New businesses/th pop. 15–64	1.7	45	
6.2.3	Computer software spending, % GDP	0.2	67	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.7	91	
6.2.5	High- & medium-high-tech manufactures, %	20.8	53	
6.3	Knowledge diffusion	27.0	94	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.0	125	○
6.3.3	Comm., computer & info. services exp., % total trade	0.4	106	
6.3.4	FDI net outflows, % GDP	3.5	19	
7	**Creative outputs**	**40.1**	**41**	
7.1	Intangible assets	60.5	9	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	74	○
7.1.3	ICTs & business model creation†	75.8	6	●
7.1.4	ICTs & organizational model creation†	75.5	2	●
7.2	Creative goods & services	11.0	89	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.8	24	
7.2.4	Printing & publishing manufactures, %	0.0	63	
7.2.5	Creative goods exports, % total trade	0.0	125	○
7.3	Online creativity	28.3	53	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.9	60	
7.3.2	Country-code TLDs/th pop. 15–69	31.0	56	
7.3.3	Wikipedia edits/pop. 15–69	4,842.3	56	
7.3.4	Video uploads on YouTube/pop. 15–69	68.9	44	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Romania

Key indicators

Population (millions)	21.3
GDP (US$ billions)	189.7
GDP per capita, PPP$	13,395.9
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.1**	**55**	
Innovation Output Sub-Index		34.8	44	
Innovation Input Sub-Index		41.4	65	
Innovation Efficiency Ratio		0.8	24	●
Global Innovation Index 2013 (out of 142)		40.3	48	
1	**Institutions**	**65.9**	**59**	
1.1	Political environment	58.9	65	
1.1.1	Political stability*	67.4	65	
1.1.2	Government effectiveness*	32.5	88	
1.1.3	Press freedom*	77.0	37	
1.2	Regulatory environment	77.4	37	
1.2.1	Regulatory quality*	62.8	48	
1.2.2	Rule of law*	46.9	59	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	61.2	79	
1.3.1	Ease of starting a business*	90.8	33	●
1.3.2	Ease of resolving insolvency*	31.7	88	
1.3.3	Ease of paying taxes*	61.2	99	
2	**Human capital & research**	**29.1**	**69**	
2.1	Education	41.9	75	
2.1.1	Expenditure on education, % GDP	4.2	83	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.5	69	
2.1.3	School life expectancy, years	14.1	54	
2.1.4	PISA scales in reading, maths, & science	440.3	43	
2.1.5	Pupil-teacher ratio, secondary	13.0	43	
2.2	Tertiary education	32.6	70	
2.2.1	Tertiary enrolment, % gross	51.6	50	
2.2.2	Graduates in science & engineering, %	20.2	54	
2.2.3	Tertiary inbound mobility, %	1.8	63	
2.3	Research & development (R&D)	12.6	62	
2.3.1	Researchers, headcounts/mn pop.	1,168.7	53	
2.3.2	Gross expenditure on R&D, % GDP	0.5	60	
2.3.3	QS university ranking, average score top 3*	16.1	55	
3	**Infrastructure**	**41.7**	**50**	
3.1	Information & communication technologies (ICTs)	37.8	71	
3.1.1	ICT access*	58.1	55	
3.1.2	ICT use*	33.4	56	
3.1.3	Government's online service*	51.6	62	
3.1.4	E-participation*	7.9	98	○
3.2	General infrastructure	35.4	58	
3.2.1	Electricity output, kWh/cap	2,898.5	64	
3.2.2	Logistics performance*	55.2	53	
3.2.3	Gross capital formation, % GDP	26.1	41	
3.3	Ecological sustainability	52.0	22	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.5	55	
3.3.2	Environmental performance*	50.5	78	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	31.8	1	●
4	**Market sophistication**	**42.9**	**108**	○
4.1	Credit	34.5	73	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	45.0	75	
4.1.3	Microfinance gross loans, % GDP	0.2	59	
4.2	Investment	25.5	120	○
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	9.4	90	○
4.2.3	Total value of stocks traded, % GDP	1.3	64	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	61	○
4.3	Trade & competition	68.6	116	○
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	56.7	109	○
5	**Business sophistication**	**27.3**	**99**	
5.1	Knowledge workers	32.1	90	
5.1.1	Knowledge-intensive employment, %	22.2	66	
5.1.2	Firms offering formal training, % firms	25.9	75	
5.1.3	GERD performed by business, % GDP	0.2	49	
5.1.4	GERD financed by business, %	39.0	47	
5.1.5	GMAT test takers/mn pop. 20–34	61.6	67	
5.2	Innovation linkages	24.3	108	○
5.2.1	University/industry research collaboration†	38.8	85	
5.2.2	State of cluster development†	41.3	92	
5.2.3	GERD financed by abroad, %	14.4	32	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	79	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	69	
5.3	Knowledge absorption	25.6	68	
5.3.1	Royalty & license fees payments, % total trade	0.6	46	
5.3.2	High-tech imports less re-imports, %	9.3	39	
5.3.3	Comm., computer & info. services imp., % total trade	1.2	52	
5.3.4	FDI net inflows, % GDP	1.4	105	○
6	**Knowledge & technology outputs**	**36.6**	**37**	
6.1	Knowledge creation	14.5	66	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.8	31	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	77	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	46	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	27.1	35	
6.1.5	Citable documents H index	135.0	45	
6.2	Knowledge impact	57.5	9	●
6.2.1	Growth rate of PPP$ GDP/worker, %	0.3	84	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.3	35	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	67.8	1	●
6.2.5	High- & medium-high-tech manufactures, %	35.0	27	
6.3	Knowledge diffusion	37.8	39	
6.3.1	Royalty & license fees receipts, % total trade	0.3	28	●
6.3.2	High-tech exports less re-exports, %	5.1	29	●
6.3.3	Comm., computer & info. services exp., % total trade	2.2	36	
6.3.4	FDI net outflows, % GDP	0.1	94	○
7	**Creative outputs**	**33.0**	**67**	
7.1	Intangible assets	36.2	109	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	83.5	24	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	49	
7.1.3	ICTs & business model creation†	48.7	100	
7.1.4	ICTs & organizational model creation†	43.0	111	○
7.2	Creative goods & services	23.1	52	
7.2.1	Cultural & creative services exports, % total trade	0.6	17	●
7.2.2	National feature films/mn pop. 15–69	1.1	70	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	47	○
7.2.4	Printing & publishing manufactures, %	0.0	62	
7.2.5	Creative goods exports, % total trade	1.9	28	●
7.3	Online creativity	36.4	41	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	5.6	58	
7.3.2	Country-code TLDs/th pop. 15–69	51.5	36	
7.3.3	Wikipedia edits/pop. 15–69	4,163.9	61	
7.3.4	Video uploads on YouTube/pop. 15–69	81.5	26	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Russian Federation

Key indicators

Population (millions)	143.5
GDP (US$ billions)	2,118.0
GDP per capita, PPP$	17,884.5
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**39.1**	**49**	
Innovation Output Sub-Index		34.5	45	
Innovation Input Sub-Index		43.8	56	
Innovation Efficiency Ratio		0.8	49	
Global Innovation Index 2013 (out of 142)		37.2	62	
1	**Institutions**	**56.4**	**88**	
1.1	Political environment	43.9	117	○
1.1.1	Political stability*	45.6	112	○
1.1.2	Government effectiveness*	29.5	92	
1.1.3	Press freedom*	56.6	121	○
1.2	Regulatory environment	56.5	98	
1.2.1	Regulatory quality*	39.5	100	
1.2.2	Rule of law*	23.8	116	○
1.2.3	Cost of redundancy dismissal, salary weeks	17.3	81	
1.3	Business environment	68.9	55	
1.3.1	Ease of starting a business*	85.9	64	
1.3.2	Ease of resolving insolvency*	45.4	49	
1.3.3	Ease of paying taxes*	75.3	47	
2	**Human capital & research**	**44.5**	**30**	
2.1	Education	54.6	28	
2.1.1	Expenditure on education, % GDP	4.1	87	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.0	55	
2.1.4	PISA scales in reading, maths, & science	481.2	35	
2.1.5	Pupil-teacher ratio, secondary	8.5	8	●
2.2	Tertiary education	46.0	30	
2.2.1	Tertiary enrolment, % gross	75.5	15	●
2.2.2	Graduates in science & engineering, %	28.1	14	●
2.2.3	Tertiary inbound mobility, %	1.4	74	
2.3	Research & development (R&D)	33.0	30	
2.3.1	Researchers, headcounts/mn pop.	2,602.6	34	
2.3.2	Gross expenditure on R&D, % GDP	1.1	32	
2.3.3	QS university ranking, average score top 3*	49.3	25	
3	**Infrastructure**	**41.1**	**51**	
3.1	Information & communication technologies (ICTs)	60.6	28	
3.1.1	ICT access*	67.3	35	
3.1.2	ICT use*	43.4	41	
3.1.3	Government's online service*	66.0	37	
3.1.4	E-participation*	65.8	19	●
3.2	General infrastructure	36.1	57	
3.2.1	Electricity output, kWh/cap	7,419.2	28	
3.2.2	Logistics performance*	38.5	94	
3.2.3	Gross capital formation, % GDP	25.4	47	
3.3	Ecological sustainability	26.7	109	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.9	112	○
3.3.2	Environmental performance*	53.5	66	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	86	
4	**Market sophistication**	**42.5**	**111**	○
4.1	Credit	21.6	124	○
4.1.1	Ease of getting credit*	50.0	96	○
4.1.2	Domestic credit to private sector, % GDP	48.5	70	
4.1.3	Microfinance gross loans, % GDP	0.0	84	○
4.2	Investment	32.0	84	
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	43.4	47	
4.2.3	Total value of stocks traded, % GDP	36.3	24	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	43	
4.3	Trade & competition	73.9	84	
4.3.1	Applied tariff rate, weighted mean, %	5.2	86	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	36	
4.3.3	Intensity of local competition†	58.2	106	○
5	**Business sophistication**	**34.3**	**60**	
5.1	Knowledge workers	54.7	33	
5.1.1	Knowledge-intensive employment, %	42.8	17	●
5.1.2	Firms offering formal training, % firms	44.3	37	
5.1.3	GERD performed by business, % GDP	0.7	30	
5.1.4	GERD financed by business, %	58.3	24	
5.1.5	GMAT test takers/mn pop. 20–34	58.6	70	
5.2	Innovation linkages	20.3	126	○
5.2.1	University/industry research collaboration†	44.0	62	
5.2.2	State of cluster development†	34.3	117	○
5.2.3	GERD financed by abroad, %	4.0	66	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	62	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	57	
5.3	Knowledge absorption	27.8	51	
5.3.1	Royalty & license fees payments, % total trade	1.5	12	●
5.3.2	High-tech imports less re-imports, %	7.5	59	
5.3.3	Comm., computer & info. services imp., % total trade	1.1	57	
5.3.4	FDI net inflows, % GDP	2.6	71	
6	**Knowledge & technology outputs**	**37.6**	**34**	
6.1	Knowledge creation	46.9	18	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	11.5	7	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.4	41	
6.1.3	Domestic res utility model app./tr PPP$ GDP	5.4	8	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	10.7	70	
6.1.5	Citable documents H index	325.0	21	●
6.2	Knowledge impact	38.3	70	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.4	30	
6.2.2	New businesses/th pop. 15–64	4.3	27	
6.2.3	Computer software spending, % GDP	0.3	58	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.0	64	
6.2.5	High- & medium-high-tech manufactures, %	23.9	44	
6.3	Knowledge diffusion	27.5	91	
6.3.1	Royalty & license fees receipts, % total trade	0.1	48	
6.3.2	High-tech exports less re-exports, %	1.5	59	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	93	
6.3.4	FDI net outflows, % GDP	2.4	31	
7	**Creative outputs**	**31.4**	**72**	
7.1	Intangible assets	35.2	114	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	64.2	40	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.5	39	
7.1.3	ICTs & business model creation†	46.2	110	○
7.1.4	ICTs & organizational model creation†	47.5	89	
7.2	Creative goods & services	17.9	70	
7.2.1	Cultural & creative services exports, % total trade	0.8	11	●
7.2.2	National feature films/mn pop. 15–69	1.3	64	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	40	
7.2.4	Printing & publishing manufactures, %	0.0	58	
7.2.5	Creative goods exports, % total trade	0.3	76	
7.3	Online creativity	37.4	38	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.1	65	
7.3.2	Country-code TLDs/th pop. 15–69	51.9	33	
7.3.3	Wikipedia edits/pop. 15–69	9,098.5	47	
7.3.4	Video uploads on YouTube/pop. 15–69	78.3	33	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Rwanda

Key indicators

Population (millions)	11.5
GDP (US$ billions)	7.4
GDP per capita, PPP$	1,538.2
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.3**	**102**	
Innovation Output Sub-Index		18.4	128	
Innovation Input Sub-Index		40.2	74	
Innovation Efficiency Ratio		0.5	137	○
Global Innovation Index 2013 (out of 142)		27.6	112	
1	**Institutions**	**60.6**	**70**	
1.1	Political environment	48.1	94	
1.1.1	Political stability*	60.5	82	
1.1.2	Government effectiveness*	39.2	73	
1.1.3	Press freedom*	44.5	133	○
1.2	Regulatory environment	66.4	69	
1.2.1	Regulatory quality*	46.2	80	
1.2.2	Rule of law*	39.1	76	
1.2.3	Cost of redundancy dismissal, salary weeks	13.0	55	
1.3	Business environment	67.5	60	
1.3.1	Ease of starting a business*	97.4	5	●
1.3.2	Ease of resolving insolvency*	20.2	119	
1.3.3	Ease of paying taxes*	84.8	23	●
2	**Human capital & research**	**20.4**	**102**	
2.1	Education	38.9	88	
2.1.1	Expenditure on education, % GDP	5.1	57	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	36.4	10	●
2.1.3	School life expectancy, years	10.2	113	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	22.9	84	
2.2	Tertiary education	22.1	96	
2.2.1	Tertiary enrolment, % gross	6.9	121	
2.2.2	Graduates in science & engineering, %	22.5	36	
2.2.3	Tertiary inbound mobility, %	0.8	87	
2.3	Research & development (R&D)	0.2	129	
2.3.1	Researchers, headcounts/mn pop.	53.6	112	○
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**23.0**	**120**	
3.1	Information & communication technologies (ICTs)	15.0	128	
3.1.1	ICT access*	19.6	123	○
3.1.2	ICT use*	3.8	121	
3.1.3	Government's online service*	34.0	109	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	30.2	82	
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	26.2	130	○
3.2.3	Gross capital formation, % GDP	24.2	59	
3.3	Ecological sustainability	23.9	123	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	35.4	123	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	118	○
4	**Market sophistication**	**59.4**	**27**	●
4.1	Credit	35.1	71	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	11.2	138	○
4.1.3	Microfinance gross loans, % GDP	1.2	33	
4.2	Investment	67.4	9	●
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	0.3	11	●
4.3	Trade & competition	75.8	67	
4.3.1	Applied tariff rate, weighted mean, %	6.1	98	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	1	●
4.3.3	Intensity of local competition†	62.3	85	
5	**Business sophistication**	**37.5**	**44**	
5.1	Knowledge workers	47.3	47	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	52.3	22	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	11.0	119	
5.2	Innovation linkages	42.5	36	
5.2.1	University/industry research collaboration†	45.2	57	
5.2.2	State of cluster development†	47.3	67	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	26	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	22.7	87	
5.3.1	Royalty & license fees payments, % total trade	0.0	124	○
5.3.2	High-tech imports less re-imports, %	10.2	27	●
5.3.3	Comm., computer & info. services imp., % total trade	0.9	64	
5.3.4	FDI net inflows, % GDP	1.7	91	
6	**Knowledge & technology outputs**	**15.5**	**126**	
6.1	Knowledge creation	9.9	80	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.7	41	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.8	35	
6.1.4	Scientific & technical articles/bn PPP$ GDP	7.3	87	
6.1.5	Citable documents H index	36.0	128	
6.2	Knowledge impact	3.6	135	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	1.1	57	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.1	141	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.2	59	
6.3.1	Royalty & license fees receipts, % total trade	2.1	11	●
6.3.2	High-tech exports less re-exports, %	0.1	111	
6.3.3	Comm., computer & info. services exp., % total trade	1.3	70	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**21.3**	**117**	
7.1	Intangible assets	41.8	83	
7.1.1	Domestic res trademark app./bn PPP$ GDP	7.3	97	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	65.3	33	
7.1.4	ICTs & organizational model creation†	57.3	51	
7.2	Creative goods & services	1.0	133	○
7.2.1	Cultural & creative services exports, % total trade	0.0	88	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	107	
7.3	Online creativity	0.6	132	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	129	
7.3.2	Country-code TLDs/th pop. 15–69	1.5	128	
7.3.3	Wikipedia edits/pop. 15–69	90.1	122	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Saudi Arabia

Key indicators

Population (millions)	28.3
GDP (US$ billions)	745.3
GDP per capita, PPP$	31,244.7
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**41.6**	**38**	
Innovation Output Sub-Index		35.4	41	
Innovation Input Sub-Index		47.8	39	
Innovation Efficiency Ratio		0.7	70	
Global Innovation Index 2013 (out of 142)		41.2	42	
1	**Institutions**	**60.0**	**73**	
1.1	Political environment	46.4	102	○
1.1.1	Political stability*	54.5	92	
1.1.2	Government effectiveness*	41.6	65	
1.1.3	Press freedom*	43.1	135	○
1.2	Regulatory environment	64.6	78	
1.2.1	Regulatory quality*	51.5	69	
1.2.2	Rule of law*	53.0	53	
1.2.3	Cost of redundancy dismissal, salary weeks	19.5	92	
1.3	Business environment	69.1	53	
1.3.1	Ease of starting a business*	80.8	86	
1.3.2	Ease of resolving insolvency*	30.0	94	
1.3.3	Ease of paying taxes*	96.6	3	●
2	**Human capital & research**	**35.6**	**47**	
2.1	Education	48.1	54	
2.1.1	Expenditure on education, % GDP	5.1	56	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	18.1	65	
2.1.3	School life expectancy, years	15.6	29	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	11.3	32	
2.2	Tertiary education	43.7	36	
2.2.1	Tertiary enrolment, % gross	50.9	52	
2.2.2	Graduates in science & engineering, %	29.0	13	●
2.2.3	Tertiary inbound mobility, %	3.9	44	
2.3	Research & development (R&D)	15.1	57	
2.3.1	Researchers, headcounts/mn pop.	47.4	114	○
2.3.2	Gross expenditure on R&D, % GDP	0.1	107	○
2.3.3	QS university ranking, average score top 3*	43.5	31	
3	**Infrastructure**	**47.0**	**31**	
3.1	Information & communication technologies (ICTs)	61.8	27	
3.1.1	ICT access*	67.6	34	
3.1.2	ICT use*	36.7	50	
3.1.3	Government's online service*	79.7	19	●
3.1.4	E-participation*	63.2	22	●
3.2	General infrastructure	46.9	21	●
3.2.1	Electricity output, kWh/cap	8,905.9	16	●
3.2.2	Logistics performance*	62.3	37	
3.2.3	Gross capital formation, % GDP	28.3	27	
3.3	Ecological sustainability	32.3	83	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.2	106	○
3.3.2	Environmental performance*	66.7	35	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	110	○
4	**Market sophistication**	**59.0**	**28**	
4.1	Credit	39.9	57	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	37.6	86	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	54.3	22	●
4.2.1	Ease of protecting investors*	66.7	21	
4.2.2	Market capitalization, % GDP	58.7	34	
4.2.3	Total value of stocks traded, % GDP	50.8	16	●
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	82.8	11	●
4.3.1	Applied tariff rate, weighted mean, %	3.9	69	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.1	77	
4.3.3	Intensity of local competition†	78.2	16	●
5	**Business sophistication**	**37.6**	**43**	
5.1	Knowledge workers	49.2	43	
5.1.1	Knowledge-intensive employment, %	22.9	63	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	293.3	18	●
5.2	Innovation linkages	45.9	27	
5.2.1	University/industry research collaboration†	57.8	30	
5.2.2	State of cluster development†	61.5	22	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	21	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	66	
5.3	Knowledge absorption	17.7	113	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	5.8	89	○
5.3.3	Comm., computer & info. services imp., % total trade	0.7	77	
5.3.4	FDI net inflows, % GDP	1.7	90	
6	**Knowledge & technology outputs**	**25.7**	**77**	
6.1	Knowledge creation	10.0	78	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	81	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	47	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.3	79	
6.1.5	Citable documents H index	124.0	53	
6.2	Knowledge impact	42.3	56	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.5	28	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.3	41	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.5	92	
6.2.5	High- & medium-high-tech manufactures, %	30.4	35	
6.3	Knowledge diffusion	25.0	109	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.1	110	○
6.3.3	Comm., computer & info. services exp., % total trade	0.1	132	○
6.3.4	FDI net outflows, % GDP	0.6	59	
7	**Creative outputs**	**45.0**	**26**	
7.1	Intangible assets	67.3	5	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	69.0	23	
7.1.4	ICTs & organizational model creation†	65.7	20	●
7.2	Creative goods & services	19.5	61	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.5	29	
7.2.4	Printing & publishing manufactures, %	0.0	19	
7.2.5	Creative goods exports, % total trade	0.1	88	○
7.3	Online creativity	25.9	58	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.4	63	
7.3.2	Country-code TLDs/th pop. 15–69	13.3	92	
7.3.3	Wikipedia edits/pop. 15–69	3,212.6	67	
7.3.4	Video uploads on YouTube/pop. 15–69	80.5	28	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Senegal

Key indicators

Population (millions)	13.7
GDP (US$ billions)	15.2
GDP per capita, PPP$	1,958.2
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**30.1**	**98**	
Innovation Output Sub-Index		27.6	78	
Innovation Input Sub-Index		32.6	116	
Innovation Efficiency Ratio		0.8	23	●
Global Innovation Index 2013 (out of 142)		30.5	96	
1	**Institutions**	**54.5**	**93**	
1.1	Political environment	55.2	76	
1.1.1	Political stability*	63.2	78	
1.1.2	Government effectiveness*	28.7	95	
1.1.3	Press freedom*	73.8	50	●
1.2	Regulatory environment	65.2	75	
1.2.1	Regulatory quality*	46.3	79	
1.2.2	Rule of law*	37.3	78	
1.2.3	Cost of redundancy dismissal, salary weeks	13.7	63	
1.3	Business environment	43.0	130	○
1.3.1	Ease of starting a business*	76.2	102	
1.3.2	Ease of resolving insolvency*	26.8	106	
1.3.3	Ease of paying taxes*	25.8	137	○
2	**Human capital & research**	**14.7**	**123**	
2.1	Education	31.0	113	
2.1.1	Expenditure on education, % GDP	5.6	42	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	29.0	26	●
2.1.3	School life expectancy, years	7.9	124	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	27.4	97	
2.2	Tertiary education	7.0	130	○
2.2.1	Tertiary enrolment, % gross	7.6	117	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	6.0	80	
2.3.1	Researchers, headcounts/mn pop.	630.9	67	
2.3.2	Gross expenditure on R&D, % GDP	0.5	56	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**27.3**	**106**	
3.1	Information & communication technologies (ICTs)	22.4	103	
3.1.1	ICT access*	25.9	107	
3.1.2	ICT use*	8.0	109	
3.1.3	Government's online service*	34.6	108	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	31.5	76	
3.2.1	Electricity output, kWh/cap	236.0	113	○
3.2.2	Logistics performance*	34.9	107	
3.2.3	Gross capital formation, % GDP	30.3	21	●
3.3	Ecological sustainability	28.0	100	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.3	61	
3.3.2	Environmental performance*	40.8	105	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	104	
4	**Market sophistication**	**42.4**	**114**	
4.1	Credit	29.7	94	
4.1.1	Ease of getting credit*	43.8	112	○
4.1.2	Domestic credit to private sector, % GDP	29.6	100	
4.1.3	Microfinance gross loans, % GDP	2.9	18	●
4.2	Investment	30.0	95	
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	67.6	119	
4.3.1	Applied tariff rate, weighted mean, %	8.4	115	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.6	124	
4.3.3	Intensity of local competition†	68.8	55	●
5	**Business sophistication**	**23.9**	**118**	
5.1	Knowledge workers	11.7	139	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	19.9	93	
5.1.3	GERD performed by business, % GDP	0.0	82	○
5.1.4	GERD financed by business, %	0.3	83	○
5.1.5	GMAT test takers/mn pop. 20–34	14.1	114	
5.2	Innovation linkages	38.2	49	●
5.2.1	University/industry research collaboration†	37.2	97	
5.2.2	State of cluster development†	39.8	101	
5.2.3	GERD financed by abroad, %	40.5	11	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	68	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	22.0	91	
5.3.1	Royalty & license fees payments, % total trade	0.1	90	
5.3.2	High-tech imports less re-imports, %	3.8	116	○
5.3.3	Comm., computer & info. services imp., % total trade	2.0	11	●
5.3.4	FDI net inflows, % GDP	2.0	87	
6	**Knowledge & technology outputs**	**24.1**	**91**	
6.1	Knowledge creation	9.6	85	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	97	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	13.1	65	
6.1.5	Citable documents H index	75.0	84	
6.2	Knowledge impact	27.0	113	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.6	74	
6.2.2	New businesses/th pop. 15–64	0.3	82	
6.2.3	Computer software spending, % GDP	0.3	50	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.8	104	
6.2.5	High- & medium-high-tech manufactures, %	15.3	61	
6.3	Knowledge diffusion	35.6	45	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	76	
6.3.2	High-tech exports less re-exports, %	0.2	98	
6.3.3	Comm., computer & info. services exp., % total trade	4.4	8	●
6.3.4	FDI net outflows, % GDP	0.1	90	
7	**Creative outputs**	**31.0**	**75**	
7.1	Intangible assets	52.5	28	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	60.0	52	●
7.1.4	ICTs & organizational model creation†	45.0	101	
7.2	Creative goods & services	9.8	96	
7.2.1	Cultural & creative services exports, % total trade	0.0	72	
7.2.2	National feature films/mn pop. 15–69	0.7	82	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	57	
7.2.5	Creative goods exports, % total trade	0.2	79	
7.3	Online creativity	9.4	94	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.1	104	
7.3.2	Country-code TLDs/th pop. 15–69	5.1	112	
7.3.3	Wikipedia edits/pop. 15–69	107.0	120	
7.3.4	Video uploads on YouTube/pop. 15–69	31.1	60	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Serbia

Key indicators

Population (millions)	7.2
GDP (US$ billions)	42.5
GDP per capita, PPP$	11,268.9
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**35.9**	**67**	
Innovation Output Sub-Index		31.7	59	
Innovation Input Sub-Index		40.1	75	
Innovation Efficiency Ratio		0.8	46	
Global Innovation Index 2013 (out of 142)		37.9	54	
1	**Institutions**	**61.0**	**69**	
1.1	Political environment	57.1	71	
1.1.1	Political stability*	60.2	83	
1.1.2	Government effectiveness*	37.8	77	
1.1.3	Press freedom*	73.4	53	
1.2	Regulatory environment	70.6	50	
1.2.1	Regulatory quality*	46.8	77	
1.2.2	Rule of law*	35.8	82	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	55.3	99	
1.3.1	Ease of starting a business*	87.8	56	
1.3.2	Ease of resolving insolvency*	30.7	92	
1.3.3	Ease of paying taxes*	47.2	123	○
2	**Human capital & research**	**31.5**	**59**	
2.1	Education	43.0	69	
2.1.1	Expenditure on education, % GDP	4.8	65	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	14.1	87	○
2.1.3	School life expectancy, years	13.6	62	
2.1.4	PISA scales in reading, maths, & science	446.6	41	
2.1.5	Pupil-teacher ratio, secondary	9.1	16	●
2.2	Tertiary education	40.0	45	
2.2.1	Tertiary enrolment, % gross	52.4	49	
2.2.2	Graduates in science & engineering, %	24.8	28	
2.2.3	Tertiary inbound mobility, %	3.9	45	
2.3	Research & development (R&D)	11.6	64	
2.3.1	Researchers, headcounts/mn pop.	1,418.0	49	
2.3.2	Gross expenditure on R&D, % GDP	0.8	42	
2.3.3	QS university ranking, average score top 3*	3.9	69	
3	**Infrastructure**	**41.0**	**53**	
3.1	Information & communication technologies (ICTs)	43.7	54	
3.1.1	ICT access*	58.2	54	
3.1.2	ICT use*	35.2	54	
3.1.3	Government's online service*	57.5	48	
3.1.4	E-participation*	23.7	60	
3.2	General infrastructure	30.0	85	
3.2.1	Electricity output, kWh/cap	5,237.5	39	
3.2.2	Logistics performance*	47.2	75	
3.2.3	Gross capital formation, % GDP	20.1	91	
3.3	Ecological sustainability	49.5	28	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.4	91	
3.3.2	Environmental performance*	69.1	31	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	10.5	9	●
4	**Market sophistication**	**37.0**	**134**	○
4.1	Credit	38.1	62	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	53.9	60	
4.1.3	Microfinance gross loans, % GDP	1.8	27	
4.2	Investment	29.7	100	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	19.9	71	
4.2.3	Total value of stocks traded, % GDP	0.8	73	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	43.3	143	○
4.3.1	Applied tariff rate, weighted mean, %	6.0	94	
4.3.2	Non-agricultural mkt access weighted tariff, %	9.5	140	○
4.3.3	Intensity of local competition†	47.2	129	○
5	**Business sophistication**	**29.7**	**83**	
5.1	Knowledge workers	35.0	83	
5.1.1	Knowledge-intensive employment, %	30.4	45	
5.1.2	Firms offering formal training, % firms	35.8	48	
5.1.3	GERD performed by business, % GDP	0.1	64	
5.1.4	GERD financed by business, %	9.4	75	○
5.1.5	GMAT test takers/mn pop. 20–34	73.7	59	
5.2	Innovation linkages	20.4	123	○
5.2.1	University/industry research collaboration†	36.5	101	○
5.2.2	State of cluster development†	32.7	122	○
5.2.3	GERD financed by abroad, %	5.5	61	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	40	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	70	
5.3	Knowledge absorption	33.7	32	
5.3.1	Royalty & license fees payments, % total trade	0.9	30	
5.3.2	High-tech imports less re-imports, %	7.2	62	
5.3.3	Comm., computer & info. services imp., % total trade	1.8	18	●
5.3.4	FDI net inflows, % GDP	6.2	31	●
6	**Knowledge & technology outputs**	**33.8**	**44**	
6.1	Knowledge creation	23.8	43	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.5	46	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	60	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.0	33	
6.1.4	Scientific & technical articles/bn PPP$ GDP	60.3	5	●
6.1.5	Citable documents H index	68.0	90	
6.2	Knowledge impact	43.4	52	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	1.7	47	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	39.4	6	●
6.2.5	High- & medium-high-tech manufactures, %	19.8	56	
6.3	Knowledge diffusion	34.2	49	
6.3.1	Royalty & license fees receipts, % total trade	0.2	37	
6.3.2	High-tech exports less re-exports, %	2.5	49	
6.3.3	Comm., computer & info. services exp., % total trade	2.3	34	
6.3.4	FDI net outflows, % GDP	0.1	87	
7	**Creative outputs**	**29.6**	**79**	
7.1	Intangible assets	32.3	123	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	32.3	71	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.3	12	●
7.1.3	ICTs & business model creation†	42.8	119	○
7.1.4	ICTs & organizational model creation†	37.2	125	○
7.2	Creative goods & services	33.8	32	
7.2.1	Cultural & creative services exports, % total trade	1.2	5	●
7.2.2	National feature films/mn pop. 15–69	4.1	32	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	42	
7.2.5	Creative goods exports, % total trade	0.8	43	
7.3	Online creativity	20.1	67	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	121	○
7.3.2	Country-code TLDs/th pop. 15–69	34.2	52	
7.3.3	Wikipedia edits/pop. 15–69	15,063.8	32	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Seychelles

Key indicators

Population (millions)	0.1
GDP (US$ billions)	1.4
GDP per capita, PPP$	26,492.1
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.6**	**51**	
Innovation Output Sub-Index		32.7	56	
Innovation Input Sub-Index		44.5	53	
Innovation Efficiency Ratio		0.7	74	
Global Innovation Index 2013 (out of 142)		n/a	n/a	
1	**Institutions**	**67.0**	**55**	
1.1	Political environment	68.6	48	
1.1.1	Political stability*	84.2	33	●
1.1.2	Government effectiveness*	50.9	53	
1.1.3	Press freedom*	70.8	75	
1.2	Regulatory environment	66.0	72	
1.2.1	Regulatory quality*	40.7	95	
1.2.2	Rule of law*	45.3	63	
1.2.3	Cost of redundancy dismissal, salary weeks	13.5	61	
1.3	Business environment	66.2	65	
1.3.1	Ease of starting a business*	74.2	107	
1.3.2	Ease of resolving insolvency*	41.2	57	
1.3.3	Ease of paying taxes*	83.3	25	●
2	**Human capital & research**	**21.6**	**97**	
2.1	Education	32.4	106	
2.1.1	Expenditure on education, % GDP	3.6	96	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	7.1	107	○
2.1.3	School life expectancy, years	11.6	93	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	11.8	36	
2.2	Tertiary education	29.7	81	
2.2.1	Tertiary enrolment, % gross	1.4	133	○
2.2.2	Graduates in science & engineering, %	25.0	26	●
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	2.7	97	
2.3.1	Researchers, headcounts/mn pop.	160.7	92	
2.3.2	Gross expenditure on R&D, % GDP	0.3	76	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**49.6**	**27**	●
3.1	Information & communication technologies (ICTs)	31.9	85	
3.1.1	ICT access*	61.0	50	
3.1.2	ICT use*	25.2	69	
3.1.3	Government's online service*	33.3	110	○
3.1.4	E-participation*	7.9	98	○
3.2	General infrastructure	61.3	4	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	38.0	9	●
3.3	Ecological sustainability	55.6	12	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	55.6	57	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**41.7**	**117**	○
4.1	Credit	16.0	136	○
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	25.3	106	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	56.7	20	●
4.2.1	Ease of protecting investors*	56.7	55	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	52.6	138	○
4.3.1	Applied tariff rate, weighted mean, %	28.3	142	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.9	71	
4.3.3	Intensity of local competition†	59.8	95	
5	**Business sophistication**	**42.4**	**31**	●
5.1	Knowledge workers	47.9	45	
5.1.1	Knowledge-intensive employment, %	26.3	51	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	130.3	40	●
5.2	Innovation linkages	51.3	12	●
5.2.1	University/industry research collaboration†	40.3	78	
5.2.2	State of cluster development†	48.0	64	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.5	14	●
5.3	Knowledge absorption	28.1	49	
5.3.1	Royalty & license fees payments, % total trade	0.1	104	○
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.1	134	○
5.3.4	FDI net inflows, % GDP	13.1	9	●
6	**Knowledge & technology outputs**	**22.4**	**97**	
6.1	Knowledge creation	25.9	39	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	3.9	12	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	17.5	51	
6.1.5	Citable documents H index	33.0	131	○
6.2	Knowledge impact	8.9	126	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.9	77	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	32.4	66	
6.3.1	Royalty & license fees receipts, % total trade	0.1	44	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.7	95	
6.3.4	FDI net outflows, % GDP	0.1	95	
7	**Creative outputs**	**43.0**	**34**	●
7.1	Intangible assets	38.1	102	
7.1.1	Domestic res trademark app./bn PPP$ GDP	41.5	63	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	52.8	83	
7.1.4	ICTs & organizational model creation†	45.5	95	
7.2	Creative goods & services	n/a	n/a	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	52.6	23	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	100.0	1	●
7.3.2	Country-code TLDs/th pop. 15–69	56.2	27	●
7.3.3	Wikipedia edits/pop. 15–69	920.7	99	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Singapore

Key indicators

Population (millions)	5.3
GDP (US$ billions)	295.7
GDP per capita, PPP$	64,583.6
Income group	High income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**59.2**	**7**	
Innovation Output Sub-Index		44.9	25	
Innovation Input Sub-Index		73.6	1	●
Innovation Efficiency Ratio		0.6	110	○
Global Innovation Index 2013 (out of 142)		53.3	8	
1	**Institutions**	**92.8**	**6**	
1.1	Political environment	84.5	17	
1.1.1	Political stability*	98.6	4	
1.1.2	Government effectiveness*	98.3	2	●
1.1.3	Press freedom*	56.6	122	○
1.2	Regulatory environment	98.8	1	●
1.2.1	Regulatory quality*	100.0	1	●
1.2.2	Rule of law*	95.1	10	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	
1.3	Business environment	95.0	1	●
1.3.1	Ease of starting a business*	95.9	8	
1.3.2	Ease of resolving insolvency*	94.7	4	
1.3.3	Ease of paying taxes*	94.4	5	
2	**Human capital & research**	**64.9**	**2**	●
2.1	Education	39.1	86	○
2.1.1	Expenditure on education, % GDP	3.0	111	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	17.0	73	○
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	555.7	2	
2.1.5	Pupil-teacher ratio, secondary	14.9	61	○
2.2	Tertiary education	96.6	2	●
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	19.2	8	
2.3	Research & development (R&D)	58.8	16	
2.3.1	Researchers, headcounts/mn pop.	7,321.2	9	
2.3.2	Gross expenditure on R&D, % GDP	2.2	16	
2.3.3	QS university ranking, average score top 3*	56.8	20	
3	**Infrastructure**	**65.6**	**2**	●
3.1	Information & communication technologies (ICTs)	87.6	3	●
3.1.1	ICT access*	83.1	8	
3.1.2	ICT use*	72.5	11	
3.1.3	Government's online service*	100.0	1	●
3.1.4	E-participation*	94.7	3	
3.2	General infrastructure	54.3	10	
3.2.1	Electricity output, kWh/cap	8,880.1	17	
3.2.2	Logistics performance*	100.0	1	●
3.2.3	Gross capital formation, % GDP	26.4	38	
3.3	Ecological sustainability	54.8	14	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.3	35	
3.3.2	Environmental performance*	81.8	4	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	5.1	24	
4	**Market sophistication**	**78.2**	**4**	
4.1	Credit	66.4	12	
4.1.1	Ease of getting credit*	93.8	3	
4.1.2	Domestic credit to private sector, % GDP	120.6	24	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	81.3	3	●
4.2.1	Ease of protecting investors*	93.3	2	●
4.2.2	Market capitalization, % GDP	150.8	5	
4.2.3	Total value of stocks traded, % GDP	57.0	15	
4.2.4	Venture capital deals/tr PPP$ GDP	0.3	8	
4.3	Trade & competition	86.8	2	●
4.3.1	Applied tariff rate, weighted mean, %	0.0	1	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.7	60	
4.3.3	Intensity of local competition†	77.3	17	
5	**Business sophistication**	**66.7**	**1**	●
5.1	Knowledge workers	76.4	4	
5.1.1	Knowledge-intensive employment, %	51.0	2	●
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.4	15	
5.1.4	GERD financed by business, %	62.1	20	
5.1.5	GMAT test takers/mn pop. 20–34	783.1	6	
5.2	Innovation linkages	51.5	11	
5.2.1	University/industry research collaboration†	77.0	4	
5.2.2	State of cluster development†	70.0	7	
5.2.3	GERD financed by abroad, %	5.0	62	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	9	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.1	16	
5.3	Knowledge absorption	72.1	1	●
5.3.1	Royalty & license fees payments, % total trade	3.2	1	●
5.3.2	High-tech imports less re-imports, %	20.1	5	
5.3.3	Comm., computer & info. services imp., % total trade	0.6	85	○
5.3.4	FDI net inflows, % GDP	20.6	1	●
6	**Knowledge & technology outputs**	**46.7**	**13**	
6.1	Knowledge creation	34.6	29	
6.1.1	Domestic resident patent app./tr PPP$ GDP	3.3	35	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.2	20	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	32.3	27	
6.1.5	Citable documents H index	268.0	28	
6.2	Knowledge impact	56.1	12	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.0	89	○
6.2.2	New businesses/th pop. 15–64	8.0	13	
6.2.3	Computer software spending, % GDP	0.4	26	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	18.0	25	
6.2.5	High- & medium-high-tech manufactures, %	70.0	1	●
6.3	Knowledge diffusion	49.3	14	
6.3.1	Royalty & license fees receipts, % total trade	0.3	30	
6.3.2	High-tech exports less re-exports, %	26.0	3	●
6.3.3	Comm., computer & info. services exp., % total trade	0.7	96	○
6.3.4	FDI net outflows, % GDP	8.4	5	
7	**Creative outputs**	**43.1**	**33**	
7.1	Intangible assets	46.1	61	
7.1.1	Domestic res trademark app./bn PPP$ GDP	21.6	82	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.7	35	
7.1.3	ICTs & business model creation†	74.7	10	
7.1.4	ICTs & organizational model creation†	71.8	8	
7.2	Creative goods & services	33.9	31	
7.2.1	Cultural & creative services exports, % total trade	0.3	34	
7.2.2	National feature films/mn pop. 15–69	3.8	35	
7.2.3	Global ent. & media output/th pop. 15–69	1.2	19	
7.2.4	Printing & publishing manufactures, %	0.0	73	○
7.2.5	Creative goods exports, % total trade	5.4	10	
7.3	Online creativity	46.2	29	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	33.2	22	
7.3.2	Country-code TLDs/th pop. 15–69	49.0	37	
7.3.3	Wikipedia edits/pop. 15–69	8,573.6	48	
7.3.4	Video uploads on YouTube/pop. 15–69	88.0	12	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Slovakia

Key indicators

Population (millions)	5.4
GDP (US$ billions)	95.8
GDP per capita, PPP$	24,605.3
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**41.9**	**37**	
Innovation Output Sub-Index		37.0	38	
Innovation Input Sub-Index		46.7	43	
Innovation Efficiency Ratio		0.8	45	
Global Innovation Index 2013 (out of 142)		42.2	36	
1	**Institutions**	**74.5**	**36**	
1.1	Political environment	80.5	24	●
1.1.1	Political stability*	91.7	15	●
1.1.2	Government effectiveness*	62.9	40	
1.1.3	Press freedom*	86.8	21	●
1.2	Regulatory environment	72.9	45	
1.2.1	Regulatory quality*	75.8	30	
1.2.2	Rule of law*	58.9	47	
1.2.3	Cost of redundancy dismissal, salary weeks	18.8	88	
1.3	Business environment	70.1	51	
1.3.1	Ease of starting a business*	84.2	70	
1.3.2	Ease of resolving insolvency*	57.3	34	
1.3.3	Ease of paying taxes*	68.8	75	
2	**Human capital & research**	**32.9**	**55**	
2.1	Education	41.7	77	
2.1.1	Expenditure on education, % GDP	4.2	84	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.6	62	
2.1.3	School life expectancy, years	12.4	82	
2.1.4	PISA scales in reading, maths, & science	471.9	37	
2.1.5	Pupil-teacher ratio, secondary	11.3	33	
2.2	Tertiary education	36.5	58	
2.2.1	Tertiary enrolment, % gross	55.1	47	
2.2.2	Graduates in science & engineering, %	20.6	49	
2.2.3	Tertiary inbound mobility, %	3.9	43	
2.3	Research & development (R&D)	20.6	43	
2.3.1	Researchers, headcounts/mn pop.	4,603.4	24	
2.3.2	Gross expenditure on R&D, % GDP	0.8	40	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**43.5**	**45**	
3.1	Information & communication technologies (ICTs)	43.5	56	
3.1.1	ICT access*	62.8	48	
3.1.2	ICT use*	47.9	36	
3.1.3	Government's online service*	50.3	67	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	30.1	84	
3.2.1	Electricity output, kWh/cap	5,184.1	42	
3.2.2	Logistics performance*	56.3	50	
3.2.3	Gross capital formation, % GDP	18.0	109	○
3.3	Ecological sustainability	57.0	9	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.9	51	
3.3.2	Environmental performance*	74.5	21	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	10.9	6	●
4	**Market sophistication**	**48.6**	**67**	
4.1	Credit	44.3	47	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	45.0	74	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	24.1	123	○
4.2.1	Ease of protecting investors*	46.7	97	○
4.2.2	Market capitalization, % GDP	5.0	101	○
4.2.3	Total value of stocks traded, % GDP	0.2	93	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	77.5	48	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	74.5	27	
5	**Business sophistication**	**34.2**	**61**	
5.1	Knowledge workers	42.0	61	
5.1.1	Knowledge-intensive employment, %	32.9	38	
5.1.2	Firms offering formal training, % firms	33.8	52	
5.1.3	GERD performed by business, % GDP	0.3	40	
5.1.4	GERD financed by business, %	41.3	44	
5.1.5	GMAT test takers/mn pop. 20–34	71.8	60	
5.2	Innovation linkages	32.8	66	
5.2.1	University/industry research collaboration†	38.2	89	
5.2.2	State of cluster development†	47.3	67	
5.2.3	GERD financed by abroad, %	18.7	21	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	46	
5.3	Knowledge absorption	27.7	52	
5.3.1	Royalty & license fees payments, % total trade	0.2	85	
5.3.2	High-tech imports less re-imports, %	13.6	15	●
5.3.3	Comm., computer & info. services imp., % total trade	0.4	106	○
5.3.4	FDI net inflows, % GDP	3.8	56	
6	**Knowledge & technology outputs**	**34.7**	**41**	
6.1	Knowledge creation	21.0	48	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.3	60	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	49	
6.1.3	Domestic res utility model app./tr PPP$ GDP	2.3	13	
6.1.4	Scientific & technical articles/bn PPP$ GDP	21.9	42	
6.1.5	Citable documents H index	148.0	41	
6.2	Knowledge impact	55.5	13	●
6.2.1	Growth rate of PPP$ GDP/worker, %	1.6	59	
6.2.2	New businesses/th pop. 15–64	5.1	19	●
6.2.3	Computer software spending, % GDP	0.3	49	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	32.8	11	●
6.2.5	High- & medium-high-tech manufactures, %	54.9	5	●
6.3	Knowledge diffusion	27.4	92	
6.3.1	Royalty & license fees receipts, % total trade	0.0	97	○
6.3.2	High-tech exports less re-exports, %	7.5	25	
6.3.3	Comm., computer & info. services exp., % total trade	0.8	88	
6.3.4	FDI net outflows, % GDP	–1.5	121	○
7	**Creative outputs**	**39.4**	**42**	
7.1	Intangible assets	39.2	95	
7.1.1	Domestic res trademark app./bn PPP$ GDP	68.2	38	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.8	34	
7.1.3	ICTs & business model creation†	53.3	81	
7.1.4	ICTs & organizational model creation†	50.2	80	
7.2	Creative goods & services	39.3	20	●
7.2.1	Cultural & creative services exports, % total trade	0.3	32	
7.2.2	National feature films/mn pop. 15–69	2.9	47	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	75	○
7.2.5	Creative goods exports, % total trade	10.3	5	●
7.3	Online creativity	39.9	35	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.5	62	
7.3.2	Country-code TLDs/th pop. 15–69	58.1	24	●
7.3.3	Wikipedia edits/pop. 15–69	12,016.7	39	
7.3.4	Video uploads on YouTube/pop. 15–69	76.8	35	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Slovenia

Key indicators

Population (millions)	2.1
GDP (US$ billions)	46.9
GDP per capita, PPP$	27,899.8
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**47.2**	**28**	
Innovation Output Sub-Index		41.4	31	
Innovation Input Sub-Index		53.1	28	
Innovation Efficiency Ratio		0.8	53	
Global Innovation Index 2013 (out of 142)		47.3	30	
1	**Institutions**	**78.7**	**23**	
1.1	Political environment	78.6	29	
1.1.1	Political stability*	88.1	26	
1.1.2	Government effectiveness*	68.1	31	
1.1.3	Press freedom*	79.5	31	
1.2	Regulatory environment	81.8	28	
1.2.1	Regulatory quality*	64.6	44	
1.2.2	Rule of law*	73.4	31	
1.2.3	Cost of redundancy dismissal, salary weeks	10.7	44	
1.3	Business environment	75.8	26	
1.3.1	Ease of starting a business*	94.8	14	
1.3.2	Ease of resolving insolvency*	53.1	36	
1.3.3	Ease of paying taxes*	79.6	35	
2	**Human capital & research**	**49.2**	**25**	
2.1	Education	58.1	13	●
2.1.1	Expenditure on education, % GDP	5.7	37	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	31.3	20	
2.1.3	School life expectancy, years	16.8	11	●
2.1.4	PISA scales in reading, maths, & science	498.9	21	
2.1.5	Pupil-teacher ratio, secondary	9.0	15	
2.2	Tertiary education	46.5	29	
2.2.1	Tertiary enrolment, % gross	86.0	6	●
2.2.2	Graduates in science & engineering, %	24.7	29	
2.2.3	Tertiary inbound mobility, %	2.3	58	
2.3	Research & development (R&D)	43.0	25	
2.3.1	Researchers, headcounts/mn pop.	6,069.0	14	
2.3.2	Gross expenditure on R&D, % GDP	2.8	10	●
2.3.3	QS university ranking, average score top 3*	8.1	61	
3	**Infrastructure**	**46.4**	**34**	
3.1	Information & communication technologies (ICTs)	52.4	40	
3.1.1	ICT access*	72.3	29	
3.1.2	ICT use*	49.4	33	
3.1.3	Government's online service*	66.7	35	
3.1.4	E-participation*	21.1	65	
3.2	General infrastructure	33.6	69	
3.2.1	Electricity output, kWh/cap	7,537.4	26	
3.2.2	Logistics performance*	66.7	34	
3.2.3	Gross capital formation, % GDP	16.2	122	○
3.3	Ecological sustainability	53.2	17	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.1	49	
3.3.2	Environmental performance*	76.4	15	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	7.3	17	
4	**Market sophistication**	**51.1**	**51**	
4.1	Credit	38.9	60	
4.1.1	Ease of getting credit*	50.0	96	○
4.1.2	Domestic credit to private sector, % GDP	87.4	37	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	38.9	54	
4.2.1	Ease of protecting investors*	73.3	14	
4.2.2	Market capitalization, % GDP	14.2	82	○
4.2.3	Total value of stocks traded, % GDP	0.9	69	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.5	72	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	70.5	46	
5	**Business sophistication**	**39.9**	**36**	
5.1	Knowledge workers	66.6	16	
5.1.1	Knowledge-intensive employment, %	41.4	21	
5.1.2	Firms offering formal training, % firms	48.6	29	
5.1.3	GERD performed by business, % GDP	2.2	7	●
5.1.4	GERD financed by business, %	77.2	2	●
5.1.5	GMAT test takers/mn pop. 20–34	93.9	54	
5.2	Innovation linkages	27.3	90	
5.2.1	University/industry research collaboration†	46.2	53	
5.2.2	State of cluster development†	41.7	90	
5.2.3	GERD financed by abroad, %	8.6	48	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	50	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	31	
5.3	Knowledge absorption	25.8	65	
5.3.1	Royalty & license fees payments, % total trade	1.2	19	
5.3.2	High-tech imports less re-imports, %	5.7	92	○
5.3.3	Comm., computer & info. services imp., % total trade	1.8	13	●
5.3.4	FDI net inflows, % GDP	0.0	136	○
6	**Knowledge & technology outputs**	**40.6**	**27**	
6.1	Knowledge creation	33.4	31	
6.1.1	Domestic resident patent app./tr PPP$ GDP	8.1	12	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.0	24	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	51	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	64.0	4	●
6.1.5	Citable documents H index	153.0	40	
6.2	Knowledge impact	54.0	15	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.6	99	○
6.2.2	New businesses/th pop. 15–64	4.4	25	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	28.2	15	
6.2.5	High- & medium-high-tech manufactures, %	46.3	12	
6.3	Knowledge diffusion	34.2	48	
6.3.1	Royalty & license fees receipts, % total trade	0.3	33	
6.3.2	High-tech exports less re-exports, %	4.5	35	
6.3.3	Comm., computer & info. services exp., % total trade	1.6	54	
6.3.4	FDI net outflows, % GDP	–1.0	118	○
7	**Creative outputs**	**42.2**	**36**	
7.1	Intangible assets	42.2	80	
7.1.1	Domestic res trademark app./bn PPP$ GDP	12.3	93	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	3.7	6	●
7.1.3	ICTs & business model creation†	56.2	67	
7.1.4	ICTs & organizational model creation†	53.8	66	
7.2	Creative goods & services	40.1	18	
7.2.1	Cultural & creative services exports, % total trade	0.9	10	●
7.2.2	National feature films/mn pop. 15–69	12.5	8	●
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	36	
7.2.5	Creative goods exports, % total trade	0.8	44	
7.3	Online creativity	44.3	31	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	29.1	25	
7.3.2	Country-code TLDs/th pop. 15–69	58.0	25	
7.3.3	Wikipedia edits/pop. 15–69	26,997.8	14	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

South Africa

Key indicators

Population (millions)	51.2
GDP (US$ billions)	350.8
GDP per capita, PPP$	11,259.1
Income group	Upper-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.2**	**53**	
Innovation Output Sub-Index		30.9	63	
Innovation Input Sub-Index		45.6	47	
Innovation Efficiency Ratio		0.7	93	
Global Innovation Index 2013 (out of 142)		37.6	58	
1	**Institutions**	**69.9**	**44**	
1.1	Political environment	63.5	54	
1.1.1	Political stability*	65.6	73	
1.1.2	Government effectiveness*	49.5	54	
1.1.3	Press freedom*	75.4	43	
1.2	Regulatory environment	75.5	39	
1.2.1	Regulatory quality*	58.7	59	
1.2.2	Rule of law*	48.6	57	
1.2.3	Cost of redundancy dismissal, salary weeks	9.3	32	
1.3	Business environment	70.8	45	
1.3.1	Ease of starting a business*	88.8	46	
1.3.2	Ease of resolving insolvency*	37.6	73	
1.3.3	Ease of paying taxes*	86.0	19	●
2	**Human capital & research**	**28.7**	**70**	
2.1	Education	34.5	99	○
2.1.1	Expenditure on education, % GDP	6.0	28	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.7	61	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	25.0	90	○
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	22.8	40	
2.3.1	Researchers, headcounts/mn pop.	736.6	62	
2.3.2	Gross expenditure on R&D, % GDP	0.8	43	
2.3.3	QS university ranking, average score top 3*	44.5	30	●
3	**Infrastructure**	**32.9**	**84**	
3.1	Information & communication technologies (ICTs)	31.6	86	
3.1.1	ICT access*	41.4	78	
3.1.2	ICT use*	23.5	72	
3.1.3	Government's online service*	45.8	82	
3.1.4	E-participation*	15.8	79	
3.2	General infrastructure	37.6	52	
3.2.1	Electricity output, kWh/cap	5,131.0	44	
3.2.2	Logistics performance*	81.7	22	●
3.2.3	Gross capital formation, % GDP	19.2	99	○
3.3	Ecological sustainability	29.5	95	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	3.5	102	○
3.3.2	Environmental performance*	53.5	65	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.6	51	
4	**Market sophistication**	**63.8**	**18**	●
4.1	Credit	47.2	39	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	151.1	13	●
4.1.3	Microfinance gross loans, % GDP	0.9	39	
4.2	Investment	66.6	12	●
4.2.1	Ease of protecting investors*	80.0	10	●
4.2.2	Market capitalization, % GDP	159.3	3	●
4.2.3	Total value of stocks traded, % GDP	81.1	6	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	66	○
4.3	Trade & competition	77.6	44	
4.3.1	Applied tariff rate, weighted mean, %	4.5	78	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.5	85	
4.3.3	Intensity of local competition†	71.0	43	
5	**Business sophistication**	**32.7**	**68**	
5.1	Knowledge workers	40.8	63	
5.1.1	Knowledge-intensive employment, %	25.3	52	
5.1.2	Firms offering formal training, % firms	38.7	44	
5.1.3	GERD performed by business, % GDP	0.4	37	
5.1.4	GERD financed by business, %	49.7	37	
5.1.5	GMAT test takers/mn pop. 20–34	53.5	72	
5.2	Innovation linkages	30.4	75	
5.2.1	University/industry research collaboration†	59.0	28	●
5.2.2	State of cluster development†	52.5	39	
5.2.3	GERD financed by abroad, %	12.1	37	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	49	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	81	○
5.3	Knowledge absorption	26.8	59	
5.3.1	Royalty & license fees payments, % total trade	1.8	9	●
5.3.2	High-tech imports less re-imports, %	9.8	33	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	104	○
5.3.4	FDI net inflows, % GDP	1.5	100	○
6	**Knowledge & technology outputs**	**29.1**	**62**	
6.1	Knowledge creation	18.2	59	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.1	66	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.5	37	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	15.8	55	
6.1.5	Citable documents H index	231.0	34	
6.2	Knowledge impact	44.5	45	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.2	34	
6.2.2	New businesses/th pop. 15–64	6.5	16	●
6.2.3	Computer software spending, % GDP	0.4	25	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.8	56	
6.2.5	High- & medium-high-tech manufactures, %	28.2	38	
6.3	Knowledge diffusion	24.7	112	○
6.3.1	Royalty & license fees receipts, % total trade	0.1	63	
6.3.2	High-tech exports less re-exports, %	1.9	54	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	105	○
6.3.4	FDI net outflows, % GDP	1.1	46	
7	**Creative outputs**	**32.7**	**70**	
7.1	Intangible assets	44.7	71	
7.1.1	Domestic res trademark app./bn PPP$ GDP	35.6	70	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	62.2	44	
7.1.4	ICTs & organizational model creation†	58.0	48	
7.2	Creative goods & services	18.2	68	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.6	84	○
7.2.3	Global ent. & media output/th pop. 15–69	0.3	35	
7.2.4	Printing & publishing manufactures, %	0.0	27	
7.2.5	Creative goods exports, % total trade	0.5	53	
7.3	Online creativity	23.1	62	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.2	64	
7.3.2	Country-code TLDs/th pop. 15–69	43.9	43	
7.3.3	Wikipedia edits/pop. 15–69	1,071.9	95	
7.3.4	Video uploads on YouTube/pop. 15–69	42.5	57	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Spain

Key indicators

Population (millions)	46.2
GDP (US$ billions)	1,358.7
GDP per capita, PPP$	29,851.1
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**49.3**	**27**	
Innovation Output Sub-Index		42.6	28	
Innovation Input Sub-Index		55.9	26	
Innovation Efficiency Ratio		0.8	60	
Global Innovation Index 2013 (out of 142)		49.4	26	
1	**Institutions**	**74.8**	**34**	
1.1	Political environment	71.8	43	
1.1.1	Political stability*	65.4	75	○
1.1.2	Government effectiveness*	70.5	29	
1.1.3	Press freedom*	79.5	32	
1.2	Regulatory environment	77.7	35	
1.2.1	Regulatory quality*	73.5	35	
1.2.2	Rule of law*	75.1	26	
1.2.3	Cost of redundancy dismissal, salary weeks	17.4	85	○
1.3	Business environment	75.0	28	
1.3.1	Ease of starting a business*	77.8	97	○
1.3.2	Ease of resolving insolvency*	76.6	20	●
1.3.3	Ease of paying taxes*	70.7	63	
2	**Human capital & research**	**48.3**	**26**	
2.1	Education	54.5	30	
2.1.1	Expenditure on education, % GDP	5.0	63	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	26.6	31	
2.1.3	School life expectancy, years	17.1	7	●
2.1.4	PISA scales in reading, maths, & science	489.6	27	
2.1.5	Pupil-teacher ratio, secondary	11.4	34	
2.2	Tertiary education	47.4	28	
2.2.1	Tertiary enrolment, % gross	82.6	8	●
2.2.2	Graduates in science & engineering, %	25.3	25	
2.2.3	Tertiary inbound mobility, %	3.2	50	
2.3	Research & development (R&D)	42.8	26	
2.3.1	Researchers, headcounts/mn pop.	4,735.2	23	
2.3.2	Gross expenditure on R&D, % GDP	1.3	27	
2.3.3	QS university ranking, average score top 3*	54.6	22	
3	**Infrastructure**	**56.7**	**16**	●
3.1	Information & communication technologies (ICTs)	62.9	25	
3.1.1	ICT access*	70.5	32	
3.1.2	ICT use*	55.2	27	
3.1.3	Government's online service*	75.8	23	
3.1.4	E-participation*	50.0	31	
3.2	General infrastructure	38.1	49	
3.2.1	Electricity output, kWh/cap	6,369.4	32	
3.2.2	Logistics performance*	82.9	19	
3.2.3	Gross capital formation, % GDP	18.0	110	○
3.3	Ecological sustainability	69.0	2	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.8	18	
3.3.2	Environmental performance*	79.8	7	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	14.0	3	●
4	**Market sophistication**	**64.7**	**15**	●
4.1	Credit	65.3	13	●
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	188.8	6	●
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	51.1	28	
4.2.1	Ease of protecting investors*	50.0	81	○
4.2.2	Market capitalization, % GDP	73.7	22	
4.2.3	Total value of stocks traded, % GDP	79.8	7	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.2	17	
4.3	Trade & competition	77.6	45	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	74.7	25	
5	**Business sophistication**	**35.2**	**52**	
5.1	Knowledge workers	53.2	36	
5.1.1	Knowledge-intensive employment, %	32.5	39	
5.1.2	Firms offering formal training, % firms	51.3	25	
5.1.3	GERD performed by business, % GDP	0.7	29	
5.1.4	GERD financed by business, %	53.0	32	
5.1.5	GMAT test takers/mn pop. 20–34	114.1	46	
5.2	Innovation linkages	29.7	79	○
5.2.1	University/industry research collaboration†	49.7	46	
5.2.2	State of cluster development†	52.5	39	
5.2.3	GERD financed by abroad, %	6.7	54	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	75	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	30	
5.3	Knowledge absorption	22.9	85	○
5.3.1	Royalty & license fees payments, % total trade	0.5	52	
5.3.2	High-tech imports less re-imports, %	6.0	83	○
5.3.3	Comm., computer & info. services imp., % total trade	1.3	47	
5.3.4	FDI net inflows, % GDP	2.7	69	
6	**Knowledge & technology outputs**	**43.1**	**22**	
6.1	Knowledge creation	33.6	30	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.4	48	
6.1.2	PCT resident patent app./tr PPP$ GDP	1.2	30	
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.8	19	
6.1.4	Scientific & technical articles/bn PPP$ GDP	36.7	20	●
6.1.5	Citable documents H index	476.0	12	●
6.2	Knowledge impact	60.2	5	●
6.2.1	Growth rate of PPP$ GDP/worker, %	2.3	49	
6.2.2	New businesses/th pop. 15–64	2.7	36	
6.2.3	Computer software spending, % GDP	0.6	10	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	42.8	1	●
6.2.5	High- & medium-high-tech manufactures, %	34.5	28	
6.3	Knowledge diffusion	35.4	46	
6.3.1	Royalty & license fees receipts, % total trade	0.3	31	
6.3.2	High-tech exports less re-exports, %	3.3	40	
6.3.3	Comm., computer & info. services exp., % total trade	2.0	42	
6.3.4	FDI net outflows, % GDP	0.4	73	○
7	**Creative outputs**	**42.1**	**38**	
7.1	Intangible assets	45.8	63	
7.1.1	Domestic res trademark app./bn PPP$ GDP	59.5	44	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.8	32	
7.1.3	ICTs & business model creation†	68.3	26	
7.1.4	ICTs & organizational model creation†	61.5	31	
7.2	Creative goods & services	26.0	47	
7.2.1	Cultural & creative services exports, % total trade	0.2	37	
7.2.2	National feature films/mn pop. 15–69	5.9	23	
7.2.3	Global ent. & media output/th pop. 15–69	0.8	25	
7.2.4	Printing & publishing manufactures, %	0.0	33	
7.2.5	Creative goods exports, % total trade	0.9	40	
7.3	Online creativity	51.0	26	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	31.0	24	
7.3.2	Country-code TLDs/th pop. 15–69	53.1	32	
7.3.3	Wikipedia edits/pop. 15–69	19,110.7	28	
7.3.4	Video uploads on YouTube/pop. 15–69	87.3	16	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Sri Lanka

Key indicators

Population (millions)	20.3
GDP (US$ billions)	65.8
GDP per capita, PPP$	6,530.5
Income group	Lower-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**29.0**	**105**	
Innovation Output Sub-Index		27.0	81	
Innovation Input Sub-Index		30.9	125	○
Innovation Efficiency Ratio		0.9	17	●
Global Innovation Index 2013 (out of 142)		30.4	98	
1	**Institutions**	**40.9**	**134**	○
1.1	Political environment	42.1	122	○
1.1.1	Political stability*	48.4	109	
1.1.2	Government effectiveness*	34.5	83	
1.1.3	Press freedom*	43.4	134	○
1.2	Regulatory environment	22.3	139	○
1.2.1	Regulatory quality*	45.7	82	
1.2.2	Rule of law*	43.4	65	
1.2.3	Cost of redundancy dismissal, salary weeks	69.3	139	○
1.3	Business environment	58.3	88	
1.3.1	Ease of starting a business*	87.0	60	
1.3.2	Ease of resolving insolvency*	44.4	51	●
1.3.3	Ease of paying taxes*	43.4	129	○
2	**Human capital & research**	**17.1**	**115**	
2.1	Education	29.9	119	
2.1.1	Expenditure on education, % GDP	1.7	130	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	6.9	108	○
2.1.3	School life expectancy, years	13.7	60	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	17.3	72	
2.2	Tertiary education	18.2	104	
2.2.1	Tertiary enrolment, % gross	17.0	94	
2.2.2	Graduates in science & engineering, %	16.7	72	
2.2.3	Tertiary inbound mobility, %	0.1	103	○
2.3	Research & development (R&D)	3.4	92	
2.3.1	Researchers, headcounts/mn pop.	248.7	82	
2.3.2	Gross expenditure on R&D, % GDP	0.2	93	
2.3.3	QS university ranking, average score top 3*	4.6	68	
3	**Infrastructure**	**36.6**	**69**	
3.1	Information & communication technologies (ICTs)	22.0	105	
3.1.1	ICT access*	33.6	96	
3.1.2	ICT use*	8.7	107	
3.1.3	Government's online service*	37.9	97	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	38.1	50	●
3.2.1	Electricity output, kWh/cap	558.0	104	○
3.2.2	Logistics performance*	45.2	81	
3.2.3	Gross capital formation, % GDP	33.7	17	●
3.3	Ecological sustainability	49.7	27	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.9	17	●
3.3.2	Environmental performance*	53.9	63	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**40.2**	**124**	○
4.1	Credit	28.2	99	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	31.1	96	
4.1.3	Microfinance gross loans, % GDP	1.1	36	●
4.2	Investment	28.1	109	
4.2.1	Ease of protecting investors*	60.0	42	●
4.2.2	Market capitalization, % GDP	28.7	59	
4.2.3	Total value of stocks traded, % GDP	2.8	56	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	60	○
4.3	Trade & competition	64.2	125	○
4.3.1	Applied tariff rate, weighted mean, %	5.7	92	
4.3.2	Non-agricultural mkt access weighted tariff, %	7.3	138	○
4.3.3	Intensity of local competition†	76.8	18	●
5	**Business sophistication**	**19.8**	**132**	○
5.1	Knowledge workers	23.6	113	
5.1.1	Knowledge-intensive employment, %	19.1	76	
5.1.2	Firms offering formal training, % firms	13.1	100	○
5.1.3	GERD performed by business, % GDP	0.1	65	
5.1.4	GERD financed by business, %	43.7	41	
5.1.5	GMAT test takers/mn pop. 20–34	23.6	107	
5.2	Innovation linkages	21.9	121	○
5.2.1	University/industry research collaboration†	33.7	114	○
5.2.2	State of cluster development†	49.3	58	
5.2.3	GERD financed by abroad, %	2.7	72	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	65	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	80	
5.3	Knowledge absorption	13.9	127	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	5.0	98	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	109	
5.3.4	FDI net inflows, % GDP	1.6	95	
6	**Knowledge & technology outputs**	**26.5**	**75**	
6.1	Knowledge creation	7.1	95	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.7	56	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	70	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.7	119	
6.1.5	Citable documents H index	86.0	72	
6.2	Knowledge impact	34.9	83	
6.2.1	Growth rate of PPP$ GDP/worker, %	6.1	4	●
6.2.2	New businesses/th pop. 15–64	0.5	76	
6.2.3	Computer software spending, % GDP	0.3	37	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.2	71	
6.2.5	High- & medium-high-tech manufactures, %	8.9	78	
6.3	Knowledge diffusion	37.5	41	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.3	88	
6.3.3	Comm., computer & info. services exp., % total trade	3.1	19	●
6.3.4	FDI net outflows, % GDP	0.1	86	
7	**Creative outputs**	**27.6**	**91**	
7.1	Intangible assets	45.2	67	
7.1.1	Domestic res trademark app./bn PPP$ GDP	37.7	67	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	62.2	44	●
7.1.4	ICTs & organizational model creation†	58.8	43	●
7.2	Creative goods & services	16.6	75	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	41	
7.2.5	Creative goods exports, % total trade	0.3	69	
7.3	Online creativity	3.2	117	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.4	101	
7.3.2	Country-code TLDs/th pop. 15–69	6.1	111	
7.3.3	Wikipedia edits/pop. 15–69	1,282.5	91	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Sudan

Key indicators

Population (millions)	37.2
GDP (US$ billions)	70.1
GDP per capita, PPP$	2,631.1
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**12.7**	**143**	○
Innovation Output Sub-Index		2.1	143	○
Innovation Input Sub-Index		23.2	142	○
Innovation Efficiency Ratio		0.1	143	○
Global Innovation Index 2013 (out of 142)		19.8	141	
1	**Institutions**	**36.4**	**139**	
1.1	Political environment	14.0	143	○
1.1.1	Political stability*	10.2	141	○
1.1.2	Government effectiveness*	1.9	142	○
1.1.3	Press freedom*	29.9	139	○
1.2	Regulatory environment	37.5	133	
1.2.1	Regulatory quality*	9.3	139	
1.2.2	Rule of law*	13.1	136	
1.2.3	Cost of redundancy dismissal, salary weeks	26.0	113	
1.3	Business environment	57.8	89	●
1.3.1	Ease of starting a business*	73.7	108	
1.3.2	Ease of resolving insolvency*	35.2	79	●
1.3.3	Ease of paying taxes*	64.4	89	●
2	**Human capital & research**	**7.6**	**141**	○
2.1	Education	11.9	140	○
2.1.1	Expenditure on education, % GDP	2.2	125	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	3.3	93	
2.3.1	Researchers, headcounts/mn pop.	354.8	75	●
2.3.2	Gross expenditure on R&D, % GDP	0.3	77	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**18.3**	**135**	
3.1	Information & communication technologies (ICTs)	18.0	118	
3.1.1	ICT access*	26.2	106	
3.1.2	ICT use*	12.6	98	
3.1.3	Government's online service*	25.5	128	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	17.1	137	
3.2.1	Electricity output, kWh/cap	192.7	114	
3.2.2	Logistics performance*	19.4	135	○
3.2.3	Gross capital formation, % GDP	20.3	89	●
3.3	Ecological sustainability	19.7	135	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.5	76	●
3.3.2	Environmental performance*	24.6	139	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	126	○
4	**Market sophistication**	**38.9**	**129**	
4.1	Credit	9.7	142	○
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	12.8	137	
4.1.3	Microfinance gross loans, % GDP	0.1	70	
4.2	Investment	33.3	76	●
4.2.1	Ease of protecting investors*	33.3	125	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	73.8	87	●
4.3.1	Applied tariff rate, weighted mean, %	14.7	136	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.0	16	●
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**14.8**	**139**	
5.1	Knowledge workers	14.6	135	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	56	
5.1.4	GERD financed by business, %	33.7	53	●
5.1.5	GMAT test takers/mn pop. 20–34	1.7	140	○
5.2	Innovation linkages	10.7	139	○
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	60	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	19.0	110	
5.3.1	Royalty & license fees payments, % total trade	0.0	119	
5.3.2	High-tech imports less re-imports, %	7.8	58	●
5.3.3	Comm., computer & info. services imp., % total trade	0.3	122	
5.3.4	FDI net inflows, % GDP	4.8	41	●
6	**Knowledge & technology outputs**	**2.4**	**143**	○
6.1	Knowledge creation	2.6	134	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.0	106	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	104	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.1	123	
6.1.5	Citable documents H index	52.0	109	
6.2	Knowledge impact	0.7	142	○
6.2.1	Growth rate of PPP$ GDP/worker, %	–13.8	116	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.0	122	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	3.8	137	
6.3.1	Royalty & license fees receipts, % total trade	0.0	85	
6.3.2	High-tech exports less re-exports, %	0.1	115	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	108	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**1.9**	**141**	○
7.1	Intangible assets	2.7	140	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	10.0	95	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	66	
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	1.9	126	
7.2.1	Cultural & creative services exports, % total trade	0.0	94	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	94	
7.3	Online creativity	0.2	137	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	133	
7.3.2	Country-code TLDs/th pop. 15–69	0.3	137	
7.3.3	Wikipedia edits/pop. 15–69	75.8	125	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Swaziland

Key indicators

Population (millions)	1.2
GDP (US$ billions)	3.6
GDP per capita, PPP$	6,218.0
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.3**	**127**	
Innovation Output Sub-Index		18.4	127	
Innovation Input Sub-Index		32.2	119	
Innovation Efficiency Ratio		0.6	123	
Global Innovation Index 2013 (out of 142)		29.6	104	
1	**Institutions**	**55.3**	**90**	
1.1	Political environment	44.9	109	
1.1.1	Political stability*	55.8	89	
1.1.2	Government effectiveness*	25.5	108	
1.1.3	Press freedom*	53.2	127	
1.2	Regulatory environment	60.3	87	
1.2.1	Regulatory quality*	34.1	111	
1.2.2	Rule of law*	33.6	89	
1.2.3	Cost of redundancy dismissal, salary weeks	14.6	66	●
1.3	Business environment	60.7	84	
1.3.1	Ease of starting a business*	68.8	118	
1.3.2	Ease of resolving insolvency*	40.8	60	●
1.3.3	Ease of paying taxes*	72.5	55	●
2	**Human capital & research**	**18.4**	**106**	
2.1	Education	52.6	37	●
2.1.1	Expenditure on education, % GDP	8.3	6	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	40.8	4	●
2.1.3	School life expectancy, years	11.3	99	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	16.4	67	
2.2	Tertiary education	2.5	137	○
2.2.1	Tertiary enrolment, % gross	6.0	122	○
2.2.2	Graduates in science & engineering, %	2.7	103	○
2.2.3	Tertiary inbound mobility, %	0.9	84	
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**14.8**	**143**	○
3.1	Information & communication technologies (ICTs)	13.8	131	○
3.1.1	ICT access*	24.3	113	
3.1.2	ICT use*	11.1	104	
3.1.3	Government's online service*	14.4	139	○
3.1.4	E-participation*	5.3	111	
3.2	General infrastructure	3.3	143	○
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	10.4	141	○
3.3	Ecological sustainability	27.4	105	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	37.4	116	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.1	60	
4	**Market sophistication**	**38.1**	**131**	○
4.1	Credit	32.1	84	
4.1.1	Ease of getting credit*	68.8	53	
4.1.2	Domestic credit to private sector, % GDP	25.0	109	
4.1.3	Microfinance gross loans, % GDP	1.7	30	●
4.2	Investment	22.6	129	
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	6.7	96	
4.2.3	Total value of stocks traded, % GDP	0.0	109	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	59.6	131	○
4.3.1	Applied tariff rate, weighted mean, %	4.2	77	
4.3.2	Non-agricultural mkt access weighted tariff, %	5.6	133	○
4.3.3	Intensity of local competition†	56.0	111	
5	**Business sophistication**	**34.5**	**57**	●
5.1	Knowledge workers	51.2	38	●
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	51.0	26	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	33.6	90	
5.2	Innovation linkages	37.5	50	●
5.2.1	University/industry research collaboration†	36.0	102	
5.2.2	State of cluster development†	43.7	81	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.2	32	●
5.3	Knowledge absorption	14.6	125	
5.3.1	Royalty & license fees payments, % total trade	0.7	43	●
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	130	○
5.3.4	FDI net inflows, % GDP	2.4	77	
6	**Knowledge & technology outputs**	**14.4**	**131**	○
6.1	Knowledge creation	6.7	97	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	48	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.7	93	
6.1.5	Citable documents H index	28.0	135	○
6.2	Knowledge impact	7.3	128	
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.2	83	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	29.1	83	
6.3.1	Royalty & license fees receipts, % total trade	0.0	93	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	1.0	84	
6.3.4	FDI net outflows, % GDP	0.1	89	
7	**Creative outputs**	**22.5**	**114**	
7.1	Intangible assets	42.4	79	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	41.7	123	○
7.1.4	ICTs & organizational model creation†	43.2	110	
7.2	Creative goods & services	0.4	137	○
7.2.1	Cultural & creative services exports, % total trade	0.0	92	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	4.8	111	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.8	97	
7.3.2	Country-code TLDs/th pop. 15–69	12.5	93	
7.3.3	Wikipedia edits/pop. 15–69	145.1	119	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Sweden

Key indicators

Population (millions)	9.5
GDP (US$ billions)	557.9
GDP per capita, PPP$	41,188.4
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**62.3**	**3**	●
Innovation Output Sub-Index		57.1	3	●
Innovation Input Sub-Index		67.5	6	
Innovation Efficiency Ratio		0.8	22	
Global Innovation Index 2013 (out of 142)		61.4	2	
1	**Institutions**	**89.7**	**10**	
1.1	Political environment	92.5	5	●
1.1.1	Political stability*	94.2	12	
1.1.2	Government effectiveness*	92.7	4	●
1.1.3	Press freedom*	90.8	8	
1.2	Regulatory environment	93.0	14	
1.2.1	Regulatory quality*	98.2	3	●
1.2.2	Rule of law*	99.6	3	●
1.2.3	Cost of redundancy dismissal, salary weeks	14.4	65	○
1.3	Business environment	83.7	16	
1.3.1	Ease of starting a business*	92.3	24	
1.3.2	Ease of resolving insolvency*	80.0	19	
1.3.3	Ease of paying taxes*	78.9	37	
2	**Human capital & research**	**61.9**	**6**	
2.1	Education	58.2	12	
2.1.1	Expenditure on education, % GDP	7.0	11	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	31.9	18	
2.1.3	School life expectancy, years	15.8	24	
2.1.4	PISA scales in reading, maths, & science	482.1	34	○
2.1.5	Pupil-teacher ratio, secondary	9.5	19	
2.2	Tertiary education	51.6	20	
2.2.1	Tertiary enrolment, % gross	73.9	18	
2.2.2	Graduates in science & engineering, %	25.8	22	
2.2.3	Tertiary inbound mobility, %	7.9	21	
2.3	Research & development (R&D)	75.9	5	●
2.3.1	Researchers, headcounts/mn pop.	8,470.7	6	
2.3.2	Gross expenditure on R&D, % GDP	3.4	4	●
2.3.3	QS university ranking, average score top 3*	70.3	14	
3	**Infrastructure**	**63.6**	**4**	●
3.1	Information & communication technologies (ICTs)	79.7	7	
3.1.1	ICT access*	83.7	7	
3.1.2	ICT use*	82.5	1	●
3.1.3	Government's online service*	84.3	16	
3.1.4	E-participation*	68.4	15	
3.2	General infrastructure	53.8	11	
3.2.1	Electricity output, kWh/cap	17,358.9	5	●
3.2.2	Logistics performance*	88.9	12	
3.2.3	Gross capital formation, % GDP	18.7	105	○
3.3	Ecological sustainability	57.2	8	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.8	52	○
3.3.2	Environmental performance*	78.1	9	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	10.1	10	
4	**Market sophistication**	**68.2**	**9**	
4.1	Credit	60.0	18	
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	138.5	17	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	66.2	13	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	106.6	13	
4.2.3	Total value of stocks traded, % GDP	71.6	8	
4.2.4	Venture capital deals/tr PPP$ GDP	0.3	9	
4.3	Trade & competition	78.3	40	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	76.2	21	
5	**Business sophistication**	**53.9**	**9**	
5.1	Knowledge workers	77.7	3	●
5.1.1	Knowledge-intensive employment, %	47.6	4	●
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.3	5	
5.1.4	GERD financed by business, %	67.8	12	
5.1.5	GMAT test takers/mn pop. 20–34	346.7	12	
5.2	Innovation linkages	48.1	19	
5.2.1	University/industry research collaboration†	72.3	10	
5.2.2	State of cluster development†	63.8	18	
5.2.3	GERD financed by abroad, %	11.1	39	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	31	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	2.5	9	
5.3	Knowledge absorption	35.9	26	
5.3.1	Royalty & license fees payments, % total trade	1.0	29	
5.3.2	High-tech imports less re-imports, %	9.6	35	
5.3.3	Comm., computer & info. services imp., % total trade	2.6	6	
5.3.4	FDI net inflows, % GDP	0.7	122	○
6	**Knowledge & technology outputs**	**58.8**	**3**	●
6.1	Knowledge creation	65.5	5	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	5.9	22	
6.1.2	PCT resident patent app./tr PPP$ GDP	9.3	5	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	57.6	7	
6.1.5	Citable documents H index	511.0	11	
6.2	Knowledge impact	52.7	19	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.0	66	○
6.2.2	New businesses/th pop. 15–64	6.4	17	
6.2.3	Computer software spending, % GDP	0.6	19	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.6	40	
6.2.5	High- & medium-high-tech manufactures, %	47.8	11	
6.3	Knowledge diffusion	58.3	5	●
6.3.1	Royalty & license fees receipts, % total trade	2.8	7	
6.3.2	High-tech exports less re-exports, %	9.5	21	
6.3.3	Comm., computer & info. services exp., % total trade	4.2	10	
6.3.4	FDI net outflows, % GDP	3.5	18	
7	**Creative outputs**	**55.4**	**9**	
7.1	Intangible assets	55.0	22	
7.1.1	Domestic res trademark app./bn PPP$ GDP	65.3	39	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.7	21	
7.1.3	ICTs & business model creation†	78.2	3	●
7.1.4	ICTs & organizational model creation†	74.0	4	●
7.2	Creative goods & services	41.9	15	
7.2.1	Cultural & creative services exports, % total trade	1.0	9	
7.2.2	National feature films/mn pop. 15–69	6.4	19	
7.2.3	Global ent. & media output/th pop. 15–69	2.2	6	
7.2.4	Printing & publishing manufactures, %	0.0	50	○
7.2.5	Creative goods exports, % total trade	1.8	30	
7.3	Online creativity	69.7	7	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	49.0	19	
7.3.2	Country-code TLDs/th pop. 15–69	71.6	9	
7.3.3	Wikipedia edits/pop. 15–69	38,695.2	5	●
7.3.4	Video uploads on YouTube/pop. 15–69	92.6	7	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Switzerland

Key indicators

Population (millions)	8.0
GDP (US$ billions)	650.8
GDP per capita, PPP$	46,430.1
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**64.8**	**1**	●
Innovation Output Sub-Index		63.1	1	●
Innovation Input Sub-Index		66.4	7	
Innovation Efficiency Ratio		0.9	6	
Global Innovation Index 2013 (out of 142)		66.6	1	
1	**Institutions**	**87.6**	**16**	
1.1	Political environment	93.7	3	●
1.1.1	Political stability*	100.0	1	●
1.1.2	Government effectiveness*	91.0	6	
1.1.3	Press freedom*	90.1	12	
1.2	Regulatory environment	95.0	10	
1.2.1	Regulatory quality*	92.2	11	
1.2.2	Rule of law*	96.2	8	
1.2.3	Cost of redundancy dismissal, salary weeks	10.1	38	
1.3	Business environment	74.2	32	
1.3.1	Ease of starting a business*	85.7	67	○
1.3.2	Ease of resolving insolvency*	50.4	42	
1.3.3	Ease of paying taxes*	86.6	16	
2	**Human capital & research**	**56.7**	**12**	
2.1	Education	49.5	52	
2.1.1	Expenditure on education, % GDP	5.2	51	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	27.9	28	
2.1.3	School life expectancy, years	15.7	27	
2.1.4	PISA scales in reading, maths, & science	518.4	11	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	51.1	23	
2.2.1	Tertiary enrolment, % gross	54.3	48	
2.2.2	Graduates in science & engineering, %	19.8	59	○
2.2.3	Tertiary inbound mobility, %	16.2	10	
2.3	Research & development (R&D)	69.3	9	
2.3.1	Researchers, headcounts/mn pop.	5,994.2	15	
2.3.2	Gross expenditure on R&D, % GDP	2.9	8	
2.3.3	QS university ranking, average score top 3*	86.2	4	
3	**Infrastructure**	**59.0**	**10**	
3.1	Information & communication technologies (ICTs)	63.6	24	
3.1.1	ICT access*	87.3	4	
3.1.2	ICT use*	65.4	17	
3.1.3	Government's online service*	67.3	32	
3.1.4	E-participation*	34.2	45	
3.2	General infrastructure	45.0	29	
3.2.1	Electricity output, kWh/cap	8,573.1	19	
3.2.2	Logistics performance*	86.9	16	
3.2.3	Gross capital formation, % GDP	21.0	80	○
3.3	Ecological sustainability	68.4	3	●
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	12.3	5	
3.3.2	Environmental performance*	87.7	1	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	7.7	15	
4	**Market sophistication**	**74.7**	**6**	
4.1	Credit	69.4	9	
4.1.1	Ease of getting credit*	81.3	27	
4.1.2	Domestic credit to private sector, % GDP	176.1	11	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	71.8	7	
4.2.1	Ease of protecting investors*	30.0	133	○
4.2.2	Market capitalization, % GDP	170.7	1	●
4.2.3	Total value of stocks traded, % GDP	101.4	5	
4.2.4	Venture capital deals/tr PPP$ GDP	0.4	1	●
4.3	Trade & competition	83.0	10	
4.3.1	Applied tariff rate, weighted mean, %	0.0	1	●
4.3.2	Non-agricultural mkt access weighted tariff, %	2.1	92	○
4.3.3	Intensity of local competition†	76.8	18	
5	**Business sophistication**	**54.2**	**8**	
5.1	Knowledge workers	79.3	2	●
5.1.1	Knowledge-intensive employment, %	49.8	3	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	2.2	6	
5.1.4	GERD financed by business, %	73.5	6	
5.1.5	GMAT test takers/mn pop. 20–34	312.7	16	
5.2	Innovation linkages	54.2	8	
5.2.1	University/industry research collaboration†	80.7	1	●
5.2.2	State of cluster development†	71.3	4	
5.2.3	GERD financed by abroad, %	6.0	58	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	17	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	4.6	4	
5.3	Knowledge absorption	29.1	47	
5.3.1	Royalty & license fees payments, % total trade	5.5	1	●
5.3.2	High-tech imports less re-imports, %	8.0	56	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	127	○
5.3.4	FDI net inflows, % GDP	1.5	101	○
6	**Knowledge & technology outputs**	**60.9**	**1**	●
6.1	Knowledge creation	70.0	2	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	4.1	29	
6.1.2	PCT resident patent app./tr PPP$ GDP	11.7	3	●
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	67.2	2	●
6.1.5	Citable documents H index	569.0	9	
6.2	Knowledge impact	61.7	4	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.2	94	○
6.2.2	New businesses/th pop. 15–64	2.5	37	
6.2.3	Computer software spending, % GDP	0.8	3	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	32.2	12	
6.2.5	High- & medium-high-tech manufactures, %	63.2	2	●
6.3	Knowledge diffusion	51.0	10	
6.3.1	Royalty & license fees receipts, % total trade	5.0	2	●
6.3.2	High-tech exports less re-exports, %	13.5	14	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	121	○
6.3.4	FDI net outflows, % GDP	5.0	13	
7	**Creative outputs**	**65.3**	**2**	●
7.1	Intangible assets	63.9	7	
7.1.1	Domestic res trademark app./bn PPP$ GDP	101.8	16	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	8.1	1	●
7.1.3	ICTs & business model creation†	71.0	17	
7.1.4	ICTs & organizational model creation†	63.2	29	
7.2	Creative goods & services	64.4	2	●
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	14.5	1	●
7.2.3	Global ent. & media output/th pop. 15–69	2.6	2	●
7.2.4	Printing & publishing manufactures, %	0.0	10	
7.2.5	Creative goods exports, % total trade	3.2	17	
7.3	Online creativity	69.2	8	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	77.2	11	
7.3.2	Country-code TLDs/th pop. 15–69	77.5	4	
7.3.3	Wikipedia edits/pop. 15–69	23,126.3	18	
7.3.4	Video uploads on YouTube/pop. 15–69	82.7	23	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Tajikistan

Key indicators

Population (millions)	8.0
GDP (US$ billions)	8.5
GDP per capita, PPP$	2,354.1
Income group	Low income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**23.7**	**137**	○
Innovation Output Sub-Index		14.6	140	○
Innovation Input Sub-Index		32.8	114	
Innovation Efficiency Ratio		0.4	138	○
Global Innovation Index 2013 (out of 142)		30.0	101	
1	**Institutions**	**46.2**	**122**	
1.1	Political environment	39.1	128	
1.1.1	Political stability*	37.2	122	
1.1.2	Government effectiveness*	15.9	127	
1.1.3	Press freedom*	64.3	101	
1.2	Regulatory environment	51.6	110	
1.2.1	Regulatory quality*	22.5	131	
1.2.2	Rule of law*	14.0	134	
1.2.3	Cost of redundancy dismissal, salary weeks	15.5	72	●
1.3	Business environment	47.7	126	
1.3.1	Ease of starting a business*	82.7	74	
1.3.2	Ease of resolving insolvency*	38.0	72	●
1.3.3	Ease of paying taxes*	22.6	139	○
2	**Human capital & research**	**24.4**	**88**	
2.1	Education	41.6	79	
2.1.1	Expenditure on education, % GDP	3.9	91	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.2	102	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	15.4	64	
2.2	Tertiary education	30.1	79	
2.2.1	Tertiary enrolment, % gross	22.5	87	
2.2.2	Graduates in science & engineering, %	25.5	24	●
2.2.3	Tertiary inbound mobility, %	1.6	70	
2.3	Research & development (R&D)	1.4	113	
2.3.1	Researchers, headcounts/mn pop.	200.3	85	
2.3.2	Gross expenditure on R&D, % GDP	0.1	100	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**19.6**	**133**	
3.1	Information & communication technologies (ICTs)	12.1	136	○
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	24.2	131	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	17.6	136	○
3.2.1	Electricity output, kWh/cap	2,323.6	72	
3.2.2	Logistics performance*	26.6	127	
3.2.3	Gross capital formation, % GDP	16.6	118	
3.3	Ecological sustainability	29.1	97	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.0	68	
3.3.2	Environmental performance*	31.3	127	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**61.3**	**23**	●
4.1	Credit	46.8	40	●
4.1.1	Ease of getting credit*	37.5	130	
4.1.2	Domestic credit to private sector, % GDP	13.0	135	○
4.1.3	Microfinance gross loans, % GDP	8.0	1	●
4.2	Investment	66.7	10	●
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	70.5	108	
4.3.1	Applied tariff rate, weighted mean, %	5.9	93	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.6	125	
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**12.6**	**142**	○
5.1	Knowledge workers	17.3	130	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	21.2	90	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	5.5	128	
5.2	Innovation linkages	4.8	141	○
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	0.6	86	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	52	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	15.8	122	
5.3.1	Royalty & license fees payments, % total trade	0.0	127	○
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	1.2	49	●
5.3.4	FDI net inflows, % GDP	0.2	132	
6	**Knowledge & technology outputs**	**24.3**	**88**	
6.1	Knowledge creation	21.9	46	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	93	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	3.9	9	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.5	122	
6.1.5	Citable documents H index	23.0	139	○
6.2	Knowledge impact	31.2	99	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.5	12	●
6.2.2	New businesses/th pop. 15–64	0.3	83	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.2	140	○
6.2.5	High- & medium-high-tech manufactures, %	2.4	94	○
6.3	Knowledge diffusion	19.9	132	
6.3.1	Royalty & license fees receipts, % total trade	0.0	83	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	2.1	39	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**5.0**	**140**	○
7.1	Intangible assets	4.0	139	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	15.6	89	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	74	○
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	8.0	102	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.8	56	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	84	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	3.8	114	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	136	○
7.3.2	Country-code TLDs/th pop. 15–69	10.7	101	
7.3.3	Wikipedia edits/pop. 15–69	332.0	110	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Tanzania, United Republic of

Key indicators

Population (millions)	47.8
GDP (US$ billions)	32.5
GDP per capita, PPP$	1,715.5
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.6**	**123**	
Innovation Output Sub-Index		19.2	122	
Innovation Input Sub-Index		32.0	120	
Innovation Efficiency Ratio		0.6	113	
Global Innovation Index 2013 (out of 142)		26.4	123	
1	**Institutions**	**57.2**	**85**	
1.1	Political environment	53.8	80	
1.1.1	Political stability*	66.3	68	
1.1.2	Government effectiveness*	22.4	114	
1.1.3	Press freedom*	72.7	57	●
1.2	Regulatory environment	65.9	73	
1.2.1	Regulatory quality*	38.4	103	
1.2.2	Rule of law*	30.5	97	
1.2.3	Cost of redundancy dismissal, salary weeks	9.3	32	●
1.3	Business environment	52.0	111	
1.3.1	Ease of starting a business*	76.8	100	
1.3.2	Ease of resolving insolvency*	22.7	116	
1.3.3	Ease of paying taxes*	56.3	113	
2	**Human capital & research**	**12.7**	**132**	○
2.1	Education	30.8	115	
2.1.1	Expenditure on education, % GDP	6.2	24	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	16.2	77	
2.1.3	School life expectancy, years	9.2	117	○
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	26.4	95	
2.2	Tertiary education	3.2	135	○
2.2.1	Tertiary enrolment, % gross	3.9	129	○
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.6	88	
2.3	Research & development (R&D)	4.0	89	
2.3.1	Researchers, headcounts/mn pop.	69.0	108	
2.3.2	Gross expenditure on R&D, % GDP	0.5	58	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**25.4**	**115**	
3.1	Information & communication technologies (ICTs)	16.7	121	
3.1.1	ICT access*	18.7	125	○
3.1.2	ICT use*	4.9	116	
3.1.3	Government's online service*	35.3	106	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	39.6	45	●
3.2.1	Electricity output, kWh/cap	114.7	119	○
3.2.2	Logistics performance*	41.3	89	
3.2.3	Gross capital formation, % GDP	36.7	10	●
3.3	Ecological sustainability	19.8	134	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.9	110	
3.3.2	Environmental performance*	36.2	121	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	90	
4	**Market sophistication**	**36.6**	**136**	○
4.1	Credit	17.8	128	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	17.9	124	
4.1.3	Microfinance gross loans, % GDP	0.4	51	
4.2	Investment	21.7	133	○
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	6.4	98	
4.2.3	Total value of stocks traded, % GDP	0.1	99	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	46	
4.3	Trade & competition	70.3	110	
4.3.1	Applied tariff rate, weighted mean, %	6.6	103	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.2	32	●
4.3.3	Intensity of local competition†	53.0	121	
5	**Business sophistication**	**28.0**	**94**	
5.1	Knowledge workers	19.7	123	
5.1.1	Knowledge-intensive employment, %	2.6	108	○
5.1.2	Firms offering formal training, % firms	36.5	46	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	5.1	132	○
5.2	Innovation linkages	46.7	22	●
5.2.1	University/industry research collaboration†	41.8	72	
5.2.2	State of cluster development†	42.0	87	
5.2.3	GERD financed by abroad, %	42.0	10	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	17.7	114	
5.3.1	Royalty & license fees payments, % total trade	0.0	126	○
5.3.2	High-tech imports less re-imports, %	6.6	75	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	113	
5.3.4	FDI net inflows, % GDP	4.6	46	●
6	**Knowledge & technology outputs**	**17.5**	**119**	
6.1	Knowledge creation	8.2	90	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	106	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.0	83	
6.1.5	Citable documents H index	93.0	69	
6.2	Knowledge impact	39.4	68	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.4	31	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.7	127	
6.2.5	High- & medium-high-tech manufactures, %	10.5	74	
6.3	Knowledge diffusion	5.0	135	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.9	70	
6.3.3	Comm., computer & info. services exp., % total trade	0.4	104	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**20.9**	**122**	
7.1	Intangible assets	31.3	127	
7.1.1	Domestic res trademark app./bn PPP$ GDP	1.0	100	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	47.8	105	
7.1.4	ICTs & organizational model creation†	45.7	94	
7.2	Creative goods & services	19.8	60	●
7.2.1	Cultural & creative services exports, % total trade	0.0	81	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	12	●
7.2.5	Creative goods exports, % total trade	0.1	102	
7.3	Online creativity	1.2	123	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	130	
7.3.2	Country-code TLDs/th pop. 15–69	3.4	116	
7.3.3	Wikipedia edits/pop. 15–69	82.6	123	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

The Former Yugoslav Republic of Macedonia

Key indicators

Population (millions)	2.1
GDP (US$ billions)	10.2
GDP per capita, PPP$	10,904.5
Income group	Upper-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.9**	**60**	
Innovation Output Sub-Index		30.4	66	
Innovation Input Sub-Index		43.4	57	
Innovation Efficiency Ratio		0.7	82	
Global Innovation Index 2013 (out of 142)		38.2	51	
1	**Institutions**	**65.8**	**60**	
1.1	Political environment	53.1	81	
1.1.1	Political stability*	54.8	91	
1.1.2	Government effectiveness*	38.9	75	
1.1.3	Press freedom*	65.7	95	
1.2	Regulatory environment	69.4	57	
1.2.1	Regulatory quality*	57.8	60	
1.2.2	Rule of law*	39.8	74	
1.2.3	Cost of redundancy dismissal, salary weeks	13.0	56	
1.3	Business environment	74.7	29	●
1.3.1	Ease of starting a business*	97.7	3	●
1.3.2	Ease of resolving insolvency*	46.4	46	
1.3.3	Ease of paying taxes*	80.1	33	
2	**Human capital & research**	**33.8**	**52**	
2.1	Education	65.2	3	●
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	13.3	64	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	11.9	38	
2.2	Tertiary education	31.9	72	
2.2.1	Tertiary enrolment, % gross	40.8	62	
2.2.2	Graduates in science & engineering, %	21.2	45	
2.2.3	Tertiary inbound mobility, %	2.6	54	
2.3	Research & development (R&D)	4.2	87	
2.3.1	Researchers, headcounts/mn pop.	854.5	59	
2.3.2	Gross expenditure on R&D, % GDP	0.2	85	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**36.3**	**72**	
3.1	Information & communication technologies (ICTs)	37.9	70	
3.1.1	ICT access*	56.5	59	
3.1.2	ICT use*	36.7	50	
3.1.3	Government's online service*	45.1	85	
3.1.4	E-participation*	13.2	84	
3.2	General infrastructure	27.0	101	
3.2.1	Electricity output, kWh/cap	3,337.9	59	
3.2.2	Logistics performance*	37.7	97	○
3.2.3	Gross capital formation, % GDP	n/a	n/a	
3.3	Ecological sustainability	44.1	45	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.3	62	
3.3.2	Environmental performance*	50.4	80	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	9.4	12	●
4	**Market sophistication**	**54.6**	**39**	
4.1	Credit	48.2	36	
4.1.1	Ease of getting credit*	93.8	3	●
4.1.2	Domestic credit to private sector, % GDP	47.5	72	
4.1.3	Microfinance gross loans, % GDP	2.9	19	●
4.2	Investment	35.9	64	
4.2.1	Ease of protecting investors*	70.0	16	●
4.2.2	Market capitalization, % GDP	5.8	100	○
4.2.3	Total value of stocks traded, % GDP	0.3	84	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	79.7	31	
4.3.1	Applied tariff rate, weighted mean, %	2.0	47	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	25	●
4.3.3	Intensity of local competition†	63.3	82	
5	**Business sophistication**	**26.8**	**103**	○
5.1	Knowledge workers	25.8	107	○
5.1.1	Knowledge-intensive employment, %	29.6	47	
5.1.2	Firms offering formal training, % firms	19.0	95	○
5.1.3	GERD performed by business, % GDP	0.0	75	○
5.1.4	GERD financed by business, %	11.5	73	○
5.1.5	GMAT test takers/mn pop. 20–34	26.4	102	○
5.2	Innovation linkages	30.8	73	
5.2.1	University/industry research collaboration†	39.7	79	
5.2.2	State of cluster development†	41.7	90	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	23.9	79	
5.3.1	Royalty & license fees payments, % total trade	0.5	57	
5.3.2	High-tech imports less re-imports, %	6.2	81	
5.3.3	Comm., computer & info. services imp., % total trade	1.3	45	
5.3.4	FDI net inflows, % GDP	3.4	62	
6	**Knowledge & technology outputs**	**28.2**	**64**	
6.1	Knowledge creation	9.6	84	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.7	54	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	76	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	12.8	66	
6.1.5	Citable documents H index	62.0	94	
6.2	Knowledge impact	42.5	55	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	81	
6.2.2	New businesses/th pop. 15–64	3.6	29	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	22.3	19	●
6.2.5	High- & medium-high-tech manufactures, %	13.8	68	
6.3	Knowledge diffusion	32.7	63	
6.3.1	Royalty & license fees receipts, % total trade	0.1	51	
6.3.2	High-tech exports less re-exports, %	1.9	53	
6.3.3	Comm., computer & info. services exp., % total trade	2.3	33	
6.3.4	FDI net outflows, % GDP	1.9	37	
7	**Creative outputs**	**32.6**	**71**	
7.1	Intangible assets	45.9	62	
7.1.1	Domestic res trademark app./bn PPP$ GDP	96.9	17	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	2.3	13	●
7.1.3	ICTs & business model creation†	54.2	78	
7.1.4	ICTs & organizational model creation†	48.5	85	
7.2	Creative goods & services	21.6	57	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	2.5	50	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	16	●
7.2.5	Creative goods exports, % total trade	0.2	84	
7.3	Online creativity	17.0	73	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	3.2	72	
7.3.2	Country-code TLDs/th pop. 15–69	23.0	71	
7.3.3	Wikipedia edits/pop. 15–69	14,509.2	34	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Thailand

Key indicators

Population (millions)	66.8
GDP (US$ billions)	387.2
GDP per capita, PPP$	9,874.5
Income group	Upper-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**39.3**	**48**	
Innovation Output Sub-Index		33.8	49	
Innovation Input Sub-Index		44.7	52	
Innovation Efficiency Ratio		0.8	62	
Global Innovation Index 2013 (out of 142)		34.8	57	
1	**Institutions**	**54.4**	**94**	
1.1	Political environment	48.0	95	
1.1.1	Political stability*	36.2	125	○
1.1.2	Government effectiveness*	46.4	59	
1.1.3	Press freedom*	61.4	110	○
1.2	Regulatory environment	46.0	122	○
1.2.1	Regulatory quality*	54.7	64	
1.2.2	Rule of law*	41.6	69	
1.2.3	Cost of redundancy dismissal, salary weeks	36.0	134	○
1.3	Business environment	69.2	52	
1.3.1	Ease of starting a business*	87.9	55	
1.3.2	Ease of resolving insolvency*	44.7	50	
1.3.3	Ease of paying taxes*	74.9	48	
2	**Human capital & research**	**41.1**	**36**	
2.1	Education	43.2	67	
2.1.1	Expenditure on education, % GDP	5.8	35	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	25.9	34	
2.1.3	School life expectancy, years	13.1	73	
2.1.4	PISA scales in reading, maths, & science	437.3	44	
2.1.5	Pupil-teacher ratio, secondary	19.9	80	
2.2	Tertiary education	64.0	5	●
2.2.1	Tertiary enrolment, % gross	51.4	51	
2.2.2	Graduates in science & engineering, %	53.2	1	●
2.2.3	Tertiary inbound mobility, %	0.8	85	
2.3	Research & development (R&D)	16.1	51	
2.3.1	Researchers, headcounts/mn pop.	581.0	68	
2.3.2	Gross expenditure on R&D, % GDP	0.3	81	
2.3.3	QS university ranking, average score top 3*	37.3	35	
3	**Infrastructure**	**36.5**	**71**	
3.1	Information & communication technologies (ICTs)	33.7	81	
3.1.1	ICT access*	40.0	83	
3.1.2	ICT use*	12.3	100	
3.1.3	Government's online service*	51.0	65	
3.1.4	E-participation*	31.6	48	
3.2	General infrastructure	40.5	43	
3.2.1	Electricity output, kWh/cap	2,243.8	74	
3.2.2	Logistics performance*	62.3	37	
3.2.3	Gross capital formation, % GDP	30.0	22	
3.3	Ecological sustainability	35.2	70	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.5	90	
3.3.2	Environmental performance*	52.8	71	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.7	26	
4	**Market sophistication**	**56.9**	**34**	
4.1	Credit	36.8	65	
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	147.6	16	●
4.1.3	Microfinance gross loans, % GDP	0.0	91	○
4.2	Investment	55.3	21	
4.2.1	Ease of protecting investors*	76.7	12	●
4.2.2	Market capitalization, % GDP	104.8	15	
4.2.3	Total value of stocks traded, % GDP	62.8	12	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	68	○
4.3	Trade & competition	78.6	35	
4.3.1	Applied tariff rate, weighted mean, %	4.9	83	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.2	79	
4.3.3	Intensity of local competition†	72.0	39	
5	**Business sophistication**	**34.9**	**55**	
5.1	Knowledge workers	47.0	48	
5.1.1	Knowledge-intensive employment, %	10.9	97	○
5.1.2	Firms offering formal training, % firms	75.3	2	●
5.1.3	GERD performed by business, % GDP	0.1	55	
5.1.4	GERD financed by business, %	41.2	45	
5.1.5	GMAT test takers/mn pop. 20–34	118.5	44	
5.2	Innovation linkages	26.5	94	
5.2.1	University/industry research collaboration†	48.7	49	
5.2.2	State of cluster development†	55.7	31	
5.2.3	GERD financed by abroad, %	1.0	80	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	41	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	86	
5.3	Knowledge absorption	31.1	38	
5.3.1	Royalty & license fees payments, % total trade	1.3	15	●
5.3.2	High-tech imports less re-imports, %	14.5	13	●
5.3.3	Comm., computer & info. services imp., % total trade	0.2	129	○
5.3.4	FDI net inflows, % GDP	2.4	78	
6	**Knowledge & technology outputs**	**32.4**	**47**	
6.1	Knowledge creation	17.3	62	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.6	58	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	72	
6.1.3	Domestic res utility model app./tr PPP$ GDP	2.2	14	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.2	82	
6.1.5	Citable documents H index	167.0	38	
6.2	Knowledge impact	46.3	43	
6.2.1	Growth rate of PPP$ GDP/worker, %	4.9	8	●
6.2.2	New businesses/th pop. 15–64	0.9	66	
6.2.3	Computer software spending, % GDP	0.3	32	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	13.5	35	
6.2.5	High- & medium-high-tech manufactures, %	43.9	15	
6.3	Knowledge diffusion	33.8	52	
6.3.1	Royalty & license fees receipts, % total trade	0.1	56	
6.3.2	High-tech exports less re-exports, %	13.6	13	●
6.3.3	Comm., computer & info. services exp., % total trade	0.2	124	○
6.3.4	FDI net outflows, % GDP	3.5	20	
7	**Creative outputs**	**35.2**	**60**	
7.1	Intangible assets	41.2	85	
7.1.1	Domestic res trademark app./bn PPP$ GDP	42.6	61	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	57.3	65	
7.1.4	ICTs & organizational model creation†	49.7	83	
7.2	Creative goods & services	35.5	27	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.0	71	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	46	○
7.2.4	Printing & publishing manufactures, %	0.0	65	
7.2.5	Creative goods exports, % total trade	10.1	6	●
7.3	Online creativity	22.8	63	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.7	54	
7.3.2	Country-code TLDs/th pop. 15–69	11.0	99	
7.3.3	Wikipedia edits/pop. 15–69	2,472.0	73	
7.3.4	Video uploads on YouTube/pop. 15–69	69.5	43	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Togo

Key indicators

Population (millions)	6.6
GDP (US$ billions)	4.4
GDP per capita, PPP$	1,084.0
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**17.6**	**142**	○
Innovation Output Sub-Index		7.0	142	○
Innovation Input Sub-Index		28.3	134	
Innovation Efficiency Ratio		0.2	142	○
Global Innovation Index 2013 (out of 142)		23.0	139	
1	**Institutions**	**47.9**	**115**	
1.1	Political environment	44.2	115	
1.1.1	Political stability*	55.4	90	
1.1.2	Government effectiveness*	5.5	140	○
1.1.3	Press freedom*	71.6	69	●
1.2	Regulatory environment	56.7	97	
1.2.1	Regulatory quality*	26.5	125	
1.2.2	Rule of law*	21.1	123	
1.2.3	Cost of redundancy dismissal, salary weeks	13.1	59	●
1.3	Business environment	43.0	131	
1.3.1	Ease of starting a business*	51.5	139	○
1.3.2	Ease of resolving insolvency*	29.2	98	
1.3.3	Ease of paying taxes*	48.2	122	
2	**Human capital & research**	**14.5**	**125**	
2.1	Education	32.9	105	
2.1.1	Expenditure on education, % GDP	4.5	73	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	15.7	81	
2.1.3	School life expectancy, years	12.2	87	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	26.2	93	
2.2	Tertiary education	8.4	127	
2.2.1	Tertiary enrolment, % gross	10.3	108	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.4	73	
2.3	Research & development (R&D)	2.1	105	
2.3.1	Researchers, headcounts/mn pop.	90.1	104	
2.3.2	Gross expenditure on R&D, % GDP	0.3	80	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**15.4**	**142**	○
3.1	Information & communication technologies (ICTs)	9.5	139	○
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government's online service*	13.7	140	○
3.1.4	E-participation*	5.3	111	
3.2	General infrastructure	21.9	125	
3.2.1	Electricity output, kWh/cap	22.6	123	○
3.2.2	Logistics performance*	38.5	94	
3.2.3	Gross capital formation, % GDP	20.5	86	
3.3	Ecological sustainability	14.7	141	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.1	119	○
3.3.2	Environmental performance*	27.9	134	○
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	100	
4	**Market sophistication**	**42.7**	**110**	
4.1	Credit	41.5	53	●
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	30.9	97	
4.1.3	Microfinance gross loans, % GDP	5.7	8	●
4.2	Investment	36.7	59	●
4.2.1	Ease of protecting investors*	36.7	119	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	49.8	141	○
4.3.1	Applied tariff rate, weighted mean, %	11.1	130	
4.3.2	Non-agricultural mkt access weighted tariff, %	5.8	134	○
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**21.1**	**129**	
5.1	Knowledge workers	28.6	100	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	32.3	56	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	8.9	124	
5.2	Innovation linkages	14.9	138	○
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	11.7	38	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	19.7	103	
5.3.1	Royalty & license fees payments, % total trade	0.1	103	
5.3.2	High-tech imports less re-imports, %	4.9	102	
5.3.3	Comm., computer & info. services imp., % total trade	1.6	30	●
5.3.4	FDI net inflows, % GDP	1.5	102	
6	**Knowledge & technology outputs**	**13.4**	**135**	
6.1	Knowledge creation	4.8	114	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	114	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	8.3	85	●
6.1.5	Citable documents H index	31.0	132	
6.2	Knowledge impact	2.5	139	○
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	0.1	88	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.9	102	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	32.8	62	●
6.3.1	Royalty & license fees receipts, % total trade	0.0	108	
6.3.2	High-tech exports less re-exports, %	0.1	117	
6.3.3	Comm., computer & info. services exp., % total trade	3.8	13	●
6.3.4	FDI net outflows, % GDP	2.4	29	●
7	**Creative outputs**	**0.6**	**143**	○
7.1	Intangible assets	n/a	n/a	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	0.9	134	○
7.2.1	Cultural & creative services exports, % total trade	0.0	90	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	108	
7.3	Online creativity	0.3	136	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.8	108	
7.3.2	Country-code TLDs/th pop. 15–69	0.0	143	○
7.3.3	Wikipedia edits/pop. 15–69	36.8	133	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Trinidad and Tobago

Key indicators

Population (millions)	1.3
GDP (US$ billions)	27.7
GDP per capita, PPP$	20,437.7
Income group	High income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.6**	**90**	
Innovation Output Sub-Index		24.5	98	
Innovation Input Sub-Index		38.6	86	
Innovation Efficiency Ratio		0.6	103	
Global Innovation Index 2013 (out of 142)		33.2	81	
1	**Institutions**	**62.1**	**64**	
1.1	Political environment	65.6	51	
1.1.1	Political stability*	68.3	61	
1.1.2	Government effectiveness*	51.6	52	
1.1.3	Press freedom*	76.9	39	●
1.2	Regulatory environment	61.4	84	
1.2.1	Regulatory quality*	54.5	65	
1.2.2	Rule of law*	41.2	70	
1.2.3	Cost of redundancy dismissal, salary weeks	20.5	95	
1.3	Business environment	59.4	87	
1.3.1	Ease of starting a business*	81.1	83	
1.3.2	Ease of resolving insolvency*	28.5	101	
1.3.3	Ease of paying taxes*	68.6	77	
2	**Human capital & research**	**29.2**	**68**	
2.1	Education	47.4	55	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	12.3	85	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	37.6	56	
2.2.1	Tertiary enrolment, % gross	12.0	104	
2.2.2	Graduates in science & engineering, %	30.4	12	●
2.2.3	Tertiary inbound mobility, %	5.8	31	●
2.3	Research & development (R&D)	2.6	100	
2.3.1	Researchers, headcounts/mn pop.	758.4	61	
2.3.2	Gross expenditure on R&D, % GDP	0.0	112	○
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**25.7**	**114**	
3.1	Information & communication technologies (ICTs)	35.3	76	
3.1.1	ICT access*	56.7	58	
3.1.2	ICT use*	28.3	61	
3.1.3	Government's online service*	48.4	74	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	17.9	135	○
3.2.1	Electricity output, kWh/cap	6,568.1	31	●
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	14.0	134	○
3.3	Ecological sustainability	23.8	124	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	1.4	123	○
3.3.2	Environmental performance*	52.3	72	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	73	
4	**Market sophistication**	**48.4**	**69**	
4.1	Credit	30.3	92	
4.1.1	Ease of getting credit*	81.3	27	●
4.1.2	Domestic credit to private sector, % GDP	30.7	98	
4.1.3	Microfinance gross loans, % GDP	0.1	73	
4.2	Investment	42.7	46	
4.2.1	Ease of protecting investors*	66.7	21	●
4.2.2	Market capitalization, % GDP	63.2	30	●
4.2.3	Total value of stocks traded, % GDP	0.5	80	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	72.1	95	
4.3.1	Applied tariff rate, weighted mean, %	10.0	125	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	26	●
4.3.3	Intensity of local competition†	62.3	85	
5	**Business sophistication**	**27.9**	**95**	
5.1	Knowledge workers	31.0	92	
5.1.1	Knowledge-intensive employment, %	25.0	53	
5.1.2	Firms offering formal training, % firms	31.5	60	
5.1.3	GERD performed by business, % GDP	0.0	83	○
5.1.4	GERD financed by business, %	2.2	80	○
5.1.5	GMAT test takers/mn pop. 20–34	150.5	35	●
5.2	Innovation linkages	35.1	58	
5.2.1	University/industry research collaboration†	37.0	99	
5.2.2	State of cluster development†	42.0	87	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	38	
5.3	Knowledge absorption	17.6	115	
5.3.1	Royalty & license fees payments, % total trade	0.3	65	
5.3.2	High-tech imports less re-imports, %	4.9	100	
5.3.3	Comm., computer & info. services imp., % total trade	0.9	66	
5.3.4	FDI net inflows, % GDP	2.4	75	
6	**Knowledge & technology outputs**	**21.9**	**102**	
6.1	Knowledge creation	4.1	123	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.0	107	○
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	98	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.1	98	
6.1.5	Citable documents H index	61.0	96	
6.2	Knowledge impact	40.7	62	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.3	62	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.8	105	
6.2.5	High- & medium-high-tech manufactures, %	24.1	43	
6.3	Knowledge diffusion	20.8	128	
6.3.1	Royalty & license fees receipts, % total trade	0.0	104	○
6.3.2	High-tech exports less re-exports, %	0.0	118	○
6.3.3	Comm., computer & info. services exp., % total trade	0.1	136	○
6.3.4	FDI net outflows, % GDP	4.5	16	●
7	**Creative outputs**	**27.1**	**95**	
7.1	Intangible assets	45.6	65	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	45.2	115	
7.1.4	ICTs & organizational model creation†	46.0	92	
7.2	Creative goods & services	8.0	104	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	67	
7.2.5	Creative goods exports, % total trade	0.1	103	
7.3	Online creativity	9.3	95	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.7	56	
7.3.2	Country-code TLDs/th pop. 15–69	17.0	84	
7.3.3	Wikipedia edits/pop. 15–69	2,460.0	74	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Tunisia

Key indicators

Population (millions)	10.8
GDP (US$ billions)	47.4
GDP per capita, PPP$	9,931.7
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**32.9**	**78**	
Innovation Output Sub-Index		26.1	87	
Innovation Input Sub-Index		39.7	77	
Innovation Efficiency Ratio		0.7	98	
Global Innovation Index 2013 (out of 142)		35.8	70	
1	**Institutions**	**61.8**	**65**	
1.1	Political environment	49.5	91	
1.1.1	Political stability*	47.9	110	
1.1.2	Government effectiveness*	40.5	68	
1.1.3	Press freedom*	60.1	113	
1.2	Regulatory environment	67.4	64	
1.2.1	Regulatory quality*	43.4	89	
1.2.2	Rule of law*	42.7	68	
1.2.3	Cost of redundancy dismissal, salary weeks	12.1	51	
1.3	Business environment	68.6	56	
1.3.1	Ease of starting a business*	81.1	84	
1.3.2	Ease of resolving insolvency*	55.0	35	●
1.3.3	Ease of paying taxes*	69.7	70	
2	**Human capital & research**	**37.8**	**44**	
2.1	Education	46.5	59	
2.1.1	Expenditure on education, % GDP	6.2	25	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.4	45	
2.1.3	School life expectancy, years	14.6	46	
2.1.4	PISA scales in reading, maths, & science	396.6	56	○
2.1.5	Pupil-teacher ratio, secondary	13.6	47	
2.2	Tertiary education	48.7	25	●
2.2.1	Tertiary enrolment, % gross	35.2	71	
2.2.2	Graduates in science & engineering, %	42.4	3	●
2.2.3	Tertiary inbound mobility, %	0.5	91	
2.3	Research & development (R&D)	18.3	46	
2.3.1	Researchers, headcounts/mn pop.	3,194.8	30	●
2.3.2	Gross expenditure on R&D, % GDP	1.1	33	●
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**37.0**	**68**	
3.1	Information & communication technologies (ICTs)	35.6	75	
3.1.1	ICT access*	39.5	84	
3.1.2	ICT use*	18.2	86	
3.1.3	Government's online service*	47.7	76	
3.1.4	E-participation*	36.8	42	
3.2	General infrastructure	33.8	66	
3.2.1	Electricity output, kWh/cap	1,511.7	83	
3.2.2	Logistics performance*	61.9	39	
3.2.3	Gross capital formation, % GDP	24.6	54	
3.3	Ecological sustainability	41.7	51	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	9.3	20	●
3.3.2	Environmental performance*	59.0	50	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.8	69	
4	**Market sophistication**	**39.9**	**127**	○
4.1	Credit	25.4	109	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	75.2	42	●
4.1.3	Microfinance gross loans, % GDP	0.2	60	
4.2	Investment	27.1	114	
4.2.1	Ease of protecting investors*	60.0	42	
4.2.2	Market capitalization, % GDP	19.5	73	
4.2.3	Total value of stocks traded, % GDP	2.7	57	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	56	
4.3	Trade & competition	67.3	120	○
4.3.1	Applied tariff rate, weighted mean, %	16.0	139	○
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	44	
4.3.3	Intensity of local competition†	64.5	77	
5	**Business sophistication**	**22.1**	**126**	○
5.1	Knowledge workers	24.8	111	
5.1.1	Knowledge-intensive employment, %	20.9	68	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.2	46	
5.1.4	GERD financed by business, %	20.0	64	
5.1.5	GMAT test takers/mn pop. 20–34	21.5	109	
5.2	Innovation linkages	24.1	110	
5.2.1	University/industry research collaboration†	34.2	109	○
5.2.2	State of cluster development†	44.8	74	
5.2.3	GERD financed by abroad, %	14.9	31	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	102	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	79	
5.3	Knowledge absorption	17.5	116	○
5.3.1	Royalty & license fees payments, % total trade	0.1	111	○
5.3.2	High-tech imports less re-imports, %	9.3	40	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	105	
5.3.4	FDI net inflows, % GDP	0.9	116	○
6	**Knowledge & technology outputs**	**21.2**	**106**	
6.1	Knowledge creation	13.8	67	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.8	70	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	87	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	26.3	38	●
6.1.5	Citable documents H index	85.0	74	
6.2	Knowledge impact	29.4	107	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.7	57	
6.2.2	New businesses/th pop. 15–64	0.0	92	○
6.2.3	Computer software spending, % GDP	0.3	33	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.9	65	
6.2.5	High- & medium-high-tech manufactures, %	11.8	70	
6.3	Knowledge diffusion	20.4	130	○
6.3.1	Royalty & license fees receipts, % total trade	0.1	52	
6.3.2	High-tech exports less re-exports, %	4.5	34	●
6.3.3	Comm., computer & info. services exp., % total trade	1.6	55	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**31.1**	**74**	
7.1	Intangible assets	39.8	92	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	69	○
7.1.3	ICTs & business model creation†	50.7	92	
7.1.4	ICTs & organizational model creation†	48.7	84	
7.2	Creative goods & services	26.9	44	
7.2.1	Cultural & creative services exports, % total trade	0.0	73	
7.2.2	National feature films/mn pop. 15–69	1.4	59	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	2.8	19	●
7.3	Online creativity	17.8	69	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.7	80	
7.3.2	Country-code TLDs/th pop. 15–69	7.2	108	
7.3.3	Wikipedia edits/pop. 15–69	1,389.4	88	
7.3.4	Video uploads on YouTube/pop. 15–69	58.9	52	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Turkey

Key indicators

Population (millions)	74.0
GDP (US$ billions)	827.2
GDP per capita, PPP$	15,352.6
Income group	Upper-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**38.2**	**54**	
Innovation Output Sub-Index		36.7	39	
Innovation Input Sub-Index		39.7	78	
Innovation Efficiency Ratio		0.9	11	●
Global Innovation Index 2013 (out of 142)		36.0	68	
1	**Institutions**	**54.9**	**92**	
1.1	Political environment	47.2	98	
1.1.1	Political stability*	36.5	124	○
1.1.2	Government effectiveness*	51.6	51	
1.1.3	Press freedom*	53.4	126	○
1.2	Regulatory environment	54.9	104	
1.2.1	Regulatory quality*	59.7	55	
1.2.2	Rule of law*	47.4	58	
1.2.3	Cost of redundancy dismissal, salary weeks	29.8	128	○
1.3	Business environment	62.7	76	
1.3.1	Ease of starting a business*	87.7	57	
1.3.2	Ease of resolving insolvency*	23.6	112	
1.3.3	Ease of paying taxes*	76.8	44	
2	**Human capital & research**	**33.3**	**54**	
2.1	Education	41.7	78	
2.1.1	Expenditure on education, % GDP	2.9	113	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.4	50	
2.1.4	PISA scales in reading, maths, & science	462.3	40	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	35.7	62	
2.2.1	Tertiary enrolment, % gross	60.7	36	
2.2.2	Graduates in science & engineering, %	22.3	38	
2.2.3	Tertiary inbound mobility, %	0.8	86	
2.3	Research & development (R&D)	22.5	42	
2.3.1	Researchers, headcounts/mn pop.	1,881.4	42	
2.3.2	Gross expenditure on R&D, % GDP	0.9	38	
2.3.3	QS university ranking, average score top 3*	30.4	41	
3	**Infrastructure**	**35.6**	**75**	
3.1	Information & communication technologies (ICTs)	32.3	83	
3.1.1	ICT access*	51.1	67	
3.1.2	ICT use*	26.3	66	
3.1.3	Government's online service*	46.4	79	
3.1.4	E-participation*	5.3	111	○
3.2	General infrastructure	34.5	63	
3.2.1	Electricity output, kWh/cap	3,194.1	61	
3.2.2	Logistics performance*	75.4	26	●
3.2.3	Gross capital formation, % GDP	20.0	92	
3.3	Ecological sustainability	40.1	56	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	8.8	26	●
3.3.2	Environmental performance*	54.9	61	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.5	52	
4	**Market sophistication**	**49.1**	**63**	
4.1	Credit	24.3	111	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	54.4	59	
4.1.3	Microfinance gross loans, % GDP	0.0	88	○
4.2	Investment	38.7	55	
4.2.1	Ease of protecting investors*	63.3	32	
4.2.2	Market capitalization, % GDP	39.1	51	
4.2.3	Total value of stocks traded, % GDP	44.2	18	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	62	○
4.3	Trade & competition	84.2	8	●
4.3.1	Applied tariff rate, weighted mean, %	2.7	56	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.3	83	
4.3.3	Intensity of local competition†	79.8	13	●
5	**Business sophistication**	**25.4**	**110**	
5.1	Knowledge workers	34.4	85	
5.1.1	Knowledge-intensive employment, %	20.2	72	
5.1.2	Firms offering formal training, % firms	29.7	67	
5.1.3	GERD performed by business, % GDP	0.4	38	
5.1.4	GERD financed by business, %	43.2	43	
5.1.5	GMAT test takers/mn pop. 20–34	71.1	61	
5.2	Innovation linkages	25.1	102	
5.2.1	University/industry research collaboration†	47.7	50	
5.2.2	State of cluster development†	57.0	28	●
5.2.3	GERD financed by abroad, %	0.7	85	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	78	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	67	
5.3	Knowledge absorption	16.8	118	○
5.3.1	Royalty & license fees payments, % total trade	0.3	67	
5.3.2	High-tech imports less re-imports, %	8.4	52	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	131	○
5.3.4	FDI net inflows, % GDP	1.6	97	
6	**Knowledge & technology outputs**	**32.3**	**48**	
6.1	Knowledge creation	30.2	32	
6.1.1	Domestic resident patent app./tr PPP$ GDP	4.0	30	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.5	39	
6.1.3	Domestic res utility model app./tr PPP$ GDP	3.4	11	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	20.8	44	
6.1.5	Citable documents H index	210.0	36	
6.2	Knowledge impact	40.5	64	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.0	68	
6.2.2	New businesses/th pop. 15–64	0.8	68	
6.2.3	Computer software spending, % GDP	0.7	9	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	7.0	55	
6.2.5	High- & medium-high-tech manufactures, %	27.2	40	
6.3	Knowledge diffusion	26.2	99	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	1.0	67	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	122	○
6.3.4	FDI net outflows, % GDP	0.5	63	
7	**Creative outputs**	**41.2**	**40**	
7.1	Intangible assets	55.2	18	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	174.7	4	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.1	29	
7.1.3	ICTs & business model creation†	60.5	51	
7.1.4	ICTs & organizational model creation†	55.5	59	
7.2	Creative goods & services	24.9	50	
7.2.1	Cultural & creative services exports, % total trade	0.6	20	●
7.2.2	National feature films/mn pop. 15–69	1.4	60	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	43	
7.2.4	Printing & publishing manufactures, %	0.0	66	
7.2.5	Creative goods exports, % total trade	2.5	21	●
7.3	Online creativity	29.4	51	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	13.8	40	
7.3.2	Country-code TLDs/th pop. 15–69	27.4	65	
7.3.3	Wikipedia edits/pop. 15–69	3,514.9	63	
7.3.4	Video uploads on YouTube/pop. 15–69	70.3	42	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Uganda

Key indicators

Population (millions)	36.3
GDP (US$ billions)	23.1
GDP per capita, PPP$	1,483.9
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**31.1**	**91**	
Innovation Output Sub-Index		26.0	90	
Innovation Input Sub-Index		36.3	98	
Innovation Efficiency Ratio		0.7	77	
Global Innovation Index 2013 (out of 142)		31.2	89	
1	**Institutions**	**56.7**	**86**	
1.1	Political environment	46.0	103	
1.1.1	Political stability*	43.9	116	
1.1.2	Government effectiveness*	25.7	107	
1.1.3	Press freedom*	68.3	83	
1.2	Regulatory environment	69.1	60	
1.2.1	Regulatory quality*	42.4	91	
1.2.2	Rule of law*	36.5	79	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	25	●
1.3	Business environment	55.2	100	
1.3.1	Ease of starting a business*	58.7	133	○
1.3.2	Ease of resolving insolvency*	38.1	70	
1.3.3	Ease of paying taxes*	68.8	76	
2	**Human capital & research**	**17.3**	**114**	
2.1	Education	31.9	109	
2.1.1	Expenditure on education, % GDP	3.3	104	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	20.7	57	
2.1.3	School life expectancy, years	10.8	107	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	18.5	77	
2.2	Tertiary education	15.5	110	
2.2.1	Tertiary enrolment, % gross	9.1	114	
2.2.2	Graduates in science & engineering, %	9.5	100	○
2.2.3	Tertiary inbound mobility, %	5.2	33	●
2.3	Research & development (R&D)	4.4	86	
2.3.1	Researchers, headcounts/mn pop.	83.1	106	
2.3.2	Gross expenditure on R&D, % GDP	0.6	55	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.1**	**102**	
3.1	Information & communication technologies (ICTs)	16.1	123	
3.1.1	ICT access*	19.5	124	○
3.1.2	ICT use*	7.5	110	
3.1.3	Government's online service*	29.4	125	
3.1.4	E-participation*	7.9	98	
3.2	General infrastructure	41.7	39	●
3.2.1	Electricity output, kWh/cap	n/a	n/a	
3.2.2	Logistics performance*	48.0	72	
3.2.3	Gross capital formation, % GDP	27.2	33	●
3.3	Ecological sustainability	26.5	110	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	n/a	n/a	
3.3.2	Environmental performance*	39.2	113	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	116	○
4	**Market sophistication**	**43.7**	**102**	
4.1	Credit	30.4	90	
4.1.1	Ease of getting credit*	75.0	40	●
4.1.2	Domestic credit to private sector, % GDP	16.3	127	
4.1.3	Microfinance gross loans, % GDP	1.0	37	
4.2	Investment	23.7	125	
4.2.1	Ease of protecting investors*	46.7	97	
4.2.2	Market capitalization, % GDP	36.7	53	
4.2.3	Total value of stocks traded, % GDP	0.1	103	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	48	
4.3	Trade & competition	76.9	55	●
4.3.1	Applied tariff rate, weighted mean, %	7.3	107	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	23	●
4.3.3	Intensity of local competition†	67.0	64	
5	**Business sophistication**	**35.8**	**48**	●
5.1	Knowledge workers	22.1	118	
5.1.1	Knowledge-intensive employment, %	4.4	106	○
5.1.2	Firms offering formal training, % firms	35.0	51	
5.1.3	GERD performed by business, % GDP	0.2	48	
5.1.4	GERD financed by business, %	34.8	51	
5.1.5	GMAT test takers/mn pop. 20–34	10.3	121	
5.2	Innovation linkages	54.4	7	●
5.2.1	University/industry research collaboration†	45.5	56	
5.2.2	State of cluster development†	39.8	101	
5.2.3	GERD financed by abroad, %	57.3	3	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	n/a	n/a	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	31.1	39	●
5.3.1	Royalty & license fees payments, % total trade	0.2	84	
5.3.2	High-tech imports less re-imports, %	8.5	49	●
5.3.3	Comm., computer & info. services imp., % total trade	1.1	54	
5.3.4	FDI net inflows, % GDP	8.7	18	●
6	**Knowledge & technology outputs**	**24.3**	**87**	
6.1	Knowledge creation	8.5	89	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.2	95	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	94	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	13.6	63	
6.1.5	Citable documents H index	99.0	65	
6.2	Knowledge impact	31.3	97	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.3	86	
6.2.2	New businesses/th pop. 15–64	1.2	53	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.3	136	○
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.2	58	
6.3.1	Royalty & license fees receipts, % total trade	0.3	29	●
6.3.2	High-tech exports less re-exports, %	2.9	44	●
6.3.3	Comm., computer & info. services exp., % total trade	1.3	73	
6.3.4	FDI net outflows, % GDP	0.0	108	
7	**Creative outputs**	**27.6**	**90**	
7.1	Intangible assets	50.0	41	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	51.7	87	
7.1.4	ICTs & organizational model creation†	48.3	88	
7.2	Creative goods & services	5.8	110	
7.2.1	Cultural & creative services exports, % total trade	0.1	49	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	87	
7.3	Online creativity	4.6	113	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.4	125	
7.3.2	Country-code TLDs/th pop. 15–69	2.1	122	
7.3.3	Wikipedia edits/pop. 15–69	70.3	128	○
7.3.4	Video uploads on YouTube/pop. 15–69	15.7	63	○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Ukraine

Key indicators

Population (millions)	45.6
GDP (US$ billions)	177.8
GDP per capita, PPP$	7,423.1
Income group	Lower-middle income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**36.3**	**63**	
Innovation Output Sub-Index		34.4	46	
Innovation Input Sub-Index		38.2	88	
Innovation Efficiency Ratio		0.9	14	●
Global Innovation Index 2013 (out of 142)		35.8	71	
1	**Institutions**	**52.9**	**103**	
1.1	Political environment	50.6	86	
1.1.1	Political stability*	63.3	77	
1.1.2	Government effectiveness*	25.3	109	
1.1.3	Press freedom*	63.2	103	
1.2	Regulatory environment	59.3	90	
1.2.1	Regulatory quality*	32.8	115	
1.2.2	Rule of law*	24.5	112	
1.2.3	Cost of redundancy dismissal, salary weeks	13.0	56	
1.3	Business environment	48.8	122	○
1.3.1	Ease of starting a business*	86.4	62	
1.3.2	Ease of resolving insolvency*	8.7	136	○
1.3.3	Ease of paying taxes*	51.3	119	○
2	**Human capital & research**	**36.6**	**45**	
2.1	Education	46.6	58	
2.1.1	Expenditure on education, % GDP	6.2	26	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	27.5	29	●
2.1.3	School life expectancy, years	15.1	42	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	45.1	34	●
2.2.1	Tertiary enrolment, % gross	79.7	11	●
2.2.2	Graduates in science & engineering, %	25.6	23	●
2.2.3	Tertiary inbound mobility, %	1.8	64	
2.3	Research & development (R&D)	18.0	48	
2.3.1	Researchers, headcounts/mn pop.	1,536.5	46	
2.3.2	Gross expenditure on R&D, % GDP	0.7	47	
2.3.3	QS university ranking, average score top 3*	22.9	48	
3	**Infrastructure**	**27.1**	**107**	
3.1	Information & communication technologies (ICTs)	32.1	84	
3.1.1	ICT access*	52.7	64	
3.1.2	ICT use*	17.6	87	
3.1.3	Government's online service*	42.5	90	
3.1.4	E-participation*	15.8	79	
3.2	General infrastructure	25.2	110	
3.2.1	Electricity output, kWh/cap	4,264.9	49	
3.2.2	Logistics performance*	49.2	66	
3.2.3	Gross capital formation, % GDP	16.2	121	○
3.3	Ecological sustainability	23.9	122	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.3	117	○
3.3.2	Environmental performance*	49.0	86	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	83	
4	**Market sophistication**	**45.1**	**90**	
4.1	Credit	36.1	67	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	62.0	52	
4.1.3	Microfinance gross loans, % GDP	0.1	67	
4.2	Investment	23.5	127	○
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	11.7	85	
4.2.3	Total value of stocks traded, % GDP	0.7	75	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.8	65	
4.3.1	Applied tariff rate, weighted mean, %	1.9	46	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.8	65	
4.3.3	Intensity of local competition†	59.0	101	
5	**Business sophistication**	**29.1**	**87**	
5.1	Knowledge workers	40.3	65	
5.1.1	Knowledge-intensive employment, %	33.8	37	
5.1.2	Firms offering formal training, % firms	24.6	81	
5.1.3	GERD performed by business, % GDP	0.4	35	
5.1.4	GERD financed by business, %	55.7	29	
5.1.5	GMAT test takers/mn pop. 20–34	41.0	80	
5.2	Innovation linkages	24.7	105	
5.2.1	University/industry research collaboration†	40.7	75	
5.2.2	State of cluster development†	31.2	126	○
5.2.3	GERD financed by abroad, %	25.8	17	●
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	103	○
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	93	○
5.3	Knowledge absorption	22.2	90	
5.3.1	Royalty & license fees payments, % total trade	0.8	38	
5.3.2	High-tech imports less re-imports, %	6.7	72	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	89	
5.3.4	FDI net inflows, % GDP	4.4	47	
6	**Knowledge & technology outputs**	**38.2**	**32**	●
6.1	Knowledge creation	48.8	15	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	7.5	15	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.4	45	
6.1.3	Domestic res utility model app./tr PPP$ GDP	30.2	1	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	13.9	62	
6.1.5	Citable documents H index	142.0	43	
6.2	Knowledge impact	34.6	85	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.8	21	●
6.2.2	New businesses/th pop. 15–64	0.9	62	
6.2.3	Computer software spending, % GDP	0.3	43	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.3	82	
6.2.5	High- & medium-high-tech manufactures, %	21.7	50	
6.3	Knowledge diffusion	31.1	71	
6.3.1	Royalty & license fees receipts, % total trade	0.1	47	
6.3.2	High-tech exports less re-exports, %	2.8	46	
6.3.3	Comm., computer & info. services exp., % total trade	1.6	56	
6.3.4	FDI net outflows, % GDP	0.7	55	
7	**Creative outputs**	**30.6**	**77**	
7.1	Intangible assets	35.8	112	
7.1.1	Domestic res trademark app./bn PPP$ GDP	91.7	20	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.9	31	
7.1.3	ICTs & business model creation†	42.7	120	○
7.1.4	ICTs & organizational model creation†	39.0	122	○
7.2	Creative goods & services	14.4	82	
7.2.1	Cultural & creative services exports, % total trade	0.0	74	
7.2.2	National feature films/mn pop. 15–69	0.1	99	○
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	43	
7.2.5	Creative goods exports, % total trade	0.7	51	
7.3	Online creativity	36.3	42	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	5.1	59	
7.3.2	Country-code TLDs/th pop. 15–69	41.3	45	
7.3.3	Wikipedia edits/pop. 15–69	10,862.7	43	
7.3.4	Video uploads on YouTube/pop. 15–69	80.5	28	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

United Arab Emirates

Key indicators

Population (millions)	9.2
GDP (US$ billions)	396.2
GDP per capita, PPP$	30,122.1
Income group	High income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**43.2**	**36**	
Innovation Output Sub-Index		30.3	68	
Innovation Input Sub-Index		56.2	25	
Innovation Efficiency Ratio		0.5	127	○
Global Innovation Index 2013 (out of 142)		41.9	38	
1	**Institutions**	**76.6**	**30**	
1.1	Political environment	75.0	34	
1.1.1	Political stability*	87.2	29	
1.1.2	Government effectiveness*	71.3	28	
1.1.3	Press freedom*	66.5	93	
1.2	Regulatory environment	82.0	27	
1.2.1	Regulatory quality*	66.4	43	
1.2.2	Rule of law*	61.8	42	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	72.9	36	
1.3.1	Ease of starting a business*	88.7	47	
1.3.2	Ease of resolving insolvency*	31.1	90	
1.3.3	Ease of paying taxes*	98.9	1	●
2	**Human capital & research**	**62.1**	**4**	●
2.1	Education	66.3	2	●
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	468.7	38	
2.1.5	Pupil-teacher ratio, secondary	14.3	51	
2.2	Tertiary education	100.0	1	●
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	39.8	1	●
2.3	Research & development (R&D)	19.9	44	
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.5	59	
2.3.3	QS university ranking, average score top 3*	28.8	42	
3	**Infrastructure**	**55.9**	**18**	
3.1	Information & communication technologies (ICTs)	71.2	18	
3.1.1	ICT access*	73.1	24	
3.1.2	ICT use*	51.8	29	
3.1.3	Government's online service*	86.3	9	●
3.1.4	E-participation*	73.7	11	●
3.2	General infrastructure	53.7	12	●
3.2.1	Electricity output, kWh/cap	12,564.9	9	●
3.2.2	Logistics performance*	86.1	17	
3.2.3	Gross capital formation, % GDP	24.9	50	
3.3	Ecological sustainability	42.7	50	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	5.0	83	○
3.3.2	Environmental performance*	72.9	25	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.4	30	
4	**Market sophistication**	**46.2**	**85**	
4.1	Credit	37.3	63	
4.1.1	Ease of getting credit*	56.3	81	
4.1.2	Domestic credit to private sector, % GDP	59.1	55	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	25.2	121	○
4.2.1	Ease of protecting investors*	50.0	81	○
4.2.2	Market capitalization, % GDP	19.8	72	○
4.2.3	Total value of stocks traded, % GDP	4.4	51	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	31	
4.3	Trade & competition	76.2	58	
4.3.1	Applied tariff rate, weighted mean, %	3.7	65	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.7	126	○
4.3.3	Intensity of local competition†	78.5	15	●
5	**Business sophistication**	**40.3**	**34**	
5.1	Knowledge workers	37.6	78	
5.1.1	Knowledge-intensive employment, %	36.1	30	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	54	
5.1.4	GERD financed by business, %	28.6	56	
5.1.5	GMAT test takers/mn pop. 20–34	25.4	105	○
5.2	Innovation linkages	63.8	2	●
5.2.1	University/industry research collaboration†	63.2	22	
5.2.2	State of cluster development†	74.2	2	●
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.3	1	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	63	
5.3	Knowledge absorption	19.5	104	○
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	5.5	93	○
5.3.3	Comm., computer & info. services imp., % total trade	n/a	n/a	
5.3.4	FDI net inflows, % GDP	2.2	85	
6	**Knowledge & technology outputs**	**14.3**	**132**	○
6.1	Knowledge creation	7.7	92	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.2	65	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.1	108	○
6.1.5	Citable documents H index	87.0	71	
6.2	Knowledge impact	34.9	82	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.9	70	
6.2.2	New businesses/th pop. 15–64	1.4	50	
6.2.3	Computer software spending, % GDP	0.3	59	○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	12.6	39	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	0.3	141	○
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	0.1	108	○
6.3.3	Comm., computer & info. services exp., % total trade	n/a	n/a	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**46.2**	**21**	
7.1	Intangible assets	74.2	1	●
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	76.5	4	●
7.1.4	ICTs & organizational model creation†	71.8	8	●
7.2	Creative goods & services	4.9	111	○
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	0.4	32	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.1	98	○
7.3	Online creativity	31.7	46	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	13.9	39	
7.3.2	Country-code TLDs/th pop. 15–69	35.2	50	
7.3.3	Wikipedia edits/pop. 15–69	3,798.4	62	
7.3.4	Video uploads on YouTube/pop. 15–69	71.3	39	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

United Kingdom

Key indicators

Population (millions)	63.2
GDP (US$ billions)	2,535.8
GDP per capita, PPP$	37,306.6
Income group	High income
Region	Europe

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**62.4**	**2**	●
Innovation Output Sub-Index		56.5	4	●
Innovation Input Sub-Index		68.2	3	●
Innovation Efficiency Ratio		0.8	29	
Global Innovation Index 2013 (out of 142)		61.2	3	
1	**Institutions**	**88.6**	**13**	
1.1	Political environment	80.2	25	
1.1.1	Political stability*	75.7	50	○
1.1.2	Government effectiveness*	81.6	17	
1.1.3	Press freedom*	83.1	27	
1.2	Regulatory environment	95.7	9	
1.2.1	Regulatory quality*	91.7	12	
1.2.2	Rule of law*	92.9	14	
1.2.3	Cost of redundancy dismissal, salary weeks	8.5	24	
1.3	Business environment	90.0	10	
1.3.1	Ease of starting a business*	88.5	49	○
1.3.2	Ease of resolving insolvency*	93.8	7	
1.3.3	Ease of paying taxes*	87.6	13	
2	**Human capital & research**	**60.3**	**10**	
2.1	Education	57.2	16	
2.1.1	Expenditure on education, % GDP	6.2	23	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	33.6	12	
2.1.3	School life expectancy, years	16.2	22	
2.1.4	PISA scales in reading, maths, & science	502.5	17	
2.1.5	Pupil-teacher ratio, secondary	14.3	50	○
2.2	Tertiary education	56.2	12	
2.2.1	Tertiary enrolment, % gross	61.2	33	
2.2.2	Graduates in science & engineering, %	22.3	37	○
2.2.3	Tertiary inbound mobility, %	16.8	9	
2.3	Research & development (R&D)	67.5	11	
2.3.1	Researchers, headcounts/mn pop.	6,872.2	11	
2.3.2	Gross expenditure on R&D, % GDP	1.7	21	
2.3.3	QS university ranking, average score top 3*	98.9	1	●
3	**Infrastructure**	**60.6**	**6**	●
3.1	Information & communication technologies (ICTs)	86.5	4	●
3.1.1	ICT access*	84.6	6	
3.1.2	ICT use*	71.9	12	
3.1.3	Government's online service*	97.4	4	●
3.1.4	E-participation*	92.1	5	●
3.2	General infrastructure	35.1	60	○
3.2.1	Electricity output, kWh/cap	5,697.9	36	
3.2.2	Logistics performance*	90.9	10	
3.2.3	Gross capital formation, % GDP	14.0	132	○
3.3	Ecological sustainability	60.1	7	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.8	12	
3.3.2	Environmental performance*	77.4	12	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6.9	19	
4	**Market sophistication**	**81.4**	**2**	●
4.1	Credit	79.2	3	●
4.1.1	Ease of getting credit*	100.0	1	●
4.1.2	Domestic credit to private sector, % GDP	178.7	9	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	82.8	2	●
4.2.1	Ease of protecting investors*	80.0	10	
4.2.2	Market capitalization, % GDP	124.0	7	
4.2.3	Total value of stocks traded, % GDP	102.2	1	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.4	7	
4.3	Trade & competition	82.3	16	
4.3.1	Applied tariff rate, weighted mean, %	1.1	10	
4.3.2	Non-agricultural mkt access weighted tariff, %	3.3	97	○
4.3.3	Intensity of local competition†	84.0	2	●
5	**Business sophistication**	**50.2**	**14**	
5.1	Knowledge workers	65.0	20	
5.1.1	Knowledge-intensive employment, %	47.2	5	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.1	21	
5.1.4	GERD financed by business, %	63.4	19	
5.1.5	GMAT test takers/mn pop. 20–34	124.5	42	
5.2	Innovation linkages	50.7	13	
5.2.1	University/industry research collaboration†	76.3	5	●
5.2.2	State of cluster development†	67.7	12	
5.2.3	GERD financed by abroad, %	19.7	20	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	24	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.0	19	
5.3	Knowledge absorption	34.8	29	
5.3.1	Royalty & license fees payments, % total trade	1.0	27	
5.3.2	High-tech imports less re-imports, %	10.9	25	
5.3.3	Comm., computer & info. services imp., % total trade	1.8	16	
5.3.4	FDI net inflows, % GDP	2.3	80	○
6	**Knowledge & technology outputs**	**56.4**	**5**	●
6.1	Knowledge creation	59.7	7	
6.1.1	Domestic resident patent app./tr PPP$ GDP	6.6	18	
6.1.2	PCT resident patent app./tr PPP$ GDP	2.1	21	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	43.0	15	
6.1.5	Citable documents H index	851.0	1	●
6.2	Knowledge impact	57.8	8	
6.2.1	Growth rate of PPP$ GDP/worker, %	–0.7	102	○
6.2.2	New businesses/th pop. 15–64	11.0	10	
6.2.3	Computer software spending, % GDP	0.7	6	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	19.3	22	
6.2.5	High- & medium-high-tech manufactures, %	38.0	23	
6.3	Knowledge diffusion	51.7	9	
6.3.1	Royalty & license fees receipts, % total trade	1.4	14	
6.3.2	High-tech exports less re-exports, %	9.3	22	
6.3.3	Comm., computer & info. services exp., % total trade	3.3	18	
6.3.4	FDI net outflows, % GDP	2.9	25	
7	**Creative outputs**	**56.6**	**7**	
7.1	Intangible assets	50.5	40	
7.1.1	Domestic res trademark app./bn PPP$ GDP	48.7	56	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	1.0	30	○
7.1.3	ICTs & business model creation†	75.8	6	
7.1.4	ICTs & organizational model creation†	73.2	6	
7.2	Creative goods & services	52.4	5	●
7.2.1	Cultural & creative services exports, % total trade	1.4	1	●
7.2.2	National feature films/mn pop. 15–69	6.8	17	
7.2.3	Global ent. & media output/th pop. 15–69	1.9	8	
7.2.4	Printing & publishing manufactures, %	0.0	28	
7.2.5	Creative goods exports, % total trade	2.9	18	
7.3	Online creativity	73.1	4	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	76.0	12	
7.3.2	Country-code TLDs/th pop. 15–69	73.9	6	●
7.3.3	Wikipedia edits/pop. 15–69	27,536.2	11	
7.3.4	Video uploads on YouTube/pop. 15–69	95.6	4	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

United States of America

Key indicators

Population (millions)	313.9
GDP (US$ billions)	16,799.7
GDP per capita, PPP$	53,101.0
Income group	High income
Region	Northern America

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**60.1**	**6**	
Innovation Output Sub-Index		52.3	7	
Innovation Input Sub-Index		67.9	4	●
Innovation Efficiency Ratio		0.8	57	
Global Innovation Index 2013 (out of 142)		60.3	5	
1	**Institutions**	**86.2**	**17**	
1.1	Political environment	81.4	21	
1.1.1	Political stability*	81.2	38	
1.1.2	Government effectiveness*	81.2	18	
1.1.3	Press freedom*	81.8	29	
1.2	Regulatory environment	93.2	13	
1.2.1	Regulatory quality*	82.4	20	
1.2.2	Rule of law*	90.5	17	
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1	●
1.3	Business environment	84.0	15	
1.3.1	Ease of starting a business*	89.9	39	
1.3.2	Ease of resolving insolvency*	86.3	16	
1.3.3	Ease of paying taxes*	75.8	46	
2	**Human capital & research**	**58.3**	**11**	
2.1	Education	52.6	38	
2.1.1	Expenditure on education, % GDP	5.4	45	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	24.3	46	
2.1.3	School life expectancy, years	16.5	13	
2.1.4	PISA scales in reading, maths, & science	492.1	25	
2.1.5	Pupil-teacher ratio, secondary	14.7	57	
2.2	Tertiary education	41.1	41	
2.2.1	Tertiary enrolment, % gross	95.3	3	●
2.2.2	Graduates in science & engineering, %	15.5	84	○
2.2.3	Tertiary inbound mobility, %	3.4	49	
2.3	Research & development (R&D)	81.3	2	●
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	2.8	11	
2.3.3	QS university ranking, average score top 3*	98.7	2	●
3	**Infrastructure**	**57.5**	**14**	
3.1	Information & communication technologies (ICTs)	83.0	5	
3.1.1	ICT access*	72.4	28	
3.1.2	ICT use*	67.6	13	
3.1.3	Government's online service*	100.0	1	●
3.1.4	E-participation*	92.1	5	
3.2	General infrastructure	50.7	16	
3.2.1	Electricity output, kWh/cap	13,589.2	7	
3.2.2	Logistics performance*	92.1	8	
3.2.3	Gross capital formation, % GDP	19.4	96	○
3.3	Ecological sustainability	38.9	58	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	6.3	59	
3.3.2	Environmental performance*	67.5	33	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	94	○
4	**Market sophistication**	**83.8**	**1**	●
4.1	Credit	78.4	4	●
4.1.1	Ease of getting credit*	93.8	3	
4.1.2	Domestic credit to private sector, % GDP	192.4	5	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	87.3	1	●
4.2.1	Ease of protecting investors*	83.3	6	
4.2.2	Market capitalization, % GDP	119.0	9	
4.2.3	Total value of stocks traded, % GDP	136.3	1	●
4.2.4	Venture capital deals/tr PPP$ GDP	0.7	1	●
4.3	Trade & competition	85.6	4	●
4.3.1	Applied tariff rate, weighted mean, %	1.6	42	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.2	80	○
4.3.3	Intensity of local competition†	80.3	11	
5	**Business sophistication**	**53.7**	**10**	
5.1	Knowledge workers	73.5	7	
5.1.1	Knowledge-intensive employment, %	36.3	28	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.9	11	
5.1.4	GERD financed by business, %	69.8	8	
5.1.5	GMAT test takers/mn pop. 20–34	1,376.3	1	●
5.2	Innovation linkages	46.4	25	
5.2.1	University/industry research collaboration†	79.0	3	●
5.2.2	State of cluster development†	70.5	5	
5.2.3	GERD financed by abroad, %	3.8	68	○
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	37	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	1.6	11	
5.3	Knowledge absorption	41.3	12	
5.3.1	Royalty & license fees payments, % total trade	1.7	11	
5.3.2	High-tech imports less re-imports, %	15.9	11	
5.3.3	Comm., computer & info. services imp., % total trade	1.4	43	
5.3.4	FDI net inflows, % GDP	1.3	107	○
6	**Knowledge & technology outputs**	**58.1**	**4**	●
6.1	Knowledge creation	68.5	3	●
6.1.1	Domestic resident patent app./tr PPP$ GDP	16.5	1	●
6.1.2	PCT resident patent app./tr PPP$ GDP	3.2	16	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	20.5	45	
6.1.5	Citable documents H index	1,380.0	1	●
6.2	Knowledge impact	56.7	11	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.5	77	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	1.0	1	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	110	○
6.2.5	High- & medium-high-tech manufactures, %	43.3	17	
6.3	Knowledge diffusion	49.0	15	
6.3.1	Royalty & license fees receipts, % total trade	5.1	1	●
6.3.2	High-tech exports less re-exports, %	6.9	26	
6.3.3	Comm., computer & info. services exp., % total trade	1.2	77	
6.3.4	FDI net outflows, % GDP	2.6	26	
7	**Creative outputs**	**46.5**	**20**	
7.1	Intangible assets	44.0	72	
7.1.1	Domestic res trademark app./bn PPP$ GDP	20.3	84	○
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.3	47	○
7.1.3	ICTs & business model creation†	71.3	15	
7.1.4	ICTs & organizational model creation†	72.0	7	
7.2	Creative goods & services	34.4	30	
7.2.1	Cultural & creative services exports, % total trade	0.4	24	
7.2.2	National feature films/mn pop. 15–69	3.7	36	
7.2.3	Global ent. & media output/th pop. 15–69	2.2	4	
7.2.4	Printing & publishing manufactures, %	0.0	38	
7.2.5	Creative goods exports, % total trade	1.7	33	
7.3	Online creativity	63.3	15	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	100.0	1	●
7.3.2	Country-code TLDs/th pop. 15–69	29.8	61	
7.3.3	Wikipedia edits/pop. 15–69	13,812.2	37	
7.3.4	Video uploads on YouTube/pop. 15–69	100.0	1	●

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Uruguay

Key indicators

Population (millions)	3.4
GDP (US$ billions)	56.3
GDP per capita, PPP$	16,722.7
Income group	High income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**34.8**	**72**	
Innovation Output Sub-Index		29.3	72	
Innovation Input Sub-Index		40.3	73	
Innovation Efficiency Ratio		0.7	75	
Global Innovation Index 2013 (out of 142)		38.1	52	
1	**Institutions**	**68.7**	**47**	
1.1	Political environment	73.3	39	●
1.1.1	Political stability*	83.1	36	●
1.1.2	Government effectiveness*	52.7	48	
1.1.3	Press freedom*	84.1	25	●
1.2	Regulatory environment	67.3	65	
1.2.1	Regulatory quality*	59.1	56	
1.2.2	Rule of law*	61.3	43	
1.2.3	Cost of redundancy dismissal, salary weeks	20.8	97	
1.3	Business environment	65.5	68	
1.3.1	Ease of starting a business*	88.8	44	
1.3.2	Ease of resolving insolvency*	47.7	45	
1.3.3	Ease of paying taxes*	59.8	103	
2	**Human capital & research**	**29.4**	**67**	
2.1	Education	42.0	73	
2.1.1	Expenditure on education, % GDP	4.5	76	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	10.7	94	○
2.1.3	School life expectancy, years	15.5	35	●
2.1.4	PISA scales in reading, maths, & science	412.2	52	○
2.1.5	Pupil-teacher ratio, secondary	11.3	31	●
2.2	Tertiary education	38.4	52	
2.2.1	Tertiary enrolment, % gross	63.2	30	●
2.2.2	Graduates in science & engineering, %	15.6	82	○
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	7.9	75	
2.3.1	Researchers, headcounts/mn pop.	734.6	63	
2.3.2	Gross expenditure on R&D, % GDP	0.4	65	
2.3.3	QS university ranking, average score top 3*	7.2	63	
3	**Infrastructure**	**38.6**	**62**	
3.1	Information & communication technologies (ICTs)	43.9	52	
3.1.1	ICT access*	63.8	46	
3.1.2	ICT use*	38.4	46	
3.1.3	Government's online service*	54.9	52	
3.1.4	E-participation*	18.4	73	
3.2	General infrastructure	28.7	92	
3.2.1	Electricity output, kWh/cap	3,069.4	63	
3.2.2	Logistics performance*	54.4	56	
3.2.3	Gross capital formation, % GDP	19.7	93	
3.3	Ecological sustainability	43.1	49	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	10.1	14	●
3.3.2	Environmental performance*	53.6	64	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	46	
4	**Market sophistication**	**40.0**	**125**	○
4.1	Credit	23.1	117	○
4.1.1	Ease of getting credit*	62.5	69	
4.1.2	Domestic credit to private sector, % GDP	24.1	110	
4.1.3	Microfinance gross loans, % GDP	0.0	83	○
4.2	Investment	23.9	124	○
4.2.1	Ease of protecting investors*	50.0	81	
4.2.2	Market capitalization, % GDP	0.4	108	○
4.2.3	Total value of stocks traded, % GDP	0.0	108	○
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	26	
4.3	Trade & competition	73.0	91	
4.3.1	Applied tariff rate, weighted mean, %	3.8	66	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.0	75	
4.3.3	Intensity of local competition†	57.7	108	○
5	**Business sophistication**	**24.7**	**116**	○
5.1	Knowledge workers	30.5	94	
5.1.1	Knowledge-intensive employment, %	23.1	62	
5.1.2	Firms offering formal training, % firms	32.3	56	
5.1.3	GERD performed by business, % GDP	0.1	68	
5.1.4	GERD financed by business, %	14.3	70	○
5.1.5	GMAT test takers/mn pop. 20–34	66.2	65	
5.2	Innovation linkages	22.6	119	○
5.2.1	University/industry research collaboration†	43.3	64	
5.2.2	State of cluster development†	41.0	94	
5.2.3	GERD financed by abroad, %	6.5	56	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	84	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.1	51	
5.3	Knowledge absorption	21.0	95	
5.3.1	Royalty & license fees payments, % total trade	0.2	80	
5.3.2	High-tech imports less re-imports, %	8.1	55	
5.3.3	Comm., computer & info. services imp., % total trade	0.4	108	
5.3.4	FDI net inflows, % GDP	4.7	44	
6	**Knowledge & technology outputs**	**24.1**	**90**	
6.1	Knowledge creation	10.2	77	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.4	83	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.7	37	
6.1.4	Scientific & technical articles/bn PPP$ GDP	12.7	67	
6.1.5	Citable documents H index	104.0	63	
6.2	Knowledge impact	36.4	76	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.7	39	
6.2.2	New businesses/th pop. 15–64	3.0	31	
6.2.3	Computer software spending, % GDP	0.3	56	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	13.8	34	●
6.2.5	High- & medium-high-tech manufactures, %	11.7	71	
6.3	Knowledge diffusion	25.7	105	
6.3.1	Royalty & license fees receipts, % total trade	0.0	105	○
6.3.2	High-tech exports less re-exports, %	1.4	61	
6.3.3	Comm., computer & info. services exp., % total trade	1.5	60	
6.3.4	FDI net outflows, % GDP	0.4	70	
7	**Creative outputs**	**34.4**	**62**	
7.1	Intangible assets	49.2	46	
7.1.1	Domestic res trademark app./bn PPP$ GDP	77.3	29	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	59.3	58	
7.1.4	ICTs & organizational model creation†	58.2	46	
7.2	Creative goods & services	9.8	95	
7.2.1	Cultural & creative services exports, % total trade	0.0	84	○
7.2.2	National feature films/mn pop. 15–69	3.5	41	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	68	
7.2.5	Creative goods exports, % total trade	0.1	90	
7.3	Online creativity	29.6	49	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	8.4	52	
7.3.2	Country-code TLDs/th pop. 15–69	46.1	39	●
7.3.3	Wikipedia edits/pop. 15–69	20,274.9	26	●
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Uzbekistan

Key indicators

Population (millions)	29.8
GDP (US$ billions)	56.5
GDP per capita, PPP$	3,761.6
Income group	Lower-middle income
Region	Central and Southern Asia

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.2**	**128**	
Innovation Output Sub-Index		19.1	123	
Innovation Input Sub-Index		31.3	124	
Innovation Efficiency Ratio		0.6	108	
Global Innovation Index 2013 (out of 142)		23.9	133	
1	**Institutions**	**46.1**	**124**	
1.1	Political environment	36.1	134	
1.1.1	Political stability*	52.9	97	
1.1.2	Government effectiveness*	15.8	129	
1.1.3	Press freedom*	39.6	136	○
1.2	Regulatory environment	45.2	123	
1.2.1	Regulatory quality*	6.7	141	○
1.2.2	Rule of law*	11.5	138	○
1.2.3	Cost of redundancy dismissal, salary weeks	17.3	81	
1.3	Business environment	56.9	93	
1.3.1	Ease of starting a business*	92.5	22	●
1.3.2	Ease of resolving insolvency*	42.2	55	●
1.3.3	Ease of paying taxes*	36.1	134	○
2	**Human capital & research**	**27.1**	**77**	
2.1	Education	55.7	22	●
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.5	95	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	13.3	44	●
2.2	Tertiary education	20.5	101	
2.2.1	Tertiary enrolment, % gross	8.9	115	
2.2.2	Graduates in science & engineering, %	21.1	46	●
2.2.3	Tertiary inbound mobility, %	0.1	104	
2.3	Research & development (R&D)	5.1	85	
2.3.1	Researchers, headcounts/mn pop.	1,097.3	56	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**29.2**	**96**	
3.1	Information & communication technologies (ICTs)	29.2	94	
3.1.1	ICT access*	23.8	116	
3.1.2	ICT use*	19.5	83	
3.1.3	Government's online service*	49.7	68	
3.1.4	E-participation*	23.7	60	
3.2	General infrastructure	33.6	68	
3.2.1	Electricity output, kWh/cap	1,786.0	80	
3.2.2	Logistics performance*	33.7	113	
3.2.3	Gross capital formation, % GDP	30.8	20	●
3.3	Ecological sustainability	24.9	117	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	1.8	122	○
3.3.2	Environmental performance*	43.2	102	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	n/a	n/a	
4	**Market sophistication**	**41.1**	**118**	
4.1	Credit	27.3	103	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	n/a	n/a	
4.1.3	Microfinance gross loans, % GDP	0.9	40	●
4.2	Investment	16.8	140	○
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	4.2	103	○
4.2.3	Total value of stocks traded, % GDP	0.2	92	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	57	
4.3	Trade & competition	79.4	32	●
4.3.1	Applied tariff rate, weighted mean, %	6.9	105	
4.3.2	Non-agricultural mkt access weighted tariff, %	1.6	88	
4.3.3	Intensity of local competition†	n/a	n/a	
5	**Business sophistication**	**12.7**	**140**	○
5.1	Knowledge workers	9.1	141	○
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % firms	9.6	102	○
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	10.8	120	
5.2	Innovation linkages	3.6	142	○
5.2.1	University/industry research collaboration†	n/a	n/a	
5.2.2	State of cluster development†	n/a	n/a	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	85	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	85	
5.3	Knowledge absorption	25.5	70	
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	n/a	n/a	
5.3.4	FDI net inflows, % GDP	3.1	64	
6	**Knowledge & technology outputs**	**26.6**	**73**	
6.1	Knowledge creation	11.2	74	
6.1.1	Domestic resident patent app./tr PPP$ GDP	2.5	45	●
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	111	○
6.1.3	Domestic res utility model app./tr PPP$ GDP	1.7	20	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.8	127	
6.1.5	Citable documents H index	53.0	106	
6.2	Knowledge impact	41.9	58	●
6.2.1	Growth rate of PPP$ GDP/worker, %	5.4	6	●
6.2.2	New businesses/th pop. 15–64	0.6	72	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.8	103	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	n/a	n/a	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	n/a	n/a	
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**11.7**	**139**	○
7.1	Intangible assets	16.1	138	○
7.1.1	Domestic res trademark app./bn PPP$ GDP	62.0	41	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.0	70	
7.1.3	ICTs & business model creation†	n/a	n/a	
7.1.4	ICTs & organizational model creation†	n/a	n/a	
7.2	Creative goods & services	n/a	n/a	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	2.9	118	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.1	138	○
7.3.2	Country-code TLDs/th pop. 15–69	8.4	107	
7.3.3	Wikipedia edits/pop. 15–69	146.7	118	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Venezuela, Bolivarian Republic of

Key indicators

Population (millions)	30.0
GDP (US$ billions)	374.0
GDP per capita, PPP$	13,604.7
Income group	Upper-middle income
Region	Latin America and the Caribbean

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.7**	**122**	
Innovation Output Sub-Index		25.0	94	
Innovation Input Sub-Index		26.3	137	
Innovation Efficiency Ratio		0.9	7	●
Global Innovation Index 2013 (out of 142)		27.3	114	
1	**Institutions**	**21.1**	**143**	○
1.1	Political environment	39.2	127	
1.1.1	Political stability*	41.4	118	
1.1.2	Government effectiveness*	10.5	136	
1.1.3	Press freedom*	65.6	96	
1.2	Regulatory environment	2.2	142	○
1.2.1	Regulatory quality*	8.7	140	○
1.2.2	Rule of law*	0.0	143	○
1.2.3	Cost of redundancy dismissal, salary weeks	82.3	139	○
1.3	Business environment	21.9	143	○
1.3.1	Ease of starting a business*	45.7	141	○
1.3.2	Ease of resolving insolvency*	6.9	139	○
1.3.3	Ease of paying taxes*	13.1	141	○
2	**Human capital & research**	**31.2**	**60**	
2.1	Education	40.5	83	
2.1.1	Expenditure on education, % GDP	6.9	14	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	16.6	74	
2.1.3	School life expectancy, years	14.2	53	●
2.1.4	PISA scales in reading, maths, & science	413.4	50	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	39.7	47	●
2.2.1	Tertiary enrolment, % gross	77.9	12	●
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.1	110	○
2.3	Research & development (R&D)	13.5	60	
2.3.1	Researchers, headcounts/mn pop.	342.4	78	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	23.9	47	●
3	**Infrastructure**	**26.0**	**112**	
3.1	Information & communication technologies (ICTs)	34.0	79	
3.1.1	ICT access*	41.3	79	
3.1.2	ICT use*	20.0	81	
3.1.3	Government's online service*	48.4	74	
3.1.4	E-participation*	26.3	56	●
3.2	General infrastructure	29.7	89	
3.2.1	Electricity output, kWh/cap	4,168.7	52	
3.2.2	Logistics performance*	34.9	107	
3.2.3	Gross capital formation, % GDP	24.0	63	
3.3	Ecological sustainability	14.3	142	○
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.7	87	
3.3.2	Environmental performance*	n/a	n/a	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	107	
4	**Market sophistication**	**29.6**	**143**	○
4.1	Credit	17.1	131	
4.1.1	Ease of getting credit*	43.8	112	
4.1.2	Domestic credit to private sector, % GDP	25.3	108	
4.1.3	Microfinance gross loans, % GDP	0.0	78	
4.2	Investment	12.6	143	○
4.2.1	Ease of protecting investors*	23.3	142	○
4.2.2	Market capitalization, % GDP	6.6	97	
4.2.3	Total value of stocks traded, % GDP	0.0	107	○
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	59.0	132	
4.3.1	Applied tariff rate, weighted mean, %	8.6	119	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	31	●
4.3.3	Intensity of local competition†	34.0	135	○
5	**Business sophistication**	**23.7**	**121**	
5.1	Knowledge workers	38.2	76	
5.1.1	Knowledge-intensive employment, %	18.6	78	
5.1.2	Firms offering formal training, % firms	39.0	43	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	48.2	77	
5.2	Innovation linkages	19.9	129	
5.2.1	University/industry research collaboration†	39.7	79	
5.2.2	State of cluster development†	27.7	132	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	100	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	91	
5.3	Knowledge absorption	13.1	131	
5.3.1	Royalty & license fees payments, % total trade	0.5	56	
5.3.2	High-tech imports less re-imports, %	n/a	n/a	
5.3.3	Comm., computer & info. services imp., % total trade	0.5	91	
5.3.4	FDI net inflows, % GDP	0.6	124	
6	**Knowledge & technology outputs**	**26.6**	**74**	
6.1	Knowledge creation	6.5	98	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.1	104	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.3	129	
6.1.5	Citable documents H index	130.0	50	●
6.2	Knowledge impact	39.6	67	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.7	22	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.2	69	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	113	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	33.5	55	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	n/a	n/a	
6.3.3	Comm., computer & info. services exp., % total trade	0.2	125	
6.3.4	FDI net outflows, % GDP	0.4	69	
7	**Creative outputs**	**23.4**	**108**	
7.1	Intangible assets	32.3	124	
7.1.1	Domestic res trademark app./bn PPP$ GDP	29.9	73	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	42.0	122	
7.1.4	ICTs & organizational model creation†	43.3	107	
7.2	Creative goods & services	3.9	115	
7.2.1	Cultural & creative services exports, % total trade	0.0	89	
7.2.2	National feature films/mn pop. 15–69	0.8	78	
7.2.3	Global ent. & media output/th pop. 15–69	0.2	42	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	n/a	n/a	
7.3	Online creativity	25.2	60	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.3	85	
7.3.2	Country-code TLDs/th pop. 15–69	34.5	51	●
7.3.3	Wikipedia edits/pop. 15–69	2,381.6	75	
7.3.4	Video uploads on YouTube/pop. 15–69	59.9	51	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Viet Nam

Key indicators

Population (millions)	88.8
GDP (US$ billions)	170.6
GDP per capita, PPP$	4,011.5
Income group	Lower-middle income
Region	South East Asia and Oceania

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**34.9**	**71**	
Innovation Output Sub-Index		34.0	47	
Innovation Input Sub-Index		35.8	100	
Innovation Efficiency Ratio		1.0	5	●
Global Innovation Index 2013 (out of 142)		32.0	76	
1	**Institutions**	**46.6**	**121**	
1.1	Political environment	44.4	113	
1.1.1	Political stability*	71.8	56	
1.1.2	Government effectiveness*	33.1	86	
1.1.3	Press freedom*	28.2	140	○
1.2	Regulatory environment	49.2	118	
1.2.1	Regulatory quality*	31.0	117	
1.2.2	Rule of law*	32.5	91	
1.2.3	Cost of redundancy dismissal, salary weeks	24.6	111	
1.3	Business environment	46.2	129	○
1.3.1	Ease of starting a business*	75.7	104	
1.3.2	Ease of resolving insolvency*	17.2	127	
1.3.3	Ease of paying taxes*	45.7	125	
2	**Human capital & research**	**24.2**	**89**	
2.1	Education	45.1	62	
2.1.1	Expenditure on education, % GDP	6.3	21	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	27.5	83	
2.2.1	Tertiary enrolment, % gross	24.6	84	
2.2.2	Graduates in science & engineering, %	24.0	31	
2.2.3	Tertiary inbound mobility, %	0.2	102	○
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**28.6**	**99**	
3.1	Information & communication technologies (ICTs)	28.9	95	
3.1.1	ICT access*	40.4	81	
3.1.2	ICT use*	22.2	78	
3.1.3	Government's online service*	42.5	90	
3.1.4	E-participation*	10.5	94	
3.2	General infrastructure	31.1	79	
3.2.1	Electricity output, kWh/cap	1,129.1	91	
3.2.2	Logistics performance*	55.2	53	
3.2.3	Gross capital formation, % GDP	24.0	62	
3.3	Ecological sustainability	25.9	112	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	4.3	94	
3.3.2	Environmental performance*	38.2	114	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.3	41	
4	**Market sophistication**	**45.0**	**92**	
4.1	Credit	52.0	31	●
4.1.1	Ease of getting credit*	75.0	40	
4.1.2	Domestic credit to private sector, % GDP	104.3	28	●
4.1.3	Microfinance gross loans, % GDP	3.8	14	●
4.2	Investment	16.5	141	○
4.2.1	Ease of protecting investors*	33.3	125	○
4.2.2	Market capitalization, % GDP	23.2	64	
4.2.3	Total value of stocks traded, % GDP	2.4	60	
4.2.4	Venture capital deals/tr PPP$ GDP	0.0	71	○
4.3	Trade & competition	66.6	122	
4.3.1	Applied tariff rate, weighted mean, %	5.7	90	
4.3.2	Non-agricultural mkt access weighted tariff, %	5.1	132	○
4.3.3	Intensity of local competition†	70.2	48	
5	**Business sophistication**	**34.4**	**59**	
5.1	Knowledge workers	32.9	89	
5.1.1	Knowledge-intensive employment, %	7.4	100	○
5.1.2	Firms offering formal training, % firms	43.6	38	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	51.6	74	
5.2	Innovation linkages	29.5	80	
5.2.1	University/industry research collaboration†	39.0	83	
5.2.2	State of cluster development†	48.0	64	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	58	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	97	
5.3	Knowledge absorption	40.7	14	●
5.3.1	Royalty & license fees payments, % total trade	n/a	n/a	
5.3.2	High-tech imports less re-imports, %	18.9	7	●
5.3.3	Comm., computer & info. services imp., % total trade	0.0	137	○
5.3.4	FDI net inflows, % GDP	6.0	32	●
6	**Knowledge & technology outputs**	**32.2**	**49**	
6.1	Knowledge creation	7.3	94	
6.1.1	Domestic resident patent app./tr PPP$ GDP	1.1	64	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.0	96	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.6	38	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.8	102	
6.1.5	Citable documents H index	107.0	59	
6.2	Knowledge impact	48.4	33	●
6.2.1	Growth rate of PPP$ GDP/worker, %	3.5	27	●
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.3	42	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	18.3	23	●
6.2.5	High- & medium-high-tech manufactures, %	26.2	41	
6.3	Knowledge diffusion	40.9	30	●
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	17.8	6	●
6.3.3	Comm., computer & info. services exp., % total trade	0.1	131	○
6.3.4	FDI net outflows, % GDP	0.8	52	
7	**Creative outputs**	**35.8**	**58**	
7.1	Intangible assets	46.4	57	
7.1.1	Domestic res trademark app./bn PPP$ GDP	104.4	14	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	0.2	54	
7.1.3	ICTs & business model creation†	64.0	38	
7.1.4	ICTs & organizational model creation†	56.0	57	
7.2	Creative goods & services	26.1	46	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.2	67	
7.2.3	Global ent. & media output/th pop. 15–69	0.0	57	○
7.2.4	Printing & publishing manufactures, %	0.0	61	
7.2.5	Creative goods exports, % total trade	4.1	15	●
7.3	Online creativity	24.4	61	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.1	88	
7.3.2	Country-code TLDs/th pop. 15–69	27.6	63	
7.3.3	Wikipedia edits/pop. 15–69	1,142.9	93	
7.3.4	Video uploads on YouTube/pop. 15–69	65.8	47	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Yemen

Key indicators

Population (millions)	23.9
GDP (US$ billions)	39.2
GDP per capita, PPP$	2,316.3
Income group	Lower-middle income
Region	Northern Africa and Western Asia

		Score (0–100) or value (hard data)	Rank	
	Global Innovation Index (out of 143)	**19.5**	**141**	○
	Innovation Output Sub-Index	14.7	139	
	Innovation Input Sub-Index	24.4	141	○
	Innovation Efficiency Ratio	0.6	111	
	Global Innovation Index 2013 (out of 142)	19.3	142	
1	**Institutions**	**36.6**	**138**	
1.1	Political environment	14.6	142	○
1.1.1	Political stability*	6.1	142	○
1.1.2	Government effectiveness*	6.8	139	
1.1.3	Press freedom*	30.8	138	
1.2	Regulatory environment	41.1	128	
1.2.1	Regulatory quality*	30.6	118	
1.2.2	Rule of law*	11.6	137	
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	120	
1.3	Business environment	54.1	103	
1.3.1	Ease of starting a business*	74.5	105	
1.3.2	Ease of resolving insolvency*	25.8	110	
1.3.3	Ease of paying taxes*	62.0	97	
2	**Human capital & research**	**15.5**	**120**	
2.1	Education	30.9	114	
2.1.1	Expenditure on education, % GDP	5.2	54	●
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	11.2	93	
2.1.3	School life expectancy, years	9.2	118	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	16.1	65	●
2.2	Tertiary education	15.6	109	
2.2.1	Tertiary enrolment, % gross	10.3	109	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	4.3	37	●
2.3	Research & development (R&D)	0.0	131	○
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**16.3**	**140**	
3.1	Information & communication technologies (ICTs)	11.2	137	
3.1.1	ICT access*	20.9	120	
3.1.2	ICT use*	6.2	113	
3.1.3	Government's online service*	17.7	137	
3.1.4	E-participation*	0.0	129	○
3.2	General infrastructure	13.0	140	
3.2.1	Electricity output, kWh/cap	250.2	112	
3.2.2	Logistics performance*	50.8	62	●
3.2.3	Gross capital formation, % GDP	8.9	142	○
3.3	Ecological sustainability	24.9	118	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	7.1	48	●
3.3.2	Environmental performance*	30.2	129	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	128	○
4	**Market sophistication**	**40.7**	**120**	
4.1	Credit	8.4	143	○
4.1.1	Ease of getting credit*	25.0	134	○
4.1.2	Domestic credit to private sector, % GDP	4.6	142	○
4.1.3	Microfinance gross loans, % GDP	0.0	86	
4.2	Investment	40.0	51	●
4.2.1	Ease of protecting investors*	40.0	113	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Total value of stocks traded, % GDP	n/a	n/a	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	73.8	86	●
4.3.1	Applied tariff rate, weighted mean, %	3.8	68	●
4.3.2	Non-agricultural mkt access weighted tariff, %	0.3	42	●
4.3.3	Intensity of local competition†	56.0	111	
5	**Business sophistication**	**12.7**	**141**	○
5.1	Knowledge workers	14.2	137	
5.1.1	Knowledge-intensive employment, %	17.0	82	
5.1.2	Firms offering formal training, % firms	7.3	104	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	4.6	133	
5.2	Innovation linkages	20.4	125	
5.2.1	University/industry research collaboration†	18.7	134	○
5.2.2	State of cluster development†	30.3	128	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	97	
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	3.4	142	○
5.3.1	Royalty & license fees payments, % total trade	0.0	113	
5.3.2	High-tech imports less re-imports, %	2.5	124	
5.3.3	Comm., computer & info. services imp., % total trade	0.3	119	
5.3.4	FDI net inflows, % GDP	–2.2	141	○
6	**Knowledge & technology outputs**	**13.7**	**133**	
6.1	Knowledge creation	3.6	129	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.6	75	
6.1.2	PCT resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	2.8	126	
6.1.5	Citable documents H index	37.0	127	
6.2	Knowledge impact	18.5	119	
6.2.1	Growth rate of PPP$ GDP/worker, %	–5.3	114	
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.4	133	
6.2.5	High- & medium-high-tech manufactures, %	2.9	91	
6.3	Knowledge diffusion	19.1	133	
6.3.1	Royalty & license fees receipts, % total trade	0.4	26	●
6.3.2	High-tech exports less re-exports, %	0.0	122	
6.3.3	Comm., computer & info. services exp., % total trade	1.0	81	●
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**15.7**	**133**	
7.1	Intangible assets	25.5	134	
7.1.1	Domestic res trademark app./bn PPP$ GDP	39.2	65	●
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	29.5	136	○
7.1.4	ICTs & organizational model creation†	31.8	132	
7.2	Creative goods & services	2.1	124	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	0.0	86	
7.2.5	Creative goods exports, % total trade	0.0	126	○
7.3	Online creativity	9.5	93	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.6	116	
7.3.2	Country-code TLDs/th pop. 15–69	0.9	130	
7.3.3	Wikipedia edits/pop. 15–69	317.7	111	
7.3.4	Video uploads on YouTube/pop. 15–69	36.2	59	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Zambia

Key indicators

Population (millions)	14.1
GDP (US$ billions)	22.4
GDP per capita, PPP$	1,754.0
Income group	Lower-middle income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**25.8**	**121**	
Innovation Output Sub-Index		22.8	105	
Innovation Input Sub-Index		28.7	131	
Innovation Efficiency Ratio		0.8	44	●
Global Innovation Index 2013 (out of 142)		26.8	118	
1	**Institutions**	**50.7**	**107**	
1.1	Political environment	60.1	62	
1.1.1	Political stability*	80.7	41	●
1.1.2	Government effectiveness*	27.5	98	
1.1.3	Press freedom*	72.1	59	
1.2	Regulatory environment	25.5	138	○
1.2.1	Regulatory quality*	37.6	105	
1.2.2	Rule of law*	35.3	85	
1.2.3	Cost of redundancy dismissal, salary weeks	50.6	138	○
1.3	Business environment	66.6	64	
1.3.1	Ease of starting a business*	88.3	51	●
1.3.2	Ease of resolving insolvency*	39.3	65	
1.3.3	Ease of paying taxes*	72.1	57	
2	**Human capital & research**	**3.6**	**143**	○
2.1	Education	4.6	142	○
2.1.1	Expenditure on education, % GDP	1.3	131	○
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	2.6	99	
2.3.1	Researchers, headcounts/mn pop.	49.1	113	○
2.3.2	Gross expenditure on R&D, % GDP	0.3	73	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**20.4**	**130**	
3.1	Information & communication technologies (ICTs)	15.0	129	
3.1.1	ICT access*	21.2	119	
3.1.2	ICT use*	4.8	117	
3.1.3	Government's online service*	31.4	117	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	25.3	109	
3.2.1	Electricity output, kWh/cap	849.7	94	
3.2.2	Logistics performance*	26.6	127	○
3.2.3	Gross capital formation, % GDP	25.7	44	●
3.3	Ecological sustainability	21.0	128	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	2.3	118	○
3.3.2	Environmental performance*	41.7	104	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	82	
4	**Market sophistication**	**47.0**	**80**	
4.1	Credit	30.4	91	
4.1.1	Ease of getting credit*	87.5	13	●
4.1.2	Domestic credit to private sector, % GDP	14.8	133	○
4.1.3	Microfinance gross loans, % GDP	0.0	80	
4.2	Investment	29.0	102	
4.2.1	Ease of protecting investors*	53.3	66	
4.2.2	Market capitalization, % GDP	14.5	81	
4.2.3	Total value of stocks traded, % GDP	0.9	68	
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	81.6	22	●
4.3.1	Applied tariff rate, weighted mean, %	2.7	55	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.5	51	●
4.3.3	Intensity of local competition†	70.5	46	●
5	**Business sophistication**	**22.0**	**127**	
5.1	Knowledge workers	15.4	134	○
5.1.1	Knowledge-intensive employment, %	7.3	103	○
5.1.2	Firms offering formal training, % firms	31.1	61	
5.1.3	GERD performed by business, % GDP	0.0	80	
5.1.4	GERD financed by business, %	2.0	81	○
5.1.5	GMAT test takers/mn pop. 20–34	8.4	125	
5.2	Innovation linkages	29.8	78	
5.2.1	University/industry research collaboration†	42.5	68	
5.2.2	State of cluster development†	51.5	45	●
5.2.3	GERD financed by abroad, %	1.6	75	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.1	28	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	n/a	n/a	
5.3	Knowledge absorption	20.7	98	
5.3.1	Royalty & license fees payments, % total trade	0.1	110	
5.3.2	High-tech imports less re-imports, %	4.3	109	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	125	
5.3.4	FDI net inflows, % GDP	10.3	13	●
6	**Knowledge & technology outputs**	**24.3**	**86**	
6.1	Knowledge creation	6.0	104	
6.1.1	Domestic resident patent app./tr PPP$ GDP	0.3	85	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.1	92	
6.1.3	Domestic res utility model app./tr PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.3	80	
6.1.5	Citable documents H index	68.0	90	
6.2	Knowledge impact	38.7	69	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.3	32	●
6.2.2	New businesses/th pop. 15–64	1.4	51	
6.2.3	Computer software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	111	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	28.2	87	
6.3.1	Royalty & license fees receipts, % total trade	n/a	n/a	
6.3.2	High-tech exports less re-exports, %	2.7	47	
6.3.3	Comm., computer & info. services exp., % total trade	0.3	116	
6.3.4	FDI net outflows, % GDP	0.9	50	
7	**Creative outputs**	**21.2**	**118**	
7.1	Intangible assets	39.1	96	
7.1.1	Domestic res trademark app./bn PPP$ GDP	26.7	79	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	56.0	68	
7.1.4	ICTs & organizational model creation†	51.0	74	
7.2	Creative goods & services	6.6	107	
7.2.1	Cultural & creative services exports, % total trade	0.2	38	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	106	
7.3	Online creativity	0.1	140	○
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.2	131	
7.3.2	Country-code TLDs/th pop. 15–69	0.1	140	○
7.3.3	Wikipedia edits/pop. 15–69	74.3	126	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Zimbabwe

Key indicators

Population (millions)	13.7
GDP (US$ billions)	13.0
GDP per capita, PPP$	787.7
Income group	Low income
Region	Sub-Saharan Africa

		Score (0–100) or value (hard data)	Rank	
Global Innovation Index (out of 143)		**24.3**	**130**	
Innovation Output Sub-Index		21.5	111	
Innovation Input Sub-Index		27.2	136	
Innovation Efficiency Ratio		0.8	48	●
Global Innovation Index 2013 (out of 142)		24.0	132	
1	**Institutions**	**26.7**	**142**	○
1.1	Political environment	39.0	129	
1.1.1	Political stability*	46.4	111	
1.1.2	Government effectiveness*	8.6	137	○
1.1.3	Press freedom*	61.9	108	
1.2	Regulatory environment	0.7	143	○
1.2.1	Regulatory quality*	1.1	142	○
1.2.2	Rule of law*	1.9	142	○
1.2.3	Cost of redundancy dismissal, salary weeks	82.3	139	○
1.3	Business environment	40.4	134	
1.3.1	Ease of starting a business*	49.2	140	○
1.3.2	Ease of resolving insolvency*	13.8	133	
1.3.3	Ease of paying taxes*	58.1	106	
2	**Human capital & research**	**12.4**	**133**	
2.1	Education	14.1	138	○
2.1.1	Expenditure on education, % GDP	2.5	120	
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	22.2	95	
2.2.1	Tertiary enrolment, % gross	5.9	123	
2.2.2	Graduates in science & engineering, %	23.3	33	●
2.2.3	Tertiary inbound mobility, %	0.4	97	
2.3	Research & development (R&D)	0.9	121	
2.3.1	Researchers, headcounts/mn pop.	199.6	86	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	QS university ranking, average score top 3*	0.0	70	○
3	**Infrastructure**	**22.8**	**121**	
3.1	Information & communication technologies (ICTs)	18.5	115	
3.1.1	ICT access*	25.4	110	
3.1.2	ICT use*	15.9	93	
3.1.3	Government's online service*	30.1	120	
3.1.4	E-participation*	2.6	116	
3.2	General infrastructure	28.1	96	
3.2.1	Electricity output, kWh/cap	700.0	101	
3.2.2	Logistics performance*	37.3	101	
3.2.3	Gross capital formation, % GDP	25.9	43	●
3.3	Ecological sustainability	21.7	126	
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq	0.4	124	○
3.3.2	Environmental performance*	49.5	85	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.4	54	●
4	**Market sophistication**	**46.4**	**83**	
4.1	Credit	21.9	122	
4.1.1	Ease of getting credit*	50.0	96	
4.1.2	Domestic credit to private sector, % GDP	44.5	76	
4.1.3	Microfinance gross loans, % GDP	0.2	58	
4.2	Investment	41.3	48	●
4.2.1	Ease of protecting investors*	43.3	105	
4.2.2	Market capitalization, % GDP	109.3	12	●
4.2.3	Total value of stocks traded, % GDP	14.9	31	●
4.2.4	Venture capital deals/tr PPP$ GDP	n/a	n/a	
4.3	Trade & competition	75.8	66	
4.3.1	Applied tariff rate, weighted mean, %	n/a	n/a	
4.3.2	Non-agricultural mkt access weighted tariff, %	0.1	27	●
4.3.3	Intensity of local competition†	64.2	78	
5	**Business sophistication**	**27.7**	**97**	
5.1	Knowledge workers	25.2	109	
5.1.1	Knowledge-intensive employment, %	6.6	105	
5.1.2	Firms offering formal training, % firms	33.0	54	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	GMAT test takers/mn pop. 20–34	33.3	91	
5.2	Innovation linkages	40.0	42	●
5.2.1	University/industry research collaboration†	34.7	108	
5.2.2	State of cluster development†	32.7	122	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.2	1	●
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	106	○
5.3	Knowledge absorption	17.9	112	
5.3.1	Royalty & license fees payments, % total trade	0.3	73	
5.3.2	High-tech imports less re-imports, %	7.1	63	
5.3.3	Comm., computer & info. services imp., % total trade	0.2	126	
5.3.4	FDI net inflows, % GDP	4.0	54	●
6	**Knowledge & technology outputs**	**17.4**	**122**	
6.1	Knowledge creation	14.5	65	
6.1.1	Domestic resident patent app./tr PPP$ GDP	n/a	n/a	
6.1.2	PCT resident patent app./tr PPP$ GDP	0.3	53	
6.1.3	Domestic res utility model app./tr PPP$ GDP	0.2	48	
6.1.4	Scientific & technical articles/bn PPP$ GDP	35.5	24	●
6.1.5	Citable documents H index	72.0	87	
6.2	Knowledge impact	35.8	78	
6.2.1	Growth rate of PPP$ GDP/worker, %	−2.0	111	○
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.5	20	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.2	95	
6.2.5	High- & medium-high-tech manufactures, %	n/a	n/a	
6.3	Knowledge diffusion	2.0	138	○
6.3.1	Royalty & license fees receipts, % total trade	0.0	87	
6.3.2	High-tech exports less re-exports, %	0.4	87	
6.3.3	Comm., computer & info. services exp., % total trade	0.0	138	○
6.3.4	FDI net outflows, % GDP	n/a	n/a	
7	**Creative outputs**	**25.5**	**101**	
7.1	Intangible assets	46.3	59	
7.1.1	Domestic res trademark app./bn PPP$ GDP	n/a	n/a	
7.1.2	Madrid trademark app. holders/bn PPP$ GDP	n/a	n/a	
7.1.3	ICTs & business model creation†	49.2	96	
7.1.4	ICTs & organizational model creation†	43.3	107	
7.2	Creative goods & services	8.6	101	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Global ent. & media output/th pop. 15–69	n/a	n/a	
7.2.4	Printing & publishing manufactures, %	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.3	74	
7.3	Online creativity	0.8	128	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	118	
7.3.2	Country-code TLDs/th pop. 15–69	1.8	126	
7.3.3	Wikipedia edits/pop. 15–69	92.3	121	
7.3.4	Video uploads on YouTube/pop. 15–69	n/a	n/a	

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

Appendix II

Data Tables

Data Tables

This appendix provides a table for each of the 81 indicators that make up the Global Innovation Index 2014 (GII).

Structure

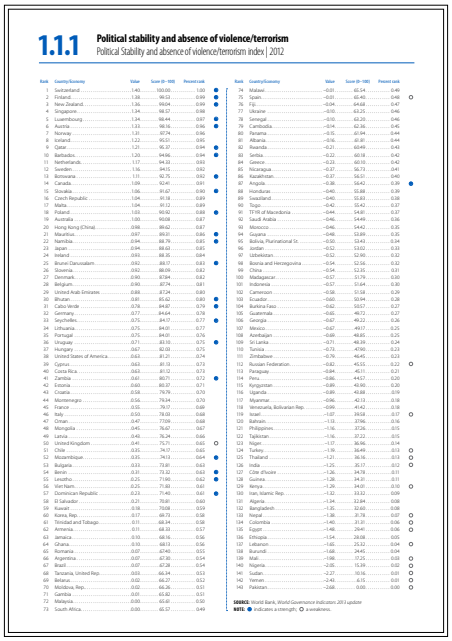
Each table is identified by indicator number, with the first digit representing the pillar, the second representing the sub-pillar, and the final digit representing the indicator within that particular sub-pillar. For example, Table 2.1.4 shows results for indicator 2.1.4, PISA scales in reading, maths, & science, which is the fourth indicator of sub-pillar 2.1, Education, within pillar 2, Human capital & research.

The sub-heading text provides a detailed description of each indicator, with information on the units of each variable, the scaling factor (if any), the question asked (for survey questions), and the most frequent year for which data were available.

For each indicator for each economy, the most recent value within the period 2004–13 was used. In instances where this base year does not correspond to the most frequent year reported in the sub-heading, the year of the value appears in parentheses after the economy name.

A total of 56 variables are hard data. A total of 20 variables are composite indicators and 5 are survey questions from the World Economic Forum's Executive Opinion Survey.

The source of each indicator is indicated at the bottom of the page; details for each can be found in Appendix III, Sources and Definitions.



1.1.1 Political stability and absence of violence/terrorism

Political Stability and absence of violence/terrorism index | 2012

Explanation of scores

The tables list the economies by their rank order, with the best performers at the top. After the rank comes the country/economy name, the original value of the specific indicator for that country (in the units specified in the sub-heading), the normalized score in the 0–100 range, and the percentage of economies with scores that fall below the normalized score (i.e., percent ranks). To the far right of each column, a solid circle indicates that an indicator is a strength for the country/economy in question, and a hollow circle indicates that it is a weakness (refer to Appendix I, Country/Economy Profiles, for details).

- Strengths (●) are all ranks of 1, as well as all scores with percent ranks greater than the 10th highest percent rank among the 81 indicators in a specific economy.
- Weaknesses (○) are all scores with percent ranks lower than the 10th smallest percent rank among the 81 indicators in a specific economy.

For three hard data series (7.3.1, 7.3.2, and 7.3.4), the raw data were provided under the condition that only the normalized scores be published and therefore the original value equals the normalized score. For indicators 1.1.3, 1.3.1, 1.3.2, 1.3.3, 2.3.3, 3.3.2, 4.1.1, and 4.2.1, the range for both measures is the same—(0–100)—and therefore both measures are also identical.

Details on the computation methodology can be found in Appendix IV, Technical Notes. See also Annex 2 in Chapter 1 for more information regarding the use of 'n/a' and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

Index of Data Tables

1 Institutions

1.1 Political environment

1.1.1 Political stability and absence of violence/terrorism 289
1.1.2 Government effectiveness 290
1.1.3 Press freedom 291

1.2 Regulatory environment

1.2.1 Regulatory quality 292
1.2.2 Rule of law 293
1.2.3 Cost of redundancy dismissal 294

1.3 Business environment

1.3.1 Ease of starting a business 295
1.3.2 Ease of resolving insolvency 296
1.3.3 Ease of paying taxes 297

2 Human capital & research

2.1 Education

2.1.1 Expenditure on education 298
2.1.2 Government expenditure on education per pupil, secondary 299
2.1.3 School life expectancy 300
2.1.4 Assessment in reading, mathematics, and science 301
2.1.5 Pupil-teacher ratio, secondary 302

2.2 Tertiary education

2.2.1 Tertiary enrolment 303
2.2.2 Graduates in science and engineering 304
2.2.3 Tertiary inbound mobility 305

2.3 Research & development (R&D)

2.3.1 Researchers 306
2.3.2 Gross expenditure on R&D (GERD) 307
2.3.3 QS university ranking average score of top 3 universities 308

3 Infrastructure

3.1 Information & communication technologies (ICTs)

3.1.1 ICT access 309
3.1.2 ICT use 310
3.1.3 Government's online service 311
3.1.4 Online e-participation 312

3.2 General infrastructure

3.2.1 Electricity output 313
3.2.2 Logistics performance 314
3.2.3 Gross capital formation 315

3.3 Ecological sustainability

3.3.1 GDP per unit of energy use 316
3.3.2 Environmental performance 317
3.3.3 ISO 14001 environmental certificates 318

4 Market sophistication

4.1 Credit

4.1.1 Ease of getting credit 319
4.1.2 Domestic credit to private sector 320
4.1.3 Microfinance institutions' gross loan portfolio 321

4.2 Investment

4.2.1 Ease of protecting investors 322
4.2.2 Market capitalization 323
4.2.3 Total value of stocks traded 324
4.2.4 Venture capital deals 325

4.3 Trade & competition

4.3.1 Applied tariff rate, weighted mean 326
4.3.2 Market access for non-agricultural exports 327
4.3.3 Intensity of local competition 328

5 Business sophistication

5.1 Knowledge workers

5.1.1 Employment in knowledge-intensive services 329
5.1.2 Firms offering formal training 330
5.1.3 GERD performed by business enterprise 331
5.1.4 GERD financed by business enterprise 332
5.1.5 GMAT test takers 333

5.2 Innovation linkages

5.2.1 University/industry research collaboration 334
5.2.2 State of cluster development 335
5.2.3 GERD financed by abroad 336
5.2.4 Joint venture/strategic alliance deals 337
5.2.5 Patent families filed in at least three offices 338

5.3 Knowledge absorption

5.3.1 Royalties and license fees payments 339
5.3.2 High-tech imports 340
5.3.3 Communications, computer and information services imports 341
5.3.4 Foreign direct investment net inflows 342

6 Knowledge & technology outputs

6.1 Knowledge creation

6.1.1 National office resident patent applications 343
6.1.2 Patent Cooperation Treaty resident applications 344
6.1.3 National office resident utility model applications 345
6.1.4 Scientific and technical publications 346
6.1.5 Citable documents H index 347

6.2 Knowledge impact

6.2.1 Growth rate of GDP per person engaged 348
6.2.2 New businesses density 349
6.2.3 Total computer software spending 350
6.2.4 ISO 9001 quality certificates 351
6.2.5 High-tech and medium-high-tech output 352

6.3 Knowledge diffusion

6.3.1 Royalties and license fees receipts 353
6.3.2 High-tech exports 354
6.3.3 Communications, computer and information services exports 355
6.3.4 Foreign direct investment net outflows 356

7 Creative outputs

7.1 Intangible assets

7.1.1 National office resident trademark applications 357
7.1.2 Madrid System trademark applications by country of origin 358
7.1.3 ICTs and business model creation 359
7.1.4 ICTs and organizational model creation 360

7.2 Creative goods & services

7.2.1 Cultural and creative services exports 361
7.2.2 National feature films produced 362
7.2.3 Global entertainment and media output 363
7.2.4 Printing and publishing output 364
7.2.5 Creative goods exports 365

7.3 Online creativity

7.3.1 Generic top-level domains (gTLDs) 366
7.3.2 Country-code top-level domains (ccTLDs) 367
7.3.3 Wikipedia monthly edits 368
7.3.4 Video uploads on YouTube 369

1.1.1 Political stability and absence of violence/terrorism

Political Stability and absence of violence/terrorism index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Switzerland	1.40	100.00	1.00	●
2	Finland	1.38	99.53	0.99	●
3	New Zealand	1.36	99.04	0.99	●
4	Singapore	1.34	98.57	0.98	
5	Luxembourg	1.34	98.44	0.97	●
6	Austria	1.33	98.16	0.96	●
7	Norway	1.31	97.74	0.96	
8	Iceland	1.22	95.51	0.95	
9	Qatar	1.21	95.37	0.94	●
10	Barbados	1.20	94.96	0.94	●
11	Netherlands	1.17	94.33	0.93	
12	Sweden	1.16	94.15	0.92	
13	Botswana	1.11	92.75	0.92	●
14	Canada	1.09	92.41	0.91	
15	Slovakia	1.06	91.67	0.90	●
16	Czech Republic	1.04	91.18	0.89	
17	Malta	1.04	91.12	0.89	
18	Poland	1.03	90.92	0.88	●
19	Australia	1.00	90.08	0.87	
20	Hong Kong (China)	0.98	89.62	0.87	
21	Mauritius	0.97	89.31	0.86	●
22	Namibia	0.94	88.79	0.85	●
23	Japan	0.94	88.63	0.85	
24	Ireland	0.93	88.35	0.84	
25	Brunei Darussalam	0.92	88.17	0.83	●
26	Slovenia	0.92	88.09	0.82	
27	Denmark	0.90	87.84	0.82	
28	Belgium	0.90	87.74	0.81	
29	United Arab Emirates	0.88	87.24	0.80	
30	Bhutan	0.81	85.62	0.80	●
31	Cabo Verde	0.78	84.87	0.79	●
32	Germany	0.77	84.64	0.78	
33	Seychelles	0.75	84.17	0.77	●
34	Lithuania	0.75	84.01	0.77	
35	Portugal	0.75	84.01	0.76	
36	Uruguay	0.71	83.10	0.75	●
37	Hungary	0.67	82.03	0.75	
38	United States of America	0.63	81.21	0.74	
39	Cyprus	0.63	81.13	0.73	
40	Costa Rica	0.63	81.12	0.73	
41	Zambia	0.61	80.71	0.72	●
42	Estonia	0.60	80.37	0.71	
43	Croatia	0.58	79.79	0.70	
44	Montenegro	0.56	79.34	0.70	
45	France	0.55	79.17	0.69	
46	Italy	0.50	78.03	0.68	
47	Oman	0.47	77.09	0.68	
48	Mongolia	0.45	76.67	0.67	
49	Latvia	0.43	76.24	0.66	
50	United Kingdom	0.41	75.71	0.65	○
51	Chile	0.35	74.17	0.65	
52	Mozambique	0.35	74.13	0.64	●
53	Bulgaria	0.33	73.81	0.63	
54	Benin	0.31	73.32	0.63	●
55	Lesotho	0.25	71.90	0.62	●
56	Viet Nam	0.25	71.83	0.61	
57	Dominican Republic	0.23	71.40	0.61	●
58	El Salvador	0.21	70.81	0.60	
59	Kuwait	0.18	70.08	0.59	
60	Korea, Rep.	0.17	69.73	0.58	
61	Trinidad and Tobago	0.11	68.34	0.58	
62	Armenia	0.11	68.33	0.57	
63	Jamaica	0.10	68.16	0.56	
64	Ghana	0.10	68.13	0.56	
65	Romania	0.07	67.40	0.55	
66	Argentina	0.07	67.30	0.54	
67	Brazil	0.07	67.28	0.54	
68	Tanzania, United Rep.	0.03	66.34	0.53	
69	Belarus	0.02	66.27	0.52	
70	Moldova, Rep.	0.02	66.26	0.51	
71	Gambia	0.01	65.82	0.51	
72	Malaysia	0.00	65.61	0.50	
73	South Africa	0.00	65.57	0.49	
74	Malawi	−0.01	65.54	0.49	
75	Spain	−0.01	65.40	0.48	○
76	Fiji	−0.04	64.68	0.47	
77	Ukraine	−0.10	63.25	0.46	
78	Senegal	−0.10	63.20	0.46	
79	Cambodia	−0.14	62.36	0.45	
80	Panama	−0.15	61.94	0.44	
81	Albania	−0.16	61.81	0.44	
82	Rwanda	−0.21	60.49	0.43	
83	Serbia	−0.22	60.18	0.42	
84	Greece	−0.23	60.10	0.42	
85	Nicaragua	−0.37	56.73	0.41	
86	Kazakhstan	−0.37	56.51	0.40	
87	Angola	−0.38	56.42	0.39	●
88	Honduras	−0.40	55.88	0.39	
89	Swaziland	−0.40	55.83	0.38	
90	Togo	−0.42	55.42	0.37	
91	TFYR of Macedonia	−0.44	54.81	0.37	
92	Saudi Arabia	−0.46	54.49	0.36	
93	Morocco	−0.46	54.42	0.35	
94	Guyana	−0.48	53.89	0.35	
95	Bolivia, Plurinational St.	−0.50	53.43	0.34	
96	Jordan	−0.52	53.02	0.33	
97	Uzbekistan	−0.52	52.90	0.32	
98	Bosnia and Herzegovina	−0.54	52.56	0.32	
99	China	−0.54	52.35	0.31	
100	Madagascar	−0.57	51.79	0.30	
101	Indonesia	−0.57	51.64	0.30	
102	Cameroon	−0.58	51.58	0.29	
103	Ecuador	−0.60	50.94	0.28	
104	Burkina Faso	−0.62	50.57	0.27	
105	Guatemala	−0.65	49.72	0.27	
106	Georgia	−0.67	49.22	0.26	
107	Mexico	−0.67	49.17	0.25	
108	Azerbaijan	−0.69	48.85	0.25	
109	Sri Lanka	−0.71	48.39	0.24	
110	Tunisia	−0.73	47.90	0.23	
111	Zimbabwe	−0.79	46.45	0.23	
112	Russian Federation	−0.82	45.55	0.22	○
113	Paraguay	−0.84	45.11	0.21	
114	Peru	−0.86	44.57	0.20	
115	Kyrgyzstan	−0.89	43.90	0.20	
116	Uganda	−0.89	43.88	0.19	
117	Myanmar	−0.96	42.13	0.18	
118	Venezuela, Bolivarian Rep.	−0.99	41.42	0.18	
119	Israel	−1.07	39.58	0.17	○
120	Bahrain	−1.13	37.96	0.16	
121	Philippines	−1.16	37.26	0.15	
122	Tajikistan	−1.16	37.22	0.15	
123	Niger	−1.17	36.96	0.14	
124	Turkey	−1.19	36.49	0.13	○
125	Thailand	−1.21	36.16	0.13	○
126	India	−1.25	35.17	0.12	○
127	Côte d'Ivoire	−1.26	34.78	0.11	
128	Guinea	−1.28	34.31	0.11	
129	Kenya	−1.29	34.01	0.10	○
130	Iran, Islamic Rep.	−1.32	33.32	0.09	
131	Algeria	−1.34	32.84	0.08	
132	Bangladesh	−1.35	32.60	0.08	
133	Nepal	−1.38	31.78	0.07	○
134	Colombia	−1.40	31.31	0.06	○
135	Egypt	−1.48	29.41	0.06	○
136	Ethiopia	−1.54	28.08	0.05	
137	Lebanon	−1.65	25.32	0.04	○
138	Burundi	−1.68	24.45	0.04	
139	Mali	−1.98	17.25	0.03	○
140	Nigeria	−2.05	15.39	0.02	○
141	Sudan	−2.27	10.16	0.01	○
142	Yemen	−2.43	6.15	0.01	○
143	Pakistan	−2.68	0.00	0.00	○

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

1.1.2 Government effectiveness

Government effectiveness index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Finland	2.21	100.00	1.00	●
2	Singapore	2.15	98.33	0.99	●
3	Denmark	1.97	93.34	0.99	●
4	Sweden	1.94	92.71	0.98	●
5	Norway	1.89	91.40	0.97	●
6	Switzerland	1.88	90.99	0.96	
7	Hong Kong (China)	1.82	89.58	0.96	
8	Netherlands	1.80	88.92	0.95	
9	New Zealand	1.79	88.66	0.94	●
10	Canada	1.75	87.69	0.94	
11	Luxembourg	1.66	85.16	0.93	
12	Australia	1.61	83.91	0.92	
13	Belgium	1.59	83.34	0.92	●
14	Germany	1.57	82.92	0.91	
15	Austria	1.56	82.45	0.90	
16	Ireland	1.53	81.72	0.89	
17	United Kingdom	1.53	81.64	0.89	
18	United States of America	1.51	81.22	0.88	
19	Iceland	1.49	80.53	0.87	
20	Barbados	1.45	79.64	0.87	
21	Japan	1.40	78.16	0.86	
22	Cyprus	1.38	77.66	0.85	
23	France	1.33	76.36	0.85	
24	Chile	1.25	74.30	0.84	●
25	Israel	1.25	74.29	0.83	
26	Malta	1.24	73.99	0.82	
27	Korea, Rep.	1.20	72.88	0.82	
28	United Arab Emirates	1.14	71.25	0.81	
29	Spain	1.11	70.45	0.80	
30	Portugal	1.03	68.47	0.80	
31	Slovenia	1.02	68.06	0.79	
32	Malaysia	1.01	67.83	0.78	
33	Estonia	0.96	66.52	0.77	
34	Qatar	0.95	66.11	0.77	
35	Mauritius	0.93	65.81	0.76	
36	Czech Republic	0.92	65.36	0.75	
37	Brunei Darussalam	0.83	63.14	0.75	●
38	Latvia	0.83	63.02	0.74	
39	Lithuania	0.83	62.98	0.73	
40	Slovakia	0.83	62.93	0.73	
41	Croatia	0.70	59.43	0.72	
42	Poland	0.66	58.60	0.71	
43	Hungary	0.62	57.39	0.70	
44	Georgia	0.57	55.96	0.70	
45	Bahrain	0.54	55.29	0.69	
46	Costa Rica	0.49	53.88	0.68	
47	Bhutan	0.48	53.61	0.68	●
48	Uruguay	0.44	52.74	0.67	
49	Botswana	0.44	52.58	0.66	
50	Italy	0.41	51.81	0.65	
51	Turkey	0.40	51.64	0.65	
52	Trinidad and Tobago	0.40	51.61	0.64	
53	Seychelles	0.38	50.89	0.63	
54	South Africa	0.33	49.55	0.63	
55	Mexico	0.32	49.45	0.62	
56	Panama	0.31	49.23	0.61	
57	Greece	0.31	49.07	0.61	
58	Oman	0.26	47.88	0.60	
59	Thailand	0.21	46.40	0.59	
60	Bulgaria	0.14	44.50	0.58	
61	Montenegro	0.13	44.29	0.58	
62	Namibia	0.12	44.18	0.57	
63	Cabo Verde	0.10	43.51	0.56	●
64	Philippines	0.08	42.93	0.56	
65	Saudi Arabia	0.03	41.55	0.55	
66	Colombia	0.01	41.15	0.54	
67	China	0.01	41.03	0.54	
68	Tunisia	−0.02	40.46	0.53	
69	Jamaica	−0.02	40.27	0.52	
70	Armenia	−0.04	39.89	0.51	
71	Jordan	−0.04	39.89	0.51	
72	Morocco	−0.04	39.66	0.50	
73	Rwanda	−0.06	39.25	0.49	
74	Ghana	−0.07	38.91	0.49	
75	TFYR of Macedonia	−0.07	38.90	0.48	
76	Kuwait	−0.08	38.81	0.47	
77	Serbia	−0.11	37.82	0.46	
78	Brazil	−0.12	37.54	0.46	
79	Guyana	−0.14	37.13	0.45	
80	El Salvador	−0.14	37.04	0.44	
81	Peru	−0.16	36.65	0.44	
82	India	−0.18	36.02	0.43	
83	Sri Lanka	−0.24	34.54	0.42	
84	Argentina	−0.25	34.05	0.42	
85	Albania	−0.28	33.37	0.41	
86	Viet Nam	−0.29	33.10	0.40	
87	Indonesia	−0.29	33.09	0.39	
88	Romania	−0.31	32.47	0.39	
89	Lebanon	−0.34	31.74	0.38	
90	Bolivia, Plurinational St.	−0.37	30.88	0.37	
91	Lesotho	−0.38	30.68	0.37	
92	Russian Federation	−0.43	29.49	0.36	
93	Ethiopia	−0.44	29.23	0.35	
94	Kazakhstan	−0.44	29.07	0.35	
95	Senegal	−0.46	28.65	0.34	
96	Bosnia and Herzegovina	−0.47	28.36	0.33	
97	Malawi	−0.50	27.63	0.32	
98	Zambia	−0.50	27.46	0.32	
99	Ecuador	−0.51	27.24	0.31	
100	Gambia	−0.51	27.16	0.30	
101	Benin	−0.53	26.61	0.30	
102	Iran, Islamic Rep.	−0.54	26.40	0.29	
103	Kenya	−0.55	26.30	0.28	
104	Dominican Republic	−0.55	26.17	0.27	
105	Moldova, Rep.	−0.55	26.11	0.27	
106	Algeria	−0.55	26.09	0.26	
107	Uganda	−0.57	25.69	0.25	
108	Swaziland	−0.57	25.53	0.25	
109	Ukraine	−0.58	25.28	0.24	
110	Mongolia	−0.63	23.98	0.23	
111	Burkina Faso	−0.63	23.97	0.23	
112	Mozambique	−0.64	23.82	0.22	
113	Kyrgyzstan	−0.66	23.27	0.21	
114	Tanzania, United Rep.	−0.69	22.41	0.20	
115	Niger	−0.70	22.06	0.20	
116	Honduras	−0.72	21.70	0.19	
117	Guatemala	−0.76	20.48	0.18	
118	Egypt	−0.77	20.33	0.18	
119	Azerbaijan	−0.78	20.08	0.17	
120	Pakistan	−0.79	19.79	0.16	
121	Bangladesh	−0.83	18.83	0.15	
122	Cambodia	−0.83	18.67	0.15	
123	Nicaragua	−0.89	17.11	0.14	
124	Fiji	−0.90	16.85	0.13	○
125	Paraguay	−0.90	16.85	0.13	
126	Cameroon	−0.90	16.75	0.12	
127	Tajikistan	−0.93	15.94	0.11	
128	Belarus	−0.94	15.77	0.11	○
129	Uzbekistan	−0.94	15.77	0.10	
130	Nepal	−0.99	14.53	0.09	○
131	Mali	−0.99	14.46	0.08	
132	Nigeria	−1.00	14.21	0.08	
133	Angola	−1.02	13.53	0.07	
134	Madagascar	−1.08	11.93	0.06	
135	Côte d'Ivoire	−1.11	11.28	0.06	○
136	Venezuela, Bolivarian Rep.	−1.14	10.50	0.05	
137	Zimbabwe	−1.21	8.59	0.04	○
138	Guinea	−1.27	6.91	0.04	
139	Yemen	−1.28	6.79	0.03	
140	Togo	−1.32	5.48	0.02	○
141	Burundi	−1.33	5.30	0.01	○
142	Sudan	−1.46	1.93	0.01	○
143	Myanmar	−1.53	0.00	0.00	○

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

1.1.3 Press freedom

Press freedom index | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Finland	6.38	93.62	1.00	●
2	Netherlands	6.48	93.52	0.99	●
3	Norway	6.52	93.48	0.99	●
4	Luxembourg	6.68	93.32	0.98	●
5	Denmark	7.08	92.92	0.97	●
6	New Zealand	8.38	91.62	0.96	●
7	Iceland	8.49	91.51	0.96	●
8	Sweden	9.23	90.77	0.95	
9	Estonia	9.26	90.74	0.94	●
10	Austria	9.40	90.60	0.94	●
11	Jamaica	9.88	90.12	0.93	●
12	Switzerland	9.94	90.06	0.92	
13	Ireland	10.06	89.94	0.91	
14	Czech Republic	10.17	89.83	0.91	●
15	Germany	10.24	89.76	0.90	
16	Costa Rica	12.08	87.92	0.89	●
17	Namibia	12.50	87.50	0.89	●
18	Canada	12.69	87.31	0.88	
19	Belgium	12.94	87.06	0.87	
20	Poland	13.11	86.89	0.87	●
21	Slovakia	13.25	86.75	0.86	●
22	Cyprus	13.83	86.17	0.85	
23	Cabo Verde	14.33	85.67	0.84	●
24	Australia	15.24	84.76	0.84	
25	Uruguay	15.92	84.08	0.83	●
26	Portugal	16.75	83.25	0.82	
27	United Kingdom	16.89	83.11	0.82	
28	Ghana	17.27	82.73	0.81	●
29	United States of America	18.22	81.78	0.80	
30	Lithuania	18.24	81.76	0.79	
31	Slovenia	20.49	79.51	0.79	
32	Spain	20.50	79.50	0.78	
33	France	21.60	78.40	0.77	
34	El Salvador	22.86	77.14	0.77	●
35	Latvia	22.89	77.11	0.76	
36	Botswana	22.91	77.09	0.75	●
37	Romania	23.05	76.95	0.74	
38	Niger	23.08	76.92	0.74	●
39	Trinidad and Tobago	23.12	76.88	0.73	●
40	Malta	23.30	76.70	0.72	
41	Burkina Faso	23.70	76.30	0.72	●
42	Korea, Rep.	24.48	75.52	0.71	
43	South Africa	24.56	75.44	0.70	
44	Japan	25.17	74.83	0.70	
45	Argentina	25.67	74.33	0.69	
46	Moldova, Rep.	26.01	73.99	0.68	
47	Hungary	26.09	73.91	0.67	
48	Italy	26.11	73.89	0.67	
49	Hong Kong (China)	26.16	73.84	0.66	
50	Senegal	26.19	73.81	0.65	●
51	Chile	26.24	73.76	0.65	
52	Mauritius	26.47	73.53	0.64	
53	Serbia	26.59	73.41	0.63	
54	Croatia	26.61	73.39	0.62	
55	Bosnia and Herzegovina	26.86	73.14	0.62	
56	Guyana	27.08	72.92	0.61	
57	Tanzania, United Rep.	27.34	72.66	0.60	●
58	Kenya	27.80	72.20	0.60	
59	Zambia	27.93	72.07	0.59	
60	Mozambique	28.01	71.99	0.58	●
61	Armenia	28.04	71.96	0.57	
62	Malawi	28.18	71.82	0.57	●
63	Kuwait	28.28	71.72	0.56	
64	Nicaragua	28.31	71.69	0.55	●
65	Benin	28.33	71.67	0.55	●
66	Dominican Republic	28.34	71.66	0.54	
67	Lesotho	28.36	71.64	0.53	●
68	Bhutan	28.42	71.58	0.52	
69	Togo	28.45	71.55	0.52	●
70	Greece	28.46	71.54	0.51	
71	Guinea	28.49	71.51	0.50	●
72	Bulgaria	28.58	71.42	0.50	
73	Madagascar	28.62	71.38	0.49	
74	Paraguay	28.78	71.22	0.48	
75	Seychelles	29.19	70.81	0.48	
76	Guatemala	29.39	70.61	0.47	
77	Côte d'Ivoire	29.77	70.23	0.46	●
78	Mongolia	29.93	70.07	0.45	
79	Mali	30.03	69.97	0.45	
80	Georgia	30.09	69.91	0.44	
81	Lebanon	30.15	69.85	0.43	
82	Albania	30.88	69.12	0.43	
83	Uganda	31.69	68.31	0.42	
84	Peru	31.87	68.13	0.41	
85	Kyrgyzstan	32.20	67.80	0.40	
86	Fiji	32.69	67.31	0.40	
87	Brazil	32.75	67.25	0.39	
88	Bolivia, Plurinational St.	32.80	67.20	0.38	
89	Qatar	32.86	67.14	0.38	
90	Panama	32.95	67.05	0.37	
91	Israel	32.97	67.03	0.35	○
91	Montenegro	32.97	67.03	0.35	
93	United Arab Emirates	33.49	66.51	0.35	
94	Nigeria	34.11	65.89	0.34	
95	TFYR of Macedonia	34.27	65.73	0.33	
96	Venezuela, Bolivarian Rep.	34.44	65.56	0.33	
97	Nepal	34.61	65.39	0.32	
98	Ecuador	34.69	65.31	0.31	
99	Cameroon	34.78	65.22	0.30	
100	Brunei Darussalam	35.45	64.55	0.30	
101	Tajikistan	35.71	64.29	0.29	
102	Algeria	36.54	63.46	0.28	
103	Ukraine	36.79	63.21	0.28	
104	Honduras	36.92	63.08	0.27	
105	Colombia	37.48	62.52	0.26	
106	Angola	37.80	62.20	0.26	
107	Burundi	38.02	61.98	0.25	
108	Zimbabwe	38.12	61.88	0.24	
109	Jordan	38.47	61.53	0.23	○
110	Thailand	38.60	61.40	0.23	○
111	Morocco	39.04	60.96	0.22	
112	Ethiopia	39.57	60.43	0.21	
113	Tunisia	39.93	60.07	0.21	
114	Indonesia	41.05	58.95	0.20	
115	India	41.22	58.78	0.19	
116	Oman	41.51	58.49	0.18	
117	Cambodia	41.81	58.19	0.18	
118	Bangladesh	42.01	57.99	0.17	
119	Malaysia	42.73	57.27	0.16	○
120	Philippines	43.11	56.89	0.16	
121	Russian Federation	43.42	56.58	0.15	○
122	Singapore	43.43	56.57	0.14	○
123	Myanmar	44.71	55.29	0.13	
124	Gambia	45.09	54.91	0.13	
125	Mexico	45.30	54.70	0.12	○
126	Turkey	46.56	53.44	0.11	○
127	Swaziland	46.76	53.24	0.11	
128	Azerbaijan	47.73	52.27	0.10	○
129	Belarus	48.35	51.65	0.09	○
130	Egypt	48.66	51.34	0.09	○
131	Pakistan	51.31	48.69	0.08	○
132	Kazakhstan	55.08	44.92	0.07	○
133	Rwanda	55.46	44.54	0.06	○
134	Sri Lanka	56.59	43.41	0.06	○
135	Saudi Arabia	56.88	43.12	0.05	○
136	Uzbekistan	60.39	39.61	0.04	○
137	Bahrain	62.75	37.25	0.04	○
138	Yemen	69.22	30.78	0.03	
139	Sudan	70.06	29.94	0.02	○
140	Viet Nam	71.78	28.22	0.01	○
141	China	73.07	26.93	0.01	○
142	Iran, Islamic Rep.	73.40	26.60	0.00	○
n/a	Barbados	n/a	n/a	n/a	

SOURCE: Reporters Without Borders, *Press Freedom Index 2013*

NOTE: ● indicates a strength; ○ a weakness.

1.2.1 Regulatory quality

Regulatory quality index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Singapore	1.96	100.00	1.00	●
2	Hong Kong (China)	1.94	99.53	0.99	●
3	Sweden	1.89	98.15	0.99	●
4	New Zealand	1.84	96.90	0.98	●
5	Finland	1.82	96.30	0.97	
6	Denmark	1.79	95.67	0.96	●
7	Australia	1.77	95.01	0.96	●
8	Luxembourg	1.76	94.69	0.95	
9	Netherlands	1.75	94.57	0.94	
10	Canada	1.69	92.97	0.94	
11	Switzerland	1.66	92.22	0.93	
12	United Kingdom	1.64	91.69	0.92	
13	Ireland	1.56	89.49	0.92	
14	Chile	1.54	89.03	0.91	●
15	Germany	1.53	88.83	0.90	
16	Norway	1.53	88.79	0.89	
17	Austria	1.51	88.35	0.89	
18	Estonia	1.40	85.47	0.88	
19	Malta	1.31	83.14	0.87	
20	United States of America	1.29	82.40	0.87	
21	Belgium	1.22	80.70	0.86	
22	Israel	1.16	79.07	0.85	
23	Brunei Darussalam	1.16	79.05	0.85	●
24	Cyprus	1.12	78.14	0.84	
25	Japan	1.12	78.07	0.83	
26	France	1.11	77.81	0.82	
27	Lithuania	1.10	77.61	0.82	
28	Iceland	1.06	76.59	0.81	
29	Czech Republic	1.06	76.53	0.80	
30	Slovakia	1.03	75.80	0.80	
31	Latvia	1.00	75.05	0.79	
32	Mauritius	0.98	74.49	0.78	
33	Hungary	0.97	74.13	0.77	
34	Poland	0.96	73.88	0.77	
35	Spain	0.94	73.46	0.76	
36	Korea, Rep.	0.89	71.95	0.75	
37	Portugal	0.81	70.03	0.75	
38	Qatar	0.80	69.59	0.74	
39	Italy	0.73	67.92	0.73	
40	Botswana	0.69	66.93	0.73	
41	Bahrain	0.69	66.75	0.72	
42	Georgia	0.68	66.47	0.71	
43	United Arab Emirates	0.67	66.39	0.70	
44	Slovenia	0.61	64.62	0.70	
45	Costa Rica	0.57	63.57	0.69	
46	Malaysia	0.55	63.15	0.68	
47	Bulgaria	0.54	63.03	0.68	
48	Romania	0.54	62.81	0.67	
49	Greece	0.50	61.82	0.66	
50	Peru	0.49	61.59	0.65	
51	Oman	0.47	61.15	0.65	
52	Mexico	0.47	61.13	0.64	
53	Croatia	0.44	60.17	0.63	
54	Barbados	0.42	59.79	0.63	
55	Turkey	0.42	59.68	0.62	
56	Uruguay	0.40	59.14	0.61	
57	Panama	0.39	58.96	0.61	
58	Colombia	0.39	58.91	0.60	
59	South Africa	0.38	58.69	0.59	
60	TFYR of Macedonia	0.35	57.84	0.58	
61	Armenia	0.33	57.40	0.58	
62	El Salvador	0.32	57.19	0.57	
63	Jamaica	0.23	54.87	0.56	
64	Thailand	0.23	54.74	0.56	
65	Trinidad and Tobago	0.22	54.54	0.55	
66	Jordan	0.18	53.45	0.54	
67	Albania	0.17	53.20	0.54	
68	Ghana	0.12	51.85	0.53	
69	Saudi Arabia	0.10	51.48	0.52	
70	Brazil	0.09	51.19	0.51	
71	Namibia	0.06	50.51	0.51	
72	Cabo Verde	0.04	49.85	0.50	
73	Montenegro	0.01	49.08	0.49	
74	Kuwait	−0.05	47.55	0.49	
75	Philippines	−0.06	47.30	0.48	
76	Bosnia and Herzegovina	−0.06	47.14	0.47	
77	Serbia	−0.08	46.79	0.46	
78	Morocco	−0.09	46.40	0.46	
79	Senegal	−0.10	46.32	0.45	
80	Rwanda	−0.10	46.19	0.44	
81	Moldova, Rep.	−0.11	45.84	0.44	
82	Sri Lanka	−0.12	45.72	0.43	
83	Burkina Faso	−0.12	45.69	0.42	
84	Lebanon	−0.12	45.58	0.42	
85	Dominican Republic	−0.14	45.10	0.41	
86	Mongolia	−0.17	44.49	0.40	
87	Guatemala	−0.18	44.20	0.39	
88	Honduras	−0.20	43.61	0.39	
89	Tunisia	−0.21	43.38	0.38	
90	Gambia	−0.23	42.81	0.37	
91	Uganda	−0.24	42.44	0.37	
92	China	−0.26	42.06	0.36	
93	Indonesia	−0.28	41.62	0.35	
94	Nicaragua	−0.30	40.91	0.35	
95	Seychelles	−0.31	40.72	0.34	
96	Kenya	−0.31	40.71	0.33	
97	Paraguay	−0.32	40.40	0.32	
98	Kyrgyzstan	−0.35	39.79	0.32	
99	Cambodia	−0.35	39.68	0.31	
100	Russian Federation	−0.36	39.52	0.30	
101	Kazakhstan	−0.39	38.71	0.30	
102	Benin	−0.39	38.51	0.29	
103	Tanzania, United Rep.	−0.40	38.40	0.28	
104	Mali	−0.42	37.76	0.27	
105	Zambia	−0.43	37.61	0.27	
106	Mozambique	−0.46	36.82	0.26	
107	Azerbaijan	−0.47	36.56	0.25	
108	India	−0.47	36.47	0.25	
109	Egypt	−0.49	36.03	0.24	
110	Lesotho	−0.54	34.78	0.23	
111	Swaziland	−0.56	34.13	0.23	
112	Madagascar	−0.58	33.75	0.22	
113	Fiji	−0.60	33.10	0.21	
114	Niger	−0.61	32.93	0.20	
115	Ukraine	−0.61	32.84	0.20	
116	Guyana	−0.63	32.27	0.19	
117	Viet Nam	−0.68	30.98	0.18	
118	Yemen	−0.70	30.64	0.18	
119	Malawi	−0.71	30.14	0.17	
120	Nigeria	−0.72	29.94	0.16	
121	Pakistan	−0.73	29.81	0.15	
122	Côte d'Ivoire	−0.77	28.73	0.15	
123	Nepal	−0.81	27.55	0.14	
124	Bolivia, Plurinational St.	−0.83	27.02	0.13	○
125	Togo	−0.86	26.45	0.13	
126	Cameroon	−0.93	24.44	0.12	
127	Burundi	−0.96	23.79	0.11	
128	Bangladesh	−0.96	23.66	0.11	
129	Argentina	−0.96	23.63	0.10	○
130	Angola	−0.98	23.29	0.09	
131	Tajikistan	−1.01	22.54	0.08	
132	Guinea	−1.02	22.19	0.08	
133	Ecuador	−1.04	21.71	0.07	○
134	Ethiopia	−1.07	20.99	0.06	
135	Belarus	−1.10	20.19	0.06	○
136	Bhutan	−1.12	19.63	0.05	○
137	Algeria	−1.29	15.06	0.04	○
138	Iran, Islamic Rep.	−1.43	11.58	0.04	○
139	Sudan	−1.51	9.33	0.03	
140	Venezuela, Bolivarian Rep.	−1.54	8.70	0.02	○
141	Uzbekistan	−1.61	6.72	0.01	○
142	Zimbabwe	−1.83	1.07	0.01	○
143	Myanmar	−1.87	0.00	0.00	○

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

1.2.2 Rule of law

Rule of law index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Norway	1.95	100.00	1.00	●
2	Finland	1.94	99.84	0.99	●
3	Sweden	1.93	99.60	0.99	●
4	New Zealand	1.88	98.03	0.98	●
5	Denmark	1.85	97.30	0.97	●
6	Austria	1.84	97.05	0.96	●
7	Netherlands	1.84	97.04	0.96	
8	Switzerland	1.81	96.23	0.95	
9	Luxembourg	1.77	95.18	0.94	
10	Singapore	1.77	95.14	0.94	
11	Canada	1.75	94.61	0.93	
12	Australia	1.75	94.41	0.92	
13	Ireland	1.73	93.97	0.92	
14	United Kingdom	1.69	92.87	0.91	
15	Iceland	1.67	92.38	0.90	
16	Germany	1.64	91.43	0.89	
17	United States of America	1.60	90.53	0.89	
18	Hong Kong (China)	1.56	89.20	0.88	
19	France	1.43	85.75	0.87	
20	Belgium	1.40	84.76	0.87	
21	Chile	1.37	83.98	0.86	●
22	Malta	1.34	83.11	0.85	
23	Japan	1.32	82.78	0.85	
24	Estonia	1.13	77.38	0.84	
25	Cyprus	1.07	75.78	0.83	
26	Spain	1.04	75.08	0.82	
27	Portugal	1.04	74.95	0.82	
28	Qatar	1.03	74.78	0.81	
29	Czech Republic	1.01	74.06	0.80	
30	Barbados	0.99	73.72	0.80	
31	Slovenia	0.98	73.35	0.79	
32	Korea, Rep.	0.97	73.03	0.78	
33	Mauritius	0.94	72.10	0.77	
34	Israel	0.92	71.60	0.77	
35	Brunei Darussalam	0.81	68.59	0.76	●
36	Lithuania	0.81	68.58	0.75	
37	Latvia	0.76	67.24	0.75	
38	Poland	0.74	66.87	0.74	
39	Botswana	0.66	64.52	0.73	
40	Hungary	0.60	62.75	0.73	
41	Oman	0.58	62.46	0.72	●
42	United Arab Emirates	0.56	61.77	0.71	
43	Uruguay	0.54	61.31	0.70	
44	Malaysia	0.51	60.30	0.70	
45	Cabo Verde	0.48	59.56	0.69	●
46	Costa Rica	0.47	59.36	0.68	
47	Slovakia	0.46	58.93	0.68	
48	Greece	0.39	57.19	0.67	
49	Kuwait	0.38	56.96	0.66	
50	Jordan	0.37	56.63	0.65	
51	Italy	0.36	56.30	0.65	
52	Bahrain	0.28	53.97	0.64	
53	Saudi Arabia	0.24	53.03	0.63	
54	Namibia	0.24	52.85	0.63	
55	Croatia	0.21	52.22	0.62	
56	Bhutan	0.19	51.59	0.61	●
57	South Africa	0.08	48.56	0.61	
58	Turkey	0.04	47.35	0.60	
59	Romania	0.02	46.93	0.59	
60	Montenegro	−0.01	46.18	0.58	
61	Georgia	−0.03	45.58	0.58	
62	Ghana	−0.03	45.46	0.57	●
63	Seychelles	−0.04	45.35	0.56	
64	India	−0.10	43.50	0.56	
65	Sri Lanka	−0.11	43.41	0.55	
66	Brazil	−0.11	43.35	0.54	
67	Bulgaria	−0.12	42.97	0.54	
68	Tunisia	−0.14	42.65	0.53	
69	Thailand	−0.17	41.64	0.52	
70	Trinidad and Tobago	−0.19	41.19	0.51	
71	Morocco	−0.19	41.03	0.51	
72	Panama	−0.23	40.04	0.50	
73	Bosnia and Herzegovina	−0.23	40.04	0.49	
74	TFYR of Macedonia	−0.24	39.85	0.49	
75	Malawi	−0.24	39.67	0.48	
76	Rwanda	−0.26	39.13	0.47	
77	Lesotho	−0.29	38.50	0.46	
78	Senegal	−0.33	37.32	0.46	
79	Uganda	−0.36	36.53	0.45	
80	Moldova, Rep.	−0.36	36.49	0.44	
81	Mongolia	−0.38	35.87	0.44	
82	Serbia	−0.39	35.76	0.43	
83	Colombia	−0.39	35.59	0.42	
84	Armenia	−0.40	35.42	0.42	
85	Zambia	−0.40	35.29	0.41	
86	Jamaica	−0.41	35.01	0.40	
87	Burkina Faso	−0.43	34.46	0.39	
88	Egypt	−0.45	33.94	0.39	
89	Swaziland	−0.46	33.59	0.38	
90	China	−0.49	32.92	0.37	
91	Viet Nam	−0.50	32.51	0.37	
92	Guyana	−0.52	32.09	0.36	
93	Gambia	−0.54	31.42	0.35	
94	Philippines	−0.55	31.37	0.35	
95	Mexico	−0.56	31.02	0.34	
96	Albania	−0.57	30.71	0.33	
97	Tanzania, United Rep.	−0.58	30.52	0.32	
98	Indonesia	−0.60	29.95	0.32	
99	Mozambique	−0.60	29.86	0.31	
100	Peru	−0.61	29.53	0.30	
101	Benin	−0.64	28.78	0.30	
102	Ethiopia	−0.66	28.33	0.29	
103	Kazakhstan	−0.66	28.13	0.28	
104	Mali	−0.69	27.32	0.27	
105	Dominican Republic	−0.70	27.04	0.27	
106	Argentina	−0.71	26.73	0.26	
107	Nicaragua	−0.74	26.14	0.25	
108	Niger	−0.74	26.06	0.25	
109	El Salvador	−0.75	25.87	0.24	
110	Lebanon	−0.75	25.70	0.23	
111	Nepal	−0.79	24.65	0.23	
112	Ukraine	−0.79	24.51	0.22	
113	Algeria	−0.79	24.51	0.21	
114	Fiji	−0.80	24.33	0.20	
115	Azerbaijan	−0.81	24.22	0.20	
116	Russian Federation	−0.82	23.79	0.19	○
117	Kenya	−0.87	22.58	0.18	
118	Paraguay	−0.87	22.34	0.18	
119	Madagascar	−0.89	21.85	0.17	
120	Iran, Islamic Rep.	−0.90	21.60	0.16	
121	Bangladesh	−0.91	21.39	0.15	
122	Pakistan	−0.91	21.34	0.15	
123	Togo	−0.92	21.12	0.14	
124	Belarus	−0.92	21.02	0.13	○
125	Cambodia	−0.97	19.82	0.13	
126	Cameroon	−1.02	18.29	0.12	
127	Bolivia, Plurinational St.	−1.04	17.73	0.11	○
128	Burundi	−1.09	16.42	0.11	
129	Guatemala	−1.10	16.19	0.10	
130	Côte d'Ivoire	−1.11	15.86	0.09	○
131	Kyrgyzstan	−1.15	14.70	0.08	
132	Ecuador	−1.16	14.47	0.08	○
133	Honduras	−1.17	14.17	0.07	○
134	Tajikistan	−1.18	14.03	0.06	
135	Nigeria	−1.18	13.89	0.06	○
136	Sudan	−1.21	13.13	0.05	
137	Yemen	−1.27	11.57	0.04	
138	Uzbekistan	−1.27	11.52	0.04	○
139	Angola	−1.28	11.26	0.03	○
140	Myanmar	−1.35	9.12	0.02	
141	Guinea	−1.44	6.83	0.01	○
142	Zimbabwe	−1.62	1.87	0.01	○
143	Venezuela, Bolivarian Rep.	−1.69	0.00	0.00	○

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

1.2.3 Cost of redundancy dismissal

Sum of notice period and severance pay for redundancy dismissal (in salary weeks, averages for workers with 1, 5, and 10 years of tenure, with a minimum threshold of 8 weeks) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Austria	8.00	100.00	0.85	●
1	Bahrain	8.00	100.00	0.85	●
1	Belgium	8.00	100.00	0.85	●
1	Brunei Darussalam	8.00	100.00	0.85	●
1	Bulgaria	8.00	100.00	0.85	●
1	Cyprus	8.00	100.00	0.85	●
1	Denmark	8.00	100.00	0.85	●
1	Georgia	8.00	100.00	0.85	●
1	Guinea	8.00	100.00	0.85	●
1	Hong Kong (China)	8.00	100.00	0.85	●
1	Italy	8.00	100.00	0.85	●
1	Japan	8.00	100.00	0.85	●
1	Jordan	8.00	100.00	0.85	●
1	Kenya	8.00	100.00	0.85	●
1	Malta	8.00	100.00	0.85	●
1	New Zealand	8.00	100.00	0.85	
1	Oman	8.00	100.00	0.85	●
1	Romania	8.00	100.00	0.85	●
1	Serbia	8.00	100.00	0.85	●
1	Singapore	8.00	100.00	0.85	
1	United Arab Emirates	8.00	100.00	0.85	●
1	United States of America	8.00	100.00	0.85	●
23	Bhutan	8.29	99.43	0.85	●
24	United Kingdom	8.47	99.06	0.84	
25	Kazakhstan	8.67	98.66	0.80	●
25	Lebanon	8.67	98.66	0.80	●
25	Mongolia	8.67	98.66	0.80	
25	Netherlands	8.67	98.66	0.80	
25	Norway	8.67	98.66	0.80	
25	Uganda	8.67	98.66	0.80	●
31	Bosnia and Herzegovina	9.22	97.54	0.79	●
32	South Africa	9.33	97.32	0.77	
32	Tanzania, United Rep.	9.33	97.32	0.77	●
34	Fiji	9.67	96.65	0.75	●
34	Latvia	9.67	96.65	0.75	
34	Namibia	9.67	96.65	0.75	●
37	Canada	10.00	95.98	0.75	
38	Finland	10.11	95.76	0.73	
38	Iceland	10.11	95.76	0.73	
38	Switzerland	10.11	95.76	0.73	
41	Niger	10.12	95.74	0.72	●
42	Burkina Faso	10.47	95.03	0.71	●
43	Mauritius	10.62	94.74	0.70	
44	Slovenia	10.68	94.62	0.70	
45	Armenia	11.00	93.97	0.69	
46	Montenegro	11.22	93.53	0.68	
47	Peru	11.43	93.11	0.68	
48	Benin	11.63	92.71	0.67	●
49	Australia	11.67	92.63	0.66	
50	France	11.84	92.28	0.65	
51	Tunisia	12.10	91.77	0.65	
52	Ireland	12.17	91.63	0.64	
53	Madagascar	12.25	91.45	0.63	●
54	Estonia	12.90	90.15	0.63	
55	Rwanda	12.95	90.05	0.62	
56	TFYR of Macedonia	13.00	89.96	0.61	
56	Ukraine	13.00	89.96	0.61	
58	Côte d'Ivoire	13.07	89.81	0.60	●
59	Togo	13.14	89.67	0.59	●
60	Hungary	13.41	89.13	0.58	
61	Seychelles	13.48	89.00	0.58	
62	Mali	13.65	88.65	0.57	●
63	Senegal	13.69	88.56	0.56	
64	Jamaica	14.00	87.95	0.56	
65	Sweden	14.44	87.05	0.55	○
66	Swaziland	14.57	86.80	0.54	●
67	Nicaragua	14.93	86.09	0.54	●
68	Lesotho	15.00	85.94	0.53	●
69	Croatia	15.11	85.71	0.52	
70	Cameroon	15.31	85.31	0.51	●
71	Brazil	15.45	85.04	0.51	
72	Tajikistan	15.53	84.88	0.50	●
73	India	15.76	84.41	0.49	
74	Burundi	15.89	84.15	0.48	
74	Greece	15.89	84.15	0.48	
76	Barbados	16.00	83.93	0.47	
77	Nigeria	16.20	83.53	0.46	
78	Colombia	16.67	82.59	0.44	
78	Guyana	16.67	82.59	0.44	
78	Malawi	16.67	82.59	0.44	
81	Algeria	17.33	81.25	0.42	●
81	Kyrgyzstan	17.33	81.25	0.42	
81	Russian Federation	17.33	81.25	0.42	
81	Uzbekistan	17.33	81.25	0.42	
85	Spain	17.38	81.15	0.41	○
86	Panama	18.13	79.64	0.40	
87	Costa Rica	18.70	78.50	0.39	
88	Poland	18.78	78.35	0.38	
88	Slovakia	18.78	78.35	0.38	
90	Ethiopia	19.14	77.61	0.37	
91	Cambodia	19.37	77.17	0.37	
92	Saudi Arabia	19.45	76.99	0.36	
93	Myanmar	20.22	75.45	0.35	●
94	Czech Republic	20.22	75.45	0.35	○
95	Trinidad and Tobago	20.51	74.86	0.34	
96	Morocco	20.69	74.51	0.33	
97	Uruguay	20.80	74.29	0.32	
98	Albania	20.83	74.23	0.32	
99	Germany	21.56	72.77	0.31	○
100	Azerbaijan	21.67	72.54	0.29	
100	Belarus	21.67	72.54	0.29	
100	Luxembourg	21.67	72.54	0.29	○
103	Botswana	21.69	72.50	0.28	
104	Mexico	22.00	71.88	0.27	
105	Moldova, Rep.	22.60	70.67	0.27	
106	El Salvador	22.86	70.15	0.26	
107	Portugal	23.10	69.67	0.25	○
108	Iran, Islamic Rep.	23.11	69.64	0.25	
109	Qatar	23.22	69.42	0.24	
110	Malaysia	23.89	68.08	0.23	○
111	Lithuania	24.56	66.74	0.22	○
111	Viet Nam	24.56	66.74	0.22	
113	Gambia	26.00	63.84	0.20	
113	Sudan	26.00	63.84	0.20	
115	Paraguay	26.07	63.70	0.20	
116	Dominican Republic	26.18	63.47	0.19	
117	Guatemala	26.96	61.90	0.18	
118	Nepal	27.19	61.45	0.17	
118	Pakistan	27.19	61.45	0.17	
120	Chile	27.40	61.03	0.14	○
120	China	27.40	61.03	0.14	○
120	Korea, Rep.	27.40	61.03	0.14	○
120	Yemen	27.40	61.03	0.14	
124	Israel	27.44	60.94	0.13	○
124	Philippines	27.44	60.94	0.13	○
126	Kuwait	28.12	59.58	0.12	○
127	Cabo Verde	29.54	56.73	0.11	○
128	Turkey	29.78	56.25	0.11	○
129	Argentina	30.33	55.13	0.09	○
129	Honduras	30.33	55.13	0.09	○
131	Bangladesh	31.00	53.79	0.08	
132	Angola	31.01	53.78	0.08	
133	Ecuador	31.78	52.23	0.07	○
134	Thailand	36.00	43.75	0.06	○
135	Egypt	36.83	42.08	0.06	○
136	Mozambique	37.51	40.72	0.05	○
137	Ghana	49.78	16.07	0.04	○
138	Zambia	50.56	14.51	0.04	○
139	Bolivia, Plurinational St.	82.33	0.00	0.00	○
139	Indonesia	57.78	0.00	0.00	○
139	Sri Lanka	69.33	0.00	0.00	○
139	Venezuela, Bolivarian Rep.	82.33	0.00	0.00	○
139	Zimbabwe	82.33	0.00	0.00	○

SOURCE: World Bank, *Doing Business 2014, Employing Workers*

NOTE: ● indicates a strength; ○ a weakness.

1.3.1 Ease of starting a business

Ease of starting a business (distance to frontier) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	New Zealand	99.96	99.96	1.00	●
2	Canada	98.97	98.97	0.99	●
3	TFYR of Macedonia	97.66	97.66	0.99	●
4	Georgia	97.47	97.47	0.98	●
5	Rwanda	97.36	97.36	0.97	●
6	Armenia	97.32	97.32	0.96	●
7	Kyrgyzstan	96.25	96.25	0.96	●
8	Singapore	95.92	95.92	0.95	
9	Australia	95.91	95.91	0.94	●
10	Hong Kong (China)	95.89	95.89	0.94	
11	Portugal	95.71	95.71	0.93	●
12	Madagascar	95.03	95.03	0.92	●
13	Azerbaijan	94.89	94.89	0.92	●
14	Slovenia	94.84	94.84	0.91	
15	Malaysia	94.31	94.31	0.90	
16	Belgium	94.15	94.15	0.89	
17	Burundi	93.34	93.34	0.89	●
18	Netherlands	93.26	93.26	0.88	
19	Lithuania	93.23	93.23	0.87	●
20	Finland	93.01	93.01	0.87	
21	Ireland	92.54	92.54	0.86	
22	Uzbekistan	92.47	92.47	0.85	●
23	Denmark	92.35	92.35	0.85	
24	Sweden	92.34	92.34	0.84	
25	Hungary	92.16	92.16	0.83	
26	Latvia	91.79	91.79	0.82	
27	France	91.43	91.43	0.82	
28	Mauritius	91.23	91.23	0.81	
29	Iceland	91.14	91.14	0.80	
30	Norway	90.99	90.99	0.80	
31	Belarus	90.90	90.90	0.79	
32	Jamaica	90.88	90.88	0.78	●
33	Panama	90.79	90.79	0.77	
33	Romania	90.79	90.79	0.77	●
35	Bulgaria	90.70	90.70	0.76	
36	Mongolia	90.39	90.39	0.75	
37	Estonia	90.35	90.35	0.75	
38	Korea, Rep.	90.01	90.01	0.74	
39	United States of America	89.91	89.91	0.73	
40	Albania	89.44	89.44	0.73	
41	Israel	89.42	89.42	0.71	
41	Morocco	89.42	89.42	0.71	●
43	Greece	89.36	89.36	0.70	
44	Uruguay	88.82	88.82	0.70	
45	Montenegro	88.81	88.81	0.69	
46	South Africa	88.78	88.78	0.68	
47	United Arab Emirates	88.66	88.66	0.68	
48	Moldova, Rep.	88.61	88.61	0.67	
49	United Kingdom	88.53	88.53	0.66	○
50	Kazakhstan	88.49	88.49	0.65	
51	Croatia	88.32	88.32	0.64	
51	Zambia	88.32	88.32	0.64	●
53	Chile	88.11	88.11	0.63	
54	Cyprus	87.96	87.96	0.63	
55	Thailand	87.94	87.94	0.62	
56	Serbia	87.80	87.80	0.61	
57	Turkey	87.69	87.69	0.61	
58	Italy	87.68	87.68	0.60	
59	Mexico	87.50	87.50	0.59	
60	Sri Lanka	86.96	86.96	0.58	
61	Egypt	86.49	86.49	0.58	
62	Ukraine	86.44	86.44	0.57	
63	Peru	86.29	86.29	0.56	
64	Russian Federation	85.91	85.91	0.56	
65	Luxembourg	85.89	85.89	0.55	
66	Poland	85.86	85.86	0.54	
67	Switzerland	85.74	85.74	0.54	○
68	Cabo Verde	85.59	85.59	0.53	
69	Bangladesh	84.71	84.71	0.52	
70	Slovakia	84.22	84.22	0.51	
71	Jordan	84.10	84.10	0.51	
72	Iran, Islamic Rep.	83.72	83.72	0.50	
73	Barbados	82.81	82.81	0.49	
74	Tajikistan	82.68	82.68	0.49	
75	Ghana	82.49	82.49	0.48	
76	Germany	82.09	82.09	0.47	
77	Qatar	82.08	82.08	0.46	
78	Japan	81.90	81.90	0.46	
79	Guyana	81.75	81.75	0.45	
80	Lesotho	81.69	81.69	0.44	
81	Colombia	81.64	81.64	0.44	
82	Nepal	81.52	81.52	0.43	
83	Trinidad and Tobago	81.11	81.11	0.42	
84	Tunisia	81.07	81.07	0.42	
85	Dominican Republic	81.01	81.01	0.41	
86	Saudi Arabia	80.75	80.75	0.40	
87	Mozambique	80.74	80.74	0.39	
88	Oman	80.58	80.58	0.39	
89	Guatemala	80.38	80.38	0.38	
90	Lebanon	80.09	80.09	0.37	
91	Bhutan	80.02	80.02	0.37	
92	Costa Rica	79.44	79.44	0.36	
93	Austria	79.22	79.22	0.35	○
94	Czech Republic	79.12	79.12	0.35	○
95	El Salvador	78.40	78.40	0.34	
96	Pakistan	78.20	78.20	0.33	
97	Spain	77.79	77.79	0.32	○
98	Côte d'Ivoire	77.77	77.77	0.32	
99	Cameroon	76.87	76.87	0.31	
100	Tanzania, United Rep.	76.82	76.82	0.30	
101	Paraguay	76.43	76.43	0.30	
102	Senegal	76.23	76.23	0.29	
103	Bahrain	76.16	76.16	0.28	
104	Viet Nam	75.69	75.69	0.27	
105	Yemen	74.50	74.50	0.27	
106	Nigeria	74.48	74.48	0.26	
107	Seychelles	74.19	74.19	0.25	
108	Sudan	73.69	73.69	0.25	
109	Burkina Faso	73.25	73.25	0.24	
110	Botswana	72.58	72.58	0.23	
111	Kenya	72.46	72.46	0.23	
112	Nicaragua	72.27	72.27	0.22	
113	Malta	72.26	72.26	0.21	○
114	Bosnia and Herzegovina	70.95	70.95	0.20	
115	Kuwait	69.51	69.51	0.20	
116	Honduras	69.43	69.43	0.19	
117	Indonesia	69.19	69.19	0.18	
118	Swaziland	68.82	68.82	0.18	
119	Argentina	68.77	68.77	0.17	
120	Algeria	68.53	68.53	0.16	
121	Namibia	67.85	67.85	0.15	
122	China	67.38	67.38	0.15	○
123	Mali	66.79	66.79	0.14	
124	Fiji	66.59	66.59	0.13	○
125	Philippines	65.00	65.00	0.13	○
126	Guinea	64.27	64.27	0.12	
127	Benin	63.84	63.84	0.11	
128	Ecuador	63.34	63.34	0.11	○
129	India	62.74	62.74	0.10	○
130	Ethiopia	61.43	61.43	0.09	
131	Malawi	60.87	60.87	0.08	○
132	Gambia	60.76	60.76	0.08	
133	Uganda	58.71	58.71	0.07	○
134	Angola	56.48	56.48	0.06	
135	Bolivia, Plurinational St.	55.72	55.72	0.06	○
136	Brazil	54.66	54.66	0.05	○
137	Niger	52.83	52.83	0.04	
138	Brunei Darussalam	51.87	51.87	0.04	○
139	Togo	51.49	51.49	0.03	○
140	Zimbabwe	49.20	49.20	0.02	○
141	Venezuela, Bolivarian Rep.	45.72	45.72	0.01	○
142	Cambodia	40.08	40.08	0.01	○
143	Myanmar	20.29	20.29	0.00	○

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

1.3.2 Ease of resolving insolvency

Ease of resolving insolvency (distance to frontier) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Japan	98.31	98.31	1.00	●
2	Norway	96.72	96.72	0.99	●
3	Finland	95.55	95.55	0.99	
4	Singapore	94.66	94.66	0.98	
5	Netherlands	94.49	94.49	0.97	●
6	Belgium	94.23	94.23	0.96	●
7	United Kingdom	93.79	93.79	0.96	
8	Ireland	92.82	92.82	0.95	
9	Canada	92.46	92.46	0.94	
10	Denmark	92.14	92.14	0.94	
11	Iceland	89.46	89.46	0.93	
12	New Zealand	88.26	88.26	0.92	
13	Germany	87.84	87.84	0.91	
14	Austria	87.22	87.22	0.91	
15	Korea, Rep.	87.12	87.12	0.90	
16	United States of America	86.31	86.31	0.89	
17	Australia	86.14	86.14	0.89	
18	Hong Kong (China)	86.01	86.01	0.88	
19	Sweden	79.98	79.98	0.87	
20	Spain	76.59	76.59	0.87	●
21	Portugal	75.83	75.83	0.86	
22	Cyprus	74.64	74.64	0.85	
23	Colombia	74.47	74.47	0.84	●
24	Mexico	71.55	71.55	0.84	●
25	Bahrain	71.35	71.35	0.83	
26	Barbados	68.93	68.93	0.82	
27	Czech Republic	68.89	68.89	0.82	
28	Jamaica	68.03	68.03	0.81	●
29	Italy	66.41	66.41	0.80	
30	Botswana	65.57	65.57	0.79	●
31	Israel	64.19	64.19	0.79	
32	Qatar	58.92	58.92	0.78	
33	Poland	58.04	58.04	0.77	
34	Slovakia	57.30	57.30	0.77	
35	Tunisia	55.03	55.03	0.76	●
36	Slovenia	53.06	53.06	0.75	
37	Malaysia	51.84	51.84	0.74	
38	Latvia	51.30	51.30	0.74	
39	Lithuania	51.26	51.26	0.72	
39	Montenegro	51.26	51.26	0.72	
41	France	51.21	51.21	0.72	
42	Switzerland	50.37	50.37	0.71	
43	Brunei Darussalam	50.03	50.03	0.70	
44	Fiji	48.24	48.24	0.70	●
45	Uruguay	47.72	47.72	0.69	
46	TFYR of Macedonia	46.36	46.36	0.68	
47	Luxembourg	46.06	46.06	0.67	
48	Kazakhstan	45.71	45.71	0.67	
49	Russian Federation	45.38	45.38	0.66	
50	Thailand	44.67	44.67	0.65	
51	Sri Lanka	44.42	44.42	0.65	●
52	Algeria	44.12	44.12	0.64	●
53	Mauritius	43.47	43.47	0.63	
54	Albania	43.07	43.07	0.62	
55	Uzbekistan	42.22	42.22	0.62	●
56	Malta	41.52	41.52	0.61	
57	Seychelles	41.23	41.23	0.60	
58	Estonia	41.20	41.20	0.60	
59	Bolivia, Plurinational St.	41.16	41.16	0.59	●
60	Swaziland	40.75	40.75	0.58	●
61	Morocco	40.56	40.56	0.57	
62	Hungary	40.55	40.55	0.57	
63	Pakistan	39.95	39.95	0.56	●
64	Oman	39.53	39.53	0.55	
65	Zambia	39.27	39.27	0.55	
66	Belarus	39.11	39.11	0.54	
67	Ethiopia	39.07	39.07	0.53	●
68	Armenia	38.59	38.59	0.52	
69	Bosnia and Herzegovina	38.17	38.17	0.52	
70	China	38.10	38.10	0.50	
70	Uganda	38.10	38.10	0.50	
72	Tajikistan	37.95	37.95	0.50	●
73	South Africa	37.61	37.61	0.49	
74	Namibia	37.01	37.01	0.48	
74	Nicaragua	37.01	37.01	0.48	
76	Azerbaijan	35.98	35.98	0.47	
77	Greece	35.97	35.97	0.46	
78	Georgia	35.54	35.54	0.45	
79	Sudan	35.20	35.20	0.45	●
80	El Salvador	34.75	34.75	0.44	
81	Moldova, Rep.	34.72	34.72	0.43	
82	Bulgaria	34.50	34.50	0.43	
83	Lebanon	34.34	34.34	0.42	
84	Kuwait	33.87	33.87	0.41	
85	Côte d'Ivoire	33.65	33.65	0.40	●
86	Argentina	32.64	32.64	0.40	
87	Croatia	32.09	32.09	0.39	
88	Romania	31.72	31.72	0.38	
89	Philippines	31.69	31.69	0.38	
90	United Arab Emirates	31.09	31.09	0.37	
91	Chile	30.79	30.79	0.36	○
92	Serbia	30.74	30.74	0.35	
93	Lesotho	30.25	30.25	0.35	
94	Saudi Arabia	29.95	29.95	0.34	
95	Nigeria	29.51	29.51	0.33	
96	Gambia	29.41	29.41	0.33	
97	Peru	29.30	29.30	0.32	
98	Togo	29.21	29.21	0.31	
99	Panama	29.13	29.13	0.30	
100	Jordan	28.80	28.80	0.30	
101	Trinidad and Tobago	28.53	28.53	0.29	
102	Ghana	27.71	27.71	0.28	
103	Burkina Faso	27.60	27.60	0.28	
104	Bangladesh	27.28	27.28	0.27	
105	India	27.12	27.12	0.26	
106	Senegal	26.81	26.81	0.26	
107	Kenya	26.15	26.15	0.25	
108	Costa Rica	25.97	25.97	0.24	
109	Nepal	25.95	25.95	0.23	
110	Yemen	25.80	25.80	0.23	
111	Iran, Islamic Rep.	23.71	23.71	0.22	
112	Turkey	23.62	23.62	0.21	
113	Mali	23.52	23.52	0.21	
114	Kyrgyzstan	22.94	22.94	0.20	
115	Mongolia	22.86	22.86	0.19	
116	Tanzania, United Rep.	22.71	22.71	0.18	
117	Brazil	20.66	20.66	0.18	○
118	Honduras	20.63	20.63	0.17	
119	Rwanda	20.17	20.17	0.16	
120	Benin	19.18	19.18	0.16	
121	Guyana	19.01	19.01	0.15	
122	Ecuador	18.93	18.93	0.14	
123	Indonesia	18.92	18.92	0.13	
124	Guinea	18.69	18.69	0.13	
125	Egypt	17.94	17.94	0.12	○
126	Mozambique	17.53	17.53	0.11	
127	Viet Nam	17.15	17.15	0.11	
128	Malawi	16.48	16.48	0.10	
129	Cameroon	16.32	16.32	0.09	○
130	Paraguay	16.13	16.13	0.09	
131	Niger	15.80	15.80	0.08	
132	Myanmar	15.52	15.52	0.07	
133	Zimbabwe	13.84	13.84	0.06	
134	Madagascar	12.41	12.41	0.06	
135	Dominican Republic	9.28	9.28	0.05	○
136	Ukraine	8.67	8.67	0.04	○
137	Cambodia	8.65	8.65	0.04	
138	Burundi	8.14	8.14	0.03	
139	Venezuela, Bolivarian Rep.	6.93	6.93	0.02	○
140	Angola	0.00	0.00	0.00	○
140	Bhutan	0.00	0.00	0.00	○
140	Cabo Verde	0.00	0.00	0.00	○
n/a	Guatemala	n/a	n/a	n/a	

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

1.3.3 Ease of paying taxes

Ease of paying taxes (distance to frontier) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United Arab Emirates	98.88	98.88	1.00	●
2	Qatar	97.49	97.49	0.99	●
3	Saudi Arabia	96.55	96.55	0.99	●
4	Hong Kong (China)	96.26	96.26	0.98	
5	Singapore	94.44	94.44	0.97	
6	Ireland	92.89	92.89	0.96	●
7	Bahrain	92.81	92.81	0.96	●
8	Canada	90.99	90.99	0.95	
9	Oman	90.73	90.73	0.94	●
10	Kuwait	90.39	90.39	0.94	●
11	Denmark	89.51	89.51	0.93	
12	Mauritius	88.86	88.86	0.92	●
13	United Kingdom	87.55	87.55	0.91	
14	Kazakhstan	87.41	87.41	0.91	●
15	Norway	87.21	87.21	0.90	
16	Switzerland	86.61	86.61	0.89	
17	Luxembourg	86.44	86.44	0.89	
18	Korea, Rep.	86.25	86.25	0.88	
19	South Africa	86.01	86.01	0.87	●
20	Georgia	85.50	85.50	0.87	●
21	New Zealand	85.16	85.16	0.86	
22	Finland	85.02	85.02	0.85	
23	Rwanda	84.83	84.83	0.84	●
24	Netherlands	83.34	83.34	0.84	
25	Seychelles	83.25	83.25	0.83	●
26	Chile	83.02	83.02	0.82	
27	Malta	82.71	82.71	0.82	
28	Malaysia	82.38	82.38	0.81	
29	Brunei Darussalam	82.29	82.29	0.80	●
30	Croatia	81.87	81.87	0.79	●
31	Estonia	80.68	80.68	0.79	
32	Lebanon	80.37	80.37	0.78	●
33	TFYR of Macedonia	80.09	80.09	0.77	
34	Latvia	79.63	79.63	0.77	
35	Slovenia	79.60	79.60	0.76	
36	Jordan	79.19	79.19	0.75	●
37	Sweden	78.87	78.87	0.74	
38	Australia	78.69	78.69	0.74	
39	Iceland	78.62	78.62	0.73	
40	Cyprus	78.23	78.23	0.72	
41	Greece	77.87	77.87	0.72	
42	Lithuania	77.60	77.60	0.71	
43	Peru	76.86	76.86	0.70	
44	Turkey	76.83	76.83	0.70	
45	Botswana	75.78	75.78	0.69	
46	United States of America	75.76	75.76	0.68	
47	Russian Federation	75.33	75.33	0.67	
48	Portugal	74.92	74.92	0.66	
48	Thailand	74.92	74.92	0.66	
50	Madagascar	74.85	74.85	0.65	●
51	Morocco	73.90	73.90	0.65	
52	Azerbaijan	73.69	73.69	0.64	
53	Ghana	73.42	73.42	0.63	●
54	Germany	73.05	73.05	0.62	
55	Swaziland	72.47	72.47	0.62	●
56	Austria	72.17	72.17	0.61	
57	Zambia	72.11	72.11	0.60	
58	Bulgaria	71.95	71.95	0.60	
59	Cambodia	71.50	71.50	0.59	●
60	Dominican Republic	71.34	71.34	0.58	
61	Bangladesh	71.24	71.24	0.57	●
62	Armenia	70.80	70.80	0.57	
63	Spain	70.74	70.74	0.56	
64	Montenegro	70.47	70.47	0.55	
65	Israel	70.26	70.26	0.55	
66	Belgium	70.10	70.10	0.54	
67	Mongolia	70.04	70.04	0.53	
68	Cabo Verde	70.03	70.03	0.52	
69	Bhutan	69.81	69.81	0.52	
70	Tunisia	69.66	69.66	0.51	
71	France	69.48	69.48	0.50	
72	Poland	69.30	69.30	0.50	
73	Malawi	69.19	69.19	0.49	●
74	Fiji	69.18	69.18	0.48	
75	Slovakia	68.79	68.79	0.48	
76	Uganda	68.75	68.75	0.47	
77	Trinidad and Tobago	68.59	68.59	0.46	
78	Hungary	68.40	68.40	0.45	
79	Lesotho	68.09	68.09	0.45	
80	Moldova, Rep.	67.91	67.91	0.44	
81	Barbados	66.65	66.65	0.43	
81	Guyana	66.65	66.65	0.43	
83	Mexico	66.64	66.64	0.42	
84	Ethiopia	66.49	66.49	0.41	
85	Namibia	66.38	66.38	0.40	
86	Belarus	65.03	65.03	0.40	
87	Czech Republic	64.99	64.99	0.39	○
88	Japan	64.78	64.78	0.38	
89	Sudan	64.41	64.41	0.38	●
90	Nepal	64.40	64.40	0.37	
91	Myanmar	64.32	64.32	0.36	●
92	Iran, Islamic Rep.	64.02	64.02	0.35	
93	Mozambique	63.94	63.94	0.35	
94	Paraguay	62.94	62.94	0.34	
95	Philippines	62.25	62.25	0.33	
96	Costa Rica	62.16	62.16	0.33	
97	Yemen	61.98	61.98	0.32	
98	Ecuador	61.55	61.55	0.31	
99	Romania	61.22	61.22	0.30	
100	China	61.14	61.14	0.30	
101	Burundi	60.35	60.35	0.29	
102	Bosnia and Herzegovina	60.29	60.29	0.28	
103	Uruguay	59.81	59.81	0.28	
104	Kyrgyzstan	59.61	59.61	0.27	
105	Albania	58.48	58.48	0.26	
106	Zimbabwe	58.07	58.07	0.26	
107	Colombia	57.99	57.99	0.25	
108	Italy	57.94	57.94	0.24	○
109	Honduras	57.79	57.79	0.23	
110	Egypt	57.62	57.62	0.23	
111	Indonesia	57.41	57.41	0.22	
112	Angola	56.94	56.94	0.21	
113	Tanzania, United Rep.	56.32	56.32	0.21	
114	Mali	56.29	56.29	0.20	
115	Kenya	54.23	54.23	0.19	
116	Burkina Faso	54.02	54.02	0.18	
117	Jamaica	54.00	54.00	0.18	
118	Niger	53.87	53.87	0.17	
119	Ukraine	51.26	51.26	0.16	○
120	India	51.04	51.04	0.16	
121	El Salvador	50.56	50.56	0.15	
122	Togo	48.16	48.16	0.14	
123	Serbia	47.23	47.23	0.13	○
124	Nicaragua	46.69	46.69	0.13	
125	Viet Nam	45.66	45.66	0.12	
126	Panama	45.06	45.06	0.11	○
127	Argentina	43.99	43.99	0.11	○
128	Pakistan	43.48	43.48	0.10	
129	Sri Lanka	43.38	43.38	0.09	○
130	Côte d'Ivoire	43.27	43.27	0.09	○
131	Brazil	39.34	39.34	0.08	○
132	Nigeria	38.28	38.28	0.07	
133	Algeria	38.07	38.07	0.06	
134	Uzbekistan	36.08	36.08	0.06	○
135	Benin	35.99	35.99	0.05	○
136	Cameroon	34.49	34.49	0.04	○
137	Senegal	25.83	25.83	0.04	○
138	Gambia	22.98	22.98	0.03	○
139	Tajikistan	22.61	22.61	0.02	○
140	Guinea	16.09	16.09	0.01	○
141	Venezuela, Bolivarian Rep.	13.05	13.05	0.01	○
142	Bolivia, Plurinational St.	12.67	12.67	0.00	○
n/a	Guatemala	n/a	n/a	n/a	

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

2.1.1 Expenditure on education

Government expenditure on education (% of GDP) | 2010

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Lesotho (2008)	12.98	100.00	1.00	●
2	Botswana (2009)	9.49	71.35	0.99	●
3	Denmark (2009)	8.74	65.22	0.98	●
4	Moldova, Rep. (2012)	8.39	62.31	0.98	●
5	Namibia	8.37	62.15	0.97	●
6	Swaziland (2011)	8.25	61.24	0.96	●
7	Ghana (2011)	8.14	60.31	0.95	●
8	Iceland	7.60	55.87	0.95	
9	New Zealand (2012)	7.38	54.10	0.94	
10	Cyprus	7.27	53.18	0.93	●
11	Sweden	6.98	50.82	0.92	
12	Malta	6.91	50.22	0.92	
13	Bolivia, Plurinational St. (2011)	6.89	50.07	0.91	●
14	Venezuela, Bolivarian Rep. (2009)	6.87	49.92	0.90	●
15	Norway	6.87	49.90	0.89	
16	Finland	6.85	49.70	0.89	
17	Kyrgyzstan (2011)	6.79	49.23	0.88	●
18	Kenya	6.67	48.23	0.87	●
19	Belgium	6.58	47.48	0.86	
20	Ireland	6.41	46.08	0.85	
21	Viet Nam	6.29	45.09	0.85	●
22	Costa Rica (2009)	6.28	45.06	0.84	●
23	United Kingdom	6.23	44.61	0.83	
24	Tanzania, United Rep.	6.18	44.24	0.82	●
25	Tunisia (2012)	6.17	44.11	0.82	●
26	Ukraine (2011)	6.15	44.00	0.81	●
27	Jamaica (2012)	6.12	43.71	0.80	●
28	South Africa	5.96	42.44	0.79	
29	Malaysia (2011)	5.94	42.27	0.79	
30	Netherlands (2011)	5.93	42.19	0.78	
31	Austria	5.92	42.05	0.77	
32	France	5.86	41.64	0.76	
33	Brazil	5.82	41.29	0.76	
34	Burundi (2012)	5.82	41.28	0.75	●
35	Thailand (2011)	5.79	41.01	0.74	
36	Argentina	5.78	40.96	0.73	
37	Slovenia	5.69	40.24	0.73	
38	Estonia	5.66	39.96	0.72	
39	Israel (2011)	5.64	39.78	0.71	
40	Portugal	5.62	39.67	0.70	
41	Barbados (2012)	5.61	39.56	0.69	
42	Senegal	5.60	39.47	0.69	●
43	Australia	5.59	39.38	0.68	
44	Mongolia (2011)	5.48	38.46	0.67	
45	United States of America	5.42	38.00	0.66	
46	Lithuania	5.42	37.99	0.66	
47	Canada (2011)	5.40	37.80	0.65	
48	Morocco (2009)	5.38	37.63	0.64	
49	Malawi (2011)	5.35	37.45	0.63	●
50	Benin	5.35	37.38	0.63	●
51	Switzerland	5.24	36.50	0.62	
52	Mexico	5.21	36.30	0.61	
53	Poland	5.17	35.96	0.60	
54	Yemen (2008)	5.15	35.79	0.60	●
55	Belarus (2012)	5.15	35.78	0.59	
56	Saudi Arabia (2008)	5.14	35.68	0.58	
57	Rwanda (2013)	5.11	35.46	0.57	
58	Germany	5.08	35.22	0.56	
59	Korea, Rep. (2009)	5.05	34.96	0.56	
60	Cabo Verde (2011)	5.04	34.91	0.55	
61	Latvia	5.03	34.79	0.54	
62	Mozambique (2006)	5.01	34.61	0.53	
63	Spain	4.98	34.40	0.53	
64	Hungary	4.90	33.71	0.52	
65	Serbia (2011)	4.82	33.09	0.51	
66	Mali (2011)	4.80	32.95	0.50	
67	Paraguay (2011)	4.80	32.93	0.50	
68	Ethiopia	4.73	32.37	0.49	
69	Nepal	4.72	32.23	0.48	
70	Bhutan (2011)	4.65	31.70	0.47	
71	Côte d'Ivoire (2008)	4.60	31.30	0.47	●
72	Nicaragua	4.57	31.06	0.46	
73	Togo (2011)	4.52	30.63	0.45	●
74	Chile (2012)	4.52	30.63	0.44	
75	Italy	4.50	30.45	0.44	
76	Uruguay (2011)	4.50	30.44	0.43	
77	Colombia (2012)	4.38	29.50	0.42	
78	Ecuador (2012)	4.36	29.29	0.41	
79	Algeria (2008)	4.34	29.12	0.40	
80	Oman (2009)	4.32	29.01	0.40	
81	Croatia	4.31	28.88	0.39	
82	Czech Republic	4.25	28.39	0.38	○
83	Romania (2009)	4.24	28.32	0.37	
84	Slovakia	4.23	28.24	0.37	
85	Niger (2011)	4.21	28.04	0.36	
86	Fiji (2011)	4.20	27.96	0.35	
87	Russian Federation (2008)	4.10	27.19	0.34	
88	Bulgaria	4.10	27.15	0.34	
89	Greece (2005)	4.09	27.10	0.33	
90	Gambia (2012)	4.07	26.92	0.32	
91	Tajikistan (2011)	3.94	25.82	0.31	
92	Japan (2011)	3.78	24.53	0.31	○
93	Egypt (2008)	3.76	24.39	0.30	
94	Kuwait (2006)	3.76	24.38	0.29	
95	Iran, Islamic Rep. (2012)	3.71	24.01	0.28	
96	Seychelles (2011)	3.58	22.88	0.27	
97	Hong Kong (China) (2012)	3.51	22.31	0.27	○
98	Panama (2011)	3.50	22.24	0.26	
99	Mauritius (2012)	3.49	22.13	0.25	○
100	Angola	3.48	22.06	0.24	
101	Brunei Darussalam (2013)	3.45	21.85	0.24	
102	Burkina Faso (2011)	3.43	21.65	0.23	
103	El Salvador (2011)	3.42	21.58	0.22	
104	Uganda (2012)	3.28	20.44	0.21	
105	Armenia (2012)	3.28	20.43	0.21	○
106	Albania (2007)	3.27	20.35	0.20	
107	Guyana (2012)	3.19	19.74	0.19	
108	Cameroon (2011)	3.18	19.67	0.18	
109	India (2011)	3.17	19.51	0.18	
110	Kazakhstan (2009)	3.06	18.65	0.17	
111	Singapore (2013)	3.05	18.53	0.16	○
112	Guatemala (2012)	2.97	17.88	0.15	
113	Turkey (2006)	2.86	17.03	0.15	○
114	Indonesia (2011)	2.77	16.24	0.14	
115	Peru (2012)	2.76	16.19	0.13	○
116	Madagascar (2012)	2.72	15.83	0.12	
117	Philippines (2009)	2.65	15.31	0.11	○
118	Cambodia	2.60	14.91	0.11	
119	Bahrain (2012)	2.58	14.68	0.10	○
120	Zimbabwe	2.50	14.06	0.09	
121	Guinea (2012)	2.47	13.82	0.08	
122	Qatar (2008)	2.45	13.67	0.08	○
123	Azerbaijan (2011)	2.44	13.53	0.07	○
124	Bangladesh (2009)	2.23	11.87	0.06	○
125	Sudan (2009)	2.23	11.85	0.05	
126	Lebanon (2012)	2.20	11.62	0.05	○
127	Dominican Republic (2007)	2.19	11.50	0.04	○
128	Pakistan (2012)	2.14	11.06	0.03	○
129	Georgia (2012)	1.99	9.83	0.02	○
130	Sri Lanka (2012)	1.72	7.68	0.02	○
131	Zambia (2008)	1.35	4.59	0.01	○
132	Myanmar (2011)	0.79	0.00	0.00	○
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	China	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

2.1.2 Government expenditure on education per pupil, secondary

Government expenditure on education per pupil, secondary (% of GDP per capita) | 2010

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Mozambique (2006)	85.98	100.00	1.00	●
2	Lesotho (2008)	51.21	57.73	0.99	●
3	Niger (2011)	49.24	55.33	0.98	●
4	Swaziland (2011)	40.80	45.07	0.97	●
5	Cyprus	40.75	45.01	0.96	●
6	Moldova, Rep. (2012)	37.94	41.59	0.95	●
7	Belgium	37.79	41.42	0.95	●
8	Portugal	36.53	39.89	0.94	●
9	Finland	36.53	39.88	0.93	
10	Rwanda (2012)	36.43	39.75	0.92	●
11	Malta	35.36	38.46	0.91	
12	United Kingdom	33.58	36.29	0.90	
13	Burundi (2012)	33.51	36.21	0.89	●
14	Malawi (2011)	33.18	35.81	0.88	●
15	Botswana (2009)	33.00	35.59	0.87	●
16	Denmark (2009)	32.98	35.56	0.86	
17	Estonia	31.93	34.29	0.85	
18	Sweden	31.87	34.22	0.85	
19	Bhutan (2011)	31.52	33.79	0.84	●
20	Slovenia	31.26	33.48	0.83	
21	Mali (2011)	31.15	33.34	0.82	●
22	Morocco (2009)	30.73	32.83	0.81	●
23	Austria	29.60	31.45	0.80	
24	Latvia	29.34	31.13	0.79	
25	France	29.24	31.02	0.78	
26	Senegal	28.95	30.67	0.77	●
27	Ireland	28.80	30.49	0.76	
28	Switzerland	27.95	29.44	0.75	
29	Ukraine (2011)	27.46	28.85	0.75	●
30	Norway	27.28	28.64	0.74	
31	Spain	26.64	27.86	0.73	
32	Ghana (2009)	26.08	27.17	0.72	●
33	Netherlands (2011)	25.89	26.94	0.71	
34	Thailand (2011)	25.89	26.94	0.70	
35	Jamaica (2011)	25.85	26.89	0.69	●
36	Japan (2011)	25.28	26.20	0.68	
37	Italy	25.26	26.18	0.67	
38	Argentina	25.06	25.93	0.66	
39	Barbados	24.97	25.82	0.65	
40	Bulgaria	24.94	25.78	0.65	
41	Germany	24.70	25.49	0.64	
42	Benin (2005)	24.69	25.48	0.63	●
43	Poland	24.67	25.46	0.62	
44	Czech Republic	24.42	25.16	0.61	
45	Tunisia (2008)	24.42	25.16	0.60	
46	United States of America	24.34	25.06	0.59	
47	Korea, Rep. (2009)	23.81	24.42	0.58	
48	Lithuania	23.30	23.80	0.57	
49	New Zealand (2011)	23.22	23.69	0.56	
50	Jordan	21.97	22.18	0.55	
51	Hungary	21.81	21.98	0.55	
52	Greece (2005)	21.55	21.67	0.54	
53	Kenya (2006)	21.17	21.20	0.53	
54	Iceland	21.14	21.16	0.52	
55	Kuwait (2011)	20.94	20.92	0.51	
56	Cameroon (2011)	20.91	20.89	0.50	●
57	Uganda (2009)	20.66	20.59	0.49	
58	Luxembourg	20.34	20.19	0.48	
59	Australia	19.88	19.63	0.47	○
60	Malaysia (2011)	19.87	19.62	0.46	
61	South Africa	19.73	19.45	0.45	
62	Slovakia	19.61	19.31	0.45	
63	Bolivia, Plurinational St. (2011)	19.53	19.21	0.44	
64	Mauritius (2012)	19.03	18.60	0.43	
65	Saudi Arabia (2007)	18.11	17.49	0.42	
66	Chile (2012)	17.94	17.27	0.41	
67	Armenia (2012)	17.75	17.04	0.40	
68	Ecuador (2011)	17.65	16.92	0.39	
69	Romania (2009)	17.47	16.71	0.38	
70	Hong Kong (China) (2012)	17.31	16.52	0.37	○
71	Burkina Faso (2012)	17.09	16.24	0.36	
72	Paraguay (2011)	17.01	16.15	0.35	
73	Singapore	17.00	16.14	0.35	○
74	Venezuela, Bolivarian Rep. (2009)	16.61	15.66	0.34	
75	Mongolia (2011)	16.43	15.44	0.33	
76	Iran, Islamic Rep. (2012)	16.30	15.29	0.32	
77	Tanzania, United Rep.	16.25	15.22	0.31	
78	Mexico	15.92	14.82	0.30	
79	Oman (2011)	15.89	14.79	0.29	
80	Namibia (2008)	15.80	14.68	0.28	
81	Togo (2011)	15.71	14.57	0.27	
82	Georgia (2008)	15.49	14.30	0.26	
83	Israel	15.44	14.23	0.25	○
84	Colombia (2012)	15.23	13.98	0.25	
85	Cabo Verde (2011)	14.78	13.44	0.24	
86	Costa Rica (2009)	14.39	12.96	0.23	
87	Serbia (2011)	14.06	12.56	0.22	○
88	Bangladesh (2011)	13.93	12.41	0.21	
89	Gambia	13.14	11.44	0.20	
90	India (2011)	12.58	10.76	0.19	
91	Nepal (2009)	12.17	10.26	0.18	
92	El Salvador	11.31	9.21	0.17	
93	Yemen (2011)	11.17	9.04	0.16	
94	Uruguay (2006)	10.69	8.46	0.15	○
95	Ethiopia	10.39	8.10	0.15	
96	Qatar (2009)	10.29	7.98	0.14	○
97	Panama (2011)	10.27	7.95	0.13	○
98	Peru (2012)	10.10	7.75	0.12	○
99	Guinea (2012)	9.89	7.49	0.11	
100	Guyana (2012)	9.83	7.42	0.10	
101	Philippines (2008)	9.14	6.58	0.09	○
102	Dominican Republic (2012)	8.46	5.75	0.08	○
103	Madagascar (2012)	8.34	5.60	0.07	
104	Brunei Darussalam (2013)	8.11	5.33	0.06	○
105	Indonesia (2011)	7.67	4.79	0.05	○
106	Nicaragua	7.58	4.68	0.05	○
107	Seychelles (2011)	7.11	4.11	0.04	○
108	Sri Lanka (2012)	6.87	3.81	0.03	○
109	Fiji (2011)	5.75	2.46	0.02	○
110	Guatemala (2011)	4.83	1.34	0.01	○
111	Lebanon (2012)	3.73	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brazil	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	China	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Russian Federation	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Turkey	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

2.1.3 School life expectancy

School life expectancy, primary to tertiary education (years) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Australia	19.86	100.00	1.00	●
2	New Zealand	19.39	96.71	0.99	●
3	Iceland	18.70	91.94	0.98	●
4	Ireland	18.57	91.03	0.98	●
5	Netherlands	17.91	86.46	0.97	
6	Norway	17.56	84.04	0.96	
7	Spain	17.15	81.17	0.95	●
8	Finland	17.03	80.34	0.94	
9	Korea, Rep.	16.97	79.98	0.94	
10	Denmark (2010)	16.93	79.67	0.93	
11	Slovenia (2012)	16.81	78.82	0.92	●
12	Lithuania	16.65	77.74	0.91	●
13	United States of America	16.52	76.81	0.91	
14	Greece (2007)	16.50	76.73	0.90	●
15	Estonia (2010)	16.49	76.66	0.89	
16	Argentina (2010)	16.44	76.30	0.88	●
17	Czech Republic	16.39	75.91	0.87	
18	Italy	16.28	75.19	0.87	●
19	Germany	16.28	75.16	0.86	
20	Portugal (2010)	16.27	75.14	0.85	
21	Belgium	16.23	74.85	0.84	
22	United Kingdom	16.22	74.73	0.83	
23	France	15.99	73.16	0.83	
24	Sweden	15.80	71.86	0.82	
25	Belarus (2012)	15.73	71.40	0.81	●
26	Fiji	15.72	71.31	0.80	●
27	Switzerland	15.70	71.14	0.80	
28	Israel (2009)	15.67	70.97	0.79	
29	Saudi Arabia (2012)	15.64	70.78	0.78	
30	Austria	15.62	70.64	0.77	
31	Hong Kong (China) (2012)	15.62	70.58	0.76	
32	Mauritius (2012)	15.58	70.30	0.76	
33	Latvia	15.54	70.08	0.75	
34	Poland (2012)	15.50	69.80	0.74	
35	Uruguay (2010)	15.50	69.79	0.73	●
36	Barbados	15.42	69.22	0.72	
37	Hungary	15.36	68.82	0.72	
38	Japan	15.27	68.16	0.71	
39	Chile (2012)	15.25	68.02	0.70	
40	Montenegro (2010)	15.18	67.55	0.69	
41	Iran, Islamic Rep. (2012)	15.18	67.55	0.69	●
42	Ukraine (2012)	15.09	66.91	0.68	
43	Kazakhstan (2012)	15.02	66.48	0.67	
44	Mongolia (2012)	15.02	66.44	0.66	
45	Kuwait (2004)	14.64	63.80	0.65	
46	Tunisia	14.62	63.71	0.65	
47	Croatia	14.54	63.15	0.64	
48	Malta	14.54	63.12	0.63	
49	Brunei Darussalam (2012)	14.53	63.05	0.62	
50	Turkey	14.41	62.20	0.61	
51	Bulgaria	14.30	61.48	0.61	
52	Brazil (2005)	14.23	60.99	0.60	
53	Venezuela, Bolivarian Rep. (2009)	14.22	60.90	0.59	●
54	Romania	14.06	59.84	0.58	
55	Russian Federation (2009)	13.98	59.25	0.57	
56	Algeria	13.97	59.15	0.57	●
57	Cyprus	13.95	59.07	0.56	
58	Luxembourg (2010)	13.88	58.59	0.55	
59	Qatar (2005)	13.79	57.91	0.54	
60	Sri Lanka (2012)	13.71	57.41	0.54	
61	Costa Rica (2012)	13.70	57.30	0.53	
62	Serbia (2012)	13.65	56.96	0.52	
63	Oman	13.57	56.41	0.51	
64	TFYR of Macedonia (2010)	13.27	54.35	0.50	
65	Jordan	13.27	54.35	0.50	
66	Cabo Verde (2012)	13.23	54.09	0.49	
67	Georgia (2009)	13.23	54.04	0.48	
68	Colombia (2012)	13.22	53.96	0.47	
69	Lebanon (2012)	13.16	53.61	0.46	
70	Bolivia, Plurinational St. (2007)	13.15	53.52	0.46	
71	Egypt	13.13	53.35	0.45	
72	Peru (2010)	13.12	53.33	0.44	
73	Thailand (2009)	13.08	53.05	0.43	
74	China (2012)	13.07	52.97	0.43	
75	Mexico	12.78	50.95	0.42	
76	Malaysia (2005)	12.73	50.60	0.41	
77	Bhutan (2012)	12.73	50.59	0.40	
78	Indonesia	12.72	50.55	0.39	
79	Kyrgyzstan	12.51	49.09	0.39	
80	Jamaica (2004)	12.49	48.96	0.38	
81	Panama	12.39	48.25	0.37	
82	Slovakia (2012)	12.38	48.20	0.36	
83	Nepal	12.35	47.99	0.35	
84	Armenia (2009)	12.32	47.74	0.35	
85	Trinidad and Tobago (2004)	12.27	47.40	0.34	
86	El Salvador (2012)	12.26	47.31	0.33	
87	Togo	12.23	47.17	0.32	
88	Azerbaijan (2012)	11.94	45.13	0.31	
89	Paraguay (2010)	11.91	44.93	0.31	
90	Moldova, Rep. (2012)	11.84	44.46	0.30	
91	India	11.70	43.44	0.29	
92	Botswana (2006)	11.69	43.42	0.28	
93	Seychelles	11.58	42.67	0.28	
94	Morocco	11.57	42.54	0.27	
95	Uzbekistan	11.51	42.16	0.26	
96	Ghana (2012)	11.50	42.10	0.25	
97	Honduras (2012)	11.40	41.40	0.24	
98	Namibia (2006)	11.34	41.00	0.24	
99	Swaziland	11.33	40.92	0.23	
100	Angola	11.32	40.81	0.22	
101	Philippines (2009)	11.28	40.54	0.21	
102	Tajikistan	11.17	39.83	0.20	
103	Lesotho (2012)	11.14	39.59	0.20	
104	Benin	11.05	38.96	0.19	
105	Kenya (2009)	10.98	38.51	0.18	
106	Cambodia (2008)	10.90	37.96	0.17	
107	Uganda (2009)	10.75	36.92	0.17	
108	Malawi	10.75	36.91	0.16	
109	Guatemala (2007)	10.62	36.01	0.15	
110	Cameroon	10.40	34.45	0.14	
111	Madagascar (2012)	10.35	34.09	0.13	
112	Guyana (2012)	10.29	33.71	0.13	
113	Rwanda (2012)	10.24	33.33	0.12	
114	Burundi (2010)	10.11	32.42	0.11	
115	Bangladesh	9.98	31.53	0.10	
116	Mozambique	9.50	28.25	0.09	
117	Tanzania, United Rep. (2012)	9.17	25.95	0.09	○
118	Yemen	9.15	25.84	0.08	
119	Gambia (2008)	9.14	25.75	0.07	○
120	Nigeria (2005)	8.97	24.59	0.06	
121	Guinea (2012)	8.70	22.70	0.06	
122	Myanmar (2007)	8.63	22.19	0.05	
123	Mali	8.43	20.80	0.04	
124	Senegal (2010)	7.95	17.47	0.03	○
125	Pakistan (2012)	7.69	15.69	0.02	○
126	Burkina Faso (2012)	7.52	14.52	0.02	○
127	Ethiopia (2005)	6.60	8.19	0.01	○
128	Niger (2012)	5.42	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

2.1.4 Assessment in reading, mathematics, and science

PISA average scales in reading, mathematics, and science | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	China	587.46	100.00	1.00	●
2	Singapore	555.73	87.38	0.98	
3	Hong Kong (China)	553.59	86.53	0.97	
4	Korea, Rep.	542.45	82.10	0.95	
5	Japan	540.40	81.28	0.93	
6	Finland	529.40	76.91	0.92	
7	Estonia	526.08	75.59	0.90	
8	Canada	522.21	74.05	0.89	
9	Poland	520.50	73.37	0.87	●
10	Netherlands	518.75	72.68	0.85	
11	Switzerland	518.42	72.55	0.84	
12	Ireland	515.56	71.41	0.82	
13	Germany	515.11	71.23	0.80	
14	Australia	512.48	70.18	0.79	
15	Belgium	509.77	69.10	0.77	
16	New Zealand	509.19	68.87	0.75	
17	United Kingdom	502.46	66.20	0.74	
18	Austria	500.31	65.34	0.72	
19	Czech Republic	500.05	65.24	0.70	
20	France	499.81	65.14	0.69	
21	Slovenia	498.86	64.77	0.67	
22	Denmark	498.21	64.51	0.66	
23	Norway	495.94	63.61	0.64	
24	Latvia	493.82	62.76	0.62	
25	United States of America	492.12	62.09	0.61	
26	Luxembourg	489.62	61.09	0.59	
27	Spain	489.57	61.07	0.57	
28	Italy	489.54	61.06	0.56	
29	Portugal	488.03	60.46	0.54	
30	Hungary	486.60	59.89	0.52	
31	Iceland	484.49	59.05	0.51	
32	Lithuania	483.94	58.83	0.49	
33	Croatia	482.35	58.20	0.48	
34	Sweden	482.13	58.11	0.46	○
35	Russian Federation	481.20	57.74	0.44	
36	Israel	474.12	54.93	0.43	○
37	Slovakia	471.87	54.03	0.41	
38	United Arab Emirates	468.74	52.79	0.39	
39	Greece	465.63	51.55	0.38	
40	Turkey	462.30	50.23	0.36	
41	Serbia	446.60	43.98	0.34	
42	Bulgaria	440.44	41.54	0.33	
43	Romania	440.31	41.48	0.31	
44	Thailand	437.32	40.29	0.30	
45	Chile	436.32	39.90	0.28	○
46	Costa Rica	425.63	35.64	0.26	
47	Mexico	417.25	32.31	0.25	
48	Kazakhstan	416.41	31.98	0.23	
49	Montenegro	413.95	31.00	0.21	○
50	Venezuela, Bolivarian Rep. (2010)	413.44	30.80	0.20	
51	Malaysia	412.74	30.52	0.18	○
52	Uruguay	412.16	30.29	0.16	○
53	Brazil	402.10	26.29	0.15	○
54	Jordan	398.00	24.66	0.13	○
55	Argentina	396.68	24.13	0.11	○
56	Tunisia	396.65	24.12	0.10	○
57	Albania	395.22	23.55	0.08	○
58	Colombia	392.86	22.61	0.07	○
59	Indonesia	384.38	19.24	0.05	○
60	Qatar	382.53	18.50	0.03	○
61	Peru	375.12	15.56	0.02	○
62	India (2010)	336.00	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Morocco	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Philippines	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	Ukraine	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: OECD Programme for International Student Assessment (PISA) (2010–2012)

NOTE: ● indicates a strength; ○ a weakness.

2.1.5 Pupil-teacher ratio, secondary

Pupil-teacher ratio, secondary | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Portugal (2010)	7.35	100.00	1.00	●
2	Georgia (2009)	7.57	99.36	0.99	●
3	Greece (2007)	7.88	98.45	0.98	●
4	Malta	7.95	98.26	0.97	●
5	Croatia	8.00	98.11	0.96	●
6	Kuwait (2009)	8.17	97.60	0.96	●
7	Latvia	8.33	97.15	0.95	●
8	Russian Federation (2009)	8.47	96.76	0.94	●
9	Luxembourg (2010)	8.50	96.67	0.93	
10	Lithuania	8.56	96.48	0.92	●
11	Kazakhstan (2012)	8.60	96.37	0.91	●
12	Poland (2012)	8.66	96.19	0.90	●
13	Estonia (2010)	8.76	95.90	0.89	
14	Paraguay	8.87	95.59	0.89	●
15	Slovenia	8.96	95.32	0.88	
16	Serbia (2012)	9.07	95.00	0.87	●
17	Lebanon	9.31	94.32	0.86	●
18	Finland	9.50	93.75	0.85	
19	Sweden	9.51	93.73	0.84	
20	Austria (2012)	9.54	93.65	0.83	
21	Moldova, Rep. (2012)	9.57	93.55	0.82	
22	Cyprus	9.73	93.10	0.82	
23	Qatar (2012)	9.73	93.10	0.81	
24	Israel (2009)	9.76	93.00	0.80	
25	Bahrain (2012)	9.82	92.84	0.79	
26	Hungary	10.03	92.23	0.78	
27	Brunei Darussalam (2012)	10.09	92.05	0.77	●
28	Italy (2007)	10.10	92.02	0.76	
29	Argentina (2008)	10.90	89.71	0.75	
30	Czech Republic (2012)	11.19	88.86	0.75	
31	Uruguay (2010)	11.32	88.49	0.74	●
32	Saudi Arabia (2009)	11.32	88.49	0.73	
33	Slovakia (2012)	11.35	88.42	0.72	
34	Spain (2012)	11.35	88.40	0.71	
35	Ecuador (2012)	11.52	87.91	0.70	●
36	Seychelles	11.79	87.13	0.69	
37	Japan	11.79	87.11	0.68	
38	TFYR of Macedonia (2010)	11.91	86.77	0.68	
39	Egypt (2009)	12.13	86.13	0.67	●
40	Bulgaria	12.30	85.65	0.66	
41	France (2012)	12.83	84.10	0.65	
42	Germany	12.88	83.97	0.64	
43	Romania	12.96	83.73	0.63	
44	Uzbekistan	13.28	82.82	0.62	●
45	Netherlands	13.57	81.96	0.61	
46	Malaysia	13.58	81.94	0.61	
47	Tunisia	13.62	81.81	0.60	
48	Botswana (2007)	13.88	81.07	0.59	
49	Panama (2012)	14.18	80.19	0.58	
50	United Kingdom (2008)	14.27	79.94	0.57	○
51	United Arab Emirates (2012)	14.30	79.84	0.56	
52	New Zealand	14.37	79.65	0.55	
53	Mongolia (2010)	14.49	79.29	0.54	
54	Guatemala	14.49	79.29	0.54	
55	China (2012)	14.50	79.26	0.53	
56	Barbados (2006)	14.58	79.03	0.52	
57	United States of America (2012)	14.66	78.80	0.51	
58	Mauritius (2012)	14.71	78.67	0.50	
59	Indonesia	14.77	78.50	0.49	
60	Albania (2012)	14.89	78.13	0.48	
61	Singapore (2009)	14.91	78.08	0.47	○
62	Costa Rica	14.92	78.05	0.46	
63	Kyrgyzstan (2010)	15.21	77.22	0.46	
64	Tajikistan	15.44	76.55	0.45	
65	Yemen	16.09	74.68	0.44	●
66	Korea, Rep.	16.16	74.45	0.43	
67	Swaziland	16.40	73.78	0.42	
68	Brazil (2010)	16.66	73.00	0.41	
69	Peru (2012)	16.75	72.75	0.40	
70	Cabo Verde (2012)	16.79	72.62	0.39	
71	Jamaica	16.81	72.58	0.39	
72	Sri Lanka (2012)	17.28	71.21	0.38	
73	Ghana (2013)	17.53	70.49	0.37	
74	Mexico	17.68	70.07	0.36	
75	Hong Kong (China) (2005)	17.76	69.84	0.35	○
76	Bolivia, Plurinational St. (2007)	18.17	68.65	0.34	
77	Uganda (2008)	18.54	67.56	0.33	
78	Morocco (2004)	18.73	67.03	0.32	
79	Bhutan (2012)	19.89	63.66	0.32	
80	Thailand	19.91	63.60	0.31	
81	Chile (2012)	20.04	63.21	0.30	○
82	Guyana (2012)	20.29	62.49	0.29	
83	Cameroon (2012)	21.43	59.18	0.28	
84	Rwanda (2012)	22.91	54.89	0.27	
85	Benin (2004)	23.93	51.94	0.26	
86	El Salvador	24.35	50.74	0.25	
87	Namibia (2007)	24.62	49.94	0.25	
88	Lesotho (2012)	24.69	49.74	0.24	
89	Mali	24.72	49.66	0.23	
90	South Africa (2009)	25.05	48.71	0.22	○
91	Colombia (2012)	25.40	47.70	0.21	○
92	India	25.92	46.18	0.20	
93	Togo	26.25	45.24	0.19	
94	Burkina Faso (2012)	26.33	44.98	0.18	
95	Tanzania, United Rep. (2012)	26.39	44.81	0.18	
96	Fiji	26.47	44.60	0.17	
97	Senegal	27.35	42.03	0.16	
98	Angola	27.42	41.84	0.15	
99	Madagascar (2012)	27.64	41.21	0.14	
100	Cambodia (2007)	28.92	37.48	0.13	
101	Dominican Republic (2012)	29.18	36.75	0.12	○
102	Nepal (2013)	29.18	36.74	0.11	
103	Kenya (2009)	29.68	35.29	0.11	○
104	Burundi (2012)	29.71	35.20	0.10	
105	Bangladesh	30.62	32.55	0.09	
106	Nicaragua (2010)	30.83	31.95	0.08	○
107	Mozambique (2012)	33.07	25.45	0.07	○
108	Nigeria (2010)	33.08	25.43	0.06	
109	Guinea	33.14	25.27	0.05	
110	Myanmar (2010)	34.08	22.54	0.04	
111	Niger	34.68	20.80	0.04	
112	Philippines (2009)	34.81	20.41	0.03	○
113	Ethiopia (2012)	39.70	6.25	0.02	○
114	Malawi (2012)	41.52	0.97	0.01	○
115	Pakistan (2004)	41.86	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Australia	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Belgium	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Denmark	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Ireland	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Norway	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Switzerland	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Turkey	n/a	n/a	n/a	
n/a	Ukraine	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

2.2.1 Tertiary enrolment

School enrolment, tertiary (% gross) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Korea, Rep. (2012)	98.47	100.00	1.00	●
2	Finland	95.54	97.00	0.99	●
3	United States of America	95.33	96.79	0.98	●
4	Belarus (2012)	91.45	92.81	0.98	●
5	Greece (2007)	91.39	92.75	0.97	●
6	Slovenia (2012)	86.02	87.26	0.96	●
7	Australia	83.24	84.41	0.95	●
8	Spain	82.62	83.76	0.95	●
9	Iceland	80.94	82.05	0.94	
10	New Zealand	80.78	81.89	0.93	
11	Ukraine (2012)	79.70	80.78	0.92	●
12	Venezuela, Bolivarian Rep. (2009)	77.91	78.95	0.92	●
13	Lithuania	76.60	77.61	0.91	●
14	Netherlands	76.42	77.42	0.90	
15	Russian Federation (2009)	75.47	76.45	0.89	●
16	Argentina (2010)	74.83	75.79	0.89	●
17	Chile (2012)	74.39	75.34	0.88	●
18	Sweden	73.95	74.89	0.87	
19	Denmark (2010)	73.58	74.51	0.86	
20	Ireland	73.47	74.40	0.86	
21	Poland (2012)	73.19	74.12	0.85	●
22	Norway	73.09	74.01	0.84	
23	Estonia (2010)	71.65	72.54	0.83	
24	Austria	71.00	71.87	0.83	
25	Belgium	69.26	70.09	0.82	
26	Latvia	67.28	68.07	0.81	
27	Portugal (2010)	65.95	66.70	0.80	
28	Czech Republic	64.58	65.30	0.80	
29	Italy	63.86	64.56	0.79	
30	Uruguay (2010)	63.15	63.83	0.78	●
31	Israel (2009)	62.38	63.04	0.77	
32	Fiji	61.93	62.58	0.77	●
33	United Kingdom	61.17	61.80	0.76	
34	Mongolia (2012)	61.10	61.73	0.75	
35	Barbados	60.84	61.47	0.74	
36	Turkey	60.68	61.31	0.74	
37	Hong Kong (China) (2012)	60.13	60.73	0.73	
38	Japan	59.92	60.53	0.72	
39	Bulgaria	59.63	60.22	0.71	
40	Hungary	59.51	60.10	0.71	
41	Croatia	58.81	59.38	0.70	
42	France	57.06	57.60	0.69	
43	Germany	56.53	57.05	0.68	
44	Montenegro (2010)	55.53	56.03	0.68	
45	Albania (2012)	55.50	56.00	0.67	
46	Iran, Islamic Rep. (2012)	55.16	55.65	0.66	●
47	Slovakia	55.07	55.56	0.65	
48	Switzerland	54.34	54.81	0.65	
49	Serbia (2012)	52.38	52.80	0.64	
50	Romania	51.60	52.00	0.63	
51	Thailand (2012)	51.40	51.80	0.62	
52	Saudi Arabia (2012)	50.94	51.32	0.62	
53	Costa Rica (2012)	46.74	47.03	0.61	
54	Cyprus	46.54	46.82	0.60	
55	Lebanon (2012)	46.26	46.54	0.59	
56	Armenia (2012)	46.04	46.31	0.59	
57	Colombia (2012)	45.02	45.27	0.58	
58	Kazakhstan (2012)	44.53	44.76	0.57	
59	Peru (2010)	42.64	42.83	0.56	
60	Panama	41.78	41.95	0.56	
61	Kyrgyzstan	41.35	41.50	0.55	
62	TFYR of Macedonia	40.76	40.90	0.54	
63	Moldova, Rep. (2012)	40.11	40.24	0.53	
64	Jordan	39.94	40.06	0.53	
65	Mauritius (2012)	39.86	39.99	0.52	
66	Malta	39.44	39.56	0.51	
67	Ecuador (2008)	38.92	39.02	0.50	
68	Bosnia and Herzegovina (2012)	37.74	37.81	0.50	
69	Bolivia, Plurinational St. (2007)	37.69	37.76	0.49	
70	Malaysia	35.97	36.00	0.48	
71	Tunisia (2012)	35.20	35.21	0.47	
72	Paraguay (2010)	34.51	34.51	0.47	
73	Bahrain (2012)	33.46	33.43	0.46	
74	Algeria (2012)	31.46	31.39	0.45	●
75	Jamaica (2012)	30.82	30.73	0.44	
76	Egypt	28.75	28.61	0.44	
77	Philippines (2009)	28.20	28.04	0.43	
78	Oman	28.14	27.98	0.42	
79	Georgia (2012)	27.93	27.77	0.41	
80	Mexico	27.69	27.52	0.41	
81	Indonesia	27.20	27.02	0.40	
82	China (2012)	26.70	26.51	0.39	
83	El Salvador (2012)	25.45	25.23	0.38	
84	Viet Nam (2012)	24.60	24.36	0.38	
85	Brunei Darussalam (2012)	24.34	24.09	0.37	
86	India	23.27	23.00	0.36	
87	Tajikistan (2012)	22.47	22.18	0.35	
88	Kuwait (2004)	22.30	22.00	0.35	
89	Cabo Verde (2012)	20.61	20.27	0.34	
90	Azerbaijan (2012)	20.44	20.09	0.33	
91	Honduras (2012)	20.40	20.05	0.32	
92	Luxembourg (2010)	18.21	17.81	0.32	○
93	Guatemala (2007)	17.88	17.47	0.31	
94	Sri Lanka (2012)	16.97	16.54	0.30	
95	Morocco	16.16	15.71	0.29	
96	Cambodia	15.83	15.38	0.29	
97	Nepal	14.49	14.00	0.28	
98	Myanmar	13.81	13.31	0.27	
99	Bangladesh	13.15	12.63	0.26	
100	Guyana (2012)	12.91	12.39	0.26	
101	Benin	12.37	11.83	0.25	
102	Ghana (2012)	12.20	11.66	0.24	
103	Qatar (2012)	12.15	11.60	0.23	
104	Trinidad and Tobago (2004)	11.95	11.41	0.23	
105	Cameroon	11.91	11.36	0.22	
106	Lesotho (2012)	10.83	10.25	0.21	
107	Nigeria (2005)	10.41	9.82	0.20	
108	Togo (2012)	10.31	9.73	0.20	
109	Yemen	10.29	9.70	0.19	
110	Guinea (2012)	9.93	9.34	0.18	
111	Pakistan (2012)	9.53	8.92	0.17	
112	Bhutan (2012)	9.43	8.82	0.17	
113	Namibia (2008)	9.33	8.72	0.16	
114	Uganda	9.06	8.44	0.15	
115	Uzbekistan	8.87	8.25	0.14	
116	Côte d'Ivoire (2010)	8.36	7.73	0.14	
117	Senegal (2010)	7.63	6.98	0.13	
118	Angola	7.50	6.84	0.12	
119	Mali (2012)	7.47	6.82	0.11	
120	Botswana (2006)	7.43	6.78	0.11	○
121	Rwanda (2012)	6.90	6.23	0.10	
122	Swaziland	5.96	5.27	0.09	○
123	Zimbabwe (2012)	5.94	5.25	0.08	
124	Mozambique	4.85	4.13	0.08	
125	Burkina Faso (2012)	4.56	3.84	0.07	
126	Gambia (2008)	4.47	3.74	0.06	○
127	Madagascar (2012)	4.09	3.35	0.05	
128	Kenya (2009)	4.05	3.31	0.05	○
129	Tanzania, United Rep. (2012)	3.92	3.18	0.04	○
130	Burundi (2010)	3.17	2.41	0.03	
131	Ethiopia (2005)	2.79	2.02	0.02	○
132	Niger (2012)	1.75	0.96	0.02	○
133	Seychelles (2012)	1.39	0.59	0.01	○
134	Malawi	0.81	0.00	0.00	○
n/a	Brazil	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

2.2.2 Graduates in science and engineering

Tertiary graduates in science, engineering, manufacturing, and construction (% of total tertiary graduates) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Thailand (2010)	53.22	100.00	1.00	●
2	Iran, Islamic Rep. (2012)	47.22	88.14	0.99	●
3	Tunisia (2012)	42.38	78.57	0.98	●
4	Oman (2010)	38.94	71.77	0.97	●
5	Myanmar	38.66	71.22	0.96	●
6	Malaysia	37.68	69.27	0.95	●
7	Morocco (2010)	34.91	63.79	0.94	●
8	Hong Kong (China) (2006)	34.67	63.32	0.93	
9	Qatar (2012)	33.57	61.15	0.92	●
10	Luxembourg (2008)	32.54	59.12	0.91	
11	Korea, Rep. (2012)	31.06	56.19	0.90	
12	Trinidad and Tobago (2004)	30.38	54.85	0.89	●
13	Saudi Arabia (2012)	28.95	52.02	0.88	●
14	Russian Federation (2009)	28.11	50.35	0.87	●
15	Finland	27.75	49.64	0.86	
16	Greece (2010)	27.54	49.22	0.85	●
17	Belarus (2012)	27.17	48.50	0.84	●
18	Austria	27.12	48.39	0.83	
19	Germany	26.91	47.97	0.83	
20	Mexico	26.80	47.77	0.82	●
21	France (2009)	26.06	46.30	0.81	
22	Sweden	25.81	45.81	0.80	
23	Ukraine (2012)	25.57	45.33	0.79	●
24	Tajikistan (2012)	25.50	45.20	0.78	●
25	Spain	25.30	44.79	0.77	
26	Seychelles	25.00	44.20	0.76	●
27	Algeria	24.95	44.11	0.75	●
28	Serbia (2012)	24.80	43.80	0.74	
29	Slovenia (2012)	24.74	43.69	0.73	
30	Portugal	24.61	43.43	0.72	
31	Viet Nam (2012)	24.05	42.32	0.71	
32	Lebanon (2012)	23.35	40.94	0.70	
33	Zimbabwe (2012)	23.28	40.80	0.69	●
34	Ireland (2010)	23.20	40.65	0.68	
35	Indonesia (2010)	22.77	39.79	0.67	
36	Rwanda (2012)	22.45	39.17	0.66	
37	United Kingdom	22.35	38.96	0.65	○
38	Turkey	22.26	38.78	0.64	
39	Panama	22.03	38.34	0.63	
40	Czech Republic	21.79	37.87	0.62	
41	Italy	21.68	37.64	0.61	
42	El Salvador (2012)	21.54	37.36	0.60	
43	Lithuania	21.47	37.22	0.59	
44	Colombia (2012)	21.45	37.19	0.58	
45	TFYR of Macedonia	21.24	36.78	0.57	
46	Uzbekistan	21.14	36.56	0.56	●
47	Cameroon (2010)	21.02	36.34	0.55	●
48	Georgia (2012)	20.74	35.79	0.54	
49	Slovakia (2012)	20.61	35.52	0.53	
50	Estonia (2010)	20.55	35.41	0.52	
51	Madagascar (2012)	20.47	35.25	0.51	
52	Mauritius (2012)	20.44	35.18	0.50	
53	Japan	20.28	34.87	0.50	
54	Romania	20.18	34.67	0.49	
55	Denmark	20.16	34.64	0.48	○
56	Croatia (2010)	20.11	34.54	0.47	
57	Gambia (2004)	20.00	34.32	0.46	
58	Burkina Faso (2012)	19.94	34.20	0.45	
59	Switzerland (2010)	19.78	33.89	0.44	○
60	Chile (2012)	19.18	32.69	0.43	
61	Bulgaria	19.07	32.47	0.42	
62	Malta	18.34	31.04	0.41	○
63	Brunei Darussalam (2012)	18.26	30.87	0.40	
64	New Zealand	18.25	30.86	0.39	○
65	Bahrain (2006)	17.91	30.19	0.38	
66	Mongolia	17.59	29.55	0.37	
67	Albania (2012)	17.24	28.87	0.36	
68	Cyprus	17.21	28.81	0.35	
69	Poland (2012)	16.81	28.02	0.34	
70	Norway	16.79	27.97	0.33	○
71	Guatemala (2007)	16.76	27.92	0.32	
72	Sri Lanka (2012)	16.70	27.80	0.31	
73	Australia (2010)	16.58	27.56	0.30	○
74	Belgium	16.53	27.46	0.29	○
75	Hungary	16.52	27.44	0.28	
76	Azerbaijan (2012)	16.21	26.82	0.27	
77	Jordan	16.12	26.65	0.26	
78	Armenia (2010)	15.92	26.24	0.25	
79	Latvia	15.69	25.80	0.24	○
80	Kyrgyzstan (2012)	15.64	25.69	0.23	
81	Iceland (2010)	15.64	25.69	0.22	○
82	Uruguay (2010)	15.60	25.62	0.21	○
83	Bangladesh	15.57	25.55	0.20	
84	United States of America (2010)	15.47	25.36	0.19	○
85	Ethiopia (2010)	15.23	24.90	0.18	
86	Barbados	14.99	24.40	0.17	○
87	Ghana (2012)	14.18	22.80	0.17	
88	Honduras (2012)	14.13	22.72	0.16	
89	Netherlands	13.73	21.91	0.15	○
90	Argentina (2010)	13.51	21.48	0.14	○
91	Guyana (2012)	13.44	21.35	0.13	
92	Ecuador (2008)	12.81	20.10	0.12	
93	Benin	12.67	19.83	0.11	
94	Lesotho (2012)	12.55	19.59	0.10	
95	Cambodia (2008)	12.49	19.47	0.09	
96	Brazil (2012)	11.96	18.42	0.08	○
97	Costa Rica	11.90	18.30	0.07	○
98	Nepal	11.78	18.06	0.06	○
99	Burundi (2010)	9.58	13.72	0.05	
100	Uganda (2004)	9.53	13.62	0.04	○
101	Mozambique	8.90	12.37	0.03	○
102	Niger (2008)	4.28	3.23	0.02	○
103	Swaziland (2006)	2.71	0.14	0.01	○
104	Namibia (2008)	2.64	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	China	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Philippines	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004-13)

NOTE: ● indicates a strength; ○ a weakness.

2.2.3 Tertiary inbound mobility

Tertiary inbound mobility ratio (%) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Australia	19.83	100.00	0.96	●
1	Cyprus	27.99	100.00	0.96	●
1	Fiji (2004)	32.94	100.00	0.96	●
1	Luxembourg (2010)	41.41	100.00	0.96	●
1	Qatar (2012)	41.43	100.00	0.96	●
1	United Arab Emirates (2009)	39.77	100.00	0.96	●
7	Austria	19.50	98.35	0.95	●
8	Singapore (2013)	19.17	96.65	0.94	
9	United Kingdom	16.85	84.97	0.93	
10	Switzerland	16.22	81.80	0.92	
11	New Zealand	15.58	78.56	0.91	
12	Barbados	13.80	69.57	0.90	●
13	Lebanon (2012)	12.82	64.61	0.89	●
14	France	11.87	59.84	0.88	
15	Ireland	10.71	53.97	0.88	
16	Namibia (2008)	10.17	51.26	0.87	●
17	Jordan	9.93	50.06	0.86	●
18	Czech Republic	8.53	42.97	0.85	
19	Bahrain (2012)	8.48	42.75	0.84	●
20	Belgium	8.19	41.27	0.83	
21	Sweden	7.88	39.70	0.82	
22	Hong Kong (China) (2012)	7.82	39.40	0.81	
23	Denmark (2010)	7.54	37.98	0.80	
24	Germany	7.52	37.89	0.79	
25	Norway	7.24	36.47	0.79	
26	Kyrgyzstan (2010)	6.30	31.75	0.78	●
27	Burundi (2010)	6.19	31.20	0.77	●
28	Malaysia	6.14	30.93	0.76	
29	Bosnia and Herzegovina (2012)	5.88	29.62	0.75	●
30	Iceland	5.83	29.37	0.74	
31	Trinidad and Tobago (2004)	5.78	29.14	0.73	●
32	Niger (2012)	5.43	27.33	0.72	●
33	Uganda	5.19	26.15	0.71	●
34	Finland	5.09	25.65	0.71	
35	Netherlands	4.92	24.77	0.70	
36	Hungary	4.31	21.70	0.69	
37	Yemen	4.26	21.44	0.68	●
38	Brunei Darussalam (2012)	4.25	21.38	0.67	
39	Greece (2010)	4.18	21.04	0.66	
40	Botswana (2005)	4.16	20.95	0.65	
41	Malta	4.11	20.71	0.64	
42	Japan	3.90	19.64	0.63	
43	Slovakia	3.87	19.45	0.63	
44	Saudi Arabia (2012)	3.86	19.43	0.62	
45	Serbia (2012)	3.86	19.40	0.61	
46	Italy	3.74	18.82	0.60	
47	Bulgaria	3.63	18.25	0.59	
48	Armenia (2012)	3.43	17.28	0.58	
49	United States of America	3.38	16.99	0.57	
50	Spain	3.21	16.15	0.56	
51	Ghana (2012)	3.09	15.55	0.55	
52	Burkina Faso (2012)	2.96	14.89	0.54	●
53	Portugal (2010)	2.88	14.46	0.54	
54	TFYR of Macedonia	2.61	13.12	0.53	
55	Azerbaijan (2012)	2.50	12.58	0.52	
56	Oman	2.36	11.87	0.51	
57	Mauritius (2012)	2.30	11.56	0.50	
58	Slovenia (2012)	2.27	11.38	0.49	
59	Belarus (2012)	2.06	10.36	0.48	
60	Morocco (2010)	1.93	9.68	0.47	
61	Latvia	1.91	9.56	0.46	
62	Egypt (2010)	1.85	9.30	0.46	
63	Romania	1.84	9.25	0.45	
64	Ukraine (2012)	1.82	9.15	0.44	
65	Estonia (2010)	1.78	8.95	0.43	○
66	Korea, Rep. (2012)	1.77	8.89	0.42	
67	Madagascar (2012)	1.74	8.71	0.41	
68	Georgia (2012)	1.68	8.43	0.40	
69	Lithuania	1.61	8.05	0.39	
70	Tajikistan (2012)	1.60	8.03	0.38	
71	Moldova, Rep. (2012)	1.55	7.77	0.38	
72	Costa Rica (2004)	1.43	7.19	0.37	
73	Togo (2007)	1.41	7.08	0.36	
74	Russian Federation (2009)	1.39	6.96	0.35	
75	Cameroon	1.39	6.94	0.34	
76	Kazakhstan (2012)	1.38	6.90	0.33	
77	Albania (2012)	1.30	6.51	0.32	
78	Côte d'Ivoire (2010)	1.26	6.31	0.31	
79	Poland (2012)	1.17	5.86	0.30	○
80	Malawi (2010)	1.14	5.68	0.29	
81	Cabo Verde (2012)	1.13	5.64	0.29	
82	Guinea (2012)	0.92	4.59	0.28	
83	Honduras (2012)	0.90	4.51	0.27	
84	Swaziland	0.89	4.43	0.26	
85	Thailand (2012)	0.84	4.17	0.25	
86	Turkey	0.82	4.06	0.24	
87	Rwanda (2012)	0.76	3.80	0.23	
88	Tanzania, United Rep. (2004)	0.64	3.18	0.22	
89	Mongolia (2012)	0.61	3.02	0.21	
90	Algeria	0.55	2.72	0.21	
91	Tunisia (2012)	0.53	2.63	0.20	
92	Mali	0.53	2.61	0.19	
93	Lesotho (2012)	0.50	2.46	0.18	
94	Croatia	0.45	2.21	0.17	○
95	El Salvador (2012)	0.41	1.99	0.16	
96	Guyana (2012)	0.38	1.89	0.15	
97	Zimbabwe (2012)	0.37	1.84	0.14	
98	Mozambique	0.35	1.71	0.13	
99	Chile (2012)	0.31	1.51	0.13	○
100	China (2012)	0.27	1.33	0.12	○
101	Brazil	0.21	1.00	0.11	○
102	Viet Nam (2012)	0.18	0.84	0.10	○
103	Sri Lanka (2012)	0.14	0.65	0.09	○
104	Uzbekistan	0.14	0.64	0.08	
105	Indonesia (2010)	0.13	0.60	0.07	○
106	India	0.10	0.47	0.06	○
107	Iran, Islamic Rep. (2012)	0.10	0.47	0.05	○
108	Philippines (2008)	0.10	0.46	0.04	○
109	Bangladesh (2009)	0.10	0.46	0.04	○
110	Venezuela, Bolivarian Rep. (2008)	0.09	0.41	0.03	○
111	Cambodia (2006)	0.07	0.31	0.02	○
112	Nepal	0.03	0.09	0.01	○
113	Myanmar	0.01	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Argentina	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Colombia	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Mexico	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Uruguay	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

2.3.1 Researchers

Researchers, headcounts (per million population) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Finland	10,678.81	100.00	1.00	●
2	Iceland	10,402.05	97.41	0.99	●
3	Denmark	10,182.76	95.35	0.98	●
4	Portugal	9,477.12	88.74	0.97	●
5	Norway	9,219.31	86.32	0.97	●
6	Sweden	8,470.66	79.30	0.96	
7	Austria	7,780.13	72.83	0.95	●
8	Korea, Rep.	7,698.66	72.07	0.94	
9	Singapore	7,321.20	68.53	0.93	
10	Japan	7,011.39	65.63	0.92	
11	United Kingdom	6,872.19	64.32	0.92	
12	New Zealand	6,366.22	59.58	0.91	
13	Germany	6,279.93	58.77	0.90	
14	Slovenia	6,069.01	56.79	0.89	
15	Switzerland (2008)	5,994.20	56.09	0.88	
16	Luxembourg (2009)	5,924.32	55.44	0.87	
17	Estonia	5,906.54	55.27	0.86	
18	Belgium	5,742.63	53.73	0.86	
19	Lithuania	5,702.40	53.36	0.85	●
20	France	5,327.93	49.85	0.84	
21	Netherlands	4,979.63	46.58	0.83	
22	Ireland	4,893.16	45.77	0.82	
23	Spain	4,735.21	44.29	0.81	
24	Slovakia (2012)	4,603.40	43.06	0.81	
25	Czech Republic (2012)	4,442.46	41.55	0.80	
26	Greece	4,068.78	38.04	0.79	
27	Hungary	3,695.89	34.55	0.78	
28	Latvia	3,557.95	33.26	0.77	
29	Hong Kong (China) (2010)	3,471.16	32.44	0.76	
30	Tunisia (2008)	3,194.83	29.85	0.75	●
31	Malta	2,985.77	27.89	0.75	
32	Croatia	2,649.05	24.74	0.74	
33	Poland	2,636.41	24.62	0.73	
34	Russian Federation (2012)	2,602.65	24.30	0.72	
35	Malaysia	2,564.49	23.95	0.71	
36	Italy	2,496.27	23.31	0.70	
37	Montenegro	2,490.96	23.26	0.69	
38	Belarus	2,081.18	19.42	0.69	
39	Bulgaria	2,017.42	18.82	0.68	
40	Argentina	1,941.91	18.11	0.67	
41	Jordan (2008)	1,913.32	17.84	0.66	
42	Turkey	1,881.39	17.54	0.65	
43	Costa Rica	1,867.58	17.41	0.64	
44	Georgia (2005)	1,812.61	16.90	0.64	
45	Cyprus	1,734.87	16.17	0.63	
46	Ukraine	1,536.55	14.31	0.62	
47	Armenia	1,503.99	14.01	0.61	
48	Iran, Islamic Rep. (2008)	1,483.74	13.82	0.60	
49	Serbia	1,417.99	13.20	0.59	
50	China	1,392.75	12.96	0.58	
51	Azerbaijan	1,292.16	12.02	0.58	
52	Brazil (2010)	1,202.79	11.18	0.57	
53	Romania	1,168.74	10.86	0.56	
54	Egypt	1,146.08	10.65	0.55	
55	Morocco	1,145.75	10.65	0.54	
56	Uzbekistan	1,097.27	10.19	0.53	
57	Moldova, Rep.	951.76	8.83	0.53	
58	Botswana (2005)	923.34	8.56	0.52	
59	TFYR of Macedonia (2009)	854.53	7.92	0.51	
60	Bosnia and Herzegovina (2007)	763.31	7.06	0.50	
61	Trinidad and Tobago	758.39	7.02	0.49	
62	South Africa (2010)	736.62	6.81	0.48	
63	Uruguay (2012)	734.55	6.79	0.47	
64	Kazakhstan	713.63	6.60	0.47	
65	Brunei Darussalam (2004)	676.28	6.25	0.46	
66	Mongolia	653.18	6.03	0.45	
67	Senegal (2010)	630.86	5.82	0.44	
68	Thailand (2009)	580.98	5.35	0.43	
69	Chile (2010)	551.17	5.07	0.42	
70	Albania (2008)	545.21	5.02	0.42	
71	Oman	478.05	4.39	0.41	
72	Kyrgyzstan	411.59	3.77	0.40	
73	Algeria (2005)	406.50	3.72	0.39	
74	Mexico	386.43	3.53	0.38	
75	Sudan (2005)	354.84	3.23	0.37	●
76	Colombia	346.36	3.15	0.36	
77	Namibia (2010)	343.28	3.13	0.36	
78	Venezuela, Bolivarian Rep. (2012)	342.38	3.12	0.35	
79	Kenya (2010)	318.07	2.89	0.34	
80	Pakistan	294.91	2.67	0.33	
81	Cabo Verde	260.93	2.35	0.32	
82	Sri Lanka (2010)	248.67	2.24	0.31	
83	Cameroon (2008)	232.81	2.09	0.31	
84	Bolivia, Plurinational St. (2010)	211.98	1.90	0.30	
85	Tajikistan	200.26	1.79	0.29	
86	Zimbabwe (2012)	199.57	1.78	0.28	
87	Paraguay	195.19	1.74	0.27	
88	Nepal (2010)	190.83	1.70	0.26	
89	Peru (2004)	181.18	1.61	0.25	
90	Ecuador (2008)	180.74	1.60	0.25	
91	Indonesia (2009)	173.24	1.53	0.24	
92	Seychelles (2005)	160.75	1.41	0.23	
93	Angola	148.41	1.30	0.22	
94	Côte d'Ivoire (2005)	137.81	1.20	0.21	
95	Panama (2010)	136.21	1.18	0.20	
96	Kuwait	131.53	1.14	0.19	
97	Philippines (2007)	129.28	1.12	0.19	
98	Malawi (2010)	122.75	1.06	0.18	
99	Nigeria (2007)	119.74	1.03	0.17	
100	Benin (2007)	114.84	0.98	0.16	
101	Madagascar	109.05	0.93	0.15	
102	Ghana (2010)	104.77	0.89	0.14	
103	El Salvador (2012)	96.07	0.81	0.14	
104	Togo (2010)	90.07	0.75	0.13	
105	Ethiopia (2010)	83.62	0.69	0.12	
106	Uganda (2010)	83.06	0.69	0.11	
107	Burkina Faso (2010)	73.62	0.60	0.10	
108	Tanzania, United Rep. (2010)	68.97	0.55	0.09	
109	Mozambique (2010)	66.26	0.53	0.08	
110	Mali (2010)	64.21	0.51	0.08	
111	Nicaragua (2004)	60.52	0.48	0.07	○
112	Rwanda (2009)	53.56	0.41	0.06	○
113	Zambia (2008)	49.13	0.37	0.05	○
114	Saudi Arabia (2009)	47.43	0.35	0.04	○
115	Guatemala	40.87	0.29	0.03	○
116	Burundi	39.73	0.28	0.03	
117	Gambia	34.58	0.23	0.02	○
118	Lesotho	20.69	0.10	0.01	○
119	Niger (2005)	9.78	0.00	0.00	○
n/a	Australia	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	United States of America	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

2.3.2 Gross expenditure on R&D (GERD)

GERD: Gross expenditure on R&D (% of GDP) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Korea, Rep. (2012)	4.36	100.00	1.00	●
2	Israel (2012)	3.93	90.07	0.99	●
3	Finland (2012)	3.55	81.37	0.98	
4	Sweden (2012)	3.41	78.12	0.97	●
5	Japan (2012)	3.34	76.64	0.97	●
6	Denmark (2012)	2.99	68.45	0.96	
7	Germany (2012)	2.92	66.89	0.95	●
8	Switzerland (2008)	2.87	65.77	0.94	
9	Austria (2013)	2.85	65.40	0.93	●
10	Slovenia (2012)	2.80	64.14	0.92	●
11	United States of America (2012)	2.79	63.96	0.91	
12	Iceland	2.40	54.93	0.91	
13	Australia (2010)	2.39	54.61	0.90	
14	France (2012)	2.26	51.78	0.89	
15	Belgium (2012)	2.24	51.17	0.88	
16	Singapore	2.23	51.02	0.87	
17	Estonia (2012)	2.18	49.92	0.86	
18	Netherlands (2012)	2.16	49.34	0.85	
19	China (2012)	1.98	45.35	0.84	
20	Czech Republic (2012)	1.88	43.01	0.84	
21	United Kingdom (2012)	1.72	39.38	0.83	
22	Ireland (2012)	1.72	39.38	0.82	
23	Canada (2012)	1.69	38.56	0.81	
24	Norway (2012)	1.66	37.82	0.80	
25	Luxembourg (2010)	1.51	34.35	0.79	
26	Portugal (2012)	1.50	34.12	0.78	
27	Spain (2012)	1.30	29.66	0.78	
28	Hungary (2012)	1.30	29.55	0.77	
29	New Zealand	1.27	28.96	0.76	
30	Italy (2012)	1.27	28.84	0.75	
31	Brazil	1.21	27.55	0.74	
32	Russian Federation (2012)	1.12	25.44	0.73	
33	Tunisia (2009)	1.10	25.07	0.72	●
34	Malaysia	1.07	24.22	0.72	
35	Kenya (2010)	0.98	22.17	0.71	
36	Lithuania (2012)	0.90	20.46	0.70	
37	Poland (2012)	0.90	20.41	0.69	
38	Turkey	0.86	19.49	0.68	
39	Malta (2012)	0.84	19.09	0.67	
40	Slovakia (2012)	0.82	18.65	0.66	
41	India	0.81	18.33	0.66	
42	Serbia	0.78	17.60	0.65	
43	South Africa (2010)	0.76	17.23	0.64	
44	Croatia (2012)	0.75	17.00	0.63	
45	Hong Kong (China) (2010)	0.75	16.95	0.62	
46	Iran, Islamic Rep. (2008)	0.75	16.94	0.61	●
47	Ukraine	0.74	16.66	0.60	
48	Morocco (2010)	0.73	16.59	0.59	
49	Belarus	0.70	15.83	0.59	
50	Greece (2012)	0.69	15.59	0.58	
51	Mali (2010)	0.66	14.93	0.57	●
52	Latvia (2012)	0.66	14.86	0.56	
53	Argentina	0.65	14.59	0.55	
54	Bulgaria (2012)	0.64	14.42	0.54	
55	Uganda (2010)	0.56	12.55	0.53	
56	Senegal (2010)	0.54	12.15	0.53	
57	Botswana (2005)	0.53	11.97	0.52	
58	Tanzania, United Rep. (2010)	0.52	11.58	0.51	
59	United Arab Emirates	0.49	10.96	0.50	
60	Romania (2012)	0.49	10.96	0.49	
61	Costa Rica	0.48	10.67	0.48	
62	Cyprus (2012)	0.47	10.46	0.47	
63	Mozambique (2010)	0.46	10.35	0.47	
64	Jordan (2008)	0.43	9.71	0.46	
65	Uruguay	0.43	9.61	0.45	
66	Mexico	0.43	9.57	0.44	
67	Egypt	0.43	9.57	0.43	
68	Chile (2010)	0.42	9.31	0.42	
69	Montenegro	0.41	9.11	0.41	
70	Moldova, Rep.	0.40	9.03	0.41	
71	Ghana (2010)	0.38	8.37	0.40	
72	Mauritius (2005)	0.37	8.27	0.39	
73	Zambia (2008)	0.34	7.54	0.38	
74	Pakistan	0.33	7.28	0.37	
75	Nepal (2010)	0.30	6.66	0.36	
76	Seychelles (2005)	0.30	6.66	0.35	
77	Sudan (2005)	0.30	6.57	0.34	
78	Mongolia	0.27	6.01	0.34	
79	Armenia	0.27	5.92	0.33	
80	Togo (2010)	0.25	5.54	0.32	
81	Thailand (2009)	0.25	5.47	0.31	
82	Ethiopia (2010)	0.25	5.36	0.30	
83	Ecuador (2008)	0.23	4.95	0.29	
84	Nigeria (2007)	0.22	4.74	0.28	
85	TFYR of Macedonia (2010)	0.22	4.72	0.28	○
86	Azerbaijan	0.21	4.56	0.27	
87	Burkina Faso (2009)	0.20	4.32	0.26	
88	Panama (2010)	0.20	4.20	0.25	
89	Georgia (2005)	0.18	3.77	0.24	
90	Colombia (2012)	0.17	3.68	0.23	
91	Kazakhstan	0.16	3.32	0.22	
92	Bolivia, Plurinational St. (2009)	0.16	3.32	0.22	
93	Sri Lanka (2010)	0.16	3.31	0.21	
94	Kyrgyzstan	0.16	3.30	0.20	
95	Albania (2008)	0.15	3.23	0.19	
96	Peru (2004)	0.15	3.14	0.18	
97	Namibia (2010)	0.14	3.03	0.17	
98	Gambia	0.13	2.77	0.16	
99	Oman	0.13	2.75	0.16	
100	Tajikistan	0.12	2.50	0.15	
101	Burundi	0.12	2.50	0.14	
102	Philippines (2007)	0.11	2.23	0.13	○
103	Madagascar	0.11	2.14	0.12	
104	Kuwait	0.09	1.89	0.11	○
105	Indonesia (2009)	0.08	1.62	0.10	
106	Angola	0.07	1.40	0.09	
107	Saudi Arabia (2009)	0.07	1.39	0.09	○
108	Cabo Verde	0.07	1.38	0.08	○
109	Algeria (2005)	0.07	1.22	0.07	
110	Paraguay	0.05	0.97	0.06	○
111	Guatemala	0.05	0.81	0.05	○
112	Trinidad and Tobago	0.04	0.71	0.04	○
113	Honduras (2004)	0.04	0.66	0.03	○
114	Brunei Darussalam (2004)	0.04	0.56	0.03	○
115	El Salvador	0.03	0.42	0.02	○
116	Bosnia and Herzegovina (2009)	0.02	0.20	0.01	○
117	Lesotho	0.01	0.00	0.00	○
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

2.3.3 QS university ranking average score top 3 universities

Average score of the top 3 universities at the QS world university ranking | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United Kingdom	98.90	98.90	1.00	●
2	United States of America	98.67	98.67	0.99	●
3	Canada	87.10	87.10	0.99	●
4	Switzerland	86.17	86.17	0.98	
5	Australia	85.80	85.80	0.97	●
6	Hong Kong (China)	85.10	85.10	0.96	
7	Japan	82.23	82.23	0.96	
8	France	78.27	78.27	0.95	●
9	Germany	77.40	77.40	0.94	
10	China	76.83	76.83	0.94	●
11	Korea, Rep.	75.80	75.80	0.93	
12	Netherlands	73.97	73.97	0.92	
13	Denmark	70.87	70.87	0.92	
14	Sweden	70.33	70.33	0.91	
15	Belgium	66.00	66.00	0.90	
16	Ireland	62.30	62.30	0.89	
17	Finland	59.37	59.37	0.89	
18	Norway	58.27	58.27	0.88	
19	New Zealand	58.07	58.07	0.87	
20	Singapore	56.83	56.83	0.87	
21	Israel	56.03	56.03	0.86	
22	Spain	54.57	54.57	0.85	
23	Brazil	51.53	51.53	0.85	●
24	Italy	51.30	51.30	0.84	
25	Russian Federation	49.27	49.27	0.83	
26	Austria	47.40	47.40	0.82	
27	India	45.73	45.73	0.82	●
28	Chile	45.20	45.20	0.80	
28	Malaysia	45.20	45.20	0.80	
30	South Africa	44.47	44.47	0.80	●
31	Saudi Arabia	43.47	43.47	0.79	
32	Argentina	42.73	42.73	0.78	●
33	Mexico	41.03	41.03	0.77	●
34	Colombia	39.13	39.13	0.77	
35	Thailand	37.33	37.33	0.76	
36	Portugal	36.43	36.43	0.75	
37	Czech Republic	33.97	33.97	0.75	
38	Kazakhstan	33.37	33.37	0.74	●
39	Poland	31.93	31.93	0.73	
40	Indonesia	31.57	31.57	0.73	●
41	Turkey	30.37	30.37	0.72	
42	United Arab Emirates	28.77	28.77	0.71	
43	Greece	28.33	28.33	0.70	
44	Egypt	28.23	28.23	0.70	●
45	Philippines	28.03	28.03	0.69	●
46	Hungary	24.13	24.13	0.68	
47	Venezuela, Bolivarian Rep.	23.87	23.87	0.68	●
48	Ukraine	22.90	22.90	0.67	
49	Lebanon	22.73	22.73	0.66	
50	Peru	20.60	20.60	0.65	
51	Estonia	19.97	19.97	0.65	
52	Pakistan	19.57	19.57	0.64	●
53	Azerbaijan	19.23	19.23	0.63	
54	Lithuania	17.57	17.57	0.63	
55	Romania	16.10	16.10	0.62	
56	Iran, Islamic Rep.	15.43	15.43	0.61	●
57	Jordan	12.97	12.97	0.61	
58	Belarus	11.83	11.83	0.60	
59	Oman	9.37	9.37	0.59	
60	Qatar	8.33	8.33	0.58	
61	Slovenia	8.10	8.10	0.58	
62	Croatia	7.70	7.70	0.57	
63	Uruguay	7.20	7.20	0.56	
64	Bulgaria	6.73	6.73	0.56	
65	Bahrain	6.03	6.03	0.55	
66	Bangladesh	5.70	5.70	0.54	●
67	Kuwait	4.90	4.90	0.54	
68	Sri Lanka	4.57	4.57	0.53	
69	Serbia	3.93	3.93	0.52	
70	Albania	0.00	0.00	0.00	○
70	Algeria	0.00	0.00	0.00	○
70	Angola	0.00	0.00	0.00	○
70	Armenia	0.00	0.00	0.00	○
70	Barbados	0.00	0.00	0.00	○
70	Benin	0.00	0.00	0.00	○
70	Bhutan	0.00	0.00	0.00	○
70	Bolivia, Plurinational St.	0.00	0.00	0.00	○
70	Bosnia and Herzegovina	0.00	0.00	0.00	○
70	Botswana	0.00	0.00	0.00	○
70	Brunei Darussalam	0.00	0.00	0.00	○
70	Burkina Faso	0.00	0.00	0.00	○
70	Burundi	0.00	0.00	0.00	○
70	Cabo Verde	0.00	0.00	0.00	○
70	Cambodia	0.00	0.00	0.00	○
70	Cameroon	0.00	0.00	0.00	○
70	Costa Rica	0.00	0.00	0.00	○
70	Côte d'Ivoire	0.00	0.00	0.00	○
70	Cyprus	0.00	0.00	0.00	○
70	Dominican Republic	0.00	0.00	0.00	○
70	Ecuador	0.00	0.00	0.00	○
70	El Salvador	0.00	0.00	0.00	○
70	Ethiopia	0.00	0.00	0.00	○
70	Fiji	0.00	0.00	0.00	○
70	Gambia	0.00	0.00	0.00	○
70	Georgia	0.00	0.00	0.00	○
70	Ghana	0.00	0.00	0.00	○
70	Guatemala	0.00	0.00	0.00	○
70	Guinea	0.00	0.00	0.00	○
70	Guyana	0.00	0.00	0.00	○
70	Honduras	0.00	0.00	0.00	○
70	Iceland	0.00	0.00	0.00	○
70	Jamaica	0.00	0.00	0.00	○
70	Kenya	0.00	0.00	0.00	○
70	Kyrgyzstan	0.00	0.00	0.00	○
70	Latvia	0.00	0.00	0.00	○
70	Lesotho	0.00	0.00	0.00	○
70	Luxembourg	0.00	0.00	0.00	○
70	Madagascar	0.00	0.00	0.00	○
70	Malawi	0.00	0.00	0.00	○
70	Mali	0.00	0.00	0.00	○
70	Malta	0.00	0.00	0.00	○
70	Mauritius	0.00	0.00	0.00	○
70	Moldova, Rep.	0.00	0.00	0.00	○
70	Mongolia	0.00	0.00	0.00	○
70	Montenegro	0.00	0.00	0.00	○
70	Morocco	0.00	0.00	0.00	○
70	Mozambique	0.00	0.00	0.00	○
70	Myanmar	0.00	0.00	0.00	○
70	Namibia	0.00	0.00	0.00	○
70	Nepal	0.00	0.00	0.00	○
70	Nicaragua	0.00	0.00	0.00	○
70	Niger	0.00	0.00	0.00	○
70	Nigeria	0.00	0.00	0.00	○
70	Panama	0.00	0.00	0.00	○
70	Paraguay	0.00	0.00	0.00	○
70	Rwanda	0.00	0.00	0.00	○
70	Senegal	0.00	0.00	0.00	○
70	Seychelles	0.00	0.00	0.00	○
70	Slovakia	0.00	0.00	0.00	○
70	Sudan	0.00	0.00	0.00	○
70	Swaziland	0.00	0.00	0.00	○
70	Tajikistan	0.00	0.00	0.00	○
70	Tanzania, United Rep.	0.00	0.00	0.00	○
70	TFYR of Macedonia	0.00	0.00	0.00	○
70	Togo	0.00	0.00	0.00	○
70	Trinidad and Tobago	0.00	0.00	0.00	○
70	Tunisia	0.00	0.00	0.00	○
70	Uganda	0.00	0.00	0.00	○
70	Uzbekistan	0.00	0.00	0.00	○
70	Viet Nam	0.00	0.00	0.00	○
70	Yemen	0.00	0.00	0.00	○
70	Zambia	0.00	0.00	0.00	○
70	Zimbabwe	0.00	0.00	0.00	○

SOURCE: QS Quacquarelli Symonds Ltd, QS World University Ranking 2013/2014,Top Universities

NOTE: ● indicates a strength; ○ a weakness.

3.1.1 ICT access

ICT access index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	9.18	91.80	1.00	●
2	Luxembourg	8.93	89.30	0.99	●
3	Iceland	8.77	87.70	0.99	●
4	Switzerland	8.73	87.30	0.98	
5	Germany	8.51	85.10	0.97	●
6	United Kingdom	8.46	84.60	0.96	
7	Sweden	8.37	83.70	0.96	
8	Singapore	8.31	83.10	0.95	
9	Korea, Rep.	8.28	82.80	0.93	
9	Malta	8.28	82.80	0.93	
9	Netherlands	8.28	82.80	0.93	
12	Denmark	8.18	81.80	0.92	
13	Austria	7.96	79.60	0.91	
14	France	7.95	79.50	0.90	●
15	Japan	7.73	77.30	0.90	
16	Norway	7.72	77.20	0.89	
17	New Zealand	7.69	76.90	0.88	
18	Belgium	7.67	76.70	0.87	
19	Finland	7.66	76.60	0.87	
20	Canada	7.65	76.50	0.86	
21	Australia	7.64	76.40	0.85	
22	Ireland	7.59	75.90	0.84	
23	Israel	7.57	75.70	0.84	
24	United Arab Emirates	7.31	73.10	0.83	
25	Barbados	7.29	72.90	0.82	
26	Estonia	7.27	72.70	0.81	
27	Bahrain	7.25	72.50	0.81	
28	United States of America	7.24	72.40	0.80	
29	Slovenia	7.23	72.30	0.79	
30	Italy	7.15	71.50	0.78	
31	Qatar	7.10	71.00	0.78	
32	Spain	7.05	70.50	0.77	
33	Portugal	7.00	70.00	0.76	
34	Saudi Arabia	6.76	67.60	0.75	
35	Russian Federation	6.73	67.30	0.75	
36	Greece	6.69	66.90	0.74	
37	Croatia	6.66	66.60	0.73	
38	Czech Republic	6.60	66.00	0.72	
38	Kazakhstan	6.60	66.00	0.72	
40	Brunei Darussalam	6.55	65.50	0.71	
41	Lithuania	6.47	64.70	0.70	
42	Hungary	6.46	64.60	0.69	
42	Poland	6.46	64.60	0.69	
44	Cyprus	6.45	64.50	0.68	
45	Belarus	6.41	64.10	0.67	
46	Uruguay	6.38	63.80	0.66	
47	Bulgaria	6.33	63.30	0.66	
48	Slovakia	6.28	62.80	0.65	
49	Latvia	6.25	62.50	0.64	
50	Seychelles	6.10	61.00	0.63	
51	Malaysia	6.09	60.90	0.63	
52	Lebanon	6.04	60.40	0.62	
53	Argentina	5.88	58.80	0.61	
54	Serbia	5.82	58.20	0.60	
55	Moldova, Rep.	5.81	58.10	0.59	
55	Romania	5.81	58.10	0.59	
57	Oman	5.74	57.40	0.58	
58	Trinidad and Tobago	5.67	56.70	0.57	
59	Chile	5.65	56.50	0.56	
59	TFYR of Macedonia	5.65	56.50	0.56	
61	Costa Rica	5.53	55.30	0.55	
62	Panama	5.51	55.10	0.54	
63	Brazil	5.49	54.90	0.54	
64	Ukraine	5.27	52.70	0.53	
65	Azerbaijan	5.17	51.70	0.51	
65	Mauritius	5.17	51.70	0.51	
67	Turkey	5.11	51.10	0.51	
68	Georgia	5.06	50.60	0.50	
69	Jordan	4.95	49.50	0.49	
70	Bosnia and Herzegovina	4.83	48.30	0.49	
71	Iran, Islamic Rep.	4.68	46.80	0.48	
72	Morocco	4.67	46.70	0.47	
73	Armenia	4.52	45.20	0.46	
74	China	4.36	43.60	0.46	
75	Colombia	4.35	43.50	0.45	
76	Ecuador	4.34	43.40	0.44	
77	Egypt	4.20	42.00	0.43	
78	South Africa	4.14	41.40	0.43	
79	Venezuela, Bolivarian Rep.	4.13	41.30	0.42	
80	Mexico	4.11	41.10	0.41	
81	Mongolia	4.04	40.40	0.40	
81	Viet Nam	4.04	40.40	0.40	
83	Thailand	4.00	40.00	0.39	
84	El Salvador	3.95	39.50	0.37	
84	Tunisia	3.95	39.50	0.37	
86	Jamaica	3.93	39.30	0.37	
87	Fiji	3.86	38.60	0.36	
88	Peru	3.85	38.50	0.35	
89	Albania	3.73	37.30	0.34	
90	Indonesia	3.62	36.20	0.34	
91	Algeria	3.60	36.00	0.32	
91	Paraguay	3.60	36.00	0.32	
93	Botswana	3.58	35.80	0.31	
94	Cabo Verde	3.46	34.60	0.31	
95	Philippines	3.41	34.10	0.30	
96	Sri Lanka	3.36	33.60	0.29	
97	Dominican Republic	3.35	33.50	0.28	
98	Bolivia, Plurinational St.	3.27	32.70	0.28	
99	Guyana	3.18	31.80	0.27	
100	Cambodia	3.14	31.40	0.26	
101	Namibia	3.09	30.90	0.25	
102	Honduras	3.05	30.50	0.25	
103	Nicaragua	2.99	29.90	0.24	
104	Kenya	2.73	27.30	0.23	
105	Bhutan	2.68	26.80	0.22	
106	Sudan	2.62	26.20	0.22	
107	Senegal	2.59	25.90	0.21	
108	Côte d'Ivoire	2.58	25.80	0.20	
109	Pakistan	2.56	25.60	0.19	
110	Zimbabwe	2.54	25.40	0.19	
111	India	2.50	25.00	0.18	
112	Mali	2.44	24.40	0.17	
113	Swaziland	2.43	24.30	0.16	
114	Gambia	2.42	24.20	0.16	
115	Ghana	2.40	24.00	0.15	
116	Uzbekistan	2.38	23.80	0.14	
117	Benin	2.36	23.60	0.13	
118	Lesotho	2.26	22.60	0.13	
119	Zambia	2.12	21.20	0.12	
120	Yemen	2.09	20.90	0.11	
121	Bangladesh	2.03	20.30	0.10	
122	Nigeria	1.99	19.90	0.10	
123	Rwanda	1.96	19.60	0.09	○
124	Uganda	1.95	19.50	0.08	○
125	Burkina Faso	1.87	18.70	0.06	○
125	Cameroon	1.87	18.70	0.06	○
125	Tanzania, United Rep.	1.87	18.70	0.06	○
128	Angola	1.83	18.30	0.05	
129	Malawi	1.72	17.20	0.04	○
130	Guinea	1.71	17.10	0.04	
131	Mozambique	1.69	16.90	0.03	○
132	Niger	1.65	16.50	0.02	
133	Ethiopia	1.64	16.40	0.01	○
134	Myanmar	1.62	16.20	0.01	
135	Madagascar	1.48	14.80	0.00	○
n/a	Burundi	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	

SOURCE: International Telecommunication Union, *Measuring the Information Society 2013*, ICT Development Index 2013

NOTE: ● indicates a strength; ○ a weakness.

3.1.2 ICT use

ICT use index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Sweden	8.25	82.50	1.00	●
2	Korea, Rep.	8.22	82.20	0.99	●
3	Denmark	8.15	81.50	0.99	●
4	Finland	8.05	80.50	0.97	
4	Norway	8.05	80.50	0.97	●
6	Japan	7.51	75.10	0.96	●
7	Iceland	7.50	75.00	0.96	
8	Australia	7.46	74.60	0.95	●
9	Netherlands	7.32	73.20	0.94	
10	Luxembourg	7.29	72.90	0.93	
11	Singapore	7.25	72.50	0.93	
12	United Kingdom	7.19	71.90	0.92	
13	United States of America	6.76	67.60	0.91	
14	New Zealand	6.72	67.20	0.90	
15	Hong Kong (China)	6.62	66.20	0.90	
16	France	6.60	66.00	0.89	
17	Switzerland	6.54	65.40	0.88	
18	Estonia	6.52	65.20	0.87	
19	Canada	6.38	63.80	0.87	
20	Ireland	6.08	60.80	0.86	
21	Germany	6.05	60.50	0.85	
22	Malta	6.04	60.40	0.84	
23	Austria	5.97	59.70	0.84	
24	Israel	5.86	58.60	0.83	
25	Qatar	5.79	57.90	0.82	
26	Belgium	5.75	57.50	0.81	
27	Spain	5.52	55.20	0.81	
28	Latvia	5.45	54.50	0.80	
29	United Arab Emirates	5.18	51.80	0.79	
30	Czech Republic	5.17	51.70	0.78	
31	Barbados	5.00	50.00	0.78	
32	Croatia	4.99	49.90	0.77	●
33	Slovenia	4.94	49.40	0.76	
34	Italy	4.89	48.90	0.75	
35	Poland	4.84	48.40	0.75	
36	Slovakia	4.79	47.90	0.74	
37	Bahrain	4.75	47.50	0.73	
38	Greece	4.65	46.50	0.72	
39	Hungary	4.48	44.80	0.72	
40	Portugal	4.45	44.50	0.71	
41	Russian Federation	4.34	43.40	0.70	
42	Cyprus	4.23	42.30	0.69	
43	Bulgaria	4.20	42.00	0.69	
44	Belarus	4.13	41.30	0.68	
45	Oman	4.07	40.70	0.67	
46	Uruguay	3.84	38.40	0.66	
47	Lithuania	3.76	37.60	0.66	
48	Azerbaijan	3.72	37.20	0.65	●
49	Kazakhstan	3.71	37.10	0.64	
50	Chile	3.67	36.70	0.62	
50	Saudi Arabia	3.67	36.70	0.62	
50	TFYR of Macedonia	3.67	36.70	0.62	
53	Lebanon	3.54	35.40	0.61	
54	Serbia	3.52	35.20	0.60	
55	Brazil	3.41	34.10	0.60	
56	Romania	3.34	33.40	0.59	
57	Bosnia and Herzegovina	3.19	31.90	0.58	
58	Argentina	3.16	31.60	0.57	
59	Malaysia	3.11	31.10	0.57	
60	Costa Rica	3.06	30.60	0.56	
61	Trinidad and Tobago	2.83	28.30	0.55	
62	Georgia	2.82	28.20	0.54	
63	Albania	2.71	27.10	0.54	
64	China	2.70	27.00	0.53	
65	Mauritius	2.69	26.90	0.52	
66	Turkey	2.63	26.30	0.51	
67	Armenia	2.60	26.00	0.51	
68	Brunei Darussalam	2.53	25.30	0.50	
69	Seychelles	2.52	25.20	0.49	
70	Egypt	2.51	25.10	0.49	
71	Panama	2.46	24.60	0.48	
72	South Africa	2.35	23.50	0.47	
73	Morocco	2.28	22.80	0.46	
74	Dominican Republic	2.27	22.70	0.45	
74	Moldova, Rep.	2.27	22.70	0.45	
76	Colombia	2.26	22.60	0.44	
77	Mexico	2.23	22.30	0.43	
78	Ecuador	2.22	22.20	0.42	
78	Viet Nam	2.22	22.20	0.42	
80	Cabo Verde	2.12	21.20	0.41	
81	Venezuela, Bolivarian Rep.	2.00	20.00	0.40	
82	Fiji	1.99	19.90	0.40	
83	Uzbekistan	1.95	19.50	0.39	
84	Jordan	1.92	19.20	0.38	
85	Jamaica	1.84	18.40	0.37	
86	Tunisia	1.82	18.20	0.37	
87	Ukraine	1.76	17.60	0.36	
88	Nigeria	1.72	17.20	0.35	
89	Ghana	1.71	17.10	0.34	
90	Indonesia	1.64	16.40	0.33	
90	Mongolia	1.64	16.40	0.33	
92	Peru	1.63	16.30	0.32	
93	Zimbabwe	1.59	15.90	0.31	
94	Namibia	1.55	15.50	0.31	
95	Philippines	1.46	14.60	0.30	
96	Bolivia, Plurinational St.	1.42	14.20	0.29	
97	Guyana	1.36	13.60	0.28	
98	Sudan	1.26	12.60	0.28	
99	El Salvador	1.25	12.50	0.27	
100	Thailand	1.23	12.30	0.26	
101	Paraguay	1.17	11.70	0.25	
102	Kenya	1.15	11.50	0.25	
103	Iran, Islamic Rep.	1.14	11.40	0.24	
104	Swaziland	1.11	11.10	0.23	
105	Bhutan	1.05	10.50	0.22	
106	Botswana	1.00	10.00	0.22	
107	Sri Lanka	0.87	8.70	0.21	
108	Honduras	0.81	8.10	0.20	
109	Senegal	0.80	8.00	0.19	
110	Uganda	0.75	7.50	0.19	
111	Algeria	0.68	6.80	0.18	
112	India	0.65	6.50	0.17	
113	Angola	0.62	6.20	0.16	
113	Yemen	0.62	6.20	0.16	
115	Nicaragua	0.58	5.80	0.15	
116	Tanzania, United Rep.	0.49	4.90	0.14	
117	Lesotho	0.48	4.80	0.13	
117	Zambia	0.48	4.80	0.13	
119	Gambia	0.46	4.60	0.12	
120	Cambodia	0.41	4.10	0.11	
121	Pakistan	0.38	3.80	0.10	
121	Rwanda	0.38	3.80	0.10	
123	Malawi	0.26	2.60	0.09	
124	Bangladesh	0.24	2.40	0.08	
125	Mozambique	0.23	2.30	0.07	
126	Cameroon	0.19	1.90	0.07	○
127	Benin	0.14	1.40	0.06	
128	Burkina Faso	0.13	1.30	0.05	○
129	Mali	0.10	1.00	0.04	
130	Côte d'Ivoire	0.09	0.90	0.04	○
131	Ethiopia	0.07	0.70	0.01	○
131	Madagascar	0.07	0.70	0.01	○
131	Niger	0.07	0.70	0.01	○
134	Guinea	0.05	0.50	0.01	○
135	Myanmar	0.04	0.40	0.00	○
n/a	Burundi	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	

SOURCE: International Telecommunication Union, *Measuring the Information Society 2013*, ICT Development Index 2013

NOTE: ● indicates a strength; ○ a weakness.

3.1.3 Government's online service

Government's online service index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Korea, Rep.	1.00	100.00	0.99	●
1	Singapore	1.00	100.00	0.99	●
1	United States of America	1.00	100.00	0.99	●
4	United Kingdom	0.97	97.39	0.98	●
5	Netherlands	0.96	96.08	0.97	●
6	Canada	0.89	88.89	0.96	●
7	Finland	0.88	88.24	0.96	
8	France	0.88	87.58	0.95	●
9	Australia	0.86	86.27	0.92	
9	Bahrain	0.86	86.27	0.92	●
9	Japan	0.86	86.27	0.92	
9	United Arab Emirates	0.86	86.27	0.92	●
13	Denmark	0.86	85.62	0.91	
13	Norway	0.86	85.62	0.91	
15	Israel	0.85	84.97	0.90	
16	Colombia	0.84	84.31	0.89	●
16	Sweden	0.84	84.31	0.89	
18	Estonia	0.82	82.35	0.88	
19	Saudi Arabia	0.80	79.74	0.87	●
20	Malaysia	0.79	79.08	0.87	
21	Kazakhstan	0.78	78.43	0.85	●
21	New Zealand	0.78	78.43	0.85	
23	Spain	0.76	75.82	0.84	
24	Chile	0.75	75.16	0.83	
24	Germany	0.75	75.16	0.83	
26	Austria	0.75	74.51	0.82	
27	Qatar	0.74	73.86	0.82	
28	Mexico	0.73	73.20	0.81	●
29	Lithuania	0.70	69.93	0.79	
29	Luxembourg	0.70	69.93	0.79	
31	Hungary	0.69	68.63	0.79	
32	Brazil	0.67	67.32	0.77	
32	El Salvador	0.67	67.32	0.77	●
32	Switzerland	0.67	67.32	0.77	
35	Oman	0.67	66.67	0.75	●
35	Slovenia	0.67	66.67	0.75	
37	Russian Federation	0.66	66.01	0.74	
38	Portugal	0.65	65.36	0.74	
39	Belgium	0.65	64.71	0.73	
40	Croatia	0.64	64.05	0.72	
41	Malta	0.61	61.44	0.72	
42	Egypt	0.60	60.13	0.70	●
42	Georgia	0.60	60.13	0.70	
44	Brunei Darussalam	0.59	59.48	0.70	
45	Latvia	0.59	58.82	0.68	
45	Mongolia	0.59	58.82	0.68	
47	Kuwait	0.58	58.17	0.67	
48	Greece	0.58	57.52	0.65	
48	Italy	0.58	57.52	0.65	
48	Serbia	0.58	57.52	0.65	
51	Cyprus	0.56	56.21	0.65	
52	Uruguay	0.55	54.90	0.64	
53	Czech Republic	0.54	54.25	0.62	
53	Iceland	0.54	54.25	0.62	
53	Morocco	0.54	54.25	0.62	
56	Dominican Republic	0.54	53.59	0.59	
56	India	0.54	53.59	0.59	
56	Ireland	0.54	53.59	0.59	
56	Poland	0.54	53.59	0.59	
60	Argentina	0.53	52.94	0.57	
60	China	0.53	52.94	0.57	
62	Moldova, Rep.	0.52	51.63	0.55	
62	Peru	0.52	51.63	0.55	
62	Romania	0.52	51.63	0.55	
65	Montenegro	0.51	50.98	0.54	
65	Thailand	0.51	50.98	0.54	
67	Slovakia	0.50	50.33	0.53	
68	Costa Rica	0.50	49.67	0.50	
68	Indonesia	0.50	49.67	0.50	
68	Philippines	0.50	49.67	0.50	
68	Uzbekistan	0.50	49.67	0.50	
72	Bulgaria	0.49	49.02	0.49	
72	Iran, Islamic Rep.	0.49	49.02	0.49	
74	Trinidad and Tobago	0.48	48.37	0.48	
74	Venezuela, Bolivarian Rep.	0.48	48.37	0.48	
76	Lebanon	0.48	47.71	0.46	
76	Tunisia	0.48	47.71	0.46	
78	Ethiopia	0.47	47.06	0.45	
79	Guatemala	0.46	46.41	0.43	
79	Panama	0.46	46.41	0.43	
79	Turkey	0.46	46.41	0.43	
82	Ecuador	0.46	45.75	0.41	
82	Paraguay	0.46	45.75	0.41	
82	South Africa	0.46	45.75	0.41	
85	TFYR of Macedonia	0.45	45.10	0.40	
86	Bangladesh	0.44	44.44	0.40	
87	Cabo Verde	0.44	43.79	0.39	
88	Kenya	0.43	43.14	0.38	
88	Mauritius	0.43	43.14	0.38	
90	Albania	0.42	42.48	0.35	
90	Kyrgyzstan	0.42	42.48	0.35	
90	Ukraine	0.42	42.48	0.35	
90	Viet Nam	0.42	42.48	0.35	
94	Belarus	0.41	41.18	0.33	
94	Bolivia, Plurinational St.	0.41	41.18	0.33	
96	Jordan	0.39	39.22	0.33	
97	Honduras	0.38	37.91	0.31	
97	Sri Lanka	0.38	37.91	0.31	
99	Barbados	0.37	37.25	0.30	
99	Bosnia and Herzegovina	0.37	37.25	0.30	
101	Azerbaijan	0.37	36.60	0.28	
101	Mozambique	0.37	36.60	0.28	
101	Pakistan	0.37	36.60	0.28	
104	Botswana	0.36	35.95	0.26	
104	Fiji	0.36	35.95	0.26	
106	Bhutan	0.35	35.29	0.25	
106	Tanzania, United Rep.	0.35	35.29	0.25	
108	Senegal	0.35	34.64	0.24	
109	Rwanda	0.34	33.99	0.23	
110	Angola	0.33	33.33	0.21	
110	Côte d'Ivoire	0.33	33.33	0.21	
110	Seychelles	0.33	33.33	0.21	○
113	Armenia	0.33	32.68	0.21	○
114	Gambia	0.32	32.03	0.18	
114	Madagascar	0.32	32.03	0.18	
114	Mali	0.32	32.03	0.18	
117	Nicaragua	0.31	31.37	0.17	
117	Zambia	0.31	31.37	0.17	
119	Jamaica	0.31	30.72	0.16	
120	Cameroon	0.30	30.07	0.13	
120	Ghana	0.30	30.07	0.13	
120	Lesotho	0.30	30.07	0.13	
120	Namibia	0.30	30.07	0.13	○
120	Zimbabwe	0.30	30.07	0.13	
125	Burkina Faso	0.29	29.41	0.11	
125	Uganda	0.29	29.41	0.11	
127	Nepal	0.29	28.76	0.11	
128	Algeria	0.25	25.49	0.09	
128	Guyana	0.25	25.49	0.09	○
128	Sudan	0.25	25.49	0.09	
131	Tajikistan	0.24	24.18	0.08	
132	Nigeria	0.22	22.22	0.07	
133	Malawi	0.22	21.57	0.06	○
134	Benin	0.20	19.61	0.05	○
134	Niger	0.20	19.61	0.05	
136	Cambodia	0.19	18.95	0.04	
137	Yemen	0.18	17.65	0.04	
138	Burundi	0.15	15.03	0.03	
139	Swaziland	0.14	14.38	0.02	○
140	Togo	0.14	13.73	0.01	○
141	Myanmar	0.10	10.46	0.01	
142	Guinea	0.00	0.00	0.00	○
n/a	Hong Kong (China)	n/a	n/a	n/a	

SOURCE: United Nations Public Administration Network, *e-Government Survey 2012*

NOTE: ● indicates a strength; ○ a weakness.

3.1.4 Online e-participation

E-participation Index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Korea, Rep.	1.00	100.00	0.99	●
1	Netherlands	1.00	100.00	0.99	●
3	Kazakhstan	0.95	94.74	0.98	●
3	Singapore	0.95	94.74	0.98	
5	United Kingdom	0.92	92.11	0.96	●
5	United States of America	0.92	92.11	0.96	
7	Israel	0.89	89.47	0.96	●
8	Australia	0.76	76.32	0.94	
8	Estonia	0.76	76.32	0.94	●
8	Germany	0.76	76.32	0.94	
11	Colombia	0.74	73.68	0.91	●
11	Finland	0.74	73.68	0.91	
11	Japan	0.74	73.68	0.91	
11	United Arab Emirates	0.74	73.68	0.91	●
15	Canada	0.68	68.42	0.88	
15	Egypt	0.68	68.42	0.88	●
15	Norway	0.68	68.42	0.88	
15	Sweden	0.68	68.42	0.88	
19	Bahrain	0.66	65.79	0.86	●
19	Chile	0.66	65.79	0.86	●
19	Russian Federation	0.66	65.79	0.86	●
22	Qatar	0.63	63.16	0.84	
22	Saudi Arabia	0.63	63.16	0.84	●
24	Mongolia	0.61	60.53	0.84	●
25	France	0.58	57.89	0.82	
25	Mexico	0.58	57.89	0.82	●
25	New Zealand	0.58	57.89	0.82	
28	Denmark	0.55	55.26	0.80	
28	El Salvador	0.55	55.26	0.80	●
30	Lithuania	0.53	52.63	0.79	
31	Brazil	0.50	50.00	0.77	●
31	Malaysia	0.50	50.00	0.77	
31	Spain	0.50	50.00	0.77	
34	Brunei Darussalam	0.47	47.37	0.76	●
34	Dominican Republic	0.47	47.37	0.76	●
36	Hungary	0.45	44.74	0.74	
36	Oman	0.45	44.74	0.74	●
38	Luxembourg	0.39	39.47	0.72	
38	Moldova, Rep.	0.39	39.47	0.72	
38	Morocco	0.39	39.47	0.72	●
38	Peru	0.39	39.47	0.72	
42	Austria	0.37	36.84	0.70	
42	Portugal	0.37	36.84	0.70	
42	Tunisia	0.37	36.84	0.70	
45	Ethiopia	0.34	34.21	0.67	●
45	Greece	0.34	34.21	0.67	
45	Switzerland	0.34	34.21	0.67	
48	Costa Rica	0.32	31.58	0.64	
48	Lebanon	0.32	31.58	0.64	
48	Montenegro	0.32	31.58	0.64	
48	Panama	0.32	31.58	0.64	
48	Thailand	0.32	31.58	0.64	
53	Argentina	0.29	28.95	0.62	
53	Croatia	0.29	28.95	0.62	
53	Kyrgyzstan	0.29	28.95	0.62	
56	Czech Republic	0.26	26.32	0.59	
56	Italy	0.26	26.32	0.59	
56	Malta	0.26	26.32	0.59	
56	Venezuela, Bolivarian Rep.	0.26	26.32	0.59	●
60	Cabo Verde	0.24	23.68	0.55	
60	Ecuador	0.24	23.68	0.55	
60	Guatemala	0.24	23.68	0.55	
60	Serbia	0.24	23.68	0.55	
60	Uzbekistan	0.24	23.68	0.55	
65	Bolivia, Plurinational St.	0.21	21.05	0.50	
65	China	0.21	21.05	0.50	
65	Georgia	0.21	21.05	0.50	
65	Indonesia	0.21	21.05	0.50	
65	Latvia	0.21	21.05	0.50	
65	Philippines	0.21	21.05	0.50	
65	Senegal	0.21	21.05	0.50	
65	Slovenia	0.21	21.05	0.50	
73	India	0.18	18.42	0.45	
73	Iran, Islamic Rep.	0.18	18.42	0.45	
73	Kuwait	0.18	18.42	0.45	
73	Nigeria	0.18	18.42	0.45	
73	Poland	0.18	18.42	0.45	
73	Uruguay	0.18	18.42	0.45	
79	Burkina Faso	0.16	15.79	0.42	
79	Iceland	0.16	15.79	0.42	
79	Paraguay	0.16	15.79	0.42	
79	South Africa	0.16	15.79	0.42	
79	Ukraine	0.16	15.79	0.42	
84	Azerbaijan	0.13	13.16	0.35	
84	Belgium	0.13	13.16	0.35	○
84	Côte d'Ivoire	0.13	13.16	0.35	
84	Honduras	0.13	13.16	0.35	
84	Ireland	0.13	13.16	0.35	○
84	Mozambique	0.13	13.16	0.35	
84	Nicaragua	0.13	13.16	0.35	
84	Pakistan	0.13	13.16	0.35	
84	Slovakia	0.13	13.16	0.35	
84	TFYR of Macedonia	0.13	13.16	0.35	
94	Albania	0.11	10.53	0.32	
94	Ghana	0.11	10.53	0.32	
94	Jordan	0.11	10.53	0.32	
94	Viet Nam	0.11	10.53	0.32	
98	Bangladesh	0.08	7.89	0.23	
98	Belarus	0.08	7.89	0.23	
98	Benin	0.08	7.89	0.23	
98	Cyprus	0.08	7.89	0.23	
98	Fiji	0.08	7.89	0.23	
98	Mauritius	0.08	7.89	0.23	○
98	Romania	0.08	7.89	0.23	○
98	Seychelles	0.08	7.89	0.23	○
98	Sri Lanka	0.08	7.89	0.23	
98	Sudan	0.08	7.89	0.23	
98	Tanzania, United Rep.	0.08	7.89	0.23	
98	Trinidad and Tobago	0.08	7.89	0.23	
98	Uganda	0.08	7.89	0.23	
111	Algeria	0.05	5.26	0.19	
111	Kenya	0.05	5.26	0.19	
111	Swaziland	0.05	5.26	0.19	
111	Togo	0.05	5.26	0.19	
111	Turkey	0.05	5.26	0.19	○
116	Angola	0.03	2.63	0.10	
116	Barbados	0.03	2.63	0.10	○
116	Bhutan	0.03	2.63	0.10	
116	Botswana	0.03	2.63	0.10	○
116	Bulgaria	0.03	2.63	0.10	○
116	Cameroon	0.03	2.63	0.10	
116	Lesotho	0.03	2.63	0.10	
116	Madagascar	0.03	2.63	0.10	
116	Namibia	0.03	2.63	0.10	○
116	Nepal	0.03	2.63	0.10	
116	Rwanda	0.03	2.63	0.10	
116	Zambia	0.03	2.63	0.10	
116	Zimbabwe	0.03	2.63	0.10	
129	Armenia	0.00	0.00	0.00	○
129	Bosnia and Herzegovina	0.00	0.00	0.00	○
129	Burundi	0.00	0.00	0.00	○
129	Cambodia	0.00	0.00	0.00	○
129	Gambia	0.00	0.00	0.00	○
129	Guinea	0.00	0.00	0.00	○
129	Guyana	0.00	0.00	0.00	○
129	Jamaica	0.00	0.00	0.00	○
129	Malawi	0.00	0.00	0.00	○
129	Mali	0.00	0.00	0.00	○
129	Myanmar	0.00	0.00	0.00	○
129	Niger	0.00	0.00	0.00	○
129	Tajikistan	0.00	0.00	0.00	○
129	Yemen	0.00	0.00	0.00	○
n/a	Hong Kong (China)	n/a	n/a	n/a	

SOURCE: United Nations Public Administration Network, *e-Government Survey 2012*

NOTE: ● indicates a strength; ○ a weakness.

3.2.1 Electricity output

Electricity output (kWh per capita) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Iceland (2012)	54,840.63	100.00	0.98	●
1	Kuwait	20,374.82	100.00	0.98	●
1	Norway (2012)	29,237.65	100.00	0.98	●
4	Canada (2012)	18,547.92	91.03	0.98	●
5	Sweden (2012)	17,358.87	85.19	0.97	●
6	Qatar	16,433.16	80.64	0.96	●
7	United States of America (2012)	13,589.23	66.67	0.95	
8	Finland (2012)	13,007.76	63.81	0.94	
9	United Arab Emirates	12,564.89	61.64	0.93	●
10	Australia (2012)	10,929.81	53.61	0.93	
11	Korea, Rep. (2012)	10,576.62	51.87	0.92	
12	Bahrain	10,474.24	51.37	0.91	●
13	New Zealand (2012)	9,946.52	48.78	0.90	
14	Brunei Darussalam	9,085.37	44.55	0.89	●
15	Estonia (2012)	8,929.85	43.78	0.89	
16	Saudi Arabia	8,905.88	43.66	0.88	●
17	Singapore	8,880.12	43.54	0.87	
18	Paraguay	8,771.08	43.00	0.86	●
19	Switzerland (2012)	8,573.14	42.03	0.85	
20	France (2012)	8,506.37	41.70	0.85	
21	Czech Republic (2012)	8,264.03	40.51	0.84	
22	Japan (2012)	8,060.63	39.51	0.83	
23	Israel (2012)	7,675.60	37.62	0.82	
24	Oman	7,675.09	37.62	0.81	●
25	Austria (2012)	7,665.76	37.57	0.80	
26	Slovenia (2012)	7,537.38	36.94	0.80	
27	Germany (2012)	7,483.40	36.68	0.79	
28	Russian Federation	7,419.16	36.36	0.78	
29	Belgium (2012)	6,999.28	34.30	0.77	
30	Bulgaria	6,687.57	32.77	0.76	
31	Trinidad and Tobago	6,568.15	32.18	0.76	●
32	Spain (2012)	6,369.42	31.20	0.75	
33	Cyprus	6,161.25	30.18	0.74	
34	Netherlands (2012)	6,098.63	29.87	0.73	
35	Ireland (2012)	5,992.16	29.35	0.72	
36	United Kingdom (2012)	5,697.86	27.91	0.72	
37	Hong Kong (China)	5,520.51	27.03	0.71	
38	Denmark (2012)	5,438.82	26.63	0.70	
39	Serbia	5,237.47	25.64	0.69	
40	Kazakhstan	5,228.62	25.60	0.68	
41	Malta	5,223.81	25.58	0.67	
42	Slovakia (2012)	5,184.07	25.38	0.67	
43	Luxembourg (2012)	5,173.58	25.33	0.66	
44	South Africa	5,130.97	25.12	0.65	
45	Greece (2012)	5,080.76	24.87	0.64	
46	Italy (2012)	4,871.19	23.84	0.63	
47	Malaysia	4,507.62	22.06	0.63	
48	Portugal (2012)	4,279.70	20.94	0.62	
49	Ukraine	4,264.87	20.87	0.61	
50	Montenegro	4,215.87	20.63	0.60	
51	Poland (2012)	4,202.91	20.56	0.59	
52	Venezuela, Bolivarian Rep.	4,168.68	20.39	0.59	
53	Bosnia and Herzegovina	4,074.67	19.93	0.58	
54	Chile (2012)	3,921.16	19.18	0.57	
55	Lebanon	3,841.55	18.79	0.56	
56	China	3,508.38	17.15	0.55	
57	Hungary (2012)	3,461.57	16.92	0.54	
58	Belarus	3,399.37	16.61	0.54	
59	TFYR of Macedonia	3,337.86	16.31	0.53	
60	Iran, Islamic Rep.	3,204.61	15.66	0.52	
61	Turkey (2012)	3,194.15	15.61	0.51	
62	Argentina	3,177.70	15.53	0.50	
63	Uruguay	3,069.44	14.99	0.50	
64	Romania	2,898.50	14.15	0.49	
65	Kyrgyzstan	2,751.00	13.43	0.48	
66	Latvia	2,745.05	13.40	0.47	
67	Brazil	2,703.95	13.20	0.46	
68	Mexico (2012)	2,687.13	13.12	0.46	
69	Croatia	2,426.76	11.84	0.45	
70	Armenia	2,397.74	11.69	0.44	
71	Jordan	2,370.06	11.56	0.43	
72	Tajikistan	2,323.64	11.33	0.42	
73	Georgia	2,270.38	11.07	0.41	
74	Thailand	2,243.76	10.94	0.41	
75	Azerbaijan	2,213.09	10.79	0.40	
76	Panama	2,200.84	10.73	0.39	
77	Costa Rica	2,078.86	10.13	0.38	
78	Egypt	1,897.09	9.24	0.37	
79	Jamaica	1,897.05	9.24	0.37	
80	Uzbekistan	1,785.96	8.69	0.36	
81	Mongolia	1,697.50	8.26	0.35	
82	Moldova, Rep.	1,625.28	7.90	0.34	
83	Tunisia	1,511.72	7.34	0.33	
84	Algeria	1,423.68	6.91	0.33	
85	Ecuador	1,381.46	6.70	0.32	
86	Peru	1,334.12	6.47	0.31	
87	Lithuania	1,326.88	6.43	0.30	
88	Colombia	1,317.32	6.39	0.29	
89	Albania	1,291.61	6.26	0.28	
90	Dominican Republic	1,289.76	6.25	0.28	
91	Viet Nam	1,129.09	5.46	0.27	
92	El Salvador	931.78	4.49	0.26	
93	Honduras	918.30	4.43	0.25	
94	Zambia	849.70	4.09	0.24	
95	India	847.63	4.08	0.24	
96	Morocco	770.75	3.70	0.23	
97	Indonesia	752.63	3.61	0.22	
98	Philippines	729.32	3.50	0.21	
99	Bolivia, Plurinational St.	715.76	3.43	0.20	
100	Mozambique	703.30	3.37	0.20	
101	Zimbabwe	700.00	3.36	0.19	
102	Nicaragua	651.62	3.12	0.18	
103	Namibia	616.38	2.94	0.17	
104	Sri Lanka	558.03	2.66	0.16	○
105	Guatemala	551.90	2.63	0.15	
106	Pakistan	538.94	2.56	0.15	
107	Ghana	448.54	2.12	0.14	
108	Côte d'Ivoire	302.68	1.40	0.13	
109	Cameroon	299.35	1.39	0.12	
110	Bangladesh	292.78	1.36	0.11	
111	Angola	288.02	1.33	0.11	
112	Yemen	250.24	1.15	0.10	
113	Senegal	236.02	1.08	0.09	○
114	Sudan	192.70	0.86	0.08	
115	Kenya	188.63	0.84	0.07	○
116	Botswana	183.25	0.82	0.07	○
117	Nigeria	166.39	0.73	0.06	○
118	Myanmar	151.57	0.66	0.05	
119	Tanzania, United Rep.	114.71	0.48	0.04	○
120	Nepal	108.63	0.45	0.03	○
121	Cambodia	73.58	0.28	0.02	○
122	Ethiopia	60.91	0.22	0.02	○
123	Togo	22.56	0.03	0.01	○
124	Benin	16.92	0.00	0.00	○
n/a	Barbados	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	

SOURCE: International Energy Agency, *World Energy Balances* online data service

NOTE: ● indicates a strength; ○ a weakness.

3.2.2 Logistics performance

Logistics Performance Index | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Singapore	4.13	100.00	1.00	●
2	Hong Kong (China)	4.12	99.60	0.99	●
3	Finland	4.05	96.83	0.99	
4	Germany	4.03	96.03	0.98	●
5	Denmark	4.02	95.63	0.96	
5	Netherlands	4.02	95.63	0.96	
7	Belgium	3.98	94.05	0.96	●
8	Japan	3.93	92.06	0.94	
8	United States of America	3.93	92.06	0.94	
10	United Kingdom	3.90	90.87	0.93	
11	Austria	3.89	90.48	0.93	●
12	Canada	3.85	88.89	0.90	
12	France	3.85	88.89	0.90	●
12	Sweden	3.85	88.89	0.90	
15	Luxembourg	3.82	87.70	0.90	
16	Switzerland	3.80	86.90	0.89	
17	United Arab Emirates	3.78	86.11	0.88	
18	Australia	3.73	84.13	0.88	
19	Korea, Rep.	3.70	82.94	0.86	
19	Spain	3.70	82.94	0.86	
21	Norway	3.68	82.14	0.85	
22	Italy	3.67	81.75	0.84	
22	South Africa	3.67	81.75	0.84	●
24	China	3.52	75.79	0.82	
24	Ireland	3.52	75.79	0.82	
26	Turkey	3.51	75.40	0.82	●
27	Portugal	3.50	75.00	0.81	
28	Malaysia	3.49	74.60	0.80	
29	Poland	3.43	72.22	0.79	
30	New Zealand	3.42	71.83	0.79	
31	Israel (2010)	3.41	71.43	0.78	
32	Iceland	3.39	70.63	0.77	
33	Qatar	3.32	67.86	0.76	
34	Slovenia	3.29	66.67	0.76	
35	Cyprus	3.24	64.68	0.75	
36	Bulgaria	3.21	63.49	0.74	
37	Saudi Arabia	3.18	62.30	0.73	
37	Thailand	3.18	62.30	0.73	
39	Chile	3.17	61.90	0.71	
39	Hungary	3.17	61.90	0.71	
39	Tunisia	3.17	61.90	0.71	
42	Croatia	3.16	61.51	0.69	
42	Malta	3.16	61.51	0.69	
44	Czech Republic	3.14	60.71	0.68	
45	Brazil	3.13	60.32	0.68	
46	India	3.08	58.33	0.67	
47	Mexico	3.06	57.54	0.66	
48	Argentina	3.05	57.14	0.65	
48	Bahrain	3.05	57.14	0.65	
50	Morocco	3.03	56.35	0.63	
50	Slovakia	3.03	56.35	0.63	
52	Philippines	3.02	55.95	0.63	
53	Romania	3.00	55.16	0.61	
53	Viet Nam	3.00	55.16	0.61	
55	Bosnia and Herzegovina	2.99	54.76	0.60	
56	Egypt	2.98	54.37	0.59	
56	Uruguay	2.98	54.37	0.59	
58	Lithuania	2.95	53.17	0.58	
59	Indonesia	2.94	52.78	0.57	
59	Peru	2.94	52.78	0.57	
61	Panama	2.93	52.38	0.56	
62	Oman	2.89	50.79	0.54	
62	Yemen	2.89	50.79	0.54	●
64	Colombia	2.87	50.00	0.54	
65	Estonia	2.86	49.60	0.53	
66	Benin	2.85	49.21	0.51	●
66	Ukraine	2.85	49.21	0.51	
68	Botswana	2.84	48.81	0.51	
69	Greece	2.83	48.41	0.49	
69	Kuwait	2.83	48.41	0.49	
69	Pakistan	2.83	48.41	0.49	
72	Mauritius	2.82	48.02	0.47	
72	Uganda (2010)	2.82	48.02	0.47	
74	Malawi	2.81	47.62	0.46	
75	Guatemala	2.80	47.22	0.45	
75	Serbia	2.80	47.22	0.45	
77	Latvia	2.78	46.43	0.44	
78	Albania	2.77	46.03	0.43	
78	Georgia	2.77	46.03	0.43	
80	Ecuador	2.76	45.63	0.42	
81	Costa Rica	2.75	45.24	0.40	
81	Sri Lanka	2.75	45.24	0.40	
83	Bangladesh (2010)	2.74	44.84	0.40	
84	Côte d'Ivoire	2.73	44.44	0.39	
85	Madagascar	2.72	44.05	0.38	
86	Dominican Republic	2.70	43.25	0.38	
87	Kazakhstan	2.69	42.86	0.36	
87	Niger	2.69	42.86	0.36	
89	Namibia	2.65	41.27	0.35	
89	Tanzania, United Rep.	2.65	41.27	0.35	
91	Belarus	2.61	39.68	0.33	
91	Bolivia, Plurinational St.	2.61	39.68	0.33	
93	El Salvador	2.60	39.29	0.32	
94	Lebanon	2.58	38.49	0.30	
94	Russian Federation	2.58	38.49	0.30	
94	Togo	2.58	38.49	0.30	
97	Armenia	2.56	37.70	0.27	
97	Cambodia	2.56	37.70	0.27	
97	Jordan	2.56	37.70	0.27	
97	TFYR of Macedonia	2.56	37.70	0.27	○
101	Zimbabwe	2.55	37.30	0.26	
102	Nicaragua (2010)	2.54	36.90	0.26	
103	Cameroon	2.53	36.51	0.24	
103	Honduras	2.53	36.51	0.24	
105	Bhutan	2.52	36.11	0.24	
106	Ghana	2.51	35.71	0.23	
107	Iran, Islamic Rep.	2.49	34.92	0.21	
107	Senegal	2.49	34.92	0.21	
107	Venezuela, Bolivarian Rep.	2.49	34.92	0.21	
110	Azerbaijan	2.48	34.52	0.18	
110	Guinea	2.48	34.52	0.18	
110	Paraguay	2.48	34.52	0.18	
113	Gambia	2.46	33.73	0.17	
113	Uzbekistan	2.46	33.73	0.17	
115	Montenegro	2.45	33.33	0.15	○
115	Nigeria	2.45	33.33	0.15	
117	Kenya	2.43	32.54	0.15	
118	Fiji	2.42	32.14	0.13	○
118	Jamaica	2.42	32.14	0.13	○
120	Algeria	2.41	31.75	0.13	
121	Myanmar	2.37	30.16	0.12	
122	Kyrgyzstan	2.35	29.37	0.11	
123	Guyana	2.33	28.57	0.10	○
123	Moldova, Rep.	2.33	28.57	0.10	○
125	Burkina Faso	2.32	28.17	0.09	
126	Mozambique (2010)	2.29	26.98	0.08	
127	Angola	2.28	26.59	0.06	
127	Tajikistan	2.28	26.59	0.06	
127	Zambia (2010)	2.28	26.59	0.06	○
130	Mali (2010)	2.27	26.19	0.04	
130	Rwanda	2.27	26.19	0.04	○
132	Mongolia	2.25	25.40	0.04	○
133	Ethiopia	2.24	25.00	0.02	○
133	Lesotho	2.24	25.00	0.02	○
135	Sudan	2.10	19.44	0.01	○
136	Nepal	2.04	17.06	0.01	○
137	Burundi	1.61	0.00	0.00	○
n/a	Barbados	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	

SOURCE: World Bank and Turku School of Economics, *Logistics Performance Index 2014*; Arvis et al., 2014, *Connecting to Compete 2014: Trade Logistics in the Global Economy*

NOTE: ● indicates a strength; ○ a weakness.

3.2.3 Gross capital formation

Gross capital formation (% of GDP) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Mongolia	56.46	100.00	1.00	●
2	China	48.89	84.09	0.99	●
3	Mozambique	48.72	83.74	0.99	●
4	Bhutan	47.69	81.58	0.98	●
5	Algeria	43.33	72.41	0.97	●
6	Belarus	39.50	64.37	0.96	●
7	Lesotho	38.94	63.20	0.96	●
8	Botswana	38.30	61.83	0.95	●
9	Seychelles	38.02	61.26	0.94	●
10	Tanzania, United Rep.	36.66	58.39	0.94	●
11	Iran, Islamic Rep.	36.19	57.41	0.93	●
12	Niger	36.01	57.03	0.92	●
13	Cabo Verde	35.78	56.54	0.91	●
14	India	35.02	54.94	0.91	●
15	Indonesia	34.58	54.03	0.90	●
16	Morocco	34.30	53.43	0.89	●
17	Sri Lanka	33.71	52.21	0.89	●
18	Ethiopia	32.58	49.83	0.88	●
19	Nepal	31.78	48.14	0.87	●
20	Uzbekistan	30.80	46.09	0.87	●
21	Senegal	30.29	45.01	0.86	●
22	Thailand	30.03	44.46	0.85	
23	Nicaragua	29.92	44.23	0.84	●
24	Qatar	29.51	43.38	0.84	
25	Panama	28.56	41.38	0.83	●
26	Australia	28.49	41.23	0.82	
27	Saudi Arabia	28.29	40.81	0.82	
28	Ecuador	28.17	40.57	0.81	●
29	Oman	27.97	40.14	0.80	●
30	Peru	27.89	39.98	0.79	●
31	Bangladesh	27.64	39.45	0.79	●
32	Jordan	27.31	38.76	0.78	●
33	Uganda	27.21	38.53	0.77	●
34	Malaysia	27.11	38.33	0.77	
35	Estonia	26.99	38.09	0.76	
36	Kyrgyzstan	26.97	38.03	0.75	●
37	Korea, Rep.	26.84	37.75	0.74	
38	Singapore	26.40	36.84	0.74	
39	Norway	26.33	36.69	0.73	
40	Hong Kong (China)	26.32	36.68	0.72	
41	Romania	26.06	36.13	0.72	
42	Bahrain	25.94	35.88	0.71	
43	Zimbabwe	25.91	35.81	0.70	●
44	Zambia	25.68	35.32	0.70	●
45	Latvia	25.68	35.32	0.69	
46	Chile	25.67	35.30	0.68	
47	Russian Federation	25.40	34.73	0.67	
48	Guyana	25.33	34.58	0.67	●
49	Mauritius	25.07	34.04	0.66	
50	United Arab Emirates	24.85	33.59	0.65	
51	Honduras	24.71	33.28	0.65	●
52	Azerbaijan	24.67	33.20	0.64	
53	Nigeria	24.60	33.06	0.63	●
54	Tunisia	24.56	32.98	0.62	
55	Madagascar	24.48	32.81	0.62	●
56	Armenia	24.45	32.75	0.61	
57	Canada	24.28	32.39	0.60	
58	Argentina	24.25	32.32	0.60	
59	Rwanda	24.20	32.21	0.59	
60	Mexico	24.17	32.15	0.58	
61	Moldova, Rep.	24.15	32.11	0.57	
62	Viet Nam	24.00	31.79	0.57	
63	Venezuela, Bolivarian Rep.	23.95	31.69	0.56	
64	Colombia	23.73	31.24	0.55	
65	Georgia	23.56	30.87	0.55	
66	Cambodia	23.50	30.75	0.54	●
67	Albania	23.42	30.58	0.53	
68	Fiji	23.35	30.44	0.52	
69	Myanmar	23.32	30.37	0.52	●
70	Kazakhstan	22.99	29.67	0.51	
71	Czech Republic	22.66	28.99	0.50	
72	Mali	22.25	28.11	0.50	
73	Malawi	22.00	27.59	0.49	●
74	Austria	21.90	27.38	0.48	○
75	Luxembourg	21.34	26.21	0.48	
76	Costa Rica	21.33	26.18	0.47	
77	Belgium	21.26	26.04	0.46	○
78	Jamaica	21.19	25.89	0.45	
79	Bulgaria	21.16	25.83	0.45	
80	Switzerland	20.98	25.45	0.44	○
81	Montenegro	20.98	25.45	0.43	
82	Kenya	20.93	25.34	0.43	
83	Namibia	20.84	25.17	0.42	
84	Japan	20.68	24.81	0.41	
85	Croatia	20.53	24.51	0.40	
86	Togo	20.52	24.48	0.40	
87	New Zealand	20.39	24.21	0.39	○
88	Ghana	20.35	24.12	0.38	
89	Sudan	20.29	24.00	0.38	●
90	Poland	20.16	23.72	0.37	
91	Serbia	20.05	23.50	0.36	
92	Turkey	20.01	23.41	0.35	
93	Uruguay	19.68	22.72	0.35	
94	France	19.58	22.52	0.34	○
95	Burundi	19.57	22.49	0.33	
96	United States of America	19.37	22.07	0.33	○
97	Cameroon	19.33	21.98	0.32	
98	Bolivia, Plurinational St.	19.29	21.90	0.31	
99	South Africa	19.22	21.76	0.30	○
100	Guinea	19.22	21.75	0.30	
101	Brazil	19.17	21.64	0.29	
102	Finland	19.02	21.33	0.28	○
103	Benin	18.97	21.22	0.28	
104	Lebanon	18.80	20.87	0.27	
105	Sweden	18.68	20.62	0.26	○
106	Israel	18.61	20.48	0.26	○
107	Philippines	18.59	20.43	0.25	
108	Lithuania	18.12	19.44	0.24	○
109	Slovakia	18.03	19.25	0.23	○
110	Spain	18.01	19.22	0.23	○
111	Côte d'Ivoire	17.88	18.94	0.22	
112	Germany	17.56	18.28	0.21	○
113	Italy	17.42	17.98	0.21	○
114	Denmark	17.41	17.95	0.20	○
115	Gambia	17.29	17.70	0.19	
116	Burkina Faso	17.12	17.34	0.18	
117	Hungary	16.73	16.53	0.18	○
118	Tajikistan	16.61	16.28	0.17	
119	Paraguay	16.56	16.17	0.16	
120	Kuwait	16.43	15.89	0.16	○
121	Ukraine	16.20	15.42	0.15	○
122	Slovenia	16.18	15.37	0.14	○
123	Bosnia and Herzegovina	16.08	15.15	0.13	○
124	Netherlands	15.66	14.28	0.13	○
125	Egypt	15.58	14.11	0.12	○
126	Dominican Republic	15.27	13.45	0.11	○
127	Brunei Darussalam	15.20	13.31	0.11	○
128	Portugal	14.74	12.34	0.10	○
129	Guatemala	14.56	11.96	0.09	
130	Barbados	14.26	11.33	0.09	○
131	Pakistan	14.22	11.26	0.08	○
132	United Kingdom	14.04	10.86	0.07	○
133	El Salvador	14.03	10.85	0.06	○
134	Trinidad and Tobago	13.99	10.76	0.06	○
135	Angola	13.84	10.44	0.05	
136	Iceland	13.59	9.93	0.04	○
137	Greece	13.19	9.09	0.04	○
138	Malta	12.62	7.89	0.03	○
139	Ireland	11.01	4.50	0.02	○
140	Cyprus	10.46	3.34	0.01	○
141	Swaziland	10.45	3.32	0.01	○
142	Yemen	8.87	0.00	0.00	○
n/a	TFYR of Macedonia	n/a	n/a	n/a	

SOURCE: International Monetary Fund, *World Economic Outlook 2013* database

NOTE: ● indicates a strength; ○ a weakness.

3.3.1 GDP per unit of energy use

GDP per unit of energy use (2005 PPP$ per kg of oil equivalent) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	21.19	100.00	1.00	●
2	Colombia	13.16	61.36	0.99	●
3	Peru	12.90	60.14	0.98	●
4	Ireland (2012)	12.63	58.81	0.98	●
5	Switzerland (2012)	12.35	57.45	0.97	
6	Panama	12.11	56.30	0.96	●
7	Botswana	11.93	55.47	0.95	●
8	Dominican Republic	11.78	54.73	0.94	●
9	Albania	11.63	54.00	0.93	●
10	Malta	11.24	52.11	0.93	●
11	Costa Rica	10.91	50.52	0.92	●
12	United Kingdom (2012)	10.75	49.79	0.91	
13	Denmark (2012)	10.60	49.08	0.90	
14	Uruguay	10.12	46.75	0.89	●
15	Italy (2012)	10.11	46.70	0.89	●
16	Portugal (2012)	10.06	46.46	0.88	●
17	Sri Lanka	9.87	45.55	0.87	●
18	Spain (2012)	9.84	45.41	0.86	
19	Austria (2012)	9.32	42.89	0.85	
20	Tunisia	9.28	42.68	0.85	●
21	Germany (2012)	9.26	42.60	0.84	
22	Greece (2012)	9.08	41.75	0.83	
23	Israel (2012)	8.95	41.13	0.82	
24	Japan (2012)	8.88	40.78	0.81	
25	Cyprus	8.86	40.67	0.80	
26	Turkey (2012)	8.79	40.33	0.80	●
27	Namibia	8.76	40.18	0.79	●
28	Luxembourg (2012)	8.70	39.93	0.78	
29	El Salvador	8.70	39.89	0.77	●
30	Ecuador	8.67	39.78	0.76	●
31	Lebanon	8.65	39.67	0.76	
32	Philippines	8.53	39.10	0.75	●
33	Chile (2012)	8.51	39.00	0.74	
34	Croatia	8.33	38.15	0.73	
35	Morocco	8.31	38.01	0.72	●
35	Singapore	8.31	38.01	0.72	
37	Norway (2012)	8.01	36.57	0.71	
38	Mexico (2012)	7.92	36.18	0.70	
39	Argentina	7.89	36.00	0.69	
40	Netherlands (2012)	7.84	35.79	0.68	
41	France (2012)	7.78	35.49	0.67	
42	Angola	7.55	34.39	0.67	●
43	Bangladesh	7.55	34.36	0.66	●
44	Brazil	7.49	34.06	0.65	
45	Lithuania	7.42	33.74	0.64	
46	Poland (2012)	7.30	33.20	0.63	
47	Hungary (2012)	7.22	32.76	0.63	
48	Yemen	7.06	32.00	0.62	●
49	Slovenia (2012)	7.05	31.98	0.61	
50	Latvia	7.00	31.72	0.60	
51	Slovakia (2012)	6.91	31.30	0.59	
52	Sweden (2012)	6.85	31.00	0.59	○
53	Paraguay	6.57	29.66	0.58	●
54	Algeria	6.57	29.66	0.57	●
55	Romania	6.51	29.37	0.56	
56	Nicaragua	6.50	29.33	0.55	●
57	Azerbaijan	6.49	29.27	0.54	
58	Belgium (2012)	6.35	28.62	0.54	
59	United States of America (2012)	6.34	28.56	0.53	
60	Guatemala	6.32	28.44	0.52	
61	Senegal	6.31	28.40	0.51	
62	TFYR of Macedonia	6.25	28.12	0.50	
63	Cameroon	6.21	27.91	0.50	●
64	Jamaica	6.16	27.68	0.49	
65	New Zealand (2012)	6.13	27.57	0.48	○
66	Australia (2012)	6.12	27.51	0.47	○
67	Georgia	6.11	27.46	0.46	
68	Tajikistan	5.98	26.81	0.46	
69	Bolivia, Plurinational St.	5.90	26.42	0.44	
69	Egypt	5.90	26.42	0.44	
71	Honduras	5.85	26.19	0.43	
72	Armenia	5.84	26.14	0.42	
73	Czech Republic (2012)	5.83	26.12	0.41	
74	Montenegro	5.61	25.06	0.41	
75	Cambodia	5.59	24.93	0.40	
76	Sudan	5.51	24.57	0.39	●
77	Malaysia	5.39	23.97	0.38	○
78	Myanmar	5.34	23.72	0.37	●
79	Korea, Rep. (2012)	5.32	23.64	0.37	○
80	India	5.31	23.57	0.36	
81	Finland (2012)	5.14	22.80	0.35	○
82	Pakistan	5.05	22.35	0.34	
83	United Arab Emirates	5.05	22.34	0.33	○
84	Canada (2012)	4.97	21.96	0.33	○
85	Brunei Darussalam	4.84	21.35	0.32	
86	Indonesia	4.75	20.88	0.31	
87	Venezuela, Bolivarian Rep.	4.69	20.64	0.30	
88	Jordan	4.61	20.23	0.29	
89	Bulgaria	4.59	20.12	0.28	
90	Thailand	4.45	19.48	0.28	
91	Serbia	4.41	19.26	0.27	
92	Estonia (2012)	4.38	19.14	0.26	○
93	Qatar	4.38	19.13	0.25	
94	Viet Nam	4.32	18.85	0.24	
95	Belarus	4.24	18.43	0.24	
96	Kuwait	4.15	18.03	0.23	
97	Bosnia and Herzegovina	4.02	17.40	0.22	
98	Ghana	3.91	16.86	0.21	
99	Iran, Islamic Rep.	3.90	16.79	0.20	
100	Kyrgyzstan	3.77	16.17	0.20	
101	China	3.65	15.63	0.19	
102	South Africa	3.46	14.71	0.18	○
103	Benin	3.45	14.67	0.17	
104	Mongolia	3.25	13.68	0.16	
105	Nepal	3.24	13.65	0.15	
106	Saudi Arabia	3.22	13.53	0.15	○
107	Moldova, Rep.	3.18	13.34	0.14	○
108	Kenya	3.11	13.02	0.13	
109	Nigeria	3.07	12.82	0.12	
110	Tanzania, United Rep.	2.89	11.94	0.11	
111	Bahrain	2.88	11.92	0.11	○
112	Russian Federation	2.88	11.89	0.10	○
113	Oman	2.85	11.76	0.09	○
114	Côte d'Ivoire	2.84	11.69	0.08	○
115	Kazakhstan	2.45	9.85	0.07	○
116	Ethiopia	2.44	9.77	0.07	
117	Ukraine	2.30	9.12	0.06	○
118	Zambia	2.28	9.01	0.05	○
119	Togo	2.06	7.97	0.04	○
120	Mozambique	2.02	7.76	0.03	○
121	Iceland (2012)	1.81	6.75	0.02	○
122	Uzbekistan	1.78	6.63	0.02	○
123	Trinidad and Tobago	1.43	4.90	0.01	○
124	Zimbabwe	0.41	0.00	0.00	○
n/a	Barbados	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	

SOURCE: International Energy Agency, *World Energy Balances* online data service

NOTE: ● indicates a strength; ○ a weakness.

3.3.2 Environmental performance

Environmental Performance Index | 2014

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Switzerland	87.67	87.67	1.00	●
2	Luxembourg	83.29	83.29	0.99	●
3	Australia	82.40	82.40	0.99	●
4	Singapore	81.78	81.78	0.98	
5	Czech Republic	81.47	81.47	0.97	●
6	Germany	80.47	80.47	0.96	●
7	Spain	79.79	79.79	0.96	●
8	Austria	78.32	78.32	0.95	●
9	Sweden	78.09	78.09	0.94	
10	Norway	78.04	78.04	0.94	
11	Netherlands	77.75	77.75	0.93	
12	United Kingdom	77.35	77.35	0.92	
13	Denmark	76.92	76.92	0.91	
14	Iceland	76.50	76.50	0.91	
15	Slovenia	76.43	76.43	0.90	
16	New Zealand	76.41	76.41	0.89	
17	Portugal	75.80	75.80	0.89	●
18	Finland	75.72	75.72	0.88	
19	Ireland	74.67	74.67	0.87	
20	Estonia	74.66	74.66	0.86	
21	Slovakia	74.45	74.45	0.86	●
22	Italy	74.36	74.36	0.85	
23	Greece	73.28	73.28	0.84	●
24	Canada	73.14	73.14	0.84	
25	United Arab Emirates	72.91	72.91	0.83	
26	Japan	72.35	72.35	0.82	
27	France	71.05	71.05	0.81	
28	Hungary	70.28	70.28	0.81	
29	Chile	69.93	69.93	0.80	
30	Poland	69.53	69.53	0.79	
31	Serbia	69.13	69.13	0.79	●
32	Belarus	67.69	67.69	0.78	
33	United States of America	67.52	67.52	0.77	
34	Malta	67.42	67.42	0.76	
35	Saudi Arabia	66.66	66.66	0.76	
36	Belgium	66.61	66.61	0.75	
37	Brunei Darussalam	66.49	66.49	0.74	
38	Cyprus	66.23	66.23	0.74	
39	Israel	65.78	65.78	0.73	
40	Latvia	64.05	64.05	0.72	
41	Bulgaria	64.01	64.01	0.71	
42	Kuwait	63.94	63.94	0.71	●
43	Korea, Rep.	63.79	63.79	0.70	
44	Qatar	63.03	63.03	0.69	
45	Croatia	62.23	62.23	0.69	
46	Armenia	61.67	61.67	0.68	
47	Lithuania	61.26	61.26	0.67	
48	Egypt	61.11	61.11	0.66	
49	Malaysia	59.31	59.31	0.66	
50	Tunisia	58.99	58.99	0.65	
51	Ecuador	58.54	58.54	0.64	
52	Costa Rica	58.53	58.53	0.64	
53	Jamaica	58.26	58.26	0.63	
54	Mauritius	58.09	58.09	0.62	
55	Panama	56.84	56.84	0.61	
56	Jordan	55.78	55.78	0.61	
57	Seychelles	55.56	55.56	0.60	
58	Montenegro	55.52	55.52	0.59	
59	Azerbaijan	55.47	55.47	0.59	
60	Mexico	55.03	55.03	0.58	
61	Turkey	54.91	54.91	0.57	
62	Albania	54.73	54.73	0.56	
63	Sri Lanka	53.88	53.88	0.56	
64	Uruguay	53.61	53.61	0.55	
65	South Africa	53.51	53.51	0.54	
66	Russian Federation	53.45	53.45	0.54	
67	Moldova, Rep.	53.36	53.36	0.53	
68	Dominican Republic	53.24	53.24	0.52	
69	Fiji	53.08	53.08	0.51	
70	Brazil	52.97	52.97	0.51	
71	Thailand	52.83	52.83	0.50	
72	Trinidad and Tobago	52.28	52.28	0.49	
73	Morocco	51.89	51.89	0.49	
74	Bahrain	51.83	51.83	0.48	
75	Iran, Islamic Rep.	51.08	51.08	0.47	
76	Kazakhstan	51.07	51.07	0.46	
77	Colombia	50.77	50.77	0.46	
78	Romania	50.52	50.52	0.45	
79	Bolivia, Plurinational St.	50.48	50.48	0.44	
80	TFYR of Macedonia	50.41	50.41	0.44	
81	Nicaragua	50.32	50.32	0.43	
82	Lebanon	50.15	50.15	0.42	
83	Algeria	50.08	50.08	0.41	●
84	Argentina	49.55	49.55	0.41	
85	Zimbabwe	49.54	49.54	0.40	
86	Ukraine	49.01	49.01	0.39	
87	Honduras	48.87	48.87	0.39	
88	Guatemala	48.06	48.06	0.38	
89	Oman	47.75	47.75	0.37	
90	Botswana	47.60	47.60	0.36	
91	Georgia	47.23	47.23	0.36	
92	Bhutan	46.86	46.86	0.35	
93	Bosnia and Herzegovina	45.79	45.79	0.34	
94	Barbados	45.50	45.50	0.34	
95	Peru	45.05	45.05	0.33	
96	Mongolia	44.67	44.67	0.32	
97	Indonesia	44.36	44.36	0.31	
98	Cabo Verde	44.07	44.07	0.31	
99	Philippines	44.02	44.02	0.30	
100	El Salvador	43.79	43.79	0.29	
101	Namibia	43.71	43.71	0.29	
102	Uzbekistan	43.23	43.23	0.28	
103	China	43.00	43.00	0.27	
104	Zambia	41.72	41.72	0.26	
105	Senegal	40.83	40.83	0.26	
106	Kyrgyzstan	40.63	40.63	0.25	
107	Burkina Faso	40.52	40.52	0.24	
108	Malawi	40.06	40.06	0.24	
109	Côte d'Ivoire	39.72	39.72	0.23	
110	Ethiopia	39.43	39.43	0.22	
111	Paraguay	39.25	39.25	0.21	
112	Nigeria	39.20	39.20	0.21	
113	Uganda	39.18	39.18	0.20	
114	Viet Nam	38.17	38.17	0.19	
115	Guyana	38.07	38.07	0.19	
116	Swaziland	37.35	37.35	0.18	
117	Nepal	37.00	37.00	0.17	
118	Kenya	36.99	36.99	0.16	
119	Cameroon	36.68	36.68	0.16	
120	Niger	36.28	36.28	0.15	
121	Tanzania, United Rep.	36.19	36.19	0.14	
122	Cambodia	35.44	35.44	0.14	
123	Rwanda	35.41	35.41	0.13	
124	Pakistan	34.58	34.58	0.12	
125	Benin	32.42	32.42	0.11	
126	Ghana	32.07	32.07	0.11	
127	Tajikistan	31.34	31.34	0.10	
128	India	31.23	31.23	0.09	○
129	Yemen	30.16	30.16	0.09	
130	Mozambique	29.97	29.97	0.08	
131	Gambia	29.30	29.30	0.07	
132	Angola	28.69	28.69	0.06	
133	Guinea	28.03	28.03	0.06	
134	Togo	27.91	27.91	0.05	○
135	Myanmar	27.44	27.44	0.04	
136	Madagascar	26.70	26.70	0.04	○
137	Burundi	25.78	25.78	0.03	
138	Bangladesh	25.61	25.61	0.02	○
139	Sudan	24.64	24.64	0.01	○
140	Lesotho	20.81	20.81	0.01	○
141	Mali	18.43	18.43	0.00	○
n/a	Hong Kong (China)	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	

SOURCE: Yale University and Columbia University *Environmental Performance Index 2014*

NOTE: ● indicates a strength; ○ a weakness.

3.3.3 ISO 14001 environmental certificates

ISO 14001 Environmental management systems—Requirements with guidance for use: Number of certificates issued (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Czech Republic	14.86	100.00	0.99	●
1	Romania	31.80	100.00	0.99	●
3	Spain	14.03	94.42	0.98	●
4	Bulgaria	13.58	91.41	0.98	●
5	Estonia	13.54	91.14	0.97	●
6	Slovakia	10.93	73.53	0.96	●
7	Italy	10.87	73.12	0.95	●
8	Lithuania	10.57	71.13	0.95	●
9	Serbia	10.50	70.63	0.94	●
10	Sweden	10.09	67.86	0.93	
11	Croatia	9.80	65.92	0.92	●
12	TFYR of Macedonia	9.43	63.46	0.91	●
13	Hungary	8.87	59.68	0.91	●
14	Denmark	8.43	56.71	0.90	
15	Switzerland	7.69	51.75	0.89	
16	China	7.47	50.24	0.88	
17	Slovenia	7.34	49.36	0.88	
18	Korea, Rep.	7.19	48.32	0.87	
19	United Kingdom	6.87	46.18	0.86	
20	Finland	6.75	45.38	0.85	
21	Latvia	6.43	43.22	0.84	
22	Japan	6.07	40.81	0.84	
23	Bosnia and Herzegovina	5.51	37.06	0.83	●
24	Singapore	5.12	34.40	0.82	
25	Portugal	4.85	32.57	0.81	
26	Thailand	4.70	31.60	0.80	
27	Bahrain	4.27	28.68	0.80	
28	Malaysia	3.85	25.88	0.79	
29	France	3.56	23.93	0.78	
30	United Arab Emirates	3.45	23.15	0.77	
31	Chile	3.41	22.88	0.77	
32	Austria	3.06	20.51	0.76	
33	Norway	3.01	20.18	0.75	
34	Netherlands	3.00	20.12	0.74	
35	Hong Kong (China)	2.90	19.46	0.73	
36	Colombia	2.90	19.45	0.73	
37	Israel	2.72	18.24	0.72	
38	Poland	2.54	17.05	0.71	
39	Belgium	2.47	16.56	0.70	
40	Greece	2.40	16.09	0.70	
41	Viet Nam	2.31	15.46	0.69	
42	Iceland	2.28	15.32	0.68	
43	Ireland	2.23	14.98	0.67	
44	Germany	2.22	14.89	0.66	
45	Montenegro	2.22	14.86	0.66	
46	Uruguay	2.18	14.63	0.65	
47	Australia	2.08	13.95	0.64	
48	Malta	2.06	13.78	0.63	
49	Argentina	1.72	11.55	0.63	
50	New Zealand	1.67	11.15	0.62	
51	South Africa	1.63	10.90	0.61	
52	Turkey	1.47	9.80	0.60	
53	Brazil	1.42	9.47	0.59	
54	Zimbabwe	1.40	9.33	0.59	●
55	Costa Rica	1.38	9.25	0.58	
56	Cyprus	1.37	9.16	0.57	
57	Philippines	1.34	8.96	0.56	
58	Luxembourg	1.22	8.14	0.55	
59	Canada	1.21	8.06	0.55	○
60	Swaziland	1.13	7.57	0.54	
61	Egypt	1.11	7.41	0.53	
62	Brunei Darussalam	1.11	7.41	0.52	
63	Jordan	1.10	7.33	0.52	
64	Ecuador	1.01	6.74	0.51	
65	Peru	0.91	6.09	0.50	
66	Indonesia	0.86	5.73	0.49	
67	Qatar	0.83	5.53	0.48	
68	Bolivia, Plurinational St.	0.81	5.36	0.48	
69	Tunisia	0.77	5.12	0.47	
70	Albania	0.73	4.87	0.46	
71	Oman	0.73	4.85	0.45	
72	Fiji	0.70	4.68	0.45	
73	Trinidad and Tobago	0.68	4.54	0.44	
74	Kuwait	0.66	4.40	0.43	
75	Mauritius	0.65	4.32	0.42	
76	Iran, Islamic Rep.	0.61	4.06	0.41	
77	Mexico	0.61	4.04	0.41	
78	Azerbaijan	0.59	3.88	0.40	
79	Moldova, Rep.	0.58	3.86	0.39	
80	Mozambique	0.58	3.83	0.38	
81	Barbados	0.57	3.81	0.38	
82	Zambia	0.51	3.35	0.37	
83	Ukraine	0.50	3.31	0.36	
84	Cabo Verde	0.46	3.06	0.35	
85	Honduras	0.45	2.98	0.34	
86	Russian Federation	0.44	2.89	0.34	
87	Kenya	0.43	2.81	0.33	
88	Malawi	0.43	2.80	0.32	
89	Algeria	0.41	2.73	0.31	
90	Tanzania, United Rep.	0.41	2.70	0.30	
91	Jamaica	0.41	2.67	0.30	
92	Côte d'Ivoire	0.38	2.47	0.29	
93	Namibia	0.36	2.34	0.28	
94	United States of America	0.35	2.30	0.27	○
95	Dominican Republic	0.32	2.08	0.27	
96	Botswana	0.31	2.02	0.26	
97	Niger	0.31	2.01	0.25	
98	El Salvador	0.30	1.98	0.24	
99	Paraguay	0.30	1.94	0.23	
100	Togo	0.29	1.90	0.23	
101	Panama	0.28	1.85	0.22	
102	Cambodia	0.27	1.78	0.21	
103	Morocco	0.27	1.73	0.20	
104	Senegal	0.27	1.73	0.20	
105	Guinea	0.25	1.62	0.19	
106	Lebanon	0.24	1.55	0.18	○
107	Venezuela, Bolivarian Rep.	0.23	1.51	0.17	
108	Nicaragua	0.23	1.47	0.16	
109	Cameroon	0.22	1.41	0.16	
110	Saudi Arabia	0.21	1.35	0.15	○
111	Armenia	0.21	1.32	0.14	○
112	Ghana	0.21	1.32	0.13	
113	Belarus	0.20	1.28	0.13	○
114	Guatemala	0.19	1.24	0.12	
115	Guyana	0.16	1.03	0.11	
116	Uganda	0.16	1.00	0.10	○
117	Georgia	0.15	0.96	0.09	○
118	Rwanda	0.13	0.83	0.09	○
119	Mongolia	0.13	0.83	0.08	○
120	Benin	0.13	0.80	0.07	
121	Burkina Faso	0.12	0.76	0.06	○
122	Nigeria	0.10	0.60	0.05	○
123	Madagascar	0.09	0.57	0.05	○
124	Mali	0.06	0.32	0.04	
125	Myanmar	0.05	0.27	0.03	
126	Sudan	0.05	0.25	0.02	○
127	Angola	0.03	0.16	0.02	○
128	Yemen (2010)	0.02	0.05	0.01	○
129	Ethiopia	0.01	0.00	0.00	○
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: International Organization for Standardization, *The ISO Survey of Certifications, 2012*; International Monetary Fund *World Economic Outlook 2013* (2010–12)

NOTE: ● indicates a strength; ○ a weakness.

4.1.1 Ease of getting credit

Ease of getting credit (distance to frontier) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank		
1	Malaysia	100.00	100.00	0.99	●	
1	United Kingdom	100.00	100.00	0.99	●	
3	Australia	93.75	93.75	0.92		
3	Georgia	93.75	93.75	0.92	●	
3	Hong Kong (China)	93.75	93.75	0.92		
3	Latvia	93.75	93.75	0.92	●	
3	Montenegro	93.75	93.75	0.92	●	
3	New Zealand	93.75	93.75	0.92		
3	Poland	93.75	93.75	0.92	●	
3	Singapore	93.75	93.75	0.92		
3	TFYR of Macedonia	93.75	93.75	0.92	●	
3	United States of America	93.75	93.75	0.92		
13	Albania	87.50	87.50	0.82	●	
13	Guatemala	87.50	87.50	0.82	●	
13	Honduras	87.50	87.50	0.82	●	
13	Ireland	87.50	87.50	0.82		
13	Israel	87.50	87.50	0.82		
13	Kenya	87.50	87.50	0.82	●	
13	Korea, Rep.	87.50	87.50	0.82		
13	Kyrgyzstan	87.50	87.50	0.82	●	
13	Moldova, Rep.	87.50	87.50	0.82		
13	Nigeria	87.50	87.50	0.82	●	
13	Romania	87.50	87.50	0.82	●	
13	Rwanda	87.50	87.50	0.82	●	
13	Ukraine	87.50	87.50	0.82	●	
13	Zambia	87.50	87.50	0.82	●	
27	Austria	81.25	81.25	0.73		
27	Bulgaria	81.25	81.25	0.73		
27	Canada	81.25	81.25	0.73		
27	Denmark	81.25	81.25	0.73		
27	Germany	81.25	81.25	0.73		
27	Ghana	81.25	81.25	0.73	●	
27	India	81.25	81.25	0.73		
27	Japan	81.25	81.25	0.73		
27	Lithuania	81.25	81.25	0.73		
27	Peru	81.25	81.25	0.73	●	
27	South Africa	81.25	81.25	0.73		
27	Switzerland	81.25	81.25	0.73		
27	Trinidad and Tobago	81.25	81.25	0.73	●	
40	Armenia	75.00	75.00	0.64		
40	Cambodia	75.00	75.00	0.64	●	
40	Croatia	75.00	75.00	0.64		
40	Estonia	75.00	75.00	0.64		
40	Finland	75.00	75.00	0.64		
40	Iceland	75.00	75.00	0.64		
40	Mauritius	75.00	75.00	0.64		
40	Mexico	75.00	75.00	0.64		
40	Serbia	75.00	75.00	0.64		
40	Slovakia	75.00	75.00	0.64		
40	Sweden	75.00	75.00	0.64		
40	Uganda	75.00	75.00	0.64	●	
40	Viet Nam	75.00	75.00	0.64		
53	Azerbaijan	68.75	68.75	0.53		
53	Brunei Darussalam	68.75	68.75	0.53		
53	Chile	68.75	68.75	0.53		
53	Cyprus	68.75	68.75	0.53		
53	Czech Republic	68.75	68.75	0.53		
53	El Salvador	68.75	68.75	0.53		
53	Fiji	68.75	68.75	0.53		
53	France	68.75	68.75	0.53		
53	Hungary	68.75	68.75	0.53		
53	Mongolia	68.75	68.75	0.53		
53	Namibia	68.75	68.75	0.53		
53	Nepal	68.75	68.75	0.53	●	
53	Panama	68.75	68.75	0.53		
53	Saudi Arabia	68.75	68.75	0.53		
53	Spain	68.75	68.75	0.53		
53	Swaziland	68.75	68.75	0.53		
69	Argentina	62.50	62.50	0.44		
69	Belgium	62.50	62.50	0.44		○
69	Bosnia and Herzegovina	62.50	62.50	0.44		
69	Botswana	62.50	62.50	0.44		
69	China	62.50	62.50	0.44		
69	Colombia	62.50	62.50	0.44		
69	Netherlands	62.50	62.50	0.44		○
69	Norway	62.50	62.50	0.44		○
69	Pakistan	62.50	62.50	0.44		
69	Sri Lanka	62.50	62.50	0.44		
69	Thailand	62.50	62.50	0.44		
69	Uruguay	62.50	62.50	0.44		
81	Bangladesh	56.25	56.25	0.34		
81	Barbados	56.25	56.25	0.34		
81	Costa Rica	56.25	56.25	0.34		
81	Dominican Republic	56.25	56.25	0.34		
81	Ecuador	56.25	56.25	0.34		
81	Egypt	56.25	56.25	0.34		
81	Greece	56.25	56.25	0.34		
81	Indonesia	56.25	56.25	0.34		
81	Iran, Islamic Rep.	56.25	56.25	0.34		
81	Kazakhstan	56.25	56.25	0.34		
81	Oman	56.25	56.25	0.34		
81	Paraguay	56.25	56.25	0.34		
81	Philippines	56.25	56.25	0.34		
81	Turkey	56.25	56.25	0.34		
81	United Arab Emirates	56.25	56.25	0.34		
96	Belarus	50.00	50.00	0.23		
96	Bhutan	50.00	50.00	0.23		
96	Brazil	50.00	50.00	0.23		
96	Cabo Verde	50.00	50.00	0.23		
96	Cameroon	50.00	50.00	0.23		
96	Ethiopia	50.00	50.00	0.23		
96	Italy	50.00	50.00	0.23		○
96	Jamaica	50.00	50.00	0.23		
96	Lebanon	50.00	50.00	0.23		
96	Morocco	50.00	50.00	0.23		
96	Nicaragua	50.00	50.00	0.23		
96	Portugal	50.00	50.00	0.23		○
96	Russian Federation	50.00	50.00	0.23		○
96	Slovenia	50.00	50.00	0.23		○
96	Tunisia	50.00	50.00	0.23		
96	Zimbabwe	50.00	50.00	0.23		
112	Algeria	43.75	43.75	0.10		
112	Angola	43.75	43.75	0.10		
112	Bahrain	43.75	43.75	0.10		○
112	Benin	43.75	43.75	0.10		
112	Bolivia, Plurinational St.	43.75	43.75	0.10		○
112	Burkina Faso	43.75	43.75	0.10		
112	Côte d'Ivoire	43.75	43.75	0.10		
112	Kuwait	43.75	43.75	0.10		○
112	Malawi	43.75	43.75	0.10		
112	Mali	43.75	43.75	0.10		
112	Mozambique	43.75	43.75	0.10		
112	Niger	43.75	43.75	0.10		
112	Qatar	43.75	43.75	0.10		○
112	Senegal	43.75	43.75	0.10		○
112	Tanzania, United Rep.	43.75	43.75	0.10		
112	Togo	43.75	43.75	0.10		
112	Uzbekistan	43.75	43.75	0.10		
112	Venezuela, Bolivarian Rep.	43.75	43.75	0.10		
130	Guinea	37.50	37.50	0.08		
130	Lesotho	37.50	37.50	0.08		○
130	Tajikistan	37.50	37.50	0.08		
133	Gambia	31.25	31.25	0.07		○
134	Burundi	25.00	25.00	0.01		○
134	Guyana	25.00	25.00	0.01		○
134	Jordan	25.00	25.00	0.01		○
134	Luxembourg	25.00	25.00	0.01		○
134	Myanmar	25.00	25.00	0.01		
134	Seychelles	25.00	25.00	0.01		○
134	Sudan	25.00	25.00	0.01		○
134	Yemen	25.00	25.00	0.01		○
142	Madagascar	18.75	18.75	0.00		○
142	Malta	18.75	18.75	0.00		○

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

4.1.2 Domestic credit to private sector

Domestic credit to private sector (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Cyprus	302.25	100.00	1.00	●
2	Denmark	205.79	67.60	0.99	●
3	Netherlands	200.24	65.73	0.99	●
4	Hong Kong (China)	198.07	65.00	0.98	
5	United States of America	192.42	63.10	0.97	
6	Spain	188.83	61.89	0.96	●
7	Ireland	186.12	60.99	0.96	●
8	Portugal	184.16	60.33	0.95	●
9	United Kingdom	178.72	58.50	0.94	
10	Japan	176.72	57.83	0.94	
11	Switzerland	176.14	57.63	0.93	
12	Luxembourg	165.38	54.02	0.92	
13	South Africa	151.07	49.21	0.91	●
14	New Zealand (2010)	149.03	48.53	0.91	
15	Korea, Rep.	147.97	48.17	0.90	
16	Thailand	147.61	48.05	0.89	●
17	Sweden	138.47	44.98	0.89	
18	China	131.60	42.67	0.88	
19	Canada (2008)	128.25	41.54	0.87	
20	Malta	127.90	41.42	0.87	
21	Italy	124.49	40.28	0.86	●
22	Australia	123.32	39.89	0.85	
23	Greece	120.71	39.01	0.84	●
24	Singapore	120.57	38.96	0.84	
25	Malaysia	118.23	38.18	0.83	
26	Austria	116.98	37.76	0.82	
27	France	115.96	37.41	0.82	
28	Viet Nam	104.30	33.50	0.81	●
29	Germany	101.94	32.70	0.80	
30	Mauritius	100.72	32.29	0.79	
31	Finland	98.24	31.46	0.79	
32	Iceland	96.78	30.97	0.78	
33	Lebanon	92.20	29.43	0.77	●
34	Belgium	92.17	29.42	0.77	
35	Panama	89.61	28.56	0.76	
36	Israel (2011)	89.46	28.51	0.75	
37	Slovenia	87.42	27.82	0.74	
38	Norway (2006)	86.19	27.41	0.74	
39	Barbados (2009)	80.57	25.52	0.73	
40	Estonia	79.26	25.08	0.72	
41	Fiji	78.41	24.80	0.72	●
42	Tunisia	75.18	23.71	0.71	●
43	Morocco	73.34	23.10	0.70	●
44	Chile	73.28	23.07	0.70	
45	Jordan	72.36	22.77	0.69	
46	Bulgaria	71.87	22.60	0.68	
47	Bahrain	70.03	21.98	0.67	
48	Brazil	68.37	21.43	0.67	
49	Croatia	67.99	21.30	0.66	
50	Latvia	67.75	21.21	0.65	
51	Bosnia and Herzegovina	62.34	19.40	0.65	
52	Ukraine	62.04	19.30	0.64	
53	Kuwait (2011)	61.71	19.19	0.63	
54	Cabo Verde	59.39	18.41	0.62	●
55	United Arab Emirates	59.07	18.30	0.62	
56	Czech Republic	56.91	17.57	0.61	
57	Hungary	56.36	17.39	0.60	
58	Nepal	55.06	16.95	0.60	●
59	Turkey	54.40	16.73	0.59	
60	Serbia	53.91	16.57	0.58	
61	Poland	53.78	16.52	0.57	
62	Montenegro	52.70	16.16	0.57	
63	Mongolia	52.32	16.03	0.56	
64	Honduras	51.85	15.87	0.55	●
65	India	51.49	15.75	0.55	
66	Lithuania	51.30	15.69	0.54	
67	Bangladesh	49.60	15.12	0.53	
68	Costa Rica	49.10	14.95	0.52	
69	Colombia	48.91	14.89	0.52	
70	Russian Federation	48.53	14.76	0.51	
71	Namibia	48.42	14.72	0.50	
72	TFYR of Macedonia	47.55	14.43	0.50	
73	Bhutan	47.45	14.40	0.49	
74	Slovakia (2008)	44.99	13.57	0.48	
75	Romania	44.97	13.56	0.48	
76	Zimbabwe (2006)	44.48	13.40	0.47	
77	Bolivia, Plurinational St.	44.22	13.31	0.46	
78	Armenia	42.93	12.88	0.45	
79	Paraguay	41.32	12.34	0.45	
80	Oman	41.20	12.30	0.44	
81	Guyana	41.00	12.23	0.43	
82	El Salvador	40.12	11.93	0.43	
83	Cambodia	38.72	11.46	0.42	
84	Albania	38.35	11.34	0.41	
85	Moldova, Rep.	38.06	11.24	0.40	
86	Saudi Arabia	37.61	11.09	0.40	
87	Kazakhstan	37.24	10.97	0.39	
88	Kenya	36.59	10.75	0.38	
89	Qatar	36.05	10.57	0.38	
90	Indonesia	34.90	10.18	0.37	
91	Georgia	34.47	10.04	0.36	
92	Philippines	33.40	9.68	0.35	
93	Botswana	31.96	9.19	0.35	
94	Guatemala	31.76	9.13	0.34	
95	Brunei Darussalam	31.45	9.02	0.33	
96	Sri Lanka	31.07	8.89	0.33	
97	Togo	30.91	8.84	0.32	
98	Trinidad and Tobago	30.65	8.75	0.31	
99	Egypt	29.74	8.45	0.30	
100	Senegal	29.61	8.40	0.30	
101	Jamaica	28.85	8.15	0.29	
102	Ecuador (2011)	28.31	7.96	0.28	
103	Mexico	27.69	7.76	0.28	
104	Peru	27.28	7.62	0.27	
105	Nicaragua	26.91	7.49	0.26	
106	Seychelles	25.32	6.96	0.26	
107	Mozambique	25.28	6.95	0.25	
108	Venezuela, Bolivarian Rep.	25.26	6.94	0.24	
109	Swaziland	25.04	6.87	0.23	
110	Uruguay	24.09	6.55	0.23	
111	Benin	23.96	6.50	0.22	
112	Angola	23.52	6.36	0.21	
113	Dominican Republic	23.14	6.23	0.21	
114	Belarus	22.61	6.05	0.20	
115	Burkina Faso	22.14	5.89	0.19	
116	Mali	20.89	5.47	0.18	
117	Nigeria	20.84	5.46	0.18	
118	Malawi	20.61	5.38	0.17	
119	Azerbaijan	20.09	5.20	0.16	
120	Burundi	19.47	5.00	0.16	
121	Lesotho	18.80	4.77	0.15	
122	Argentina	18.54	4.68	0.14	○
123	Côte d'Ivoire	18.29	4.60	0.13	
124	Tanzania, United Rep.	17.86	4.45	0.13	
125	Ethiopia (2008)	17.85	4.45	0.12	
126	Pakistan	16.44	3.98	0.11	
127	Uganda	16.32	3.94	0.11	
128	Ghana	16.12	3.87	0.10	
129	Gambia	15.55	3.68	0.09	
130	Kyrgyzstan (2007)	15.05	3.51	0.09	
131	Cameroon	14.98	3.49	0.08	○
132	Niger	14.91	3.46	0.07	
133	Zambia	14.76	3.41	0.06	○
134	Algeria	14.29	3.26	0.06	
135	Tajikistan	12.96	2.81	0.05	○
136	Iran, Islamic Rep. (2011)	12.85	2.77	0.04	○
137	Sudan	12.84	2.77	0.04	
138	Rwanda (2005)	11.21	2.22	0.03	○
139	Madagascar	10.95	2.13	0.02	○
140	Guinea (2011)	9.13	1.52	0.01	○
141	Myanmar (2004)	4.74	0.05	0.01	
142	Yemen	4.60	0.00	0.00	○
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates), extracted from World Bank *World Development Indicators* database

NOTE: ● indicates a strength; ○ a weakness.

4.1.3 Microfinance institutions' gross loan portfolio

Microfinance institutions: Gross loan portfolio (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Bolivia, Plurinational St.	13.73	100.00	0.96	●
1	Cambodia	15.31	100.00	0.96	●
1	Gambia	14.31	100.00	0.96	●
1	Mongolia	17.27	100.00	0.96	●
1	Tajikistan	7.98	100.00	0.96	●
6	Bhutan	6.25	78.30	0.94	●
7	Kyrgyzstan	5.94	74.34	0.93	●
8	Togo	5.75	72.00	0.92	●
9	Peru	5.00	62.64	0.91	●
10	Paraguay	4.87	61.03	0.90	●
11	Georgia	4.72	59.18	0.89	●
12	Kenya	4.56	57.07	0.88	●
13	Armenia	4.04	50.63	0.87	●
14	Viet Nam	3.78	47.36	0.86	●
15	Azerbaijan	3.70	46.38	0.84	●
16	Ecuador	3.31	41.46	0.83	●
17	Bosnia and Herzegovina	3.09	38.64	0.82	●
18	Senegal	2.94	36.88	0.81	●
19	TFYR of Macedonia	2.92	36.53	0.80	●
20	Nicaragua	2.71	33.92	0.79	●
21	Albania	2.54	31.85	0.78	●
22	Moldova, Rep.	2.40	30.02	0.77	
23	Benin	2.32	29.03	0.76	●
24	Bangladesh	2.18	27.35	0.74	●
25	Honduras	2.00	25.00	0.73	●
26	Colombia	1.83	22.89	0.72	
27	Serbia	1.83	22.86	0.71	
28	El Salvador	1.79	22.42	0.70	●
29	Burkina Faso	1.71	21.41	0.69	●
30	Swaziland (2011)	1.65	20.72	0.68	●
31	Ethiopia	1.31	16.40	0.67	●
32	Burundi	1.26	15.73	0.66	
33	Rwanda	1.25	15.64	0.64	
34	Indonesia	1.25	15.62	0.63	
35	Dominican Republic	1.13	14.19	0.62	●
36	Sri Lanka	1.06	13.31	0.61	●
37	Uganda	0.99	12.39	0.60	
38	Panama	0.93	11.60	0.59	
39	South Africa	0.89	11.15	0.58	
40	Uzbekistan	0.87	10.90	0.57	●
41	Cameroon	0.86	10.82	0.56	●
42	Nepal	0.80	10.08	0.54	●
43	Jordan	0.73	9.10	0.53	
44	Chile	0.70	8.82	0.52	
45	Madagascar	0.67	8.34	0.51	
46	Jamaica	0.66	8.31	0.50	
47	Montenegro	0.65	8.19	0.49	
48	Morocco	0.53	6.64	0.48	
49	Nigeria	0.44	5.47	0.47	
50	Guatemala	0.42	5.23	0.46	
51	Tanzania, United Rep.	0.42	5.22	0.44	
52	Guyana	0.39	4.82	0.43	
53	Malawi	0.33	4.07	0.42	
54	Mexico	0.32	4.06	0.41	
55	India	0.24	3.05	0.40	
56	Philippines	0.24	3.00	0.39	
57	Guinea	0.21	2.65	0.38	●
58	Zimbabwe	0.20	2.45	0.37	
59	Romania	0.19	2.40	0.36	
60	Tunisia	0.19	2.38	0.34	
61	Côte d'Ivoire	0.18	2.31	0.33	
62	China	0.18	2.28	0.32	
63	Kazakhstan	0.18	2.25	0.31	
64	Costa Rica	0.14	1.81	0.30	
65	Ghana	0.13	1.66	0.29	
66	Malaysia (2011)	0.13	1.65	0.28	○
67	Ukraine	0.12	1.47	0.27	
68	Lebanon	0.11	1.40	0.26	
69	Pakistan	0.11	1.31	0.24	
70	Sudan (2011)	0.10	1.26	0.23	
71	Mozambique	0.09	1.14	0.22	
72	Niger	0.09	1.11	0.21	
73	Trinidad and Tobago	0.08	0.94	0.20	
74	Brazil	0.07	0.93	0.19	
75	Mali	0.06	0.79	0.18	
76	Poland	0.05	0.66	0.17	○
77	Egypt	0.05	0.61	0.16	
78	Venezuela, Bolivarian Rep. (2011)	0.05	0.60	0.14	
79	Bulgaria	0.03	0.35	0.13	○
80	Zambia	0.02	0.27	0.12	
81	Namibia (2011)	0.02	0.27	0.11	○
82	Fiji	0.02	0.20	0.10	○
83	Uruguay (2011)	0.02	0.19	0.09	○
84	Russian Federation	0.02	0.19	0.08	○
85	Angola (2011)	0.01	0.15	0.07	
86	Yemen	0.01	0.15	0.06	
87	Argentina	0.01	0.12	0.04	○
88	Turkey	0.00	0.03	0.03	○
89	Croatia (2010)	0.00	0.01	0.02	○
90	Hungary (2007)	0.00	0.01	0.01	○
91	Thailand (2011)	0.00	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Australia	n/a	n/a	n/a	
n/a	Austria	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Belgium	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Czech Republic	n/a	n/a	n/a	
n/a	Denmark	n/a	n/a	n/a	
n/a	Estonia	n/a	n/a	n/a	
n/a	Finland	n/a	n/a	n/a	
n/a	France	n/a	n/a	n/a	
n/a	Germany	n/a	n/a	n/a	
n/a	Greece	n/a	n/a	n/a	
n/a	Hong Kong (China)	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Ireland	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Italy	n/a	n/a	n/a	
n/a	Japan	n/a	n/a	n/a	
n/a	Korea, Rep.	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Lithuania	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Netherlands	n/a	n/a	n/a	
n/a	New Zealand	n/a	n/a	n/a	
n/a	Norway	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Portugal	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	Slovakia	n/a	n/a	n/a	
n/a	Slovenia	n/a	n/a	n/a	
n/a	Spain	n/a	n/a	n/a	
n/a	Sweden	n/a	n/a	n/a	
n/a	Switzerland	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	United Kingdom	n/a	n/a	n/a	
n/a	United States of America	n/a	n/a	n/a	

SOURCE: Microfinance Information Exchange, *Mix Market database*; International Monetary Fund *World Economic Outlook 2013* database (current US$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

4.2.1 Ease of protecting investors

Ease of protecting investors (distance to frontier) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	New Zealand	96.67	96.67	1.00	●
2	Singapore	93.33	93.33	0.99	●
3	Hong Kong (China)	90.00	90.00	0.99	●
4	Canada	86.67	86.67	0.97	●
4	Malaysia	86.67	86.67	0.97	●
6	Colombia	83.33	83.33	0.94	●
6	Ireland	83.33	83.33	0.94	
6	Israel	83.33	83.33	0.94	●
6	United States of America	83.33	83.33	0.94	
10	South Africa	80.00	80.00	0.93	●
10	United Kingdom	80.00	80.00	0.93	
12	Mauritius	76.67	76.67	0.92	●
12	Thailand	76.67	76.67	0.92	●
14	Albania	73.33	73.33	0.90	●
14	Slovenia	73.33	73.33	0.90	
16	Belgium	70.00	70.00	0.87	
16	Georgia	70.00	70.00	0.87	●
16	Japan	70.00	70.00	0.87	
16	Peru	70.00	70.00	0.87	●
16	TFYR of Macedonia	70.00	70.00	0.87	●
21	Armenia	66.67	66.67	0.79	●
21	Azerbaijan	66.67	66.67	0.79	●
21	Bangladesh	66.67	66.67	0.79	●
21	Kazakhstan	66.67	66.67	0.79	●
21	Kyrgyzstan	66.67	66.67	0.79	●
21	Mongolia	66.67	66.67	0.79	
21	Norway	66.67	66.67	0.79	
21	Rwanda	66.67	66.67	0.79	●
21	Saudi Arabia	66.67	66.67	0.79	
21	Tajikistan	66.67	66.67	0.79	●
21	Trinidad and Tobago	66.67	66.67	0.79	●
32	Burundi	63.33	63.33	0.72	●
32	Chile	63.33	63.33	0.72	
32	Cyprus	63.33	63.33	0.72	
32	Denmark	63.33	63.33	0.72	
32	Ghana	63.33	63.33	0.72	●
32	India	63.33	63.33	0.72	
32	Montenegro	63.33	63.33	0.72	
32	Pakistan	63.33	63.33	0.72	●
32	Sweden	63.33	63.33	0.72	
32	Turkey	63.33	63.33	0.72	
42	Botswana	60.00	60.00	0.63	
42	Bulgaria	60.00	60.00	0.63	
42	Fiji	60.00	60.00	0.63	
42	Iceland	60.00	60.00	0.63	
42	Indonesia	60.00	60.00	0.63	
42	Italy	60.00	60.00	0.63	
42	Korea, Rep.	60.00	60.00	0.63	
42	Mozambique	60.00	60.00	0.63	●
42	Poland	60.00	60.00	0.63	
42	Portugal	60.00	60.00	0.63	
42	Romania	60.00	60.00	0.63	
42	Sri Lanka	60.00	60.00	0.63	●
42	Tunisia	60.00	60.00	0.63	
55	Australia	56.67	56.67	0.55	○
55	Estonia	56.67	56.67	0.55	
55	Finland	56.67	56.67	0.55	○
55	Latvia	56.67	56.67	0.55	
55	Lithuania	56.67	56.67	0.55	
55	Madagascar	56.67	56.67	0.55	
55	Malta	56.67	56.67	0.55	
55	Mexico	56.67	56.67	0.55	
55	Nigeria	56.67	56.67	0.55	●
55	Paraguay	56.67	56.67	0.55	
55	Seychelles	56.67	56.67	0.55	
66	Angola	53.33	53.33	0.44	●
66	Brazil	53.33	53.33	0.44	
66	Cambodia	53.33	53.33	0.44	
66	France	53.33	53.33	0.44	○
66	Greece	53.33	53.33	0.44	
66	Guyana	53.33	53.33	0.44	
66	Jamaica	53.33	53.33	0.44	
66	Kuwait	53.33	53.33	0.44	
66	Malawi	53.33	53.33	0.44	
66	Moldova, Rep.	53.33	53.33	0.44	
66	Namibia	53.33	53.33	0.44	
66	Nepal	53.33	53.33	0.44	
66	Panama	53.33	53.33	0.44	
66	Serbia	53.33	53.33	0.44	
66	Zambia	53.33	53.33	0.44	
81	Algeria	50.00	50.00	0.33	
81	Argentina	50.00	50.00	0.33	
81	Austria	50.00	50.00	0.33	○
81	Belarus	50.00	50.00	0.33	
81	China	50.00	50.00	0.33	
81	Czech Republic	50.00	50.00	0.33	○
81	Dominican Republic	50.00	50.00	0.33	
81	Germany	50.00	50.00	0.33	○
81	Kenya	50.00	50.00	0.33	
81	Lebanon	50.00	50.00	0.33	
81	Lesotho	50.00	50.00	0.33	
81	Oman	50.00	50.00	0.33	
81	Spain	50.00	50.00	0.33	○
81	Tanzania, United Rep.	50.00	50.00	0.33	
81	United Arab Emirates	50.00	50.00	0.33	○
81	Uruguay	50.00	50.00	0.33	
97	Bahrain	46.67	46.67	0.27	
97	Bosnia and Herzegovina	46.67	46.67	0.27	
97	Brunei Darussalam	46.67	46.67	0.27	
97	Morocco	46.67	46.67	0.27	
97	Netherlands	46.67	46.67	0.27	○
97	Russian Federation	46.67	46.67	0.27	
97	Slovakia	46.67	46.67	0.27	○
97	Uganda	46.67	46.67	0.27	
105	Cameroon	43.33	43.33	0.22	
105	Hungary	43.33	43.33	0.22	○
105	Luxembourg	43.33	43.33	0.22	○
105	Philippines	43.33	43.33	0.22	
105	Qatar	43.33	43.33	0.22	
105	Swaziland	43.33	43.33	0.22	
105	Ukraine	43.33	43.33	0.22	
105	Zimbabwe	43.33	43.33	0.22	
113	Bolivia, Plurinational St.	40.00	40.00	.18	
113	Cabo Verde	40.00	40.00	.18	
113	Ecuador	40.00	40.00	.18	
113	Nicaragua	40.00	40.00	.18	
113	Uzbekistan	40.00	40.00	.18	
113	Yemen	40.00	40.00	.18	
119	Bhutan	36.67	36.67	.13	
119	Burkina Faso	36.67	36.67	.13	
119	Egypt	36.67	36.67	.13	
119	Iran, Islamic Rep.	36.67	36.67	.13	
119	Mali	36.67	36.67	.13	
119	Togo	36.67	36.67	.13	
125	Benin	33.33	33.33	0.08	
125	Côte d'Ivoire	33.33	33.33	0.08	○
125	Croatia	33.33	33.33	0.08	○
125	Ethiopia	33.33	33.33	0.08	
125	Guatemala	33.33	33.33	0.08	○
125	Niger	33.33	33.33	0.08	
125	Sudan	33.33	33.33	0.08	
125	Viet Nam	33.33	33.33	0.08	○
133	Barbados	30.00	30.00	0.03	○
133	Costa Rica	30.00	30.00	0.03	○
133	El Salvador	30.00	30.00	0.03	○
133	Honduras	30.00	30.00	0.03	○
133	Jordan	30.00	30.00	0.03	○
133	Senegal	30.00	30.00	0.03	○
133	Switzerland	30.00	30.00	0.03	○
140	Gambia	26.67	26.67	0.01	○
140	Guinea	26.67	26.67	0.01	○
142	Myanmar	23.33	23.33	0.00	○
142	Venezuela, Bolivarian Rep.	23.33	23.33	0.00	○

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

4.2.2 Market capitalization

Market capitalization of listed companies (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	420.93	100.00	0.99	●
1	Switzerland	170.68	100.00	0.99	●
3	South Africa	159.33	93.33	0.98	●
4	Malaysia	156.94	91.93	0.97	●
5	Singapore	150.75	88.30	0.96	
6	Barbados (2011)	124.05	72.62	0.95	●
7	United Kingdom	123.99	72.59	0.94	
8	Luxembourg	123.15	72.09	0.93	
9	United States of America	119.02	69.67	0.93	
10	Chile	116.78	68.35	0.92	●
11	Canada	110.69	64.78	0.91	
12	Zimbabwe	109.27	63.94	0.90	●
13	Sweden	106.62	62.39	0.89	
14	Philippines	105.55	61.76	0.88	●
15	Thailand	104.77	61.30	0.87	
16	Korea, Rep.	104.50	61.15	0.86	
17	Montenegro	90.43	52.88	0.85	●
18	Bahrain (2010)	89.03	52.06	0.84	●
19	Jordan	86.41	50.52	0.83	●
20	Australia	84.60	49.46	0.82	
21	Netherlands	84.30	49.29	0.81	
22	Spain	73.75	43.09	0.80	
23	Qatar (2011)	72.50	42.36	0.79	
24	Denmark	71.56	41.80	0.79	
25	Colombia	70.87	41.40	0.78	●
26	France	69.78	40.76	0.77	
27	India	68.60	40.06	0.76	●
28	Mauritius	67.60	39.48	0.75	
29	Finland	63.47	37.05	0.74	
30	Trinidad and Tobago	63.23	36.91	0.73	●
31	Belgium	62.03	36.21	0.72	
32	Japan	61.76	36.05	0.71	
33	Israel (2011)	59.68	34.83	0.70	
34	Saudi Arabia (2011)	58.75	34.28	0.69	
35	Kuwait (2011)	57.12	33.33	0.68	
36	Brazil	54.60	31.84	0.67	
37	Morocco	54.41	31.74	0.66	
38	Ireland	51.83	30.22	0.65	
39	New Zealand (2010)	51.39	29.97	0.64	
40	Norway	50.62	29.51	0.64	
41	Peru	49.13	28.64	0.63	
42	Indonesia	45.19	26.32	0.62	
43	El Salvador	45.16	26.31	0.61	
44	China	44.94	26.18	0.60	
45	Mexico	44.60	25.98	0.59	
46	Germany	43.72	25.46	0.58	
47	Russian Federation	43.41	25.28	0.57	
48	Jamaica	43.06	25.07	0.56	
49	Malta	41.63	24.23	0.55	
50	Kenya	39.73	23.12	0.54	
51	Turkey	39.12	22.76	0.53	
52	Croatia	38.20	22.22	0.52	
53	Uganda	36.69	21.33	0.51	
54	Poland	36.29	21.09	0.50	
55	Panama	34.60	20.10	0.50	
56	Botswana	31.83	18.48	0.49	
57	Côte d'Ivoire	31.72	18.41	0.48	●
58	Portugal	30.84	17.90	0.47	
59	Sri Lanka	28.69	16.63	0.46	
60	Oman (2011)	27.47	15.92	0.45	
61	Austria	26.53	15.37	0.44	○
62	Lebanon	23.97	13.87	0.43	
63	Italy	23.86	13.80	0.42	
64	Viet Nam	23.25	13.44	0.41	
65	Egypt	22.55	13.03	0.40	
66	Nigeria	21.47	12.40	0.39	
67	Guyana	21.43	12.37	0.38	
68	Nepal	21.43	12.37	0.37	
69	Iran, Islamic Rep. (2011)	20.86	12.04	0.36	
70	Iceland	20.68	11.93	0.36	○
71	Serbia	19.87	11.46	0.35	
72	United Arab Emirates (2011)	19.80	11.41	0.34	○
73	Tunisia	19.46	11.22	0.33	
74	Czech Republic	18.99	10.94	0.32	○
75	Pakistan	18.89	10.88	0.31	
76	Greece	17.90	10.30	0.30	
77	Malawi	17.67	10.17	0.29	
78	Hungary	16.80	9.65	0.28	○
79	Bolivia, Plurinational St.	16.44	9.44	0.27	
80	Bangladesh	15.12	8.67	0.26	
81	Zambia	14.53	8.32	0.25	
82	Slovenia	14.24	8.15	0.24	○
83	Bulgaria	13.06	7.46	0.23	○
84	Mongolia	12.59	7.18	0.22	
85	Ukraine	11.75	6.69	0.21	
86	Fiji	11.66	6.63	0.21	
87	Kazakhstan	11.65	6.63	0.20	
88	Estonia	10.67	6.05	0.19	○
89	Namibia	10.19	5.77	0.18	
90	Romania	9.40	5.31	0.17	○
91	Lithuania	9.38	5.30	0.16	○
92	Cyprus	8.68	4.89	0.15	○
93	Ghana	8.51	4.79	0.14	
94	Argentina	7.21	4.02	0.13	○
95	Ecuador	6.99	3.90	0.12	
96	Swaziland (2007)	6.65	3.69	0.11	
97	Venezuela, Bolivarian Rep.	6.62	3.67	0.10	
98	Tanzania, United Rep.	6.38	3.54	0.09	
99	Georgia	5.96	3.29	0.08	○
100	TFYR of Macedonia	5.79	3.19	0.07	○
101	Slovakia	5.03	2.74	0.07	○
102	Costa Rica	4.46	2.41	0.06	○
103	Uzbekistan (2006)	4.20	2.26	0.05	○
104	Latvia	3.93	2.10	0.04	○
105	Paraguay	3.77	2.01	0.03	○
106	Kyrgyzstan	2.55	1.29	0.02	○
107	Armenia	1.33	0.57	0.01	○
108	Uruguay	0.36	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	

SOURCE: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank *World Development Indicators* database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

4.2.3 Total value of stocks traded

Stocks traded, total value (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	467.00	100.00	0.97	●
1	Korea, Rep.	134.02	100.00	0.97	●
1	United Kingdom	102.19	100.00	0.97	●
1	United States of America	136.28	100.00	0.97	●
5	Switzerland	101.39	99.22	0.96	
6	South Africa	81.13	79.39	0.95	●
7	Spain	79.82	78.11	0.94	●
8	Sweden	71.55	70.02	0.94	
9	China	70.82	69.30	0.93	
10	Australia	69.16	67.68	0.92	
11	Canada	66.32	64.89	0.91	
12	Thailand	62.77	61.42	0.90	●
13	Japan	60.50	59.20	0.89	
14	Netherlands	57.15	55.92	0.88	
15	Singapore	56.95	55.73	0.87	
16	Saudi Arabia (2011)	50.80	49.70	0.86	●
17	Finland	50.39	49.31	0.85	
18	Turkey	44.16	43.21	0.84	●
19	Israel (2011)	43.44	42.51	0.83	
20	France	43.12	42.19	0.82	
21	Malaysia	41.02	40.14	0.81	
22	Italy	37.73	36.92	0.81	
23	Brazil	37.05	36.25	0.80	●
24	Russian Federation	36.34	35.56	0.79	
25	Germany	36.05	35.27	0.78	
26	India	33.80	33.07	0.77	●
27	Denmark	33.58	32.86	0.76	
28	Norway	26.59	26.02	0.75	
29	Belgium	21.35	20.89	0.74	
30	Chile	17.42	17.04	0.73	
31	Zimbabwe	14.89	14.57	0.72	●
32	Philippines	13.86	13.56	0.71	●
33	Poland	13.73	13.43	0.70	
34	Qatar (2011)	13.37	13.08	0.69	
35	New Zealand (2010)	12.84	12.56	0.69	
36	Portugal	12.53	12.26	0.68	
37	Kuwait (2011)	12.12	11.85	0.67	
38	Austria	11.81	11.56	0.66	
39	Bangladesh	10.85	10.62	0.65	●
40	Indonesia	10.44	10.22	0.64	
41	Mexico	10.04	9.82	0.63	
42	Jordan	8.92	8.73	0.62	
43	Hungary	8.67	8.48	0.61	
44	Egypt	7.84	7.67	0.60	
45	Colombia	7.03	6.88	0.59	
46	Greece	5.96	5.83	0.58	
47	Ireland	5.76	5.64	0.57	○
48	Czech Republic	5.22	5.11	0.56	
49	Pakistan	5.18	5.06	0.56	●
50	Iceland	5.02	4.91	0.55	
51	United Arab Emirates (2011)	4.39	4.30	0.54	
52	Iran, Islamic Rep. (2011)	3.90	3.82	0.53	
53	Morocco	3.62	3.54	0.52	
54	Oman (2011)	3.59	3.51	0.51	
55	Mauritius	2.82	2.76	0.50	
56	Sri Lanka	2.82	2.76	0.49	
57	Tunisia	2.74	2.68	0.48	
58	Kenya	2.71	2.65	0.47	
59	Peru	2.53	2.47	0.46	
60	Viet Nam	2.38	2.33	0.45	
61	Nigeria	1.60	1.56	0.44	
62	Jamaica	1.39	1.35	0.44	
63	Cyprus	1.26	1.23	0.43	
64	Romania	1.26	1.23	0.42	
65	Bahrain (2010)	1.25	1.22	0.41	
66	Montenegro	1.01	0.99	0.40	
67	Lebanon	0.95	0.93	0.39	
68	Zambia	0.95	0.92	0.38	
69	Slovenia	0.88	0.86	0.37	
70	Croatia	0.87	0.85	0.36	○
71	Estonia	0.82	0.80	0.35	○
72	Botswana	0.79	0.77	0.34	
73	Serbia	0.77	0.75	0.33	
74	Bulgaria	0.71	0.69	0.32	
75	Ukraine	0.68	0.67	0.31	
76	Côte d'Ivoire	0.66	0.64	0.31	
77	Kazakhstan	0.55	0.54	0.30	
78	Malta	0.49	0.48	0.29	○
79	Barbados (2011)	0.49	0.48	0.28	
80	Trinidad and Tobago	0.48	0.47	0.27	
81	Lithuania	0.40	0.39	0.26	
82	Mongolia	0.40	0.39	0.25	
83	Malawi	0.38	0.37	0.24	
84	TFYR of Macedonia	0.32	0.31	0.23	○
85	Panama	0.31	0.30	0.22	
86	Argentina	0.31	0.30	0.21	
87	Nepal	0.25	0.25	0.20	
88	Moldova, Rep. (2009)	0.24	0.23	0.19	
89	El Salvador	0.22	0.21	0.19	
90	Paraguay	0.21	0.20	0.18	
91	Luxembourg	0.20	0.20	0.17	○
92	Uzbekistan (2011)	0.18	0.18	0.16	
93	Slovakia	0.18	0.18	0.15	○
94	Fiji	0.17	0.16	0.14	○
95	Namibia	0.16	0.16	0.13	○
96	Ecuador	0.16	0.16	0.12	
97	Ghana	0.13	0.13	0.11	
98	Latvia	0.11	0.11	0.10	○
99	Tanzania, United Rep.	0.09	0.09	0.09	
100	Kyrgyzstan	0.09	0.08	0.08	
101	Costa Rica	0.07	0.07	0.07	○
102	Bolivia, Plurinational St.	0.07	0.07	0.06	○
103	Uganda	0.06	0.05	0.06	○
104	Guyana (2008)	0.04	0.04	0.05	○
105	Georgia	0.01	0.01	0.04	○
106	Armenia	0.01	0.01	0.03	○
107	Venezuela, Bolivarian Rep.	0.01	0.01	0.02	○
108	Uruguay	0.00	0.00	0.01	○
109	Swaziland (2006)	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	

SOURCE: Standard and Poor's and World Bank and OECD GDP estimates, World Bank *World Development Indicators* database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

4.2.4 Venture capital deals

Venture capital per investment location: Number of deals (per trillion PPP$ GDP) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Canada	0.67	100.00	0.94	●
1	Ireland	0.70	100.00	0.94	●
1	Israel	0.97	100.00	0.94	●
1	Switzerland	0.44	100.00	0.94	●
1	United States of America	0.74	100.00	0.94	●
6	Finland	0.42	95.83	0.93	
7	United Kingdom	0.36	81.34	0.91	
8	Singapore	0.34	75.77	0.90	
9	Sweden	0.32	72.07	0.89	
10	France	0.31	70.54	0.87	
11	Rwanda	0.31	68.76	0.86	●
12	Estonia	0.30	67.66	0.84	
13	Denmark	0.25	55.28	0.83	
14	Germany	0.23	52.60	0.81	
15	Belgium	0.19	42.47	0.80	
16	Lithuania	0.16	36.43	0.79	
17	Spain	0.15	34.54	0.77	
18	Norway	0.15	32.38	0.76	
19	Austria	0.14	31.46	0.74	
20	Netherlands	0.11	24.82	0.73	
21	Kenya	0.11	24.78	0.71	
22	Latvia	0.10	22.75	0.70	
23	Australia	0.10	21.67	0.69	
24	India	0.10	21.44	0.67	
25	New Zealand	0.10	21.08	0.66	
26	Uruguay	0.09	19.55	0.64	
27	Iceland	0.08	16.70	0.63	
28	Luxembourg	0.07	15.34	0.61	
29	Jordan	0.05	10.72	0.60	
30	Armenia	0.05	10.39	0.59	
31	United Arab Emirates	0.05	10.31	0.57	
32	Bulgaria	0.05	10.23	0.56	
33	Madagascar	0.05	9.68	0.54	
34	Japan	0.04	9.07	0.53	
35	Malaysia	0.04	8.89	0.51	
36	Chile	0.04	8.17	0.50	
37	Burkina Faso	0.04	7.94	0.49	●
38	Philippines	0.04	7.87	0.47	
39	Portugal	0.04	7.77	0.46	
40	Hong Kong (China)	0.03	7.11	0.44	
41	Ghana	0.03	6.91	0.43	
42	China	0.03	6.86	0.41	
43	Russian Federation	0.03	6.03	0.40	
44	Brazil	0.03	5.84	0.39	
45	Korea, Rep.	0.03	5.51	0.37	
46	Tanzania, United Rep.	0.03	5.10	0.36	
47	Hungary	0.02	3.99	0.34	
48	Uganda	0.02	3.55	0.33	
49	Mexico	0.01	2.69	0.31	
50	Italy	0.01	2.64	0.30	○
51	Croatia	0.01	2.27	0.29	○
52	Czech Republic	0.01	1.75	0.27	○
53	Argentina	0.01	1.72	0.26	
54	Qatar	0.01	1.67	0.24	
55	Poland	0.01	1.60	0.23	○
56	Tunisia	0.01	1.46	0.21	
57	Uzbekistan	0.01	1.39	0.20	
58	Nigeria	0.01	1.27	0.19	
59	Colombia	0.01	1.11	0.17	○
60	Sri Lanka	0.01	1.06	0.16	○
61	Romania	0.01	0.99	0.14	○
62	Turkey	0.01	0.73	0.13	○
63	Morocco	0.01	0.63	0.11	○
64	Egypt	0.01	0.60	0.10	○
65	Pakistan	0.01	0.55	0.09	
66	South Africa	0.01	0.51	0.07	○
67	Indonesia	0.00	0.43	0.06	○
68	Thailand	0.00	0.38	0.04	○
69	Greece	0.00	0.22	0.03	○
70	Algeria	0.00	0.17	0.01	○
71	Viet Nam	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Costa Rica	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Serbia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Slovakia	n/a	n/a	n/a	
n/a	Slovenia	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Ukraine	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: Thomson Reuters, *Thomson One Banker Private Equity* database; International Monetary Fund *World Economic Outlook 2013* database (PPP$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

4.3.1 Applied tariff rate, weighted mean

Tariff rate, applied, weighted mean, all products (%) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	0.00	100.00	0.99	●
1	Singapore (2010)	0.00	100.00	0.99	●
1	Switzerland	0.00	100.00	0.99	●
4	Norway	0.45	98.41	0.98	●
5	Mauritius	0.68	97.60	0.97	●
6	Georgia	0.72	97.46	0.96	●
7	Canada (2010)	0.86	96.96	0.96	●
8	Iceland	1.04	96.33	0.95	
9	Namibia	1.05	96.29	0.94	●
10	Austria	1.09	96.15	0.75	
10	Belgium	1.09	96.15	0.75	
10	Bulgaria	1.09	96.15	0.75	
10	Cyprus	1.09	96.15	0.75	
10	Czech Republic	1.09	96.15	0.75	
10	Denmark	1.09	96.15	0.75	
10	Estonia	1.09	96.15	0.75	
10	Finland	1.09	96.15	0.75	
10	France	1.09	96.15	0.75	
10	Germany	1.09	96.15	0.75	
10	Greece	1.09	96.15	0.75	
10	Hungary	1.09	96.15	0.75	
10	Ireland	1.09	96.15	0.75	
10	Italy	1.09	96.15	0.75	
10	Latvia	1.09	96.15	0.75	
10	Lithuania	1.09	96.15	0.75	
10	Luxembourg	1.09	96.15	0.75	
10	Malta	1.09	96.15	0.75	
10	Netherlands	1.09	96.15	0.75	
10	Poland	1.09	96.15	0.75	
10	Portugal	1.09	96.15	0.75	
10	Romania	1.09	96.15	0.75	
10	Slovakia	1.09	96.15	0.75	
10	Slovenia	1.09	96.15	0.75	
10	Spain	1.09	96.15	0.75	
10	Sweden	1.09	96.15	0.75	
10	United Kingdom	1.09	96.15	0.75	
37	Albania	1.26	95.55	0.74	●
38	Croatia	1.29	95.44	0.73	
38	Japan	1.29	95.44	0.73	
40	Peru	1.51	94.67	0.72	
41	Bosnia and Herzegovina	1.53	94.60	0.72	●
42	United States of America	1.58	94.42	0.71	
43	New Zealand (2010)	1.62	94.28	0.70	
44	Belarus	1.80	93.64	0.70	
45	Australia	1.81	93.61	0.69	
46	Ukraine	1.91	93.26	0.68	
47	TFYR of Macedonia	2.04	92.80	0.67	
48	Mexico (2010)	2.19	92.27	0.67	
49	Armenia (2008)	2.27	91.98	0.66	
50	Guatemala	2.28	91.95	0.65	●
51	Nicaragua (2010)	2.30	91.88	0.65	●
52	Kyrgyzstan	2.42	91.45	0.64	
53	Moldova, Rep. (2010)	2.46	91.31	0.63	
54	Indonesia	2.59	90.85	0.62	
55	Zambia	2.69	90.50	0.62	
56	Turkey	2.74	90.32	0.61	
57	Costa Rica (2010)	3.09	89.09	0.60	
58	Oman (2009)	3.17	88.81	0.60	
59	Myanmar (2008)	3.18	88.77	0.59	●
60	Kazakhstan	3.40	87.99	0.58	
61	Montenegro	3.47	87.75	0.57	
62	Israel (2009)	3.54	87.50	0.57	
63	Botswana	3.64	87.15	0.56	
64	Bolivia, Plurinational St	3.68	87.01	0.55	●
65	United Arab Emirates (2009)	3.73	86.83	0.55	
66	Uruguay	3.75	86.76	0.54	
67	Qatar (2009)	3.76	86.72	0.53	
68	Yemen	3.82	86.51	0.52	●
69	Saudi Arabia (2009)	3.87	86.33	0.52	
70	Azerbaijan	3.89	86.26	0.51	
71	Malaysia (2009)	3.95	86.05	0.50	
72	Chile (2010)	4.02	85.81	0.50	
73	China	4.10	85.52	0.48	
73	Ecuador	4.10	85.52	0.48	
75	Brunei Darussalam (2010)	4.12	85.45	0.48	
76	Kuwait (2009)	4.13	85.42	0.47	
77	Swaziland	4.24	85.03	0.46	
78	South Africa	4.46	84.25	0.45	
79	Paraguay	4.47	84.22	0.45	
80	Mozambique (2010)	4.75	83.23	0.44	
81	Philippines (2010)	4.77	83.16	0.43	
82	Lebanon (2007)	4.81	83.02	0.43	
83	Thailand (2009)	4.92	82.63	0.42	
84	Mongolia	5.13	81.89	0.41	
85	Jordan (2009)	5.18	81.71	0.40	
86	Russian Federation	5.20	81.64	0.40	
87	El Salvador (2010)	5.49	80.61	0.39	
88	Argentina	5.57	80.33	0.38	
89	Colombia	5.60	80.23	0.38	
90	Viet Nam (2010)	5.66	80.01	0.37	
91	Bahrain	5.69	79.91	0.36	
92	Sri Lanka	5.70	79.87	0.35	
93	Tajikistan (2010)	5.86	79.31	0.35	
94	Serbia (2005)	6.03	78.71	0.34	
95	Kenya	6.08	78.53	0.33	
96	Dominican Republic (2010)	6.09	78.50	0.33	
97	Madagascar	6.12	78.39	0.32	
98	Rwanda	6.13	78.35	0.31	
99	Malawi	6.16	78.25	0.30	
100	Honduras (2009)	6.46	77.19	0.30	
101	Guyana	6.50	77.05	0.29	
102	Burundi	6.59	76.73	0.28	
103	Tanzania, United Rep.	6.61	76.66	0.28	
104	Côte d'Ivoire	6.79	76.02	0.27	
105	Uzbekistan (2009)	6.93	75.53	0.26	
106	Morocco (2009)	7.13	74.82	0.26	
107	Uganda	7.31	74.19	0.25	
108	Angola (2009)	7.44	73.73	0.24	
109	Jamaica	7.45	73.69	0.23	
110	Panama (2009)	7.61	73.13	0.23	
111	Brazil	7.86	72.25	0.22	
112	Egypt (2009)	8.05	71.57	0.21	
113	India (2009)	8.18	71.12	0.21	
114	Mali	8.40	70.34	0.20	
115	Senegal	8.42	70.27	0.19	
116	Ghana (2009)	8.58	69.70	0.18	
117	Burkina Faso	8.60	69.63	0.18	
118	Algeria (2009)	8.61	69.60	0.17	
119	Venezuela, Bolivarian Rep.	8.63	69.53	0.16	
120	Korea, Rep. (2010)	8.71	69.24	0.16	○
121	Pakistan (2009)	9.53	66.35	0.15	
122	Niger	9.68	65.82	0.14	
123	Fiji	9.89	65.08	0.13	○
124	Cambodia (2008)	9.91	65.01	0.13	
125	Trinidad and Tobago (2008)	10.03	64.58	0.12	
126	Cabo Verde	10.20	63.98	0.11	○
127	Ethiopia	10.41	63.24	0.11	
128	Nigeria (2010)	10.55	62.75	0.10	
129	Lesotho	10.66	62.36	0.09	
130	Togo	11.08	60.88	0.09	
131	Guinea (2010)	11.91	57.94	0.08	
132	Cameroon	11.93	57.87	0.07	○
133	Nepal	12.04	57.49	0.06	○
134	Gambia	12.49	55.90	0.06	○
135	Bangladesh (2008)	13.00	54.10	0.05	○
136	Sudan	14.73	47.99	0.04	
137	Barbados (2007)	14.77	47.85	0.04	○
138	Benin	14.96	47.18	0.03	○
139	Tunisia (2008)	15.95	43.68	0.02	○
140	Bhutan (2007)	17.75	37.32	0.01	○
141	Iran, Islamic Rep.	21.77	23.13	0.01	○
142	Seychelles (2007)	28.32	0.00	0.00	○
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Bank, based on WITS, UNCTAD TRAINS, and UN COMTRADE; extracted from World Bank *World Development Indicators* database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

4.3.2 Market access for non-agricultural exports

Non-agricultural market access: Five major export markets weighted actual applied tariff (%) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Botswana	0.00	100.00	0.96	●
1	Burundi	0.00	100.00	0.96	●
1	Jamaica	0.00	100.00	0.96	●
1	Kenya	0.00	100.00	0.96	●
1	Malawi	0.00	100.00	0.96	●
1	Moldova, Rep.	0.00	100.00	0.96	●
1	Rwanda	0.00	100.00	0.96	●
8	Guyana	0.00	99.97	0.95	●
9	Azerbaijan	0.01	99.94	0.94	●
10	Gambia	0.01	99.88	0.94	●
11	Angola	0.01	99.88	0.93	●
12	Mauritius	0.02	99.84	0.92	●
13	Costa Rica	0.02	99.82	0.91	●
14	Bosnia and Herzegovina	0.03	99.72	0.91	●
15	Honduras	0.03	99.71	0.90	●
16	Sudan	0.03	99.67	0.89	●
17	Barbados	0.04	99.62	0.88	●
18	Burkina Faso	0.04	99.55	0.88	●
19	Albania	0.05	99.52	0.87	●
20	Nigeria	0.05	99.50	0.86	●
21	Mozambique	0.05	99.49	0.86	●
22	Ethiopia	0.05	99.47	0.85	●
23	Uganda	0.05	99.47	0.84	●
24	Lesotho	0.06	99.34	0.83	●
25	TFYR of Macedonia	0.07	99.21	0.83	●
26	Trinidad and Tobago	0.08	99.14	0.82	●
27	Zimbabwe	0.08	99.11	0.81	●
28	Colombia	0.09	99.02	0.81	●
29	Cameroon	0.10	98.90	0.80	●
30	Mexico	0.13	98.63	0.79	●
31	Venezuela, Bolivarian Rep.	0.13	98.62	0.78	●
32	Tanzania, United Rep.	0.15	98.41	0.78	●
33	Peru	0.18	98.08	0.77	●
34	Canada	0.20	97.91	0.76	
35	Bolivia, Plurinational St.	0.22	97.71	0.76	●
36	Russian Federation	0.23	97.60	0.75	
37	Argentina	0.23	97.56	0.74	
38	Chile	0.25	97.32	0.73	
39	Mongolia	0.26	97.27	0.73	
40	Ecuador	0.28	97.06	0.72	●
41	Kazakhstan	0.29	96.97	0.71	
42	Yemen	0.30	96.88	0.71	●
43	Nicaragua	0.30	96.80	0.70	●
44	Tunisia	0.33	96.49	0.69	
45	Brazil	0.34	96.41	0.68	
46	Nepal	0.38	96.04	0.68	●
47	Cabo Verde	0.39	95.88	0.67	●
48	Malaysia	0.44	95.38	0.66	
49	Norway	0.47	95.04	0.65	
50	Croatia	0.47	95.03	0.65	
51	Zambia	0.48	94.91	0.64	●
52	Niger	0.50	94.73	0.63	●
53	New Zealand	0.52	94.53	0.63	
54	El Salvador	0.55	94.23	0.62	
55	Georgia	0.61	93.56	0.61	
56	Australia	0.62	93.50	0.60	
57	Dominican Republic	0.64	93.30	0.60	●
58	Guatemala	0.66	93.02	0.59	
59	Armenia	0.67	92.93	0.58	
60	Singapore	0.71	92.56	0.58	
61	Brunei Darussalam	0.71	92.55	0.57	
62	Israel	0.72	92.44	0.56	
63	Namibia	0.74	92.26	0.55	
64	Oman	0.74	92.18	0.55	
65	Ukraine	0.75	92.10	0.54	
66	Morocco	0.77	91.88	0.53	
67	Madagascar	0.78	91.74	0.53	
68	Philippines	0.81	91.50	0.52	
69	Côte d'Ivoire	0.86	90.93	0.51	●
70	Myanmar	0.89	90.65	0.50	●
71	Seychelles	0.89	90.63	0.50	
72	Iceland	0.95	90.00	0.49	
73	Paraguay	0.96	89.92	0.48	
74	Fiji	0.97	89.84	0.47	
75	Uruguay	0.97	89.82	0.47	
76	Iran, Islamic Rep.	0.99	89.62	0.46	
77	Saudi Arabia	1.11	88.34	0.45	
78	Egypt	1.15	87.94	0.45	
79	Thailand	1.18	87.63	0.44	
80	United States of America	1.19	87.50	0.43	○
81	Kyrgyzstan	1.21	87.24	0.42	
82	Qatar	1.23	87.01	0.42	
83	Turkey	1.25	86.81	0.41	
84	Montenegro	1.40	85.29	0.40	
85	South Africa	1.51	84.13	0.40	
86	Kuwait	1.51	84.07	0.39	
87	Indonesia	1.60	83.21	0.38	
88	Uzbekistan	1.60	83.19	0.37	
89	India	1.76	81.52	0.37	
90	Bahrain	1.92	79.75	0.36	
91	Ghana	1.93	79.68	0.35	
92	Switzerland	2.08	78.17	0.35	○
93	Jordan	2.33	75.51	0.34	
94	China	2.59	72.78	0.33	
95	Guinea	3.07	67.67	0.32	●
96	Hong Kong (China)	3.30	65.28	0.32	○
97	Austria	3.34	64.88	0.12	○
97	Belgium	3.34	64.88	0.12	○
97	Bulgaria	3.34	64.88	0.12	○
97	Cyprus	3.34	64.88	0.12	○
97	Czech Republic	3.34	64.88	0.12	○
97	Denmark	3.34	64.88	0.12	○
97	Estonia	3.34	64.88	0.12	○
97	Finland	3.34	64.88	0.12	○
97	France	3.34	64.88	0.12	○
97	Germany	3.34	64.88	0.12	○
97	Greece	3.34	64.88	0.12	○
97	Hungary	3.34	64.88	0.12	○
97	Ireland	3.34	64.88	0.12	○
97	Italy	3.34	64.88	0.12	○
97	Latvia	3.34	64.88	0.12	○
97	Lithuania	3.34	64.88	0.12	○
97	Luxembourg	3.34	64.88	0.12	○
97	Malta	3.34	64.88	0.12	○
97	Netherlands	3.34	64.88	0.12	○
97	Poland	3.34	64.88	0.12	○
97	Portugal	3.34	64.88	0.12	○
97	Romania	3.34	64.88	0.12	○
97	Slovakia	3.34	64.88	0.12	○
97	Slovenia	3.34	64.88	0.12	○
97	Spain	3.34	64.88	0.12	○
97	Sweden	3.34	64.88	0.12	○
97	United Kingdom	3.34	64.88	0.12	○
124	Senegal	3.56	62.52	0.12	
125	Tajikistan	3.64	61.76	0.11	
126	United Arab Emirates	3.70	61.11	0.10	○
127	Bangladesh	3.78	60.22	0.09	
128	Mali	3.84	59.60	0.09	
129	Japan	3.96	58.31	0.08	○
130	Korea, Rep.	4.52	52.42	0.07	○
131	Panama	4.64	51.23	0.06	○
132	Viet Nam	5.13	46.02	0.06	○
133	Swaziland	5.56	41.52	0.05	○
134	Togo	5.82	38.76	0.04	○
135	Pakistan	6.78	28.72	0.04	○
136	Benin	6.95	26.91	0.03	○
137	Belarus	7.03	26.06	0.02	○
138	Sri Lanka	7.29	23.29	0.01	○
139	Cambodia	8.26	13.11	0.01	○
140	Serbia	9.51	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	

SOURCE: World Trade Organization, International Trade Centre, and United Nations Conference on Trade and Development, *World Tariff Profiles 2013* (2010–11)

NOTE: ● indicates a strength; ○ a weakness.

4.3.3 Intensity of local competition

Average answer to the survey question: In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense] | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Japan	6.24	87.33	1.00	●
2	United Kingdom	6.04	84.00	0.99	●
3	Malta	6.01	83.50	0.99	●
4	Netherlands	6.00	83.33	0.98	●
5	Belgium	5.97	82.83	0.97	●
6	Hong Kong (China)	5.92	82.00	0.96	
7	Korea, Rep.	5.89	81.50	0.96	
8	Germany	5.86	81.00	0.95	●
9	Austria	5.83	80.50	0.93	●
9	Czech Republic	5.83	80.50	0.93	●
11	Australia	5.82	80.33	0.92	
11	United States of America	5.82	80.33	0.92	
13	Turkey	5.79	79.83	0.91	●
14	Qatar	5.76	79.33	0.90	
15	United Arab Emirates	5.71	78.50	0.90	●
16	Saudi Arabia	5.69	78.17	0.89	●
17	Singapore	5.64	77.33	0.88	
18	Sri Lanka	5.61	76.83	0.87	●
18	Switzerland	5.61	76.83	0.87	
20	Estonia	5.59	76.50	0.86	
21	Sweden	5.57	76.17	0.85	
22	India	5.55	75.83	0.84	●
23	Lebanon	5.54	75.67	0.84	●
24	France	5.52	75.33	0.83	
25	Denmark	5.48	74.67	0.81	
25	Spain	5.48	74.67	0.81	
27	Slovakia	5.47	74.50	0.81	
28	Mauritius	5.46	74.33	0.80	
29	Malaysia	5.44	74.00	0.79	
29	New Zealand	5.44	74.00	0.79	
31	Canada	5.43	73.83	0.78	
32	Latvia	5.40	73.33	0.77	
33	Kenya	5.39	73.17	0.76	●
34	Chile	5.38	73.00	0.75	
34	Lithuania	5.38	73.00	0.75	
36	Poland	5.35	72.50	0.74	
37	Norway	5.34	72.33	0.73	
38	Bahrain	5.33	72.17	0.73	
39	Thailand	5.32	72.00	0.72	
40	Ireland	5.29	71.50	0.71	
41	Hungary	5.28	71.33	0.70	
42	Jordan	5.27	71.17	0.70	
43	China	5.26	71.00	0.68	
43	South Africa	5.26	71.00	0.68	
45	Cyprus	5.25	70.83	0.67	
46	Slovenia	5.23	70.50	0.66	
46	Zambia	5.23	70.50	0.66	●
48	Barbados	5.21	70.17	0.64	
48	Viet Nam	5.21	70.17	0.64	
50	Costa Rica	5.20	70.00	0.61	
50	Guatemala	5.20	70.00	0.61	
50	Jamaica	5.20	70.00	0.61	
50	Oman	5.20	70.00	0.61	
54	Paraguay	5.18	69.67	0.61	●
55	Senegal	5.13	68.83	0.60	●
56	Luxembourg	5.12	68.67	0.59	
56	Morocco	5.12	68.67	0.59	
58	Peru	5.10	68.33	0.58	
59	Brunei Darussalam	5.08	68.00	0.57	
60	Philippines	5.07	67.83	0.56	
61	Colombia	5.06	67.67	0.56	
62	Mexico	5.05	67.50	0.55	
63	Indonesia	5.03	67.17	0.54	
64	Ghana	5.02	67.00	0.53	
64	Uganda	5.02	67.00	0.53	
66	Guyana	4.99	66.50	0.52	
67	Brazil	4.98	66.33	0.51	
68	Côte d'Ivoire	4.97	66.17	0.50	●
68	Panama	4.97	66.17	0.50	
70	Italy	4.95	65.83	0.49	
71	Bangladesh	4.93	65.50	0.48	
72	Dominican Republic	4.92	65.33	0.47	
73	Nigeria	4.91	65.17	0.47	
74	Cambodia	4.90	65.00	0.45	
74	Portugal	4.90	65.00	0.45	
76	Pakistan	4.89	64.83	0.44	
77	Tunisia	4.87	64.50	0.44	
78	Madagascar	4.85	64.17	0.42	
78	Zimbabwe	4.85	64.17	0.42	
80	Iceland	4.84	64.00	0.41	○
81	Gambia	4.81	63.50	0.41	
82	TFYR of Macedonia	4.80	63.33	0.40	
83	Finland	4.78	63.00	0.39	○
84	Greece	4.75	62.50	0.39	
85	Benin	4.74	62.33	0.36	
85	Rwanda	4.74	62.33	0.36	
85	Trinidad and Tobago	4.74	62.33	0.36	
88	Botswana	4.73	62.17	0.35	
88	Cameroon	4.73	62.17	0.35	
90	Lesotho	4.72	62.00	0.34	
91	Bhutan	4.69	61.50	0.33	
91	Israel	4.69	61.50	0.33	○
93	Myanmar	4.61	60.17	0.32	
94	Mongolia	4.60	60.00	0.31	
95	Namibia	4.59	59.83	0.30	
95	Seychelles	4.59	59.83	0.30	
97	Armenia	4.58	59.67	0.28	
97	Bulgaria	4.58	59.67	0.28	○
99	Honduras	4.56	59.33	0.27	
100	El Salvador	4.55	59.17	0.27	
101	Ukraine	4.54	59.00	0.26	
102	Croatia	4.52	58.67	0.25	○
103	Kuwait	4.51	58.50	0.24	
103	Nepal	4.51	58.50	0.24	
105	Mali	4.50	58.33	0.23	
106	Ecuador	4.49	58.17	0.21	
106	Russian Federation	4.49	58.17	0.21	○
108	Uruguay	4.46	57.67	0.21	○
109	Romania	4.40	56.67	0.20	○
110	Burkina Faso	4.39	56.50	0.19	
111	Swaziland	4.36	56.00	0.18	
111	Yemen	4.36	56.00	0.18	
113	Kazakhstan	4.35	55.83	0.16	○
113	Moldova, Rep.	4.35	55.83	0.16	○
115	Iran, Islamic Rep.	4.34	55.67	0.16	
116	Cabo Verde	4.32	55.33	0.14	○
116	Georgia	4.32	55.33	0.14	○
118	Kyrgyzstan	4.28	54.67	0.13	
119	Malawi	4.27	54.50	0.13	
120	Mozambique	4.20	53.33	0.12	
121	Tanzania, United Rep.	4.18	53.00	0.11	
122	Azerbaijan	4.17	52.83	0.10	○
123	Egypt	4.06	51.00	0.09	○
123	Guinea	4.06	51.00	0.09	
125	Ethiopia	4.03	50.50	0.08	
126	Argentina	4.01	50.17	0.07	○
127	Montenegro	3.87	47.83	0.07	○
128	Nicaragua	3.84	47.33	0.06	○
129	Bolivia, Plurinational St.	3.83	47.17	0.04	○
129	Serbia	3.83	47.17	0.04	○
131	Algeria	3.56	42.67	0.04	○
132	Albania	3.42	40.33	0.02	○
132	Bosnia and Herzegovina	3.42	40.33	0.02	○
134	Burundi	3.29	38.17	0.01	○
135	Venezuela, Bolivarian Rep.	3.04	34.00	0.01	○
136	Angola	2.82	30.33	0.00	○
n/a	Belarus	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

5.1.1 Employment in knowledge-intensive services

Employment in knowledge-intensive services (% of workforce) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Luxembourg	57.18	100.00	1.00	●
2	Singapore (2008)	51.02	89.09	0.99	●
3	Switzerland	49.84	86.99	0.98	
4	Sweden	47.58	82.99	0.97	●
5	United Kingdom	47.20	82.32	0.96	
6	Iceland	46.87	81.74	0.95	
7	Norway	45.96	80.12	0.94	
8	Netherlands	45.92	80.05	0.94	
9	Denmark	45.18	78.73	0.93	
10	France	44.75	77.98	0.92	●
11	Belgium	44.60	77.70	0.91	
12	Finland	43.90	76.47	0.90	
13	Canada	43.80	76.29	0.89	
14	Germany	43.51	75.78	0.88	
15	New Zealand (2008)	42.92	74.73	0.87	
16	Australia (2008)	42.87	74.64	0.86	
17	Russian Federation	42.79	74.51	0.85	●
18	Lithuania	42.78	74.48	0.84	●
19	Israel	42.39	73.79	0.83	
20	Estonia	41.82	72.78	0.83	
21	Slovenia	41.37	71.99	0.82	
22	Ireland	41.21	71.70	0.81	
23	Malta	39.69	69.00	0.80	
24	Latvia	39.48	68.63	0.79	
25	Austria	38.51	66.92	0.78	
26	Czech Republic	37.29	64.76	0.77	
27	Montenegro	37.21	64.62	0.76	●
28	United States of America (2008)	36.30	62.99	0.75	
29	Hong Kong (China) (2010)	36.22	62.85	0.74	
30	United Arab Emirates (2008)	36.09	62.63	0.73	
31	Belarus (2009)	35.88	62.27	0.72	
32	Hungary	35.44	61.47	0.72	
33	Poland	35.09	60.85	0.71	
34	Cyprus	34.97	60.65	0.70	
35	Italy	34.52	59.85	0.69	
36	Egypt	33.99	58.91	0.68	●
37	Ukraine	33.82	58.61	0.67	
38	Slovakia	32.93	57.03	0.66	
39	Spain	32.48	56.24	0.65	
40	Croatia	32.25	55.82	0.64	
41	Lebanon (2007)	31.86	55.13	0.63	
42	Moldova, Rep.	31.34	54.21	0.62	
43	Greece	31.09	53.76	0.61	
44	Portugal	30.99	53.59	0.61	
45	Serbia	30.43	52.59	0.60	
46	Barbados (2004)	30.30	52.37	0.59	
47	TFYR of Macedonia	29.64	51.20	0.58	
48	Bulgaria	29.56	51.06	0.57	
49	Kazakhstan (2010)	29.27	50.54	0.56	
50	Malaysia (2010)	27.53	47.46	0.55	
51	Seychelles (2011)	26.25	45.19	0.54	
52	South Africa	25.28	43.48	0.53	
53	Trinidad and Tobago (2010)	25.01	43.00	0.52	
54	Argentina (2010)	25.00	42.97	0.51	
55	Japan	24.93	42.85	0.50	
56	Panama	24.39	41.90	0.50	
57	Azerbaijan (2010)	24.22	41.60	0.49	
58	Qatar (2007)	24.19	41.54	0.48	
59	Chile	24.06	41.31	0.47	
60	Mongolia (2010)	24.04	41.28	0.46	
61	Costa Rica	23.86	40.96	0.45	
62	Uruguay (2011)	23.13	39.65	0.44	
63	Saudi Arabia (2008)	22.88	39.23	0.43	
64	Philippines	22.46	38.48	0.42	
65	Georgia (2007)	22.25	38.10	0.41	
66	Romania	22.20	38.01	0.40	
67	Korea, Rep. (2010)	21.54	36.85	0.39	
68	Tunisia	20.94	35.78	0.39	
69	Bahrain (2008)	20.73	35.42	0.38	
70	Brazil	20.50	35.01	0.37	
71	Mauritius	20.37	34.78	0.36	
72	Turkey	20.21	34.49	0.35	
73	Jamaica (2008)	20.11	34.32	0.34	
74	Pakistan (2008)	19.48	33.19	0.33	
75	Algeria (2004)	19.10	32.52	0.32	
76	Sri Lanka (2010)	19.06	32.45	0.31	
77	Kuwait (2005)	18.71	31.82	0.30	
78	Venezuela, Bolivarian Rep.	18.59	31.62	0.29	
79	Kyrgyzstan	17.56	29.79	0.28	
80	Dominican Republic	17.33	29.38	0.28	
81	Botswana (2006)	17.10	28.98	0.27	
82	Yemen (2005)	16.97	28.74	0.26	
83	Namibia (2004)	16.95	28.71	0.25	
84	Colombia (2010)	16.82	28.47	0.24	
85	Bhutan (2010)	16.48	27.89	0.23	
86	Albania (2009)	16.08	27.17	0.22	
87	Ethiopia (2011)	15.85	26.77	0.21	
88	Paraguay	15.43	26.02	0.20	
89	Iran, Islamic Rep. (2009)	15.32	25.83	0.19	
90	Peru	15.26	25.72	0.18	
91	Bolivia, Plurinational St. (2009)	15.25	25.71	0.17	
92	Nicaragua (2006)	14.82	24.95	0.17	
93	Mexico	14.74	24.80	0.16	○
94	Ecuador	14.65	24.64	0.15	
95	Honduras (2005)	12.83	21.42	0.14	○
96	El Salvador	11.94	19.84	0.13	
97	Thailand	10.94	18.07	0.12	○
98	Guatemala	9.45	15.41	0.11	
99	Indonesia (2010)	8.59	13.89	0.10	
100	Viet Nam (2004)	7.41	11.80	0.09	○
101	China (2005)	7.37	11.74	0.08	○
102	Bangladesh (2005)	7.33	11.66	0.07	○
103	Zambia (2010)	7.28	11.58	0.06	○
104	Morocco (2008)	6.79	10.70	0.06	○
105	Zimbabwe (2011)	6.61	10.39	0.05	
106	Uganda (2009)	4.36	6.40	0.04	○
107	Madagascar (2010)	2.85	3.73	0.03	○
108	Tanzania, United Rep. (2006)	2.57	3.23	0.02	○
109	Cambodia (2004)	2.52	3.14	0.01	○
110	Guinea (2010)	0.75	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: International Labour Organization, *LABORSTA Database of Labor Statistics* (2004–08), and *ILOSTAT Database of Labour Statistics* Beta version (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

5.1.2 Firms offering formal training

Firms offering formal training (% of firms) | 2009

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	China (2012)	79.20	100.00	1.00	●
2	Thailand (2006)	75.30	94.78	0.99	●
3	Ireland (2005)	73.20	91.97	0.98	●
4	Czech Republic	69.60	87.15	0.97	●
5	Estonia	69.30	86.75	0.96	●
6	Bosnia and Herzegovina	67.50	84.34	0.95	●
7	Mongolia	61.00	75.64	0.94	●
8	Poland	60.50	74.97	0.93	●
9	El Salvador (2010)	60.40	74.83	0.92	●
10	Argentina (2010)	58.10	71.75	0.90	●
10	Fiji	58.10	71.75	0.90	●
12	Peru (2010)	57.00	70.28	0.90	●
13	Colombia (2010)	56.70	69.88	0.89	●
14	Ecuador (2010)	56.40	69.48	0.88	●
15	Dominican Republic (2010)	55.90	68.81	0.87	●
16	Lesotho	54.40	66.80	0.86	●
17	Bolivia, Plurinational St. (2010)	54.10	66.40	0.85	●
18	Guyana (2010)	53.40	65.46	0.84	●
19	Barbados (2010)	53.10	65.06	0.83	
20	Brazil	52.70	64.52	0.82	●
21	Lebanon	52.40	64.12	0.81	●
22	Rwanda (2011)	52.30	63.99	0.80	●
23	Botswana (2010)	51.80	63.32	0.79	●
24	Paraguay (2010)	51.70	63.19	0.78	●
25	Spain (2005)	51.30	62.65	0.77	
26	Swaziland (2006)	51.00	62.25	0.76	●
27	Malaysia (2007)	50.10	61.04	0.75	
28	Costa Rica (2010)	48.90	59.44	0.74	
29	Slovenia	48.60	59.04	0.73	
30	Cambodia (2007)	48.40	58.77	0.72	●
31	Belarus (2013)	47.70	57.83	0.71	
32	Malawi	47.60	57.70	0.70	●
33	Lithuania	46.80	56.63	0.70	
34	Chile (2010)	45.90	55.42	0.69	
35	Mexico (2010)	45.10	54.35	0.68	
36	Namibia (2006)	44.50	53.55	0.67	
37	Russian Federation (2012)	44.30	53.28	0.66	
38	Guatemala (2010)	43.60	52.34	0.64	●
38	Viet Nam	43.60	52.34	0.64	
40	Kazakhstan	41.70	49.80	0.63	
41	Latvia	41.40	49.40	0.62	
42	Korea, Rep. (2005)	39.50	46.85	0.61	
43	Venezuela, Bolivarian Rep. (2010)	39.00	46.18	0.60	●
44	South Africa (2007)	38.70	45.78	0.59	
45	Mali (2010)	36.70	43.11	0.58	●
46	Tanzania, United Rep. (2006)	36.50	42.84	0.57	●
47	Niger	36.10	42.30	0.56	
48	Serbia	35.80	41.90	0.55	
49	Germany (2005)	35.40	41.37	0.54	
50	Nicaragua (2010)	35.20	41.10	0.53	●
51	Uganda (2006)	35.00	40.83	0.52	
52	Honduras (2010)	33.80	39.22	0.50	●
52	Slovakia	33.80	39.22	0.50	
54	Zimbabwe (2011)	33.00	38.15	0.50	
55	Moldova, Rep.	32.40	37.35	0.49	
56	Togo	32.30	37.22	0.47	●
56	Uruguay (2010)	32.30	37.22	0.47	
58	Nepal (2013)	31.90	36.68	0.45	
58	Portugal (2005)	31.90	36.68	0.45	
60	Trinidad and Tobago (2010)	31.50	36.14	0.44	
61	Ghana (2007)	31.10	35.61	0.41	
61	Philippines	31.10	35.61	0.41	
61	Zambia (2007)	31.10	35.61	0.41	
64	Bulgaria	30.80	35.21	0.40	
65	Armenia	30.40	34.67	0.39	
66	Bhutan	29.90	34.00	0.38	
67	Kyrgyzstan	29.70	33.73	0.36	
67	Turkey (2008)	29.70	33.73	0.36	
69	Croatia (2007)	28.90	32.66	0.35	○
70	Mauritius	28.80	32.53	0.34	
71	Madagascar	27.40	30.66	0.33	
72	Angola (2010)	26.90	29.99	0.32	●
73	Benin	26.80	29.85	0.31	
74	Jamaica (2010)	26.10	28.92	0.30	
75	Romania	25.90	28.65	0.30	
76	Nigeria (2007)	25.70	28.38	0.29	
77	Gambia (2006)	25.60	28.25	0.28	
78	Montenegro	25.20	27.71	0.27	○
79	Burkina Faso	24.90	27.31	0.26	
80	Morocco (2007)	24.70	27.04	0.25	
81	Ukraine (2008)	24.60	26.91	0.24	
82	Cameroon	24.50	26.77	0.23	
83	Cabo Verde	24.10	26.24	0.22	
84	Jordan (2006)	23.90	25.97	0.21	○
85	Ethiopia (2011)	23.00	24.77	0.20	
86	Burundi (2006)	22.10	23.56	0.19	
87	Mozambique (2007)	22.00	23.43	0.18	
88	Egypt (2008)	21.70	23.03	0.17	
89	Côte d'Ivoire	21.30	22.49	0.16	
90	Tajikistan (2008)	21.20	22.36	0.15	
91	Guinea (2006)	21.10	22.22	0.14	
92	Greece (2005)	20.00	20.75	0.13	○
93	Albania (2007)	19.90	20.62	0.11	
93	Senegal (2007)	19.90	20.62	0.11	
95	TFYR of Macedonia	19.00	19.41	0.10	○
96	Algeria (2007)	17.30	17.14	0.10	
97	India (2006)	15.90	15.26	0.09	○
98	Georgia (2008)	14.90	13.92	0.08	○
99	Hungary	14.60	13.52	0.07	○
100	Sri Lanka (2011)	13.10	11.51	0.06	○
101	Azerbaijan	10.50	8.03	0.05	○
102	Uzbekistan (2008)	9.60	6.83	0.04	○
103	Panama (2010)	8.60	5.49	0.03	○
104	Yemen (2010)	7.30	3.75	0.02	
105	Indonesia	4.80	0.40	0.01	○
106	Pakistan (2007)	4.50	0.00	0.00	○
n/a	Australia	n/a	n/a	n/a	
n/a	Austria	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Belgium	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Denmark	n/a	n/a	n/a	
n/a	Finland	n/a	n/a	n/a	
n/a	France	n/a	n/a	n/a	
n/a	Hong Kong (China)	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Italy	n/a	n/a	n/a	
n/a	Japan	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Netherlands	n/a	n/a	n/a	
n/a	New Zealand	n/a	n/a	n/a	
n/a	Norway	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Sweden	n/a	n/a	n/a	
n/a	Switzerland	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	United Kingdom	n/a	n/a	n/a	
n/a	United States of America	n/a	n/a	n/a	

SOURCE: International Finance Corporation and World Bank, *Enterprise Surveys* (2005–13)

NOTE: ● indicates a strength; ○ a weakness.

5.1.3 GERD performed by business enterprise

GERD: Performed by business enterprise (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Israel	3.32	100.00	1.00	●
2	Korea, Rep. (2011)	3.09	93.24	0.99	●
3	Japan (2011)	2.61	78.64	0.98	●
4	Finland	2.44	73.54	0.97	
5	Sweden	2.31	69.66	0.95	
6	Switzerland	2.17	65.32	0.94	
7	Slovenia	2.16	65.20	0.93	●
8	Denmark	1.96	59.15	0.92	
9	Germany	1.95	58.91	0.91	
10	Austria	1.95	58.84	0.90	
11	United States of America	1.95	58.80	0.88	
12	Belgium	1.52	45.71	0.87	
13	China	1.51	45.54	0.86	
14	France	1.45	43.80	0.85	
15	Singapore (2011)	1.39	41.78	0.84	
16	Australia (2011)	1.31	39.36	0.83	
17	Iceland (2011)	1.26	38.05	0.81	
18	Estonia	1.25	37.80	0.80	
19	Netherlands	1.22	36.82	0.79	
20	Ireland	1.20	36.09	0.78	
21	United Kingdom	1.09	32.97	0.77	
22	Czech Republic	1.01	30.42	0.76	
23	Luxembourg	1.00	30.15	0.74	
24	Canada	0.88	26.62	0.73	
25	Norway	0.87	26.15	0.72	
26	Hungary	0.85	25.66	0.71	
27	Portugal	0.70	21.20	0.70	
28	Italy	0.69	20.81	0.69	
29	Spain	0.69	20.79	0.67	
30	Russian Federation	0.65	19.67	0.66	
31	Malaysia (2011)	0.60	18.20	0.65	
32	New Zealand (2011)	0.58	17.42	0.64	
33	Malta	0.51	15.25	0.63	
34	Belarus (2011)	0.49	14.76	0.62	
35	Ukraine (2011)	0.41	12.37	0.60	
36	Bulgaria	0.39	11.66	0.59	
37	South Africa (2010)	0.38	11.40	0.58	
38	Turkey (2011)	0.37	11.19	0.57	
39	Croatia	0.34	10.39	0.56	
40	Slovakia	0.34	10.26	0.55	
41	Poland	0.33	10.09	0.53	
42	Hong Kong (China) (2010)	0.32	9.79	0.52	
43	India (2011)	0.29	8.65	0.51	
44	Lithuania	0.24	7.23	0.50	
45	Greece	0.24	7.13	0.49	
46	Tunisia (2009)	0.22	6.65	0.48	
47	Morocco (2010)	0.22	6.62	0.47	
48	Uganda (2010)	0.19	5.85	0.45	
49	Romania	0.19	5.74	0.44	
50	Mexico (2011)	0.17	5.04	0.43	
51	Chile (2010)	0.16	4.86	0.42	
52	Argentina (2011)	0.16	4.80	0.41	
53	Latvia	0.15	4.48	0.40	○
54	United Arab Emirates (2011)	0.14	4.22	0.38	
55	Thailand (2009)	0.10	3.11	0.37	
56	Sudan (2005)	0.10	3.03	0.36	
57	Montenegro (2011)	0.09	2.74	0.35	
58	Kenya (2010)	0.08	2.54	0.34	
59	Botswana (2005)	0.08	2.50	0.33	
60	Kazakhstan (2011)	0.08	2.44	0.31	
61	Iran, Islamic Rep. (2008)	0.08	2.39	0.30	
62	Moldova, Rep. (2011)	0.08	2.31	0.29	
63	Costa Rica (2011)	0.08	2.27	0.28	
64	Serbia (2011)	0.07	2.20	0.27	
65	Sri Lanka (2010)	0.07	2.06	0.26	
66	Cyprus	0.06	1.95	0.24	
67	Philippines (2007)	0.06	1.88	0.23	
68	Uruguay (2011)	0.06	1.85	0.22	
69	Colombia	0.05	1.36	0.21	○
70	Peru (2004)	0.04	1.31	0.20	
71	Ethiopia (2010)	0.04	1.15	0.19	
72	Azerbaijan (2011)	0.04	1.13	0.17	
73	Kyrgyzstan (2011)	0.04	1.10	0.16	
74	Oman (2011)	0.03	0.95	0.15	○
75	TFYR of Macedonia (2010)	0.03	0.75	0.14	○
76	Ecuador (2008)	0.02	0.58	0.13	
77	Mongolia (2011)	0.02	0.56	0.12	○
78	Namibia (2010)	0.02	0.55	0.10	○
79	Mali (2007)	0.01	0.22	0.09	
80	Zambia (2008)	0.01	0.20	0.08	
81	Indonesia (2008)	0.00	0.12	0.07	○
82	Senegal (2010)	0.00	0.05	0.06	○
83	Trinidad and Tobago (2009)	0.00	0.03	0.05	○
84	Ghana (2010)	0.00	0.01	0.03	○
85	Paraguay (2011)	0.00	0.01	0.02	○
86	Panama (2010)	0.00	0.01	0.01	○
87	Guatemala (2011)	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brazil	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

5.1.4 GERD financed by business enterprise

GERD: Financed by business enterprise (% of total GERD) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Israel	84.45	100.00	1.00	●
2	Slovenia	77.22	91.43	0.99	●
3	Japan (2011)	76.96	91.12	0.98	●
4	Korea, Rep. (2011)	76.53	90.61	0.96	
5	China	76.15	90.16	0.95	●
6	Switzerland (2008)	73.50	87.01	0.94	
7	Belarus (2011)	69.87	82.71	0.93	●
8	United States of America	69.83	82.66	0.92	
9	Ireland	69.42	82.17	0.91	
10	Austria	68.78	81.42	0.89	
11	Finland	68.72	81.35	0.88	
12	Sweden	67.79	80.24	0.87	
13	Belgium	67.78	80.23	0.86	
14	Luxembourg (2010)	67.61	80.03	0.85	
15	Germany	66.92	79.20	0.84	
16	Denmark	65.66	77.71	0.82	
17	Hungary	65.63	77.67	0.81	
18	France	64.19	75.97	0.80	
19	United Kingdom	63.42	75.06	0.79	
20	Singapore (2011)	62.14	73.53	0.78	
21	Bulgaria	60.50	71.60	0.76	
22	Malta	60.02	71.03	0.75	
23	Australia (2010)	58.41	69.11	0.74	
24	Russian Federation	58.34	69.03	0.73	
25	Estonia	57.45	67.97	0.72	
26	Philippines (2007)	56.95	67.38	0.71	●
27	Malaysia (2011)	56.67	67.04	0.69	
28	Netherlands	56.60	66.97	0.68	
29	Ukraine (2011)	55.71	65.91	0.67	
30	Italy	54.52	64.50	0.66	
31	Czech Republic	53.61	63.41	0.65	
32	Spain	52.98	62.67	0.64	
33	Iceland (2011)	52.59	62.20	0.62	
34	Norway	52.37	61.94	0.61	
35	Canada	52.28	61.84	0.60	
36	Kazakhstan (2011)	51.59	61.03	0.59	
37	South Africa (2010)	49.66	58.74	0.58	
38	Portugal	47.01	55.59	0.56	
39	Croatia	45.85	54.21	0.55	
40	New Zealand (2011)	45.45	53.73	0.54	
41	Sri Lanka (2010)	43.75	51.72	0.53	
42	Hong Kong (China) (2010)	43.32	51.21	0.52	
43	Turkey (2011)	43.19	51.05	0.51	
44	Slovakia	41.35	48.87	0.49	
45	Thailand (2009)	41.21	48.71	0.48	
46	Mexico (2011)	39.01	46.10	0.47	
47	Romania	38.97	46.05	0.46	
48	Chile (2010)	38.69	45.71	0.45	
49	Poland	37.21	43.97	0.44	
50	India (2011)	35.46	41.89	0.42	
51	Uganda (2010)	34.77	41.07	0.41	
52	Greece	34.29	40.49	0.40	
53	Sudan (2005)	33.71	39.81	0.39	●
54	Morocco (2010)	29.94	35.34	0.38	
55	Peru (2004)	29.17	34.43	0.36	
56	United Arab Emirates (2011)	28.62	33.77	0.35	
57	Lithuania	26.59	31.37	0.34	
58	Colombia	26.17	30.87	0.33	
59	Argentina (2011)	24.63	29.04	0.32	
60	Oman (2011)	23.93	28.21	0.31	
61	Kyrgyzstan (2011)	23.33	27.49	0.29	
62	Latvia	22.60	26.63	0.28	○
63	Montenegro (2011)	22.28	26.26	0.27	
64	Tunisia (2009)	20.03	23.58	0.26	
65	Moldova, Rep. (2011)	18.98	22.34	0.25	
66	Azerbaijan (2011)	17.79	20.93	0.24	
67	Costa Rica (2011)	15.85	18.62	0.22	○
68	Botswana (2005)	15.57	18.29	0.21	
69	Ethiopia (2010)	15.53	18.25	0.20	
70	Uruguay (2011)	14.30	16.78	0.19	○
71	Cyprus	13.89	16.30	0.18	○
72	Namibia (2010)	12.82	15.03	0.16	
73	TFYR of Macedonia (2010)	11.50	13.46	0.15	○
74	Iran, Islamic Rep. (2008)	10.61	12.41	0.14	
75	Serbia (2011)	9.38	10.95	0.13	○
76	Kenya (2010)	8.66	10.09	0.12	○
77	Ecuador (2008)	8.53	9.94	0.11	○
78	Mongolia (2011)	6.78	7.87	0.09	○
79	Mali (2007)	2.97	3.35	0.08	
80	Trinidad and Tobago (2009)	2.18	2.41	0.07	○
81	Zambia (2008)	2.02	2.21	0.06	○
82	Paraguay (2011)	0.79	0.76	0.05	○
83	Senegal (2010)	0.34	0.22	0.04	○
84	Guatemala (2011)	0.34	0.22	0.02	○
85	Panama (2010)	0.19	0.05	0.01	○
86	Ghana (2010)	0.15	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Brazil	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Indonesia	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

5.1.5 GMAT test takers

Number of test takers of the Graduate Management Admission Test (GMAT) by citizenship (scaled by million population 20–34 years old) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United States of America	1,376.26	100.00	1.00	●
2	Hong Kong (China)	1,326.10	99.25	0.99	●
3	Israel	1,112.77	95.72	0.99	●
4	Canada	893.14	91.29	0.98	●
5	Lebanon	804.84	89.20	0.97	●
6	Singapore	783.13	88.65	0.96	
7	Iceland	586.57	82.86	0.96	●
8	Greece	534.23	80.99	0.95	●
9	Kuwait	510.25	80.07	0.94	●
10	Korea, Rep.	433.43	76.82	0.94	
11	Barbados	390.07	74.72	0.93	●
12	Sweden	346.74	72.39	0.92	
13	Finland	337.99	71.88	0.91	
14	Netherlands	319.12	70.75	0.91	
15	Bulgaria	318.65	70.72	0.90	●
16	Switzerland	312.67	70.34	0.89	
17	France	300.61	69.57	0.89	
18	Saudi Arabia	293.34	69.08	0.88	●
19	Norway	290.36	68.88	0.87	
20	Portugal	288.06	68.73	0.87	
21	Germany	269.97	67.45	0.86	
22	Ireland	253.89	66.24	0.85	
23	Luxembourg	233.58	64.61	0.84	
24	Jamaica	210.42	62.57	0.84	●
25	Austria	198.34	61.42	0.83	
26	Italy	187.42	60.32	0.82	
27	Bahrain	177.34	59.25	0.82	
28	Belgium	172.29	58.69	0.81	
29	Cyprus	170.62	58.50	0.80	
30	New Zealand	165.28	57.89	0.79	
31	Australia	159.61	57.22	0.79	
32	Mauritius	156.93	56.89	0.78	
33	China	154.19	56.55	0.77	
34	Latvia	152.97	56.40	0.77	
35	Trinidad and Tobago	150.53	56.09	0.76	●
36	Montenegro	149.88	56.01	0.75	●
37	Albania	147.90	55.76	0.74	●
38	Estonia	144.75	55.34	0.74	
39	Mongolia	138.22	54.46	0.73	
40	Seychelles (2010)	130.31	53.34	0.72	●
41	Japan	128.01	53.00	0.72	
42	United Kingdom	124.48	52.47	0.71	
43	Jordan	118.97	51.61	0.70	
44	Thailand	118.52	51.54	0.70	
45	Brunei Darussalam	114.45	50.88	0.69	
46	Spain	114.07	50.82	0.68	
47	Chile	114.06	50.82	0.67	
48	Lithuania	110.19	50.17	0.67	
49	Malta	109.42	50.04	0.66	
50	Denmark	106.28	49.49	0.65	
51	Hungary	104.95	49.25	0.65	
52	Guyana	99.10	48.18	0.64	●
53	Croatia	97.05	47.79	0.63	
54	Slovenia	93.93	47.19	0.62	
55	Armenia	85.48	45.44	0.62	
56	Moldova, Rep.	81.51	44.57	0.61	
57	India	78.71	43.93	0.60	
58	Georgia	74.41	42.91	0.60	
59	Serbia	73.66	42.73	0.59	
60	Slovakia	71.82	42.27	0.58	
61	Turkey	71.14	42.09	0.57	
62	Peru	69.89	41.78	0.57	
63	Nepal	68.56	41.43	0.56	●
64	Panama	67.44	41.13	0.55	
65	Uruguay	66.16	40.79	0.55	
66	Colombia	65.59	40.63	0.54	
67	Romania	61.56	39.51	0.53	
68	Ghana	61.39	39.46	0.52	
69	Costa Rica	59.28	38.84	0.52	
70	Russian Federation	58.63	38.64	0.51	
71	Kazakhstan	56.78	38.08	0.50	
72	South Africa	53.53	37.05	0.50	
73	Kenya	51.89	36.51	0.49	
74	Viet Nam	51.56	36.39	0.48	
75	Belarus	50.54	36.05	0.48	
76	Mexico	50.29	35.96	0.47	
77	Venezuela, Bolivarian Rep.	48.16	35.22	0.46	
78	Malaysia	45.88	34.39	0.45	
79	Ecuador	41.36	32.64	0.45	
80	Ukraine	40.97	32.48	0.44	
81	Bhutan	39.04	31.68	0.43	
82	Honduras	38.05	31.25	0.43	
83	Czech Republic	37.27	30.92	0.42	
84	Cameroon	37.21	30.89	0.41	●
85	Argentina	36.98	30.79	0.40	
86	Botswana	35.63	30.18	0.40	
87	Egypt	35.20	29.98	0.39	
88	Azerbaijan	34.74	29.77	0.38	
89	Nigeria	34.16	29.50	0.38	
90	Swaziland	33.59	29.23	0.37	
91	Zimbabwe	33.26	29.07	0.36	
92	Morocco	33.04	28.96	0.35	
93	Poland	32.74	28.81	0.35	
94	Qatar	32.10	28.50	0.34	
95	Oman	31.69	28.30	0.33	
96	Brazil	31.65	28.28	0.33	
97	Bosnia and Herzegovina	30.59	27.74	0.32	
98	Cabo Verde	28.16	26.45	0.31	
99	Namibia	26.67	25.62	0.30	
100	Kyrgyzstan	26.63	25.59	0.30	
101	Dominican Republic	26.56	25.55	0.29	
102	TFYR of Macedonia	26.36	25.43	0.28	○
103	El Salvador	25.70	25.05	0.28	
104	Gambia	25.63	25.01	0.27	
105	United Arab Emirates	25.40	24.87	0.26	○
106	Côte d'Ivoire	25.32	24.83	0.26	
107	Sri Lanka	23.62	23.79	0.25	
108	Guatemala	23.48	23.70	0.24	
109	Tunisia	21.50	22.42	0.23	
110	Pakistan	19.29	20.88	0.23	
111	Fiji	18.12	20.02	0.22	
112	Philippines	15.54	17.99	0.21	
113	Indonesia	14.31	16.93	0.21	
114	Senegal	14.13	16.77	0.20	
115	Bolivia, Plurinational St.	13.33	16.05	0.19	
116	Nicaragua	12.84	15.60	0.18	
117	Benin	11.65	14.45	0.18	
118	Lesotho	11.56	14.37	0.17	
119	Rwanda	11.02	13.82	0.16	
120	Uzbekistan	10.77	13.56	0.16	
121	Uganda	10.26	13.02	0.15	
122	Paraguay	9.54	12.25	0.14	
123	Bangladesh	9.42	12.12	0.13	
124	Togo	8.89	11.52	0.13	
125	Zambia	8.39	10.94	0.12	
126	Burkina Faso	7.41	9.75	0.11	
127	Burundi	6.30	8.32	0.11	
128	Tajikistan	5.47	7.17	0.10	
129	Mali	5.33	6.98	0.09	
130	Malawi	5.27	6.89	0.09	
131	Angola	5.09	6.63	0.08	
132	Tanzania, United Rep.	5.06	6.59	0.07	○
133	Yemen	4.57	5.86	0.06	
134	Guinea	4.02	5.01	0.06	
135	Myanmar	2.99	3.31	0.05	
136	Ethiopia	2.97	3.28	0.04	
137	Algeria	2.79	2.96	0.04	○
138	Cambodia	2.51	2.48	0.03	○
139	Madagascar	2.48	2.41	0.02	○
140	Sudan	1.67	0.91	0.01	○
141	Niger	1.47	0.53	0.01	○
142	Mozambique	1.21	0.00	0.00	○
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	

SOURCE: Graduate Management Admission Council; United Nations, *World Population Prospects: The 2012 Revision* (population data) (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

5.2.1 University/industry research collaboration

Average answer to the survey question: In your country, to what extent do business and universities collaborate on research and development (R&D)? [1 = do not collaborate at all; 7 = collaborate extensively] | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Switzerland	5.84	80.67	1.00	●
2	Finland	5.82	80.33	0.99	●
3	United States of America	5.74	79.00	0.99	●
4	Singapore	5.62	77.00	0.98	
5	United Kingdom	5.58	76.33	0.97	●
6	Belgium	5.53	75.50	0.96	●
7	Qatar	5.47	74.50	0.96	●
8	Israel	5.40	73.33	0.95	●
9	Germany	5.39	73.17	0.94	
10	Sweden	5.34	72.33	0.93	
11	Netherlands	5.25	70.83	0.93	
12	Ireland	5.20	70.00	0.92	
13	Norway	5.08	68.00	0.91	
14	Australia	5.06	67.67	0.90	
15	Malaysia	5.02	67.00	0.90	
16	Japan	4.96	66.00	0.89	
17	Canada	4.93	65.50	0.88	
18	Luxembourg	4.90	65.00	0.87	
19	New Zealand	4.87	64.50	0.87	
20	Hong Kong (China)	4.86	64.33	0.86	
21	Denmark	4.81	63.50	0.85	
22	Austria	4.79	63.17	0.84	
22	United Arab Emirates	4.79	63.17	0.84	
24	Iceland	4.77	62.83	0.83	
25	Korea, Rep.	4.68	61.33	0.82	
26	Portugal	4.60	60.00	0.81	
27	Lithuania	4.56	59.33	0.81	
28	South Africa	4.54	59.00	0.80	●
29	Indonesia	4.49	58.17	0.79	●
30	Saudi Arabia	4.47	57.83	0.79	
31	France	4.46	57.67	0.78	
32	China	4.41	56.83	0.76	
32	Costa Rica	4.41	56.83	0.76	●
32	Czech Republic	4.41	56.83	0.76	
35	Estonia	4.39	56.50	0.75	
36	Bosnia and Herzegovina	4.32	55.33	0.74	●
37	Barbados	4.28	54.67	0.73	
37	Kenya	4.28	54.67	0.73	
39	Chile	4.27	54.50	0.72	
40	Hungary	4.26	54.33	0.71	
41	Panama	4.25	54.17	0.70	
42	Mexico	4.08	51.33	0.70	
43	India	4.00	50.00	0.67	
43	Montenegro	4.00	50.00	0.67	
43	Oman	4.00	50.00	0.67	
46	Brazil	3.98	49.67	0.66	
46	Spain	3.98	49.67	0.66	
48	Ecuador	3.94	49.00	0.65	●
49	Thailand	3.92	48.67	0.64	
50	Turkey	3.86	47.67	0.64	
51	Colombia	3.85	47.50	0.63	
52	Cyprus	3.79	46.50	0.62	
53	Malta	3.77	46.17	0.61	
53	Slovenia	3.77	46.17	0.61	
55	Guatemala	3.75	45.83	0.60	
56	Uganda	3.73	45.50	0.59	
57	Italy	3.71	45.17	0.58	
57	Rwanda	3.71	45.17	0.58	
59	Argentina	3.70	45.00	0.57	
60	Guyana	3.66	44.33	0.56	
61	Gambia	3.65	44.17	0.56	●
62	Russian Federation	3.64	44.00	0.55	
63	Brunei Darussalam	3.61	43.50	0.54	
64	Jamaica	3.60	43.33	0.52	
64	Latvia	3.60	43.33	0.52	
64	Uruguay	3.60	43.33	0.52	
67	Philippines	3.58	43.00	0.51	
68	Bolivia, Plurinational St.	3.55	42.50	0.50	
68	Zambia	3.55	42.50	0.50	
70	Poland	3.54	42.33	0.49	
71	Namibia	3.52	42.00	0.48	
72	Tanzania, United Rep.	3.51	41.83	0.47	
73	Ethiopia	3.49	41.50	0.47	
74	Croatia	3.46	41.00	0.46	
75	Ukraine	3.44	40.67	0.45	
76	Ghana	3.43	40.50	0.44	
76	Kazakhstan	3.43	40.50	0.44	
78	Seychelles	3.42	40.33	0.43	
79	TFYR of Macedonia	3.38	39.67	0.41	
79	Venezuela, Bolivarian Rep.	3.38	39.67	0.41	
81	Azerbaijan	3.36	39.33	0.40	
81	Jordan	3.36	39.33	0.40	
83	Honduras	3.34	39.00	0.39	
83	Viet Nam	3.34	39.00	0.39	
85	Romania	3.33	38.83	0.38	
86	Iran, Islamic Rep.	3.32	38.67	0.36	
86	Nicaragua	3.32	38.67	0.36	
88	Dominican Republic	3.31	38.50	0.36	
89	Nigeria	3.29	38.17	0.34	
89	Slovakia	3.29	38.17	0.34	
91	Mauritius	3.28	38.00	0.33	
92	Madagascar	3.27	37.83	0.32	
92	Mozambique	3.27	37.83	0.32	
94	El Salvador	3.25	37.50	0.30	
94	Pakistan	3.25	37.50	0.30	
96	Burkina Faso	3.24	37.33	0.30	
97	Botswana	3.23	37.17	0.28	
97	Senegal	3.23	37.17	0.28	
99	Trinidad and Tobago	3.22	37.00	0.27	
100	Cabo Verde	3.21	36.83	0.27	
101	Serbia	3.19	36.50	0.26	○
102	Armenia	3.16	36.00	0.24	○
102	Cambodia	3.16	36.00	0.24	
102	Swaziland	3.16	36.00	0.24	
105	Peru	3.14	35.67	0.23	
106	Lebanon	3.13	35.50	0.22	○
107	Malawi	3.10	35.00	0.21	
108	Zimbabwe	3.08	34.67	0.21	
109	Mongolia	3.05	34.17	0.19	
109	Tunisia	3.05	34.17	0.19	○
111	Bulgaria	3.04	34.00	0.17	○
111	Cameroon	3.04	34.00	0.17	
111	Morocco	3.04	34.00	0.17	○
114	Sri Lanka	3.02	33.67	0.16	○
115	Greece	3.01	33.50	0.16	
116	Kuwait	2.97	32.83	0.15	○
117	Bahrain	2.93	32.17	0.14	
118	Mali	2.89	31.50	0.13	
119	Côte d'Ivoire	2.81	30.17	0.13	
120	Paraguay	2.76	29.33	0.12	
121	Nepal	2.75	29.17	0.11	
122	Lesotho	2.72	28.67	0.10	
123	Benin	2.68	28.00	0.08	
123	Bhutan	2.68	28.00	0.08	○
123	Moldova, Rep.	2.68	28.00	0.08	○
126	Georgia	2.67	27.83	0.07	○
127	Egypt	2.65	27.50	0.07	○
128	Bangladesh	2.62	27.00	0.06	○
129	Albania	2.58	26.33	0.05	○
130	Burundi	2.52	25.33	0.04	
131	Kyrgyzstan	2.22	20.33	0.04	○
132	Guinea	2.19	19.83	0.03	
133	Angola	2.18	19.67	0.02	○
134	Yemen	2.12	18.67	0.01	○
135	Algeria	2.11	18.50	0.01	○
136	Myanmar	2.06	17.67	0.00	○
n/a	Belarus	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

5.2.2 State of cluster development

Average answer to the to the survey question on the role of clusters in the economy: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields] | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Italy	5.49	74.83	1.00	●
2	United Arab Emirates	5.45	74.17	0.99	●
3	Germany	5.38	73.00	0.99	●
4	Switzerland	5.28	71.33	0.98	
5	United States of America	5.23	70.50	0.97	
6	Japan	5.22	70.33	0.96	●
7	Singapore	5.20	70.00	0.96	
8	Netherlands	5.17	69.50	0.95	
9	Qatar	5.16	69.33	0.94	●
10	Hong Kong (China)	5.13	68.83	0.93	
11	Finland	5.08	68.00	0.93	
12	United Kingdom	5.06	67.67	0.92	
13	Malaysia	5.04	67.33	0.91	
14	Norway	5.01	66.83	0.90	
15	India	4.88	64.67	0.90	●
16	Austria	4.85	64.17	0.89	
17	Canada	4.84	64.00	0.88	
18	Sweden	4.83	63.83	0.87	
19	Belgium	4.81	63.50	0.87	
20	Ireland	4.80	63.33	0.86	
21	Luxembourg	4.74	62.33	0.85	
22	Saudi Arabia	4.69	61.50	0.84	●
23	China	4.61	60.17	0.84	
24	Brazil	4.53	58.83	0.83	●
25	Jordan	4.50	58.33	0.82	●
26	Korea, Rep.	4.46	57.67	0.81	
27	Indonesia	4.43	57.17	0.81	●
28	Turkey	4.42	57.00	0.80	●
29	France	4.41	56.83	0.79	
30	Bahrain	4.35	55.83	0.79	
31	Thailand	4.34	55.67	0.78	
32	Denmark	4.30	55.00	0.77	
33	Mexico	4.28	54.67	0.76	
34	Australia	4.27	54.50	0.75	
34	Oman	4.27	54.50	0.75	●
36	Brunei Darussalam	4.18	53.00	0.74	
37	Israel	4.17	52.83	0.73	
38	Portugal	4.16	52.67	0.73	
39	South Africa	4.15	52.50	0.71	
39	Spain	4.15	52.50	0.71	
41	Cambodia	4.14	52.33	0.70	●
41	Czech Republic	4.14	52.33	0.70	
43	Costa Rica	4.12	52.00	0.68	
43	Guatemala	4.12	52.00	0.68	●
45	Egypt	4.09	51.50	0.67	●
45	Zambia	4.09	51.50	0.67	●
47	Chile	4.08	51.33	0.66	
48	El Salvador	4.07	51.17	0.65	●
49	Cyprus	4.06	51.00	0.64	
50	Kenya	4.05	50.83	0.64	
51	Mauritius	4.04	50.67	0.63	
52	Iceland	4.03	50.50	0.61	
52	Philippines	4.03	50.50	0.61	
54	Jamaica	4.02	50.33	0.61	
55	Panama	4.00	50.00	0.60	
56	Guyana	3.98	49.67	0.59	
57	Morocco	3.97	49.50	0.59	
58	Sri Lanka	3.96	49.33	0.58	
59	Pakistan	3.95	49.17	0.57	●
60	Honduras	3.94	49.00	0.56	●
61	Malta	3.91	48.50	0.56	
62	Nigeria	3.90	48.33	0.55	●
63	Bangladesh	3.89	48.17	0.54	●
64	Seychelles	3.88	48.00	0.53	
64	Viet Nam	3.88	48.00	0.53	
66	Ecuador	3.85	47.50	0.52	
67	Rwanda	3.84	47.33	0.50	
67	Slovakia	3.84	47.33	0.50	
69	Gambia	3.83	47.17	0.50	
70	New Zealand	3.81	46.83	0.49	
71	Colombia	3.79	46.50	0.48	
72	Azerbaijan	3.78	46.33	0.47	
73	Barbados	3.77	46.17	0.47	
74	Mali	3.69	44.83	0.45	
74	Tunisia	3.69	44.83	0.45	
76	Estonia	3.68	44.67	0.44	○
77	Malawi	3.67	44.50	0.44	
78	Ghana	3.65	44.17	0.42	
78	Namibia	3.65	44.17	0.42	
80	Armenia	3.63	43.83	0.41	
81	Swaziland	3.62	43.67	0.41	
82	Dominican Republic	3.61	43.50	0.40	
83	Lesotho	3.60	43.33	0.39	
84	Botswana	3.58	43.00	0.39	
85	Bolivia, Plurinational St.	3.55	42.50	0.38	
86	Kuwait	3.54	42.33	0.37	
87	Tanzania, United Rep.	3.52	42.00	0.36	
87	Trinidad and Tobago	3.52	42.00	0.36	
89	Cameroon	3.51	41.83	0.35	
90	Slovenia	3.50	41.67	0.33	
90	TFYR of Macedonia	3.50	41.67	0.33	
92	Romania	3.48	41.33	0.33	
93	Bhutan	3.47	41.17	0.32	
94	Uruguay	3.46	41.00	0.31	
95	Iran, Islamic Rep.	3.44	40.67	0.30	
95	Nicaragua	3.44	40.67	0.30	
97	Mozambique	3.43	40.50	0.29	
98	Peru	3.42	40.33	0.28	
99	Latvia	3.41	40.17	0.27	○
99	Poland	3.41	40.17	0.27	○
101	Senegal	3.39	39.83	0.25	
101	Uganda	3.39	39.83	0.25	
103	Nepal	3.38	39.67	0.24	
104	Bulgaria	3.33	38.83	0.24	○
105	Lithuania	3.31	38.50	0.23	○
106	Hungary	3.27	37.83	0.22	○
107	Cabo Verde	3.26	37.67	0.21	
108	Croatia	3.23	37.17	0.20	○
108	Georgia	3.23	37.17	0.20	
110	Argentina	3.22	37.00	0.19	
110	Lebanon	3.22	37.00	0.19	○
112	Algeria	3.19	36.50	0.18	
113	Guinea	3.17	36.17	0.16	
113	Montenegro	3.17	36.17	0.16	○
115	Paraguay	3.16	36.00	0.16	
116	Angola	3.09	34.83	0.15	
117	Ethiopia	3.06	34.33	0.13	
117	Russian Federation	3.06	34.33	0.13	○
119	Kazakhstan	3.05	34.17	0.13	○
120	Madagascar	2.99	33.17	0.12	
121	Greece	2.98	33.00	0.11	○
122	Serbia	2.96	32.67	0.10	○
122	Zimbabwe	2.96	32.67	0.10	
124	Côte d'Ivoire	2.93	32.17	0.09	○
125	Benin	2.88	31.33	0.08	
126	Ukraine	2.87	31.17	0.07	○
127	Burkina Faso	2.85	30.83	0.07	
128	Yemen	2.82	30.33	0.06	
129	Mongolia	2.80	30.00	0.05	○
130	Burundi	2.75	29.17	0.04	
131	Kyrgyzstan	2.70	28.33	0.04	○
132	Venezuela, Bolivarian Rep.	2.66	27.67	0.03	
133	Albania	2.49	24.83	0.02	○
134	Myanmar	2.45	24.17	0.01	
135	Moldova, Rep.	2.33	22.17	0.01	○
136	Bosnia and Herzegovina	1.96	16.00	0.00	○
n/a	Belarus	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

5.2.3 GERD financed by abroad

GERD: Financed by abroad (% of total GERD) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Mozambique (2010)	78.14	100.00	1.00	●
2	Burkina Faso (2009)	59.61	76.27	0.99	●
3	Uganda (2010)	57.30	73.33	0.98	●
4	Guatemala	52.35	66.99	0.97	●
5	Latvia (2012)	50.39	64.48	0.96	●
6	Panama (2010)	49.52	63.36	0.95	●
7	Israel (2010)	47.34	60.57	0.93	
8	Kenya (2010)	47.14	60.32	0.92	●
9	Bulgaria	43.93	56.21	0.91	●
10	Tanzania, United Rep. (2010)	42.00	53.74	0.90	●
11	Senegal (2010)	40.53	51.86	0.89	●
12	Burundi (2008)	39.92	51.07	0.88	●
13	Lithuania (2012)	33.33	42.64	0.87	●
14	Ghana (2010)	31.22	39.93	0.86	●
15	Ethiopia (2010)	29.96	38.32	0.85	●
16	Czech Republic (2012)	25.92	33.16	0.84	
17	Ukraine	25.84	33.05	0.83	●
18	Luxembourg (2010)	20.71	26.48	0.82	
19	Ireland (2012)	20.41	26.09	0.80	
20	United Kingdom (2012)	19.69	25.17	0.79	
21	Slovakia (2012)	18.65	23.85	0.78	
22	El Salvador	18.06	23.08	0.77	●
23	Malta (2012)	17.33	22.16	0.76	
24	Paraguay	16.86	21.55	0.75	●
25	Gambia	15.90	20.32	0.74	●
26	Greece (2012)	15.77	20.15	0.73	
27	Chile (2010)	15.73	20.11	0.72	
28	Hungary (2012)	15.40	19.68	0.71	
29	Montenegro	15.29	19.54	0.70	
30	Austria (2013)	15.21	19.44	0.68	
31	Tunisia (2009)	14.95	19.10	0.67	
32	Romania (2012)	14.44	18.46	0.66	
33	Croatia (2012)	14.37	18.36	0.65	
34	Cyprus	14.07	17.99	0.64	
35	Poland (2012)	13.35	17.06	0.63	
36	Belgium	12.96	16.56	0.62	
37	South Africa (2010)	12.07	15.42	0.61	
38	Togo (2010)	11.68	14.92	0.60	●
39	Sweden	11.08	14.16	0.59	○
40	Netherlands	10.89	13.92	0.58	○
41	Madagascar (2009)	10.58	13.52	0.57	●
42	Estonia (2012)	9.99	12.77	0.55	
43	Moldova, Rep.	9.36	11.95	0.54	
44	Italy	9.06	11.57	0.53	
45	Mali (2010)	8.81	11.25	0.52	●
46	Finland (2012)	8.81	11.24	0.51	○
47	Belarus	8.74	11.17	0.50	
48	Slovenia (2012)	8.57	10.95	0.49	
49	Iceland	8.37	10.68	0.48	
50	Norway	7.79	9.94	0.47	○
51	France	7.69	9.81	0.46	○
52	Albania (2008)	7.37	9.40	0.45	
53	Denmark (2012)	7.23	9.23	0.43	○
54	Spain	6.68	8.52	0.42	○
55	Costa Rica	6.54	8.35	0.41	
56	Uruguay	6.53	8.33	0.40	
57	New Zealand	6.32	8.07	0.39	○
58	Switzerland (2008)	5.95	7.59	0.38	○
59	Portugal	5.88	7.50	0.37	○
60	Canada (2012)	5.80	7.39	0.36	○
61	Serbia	5.48	6.99	0.35	
62	Singapore	5.01	6.38	0.34	○
63	Hong Kong (China) (2010)	4.92	6.27	0.33	○
64	Germany	4.18	5.33	0.32	○
65	Philippines (2007)	4.12	5.25	0.30	
66	Russian Federation (2012)	3.97	5.05	0.29	
67	Mongolia	3.85	4.90	0.28	
68	United States of America (2012)	3.80	4.83	0.27	○
69	Colombia (2012)	3.51	4.46	0.26	
70	Lesotho	3.45	4.38	0.25	
71	Armenia	3.35	4.26	0.24	
72	Sri Lanka (2010)	2.72	3.46	0.23	
73	Bolivia, Plurinational St. (2009)	1.86	2.35	0.22	
74	Morocco (2010)	1.71	2.16	0.21	
75	Zambia (2008)	1.62	2.04	0.20	
76	Australia (2008)	1.61	2.03	0.18	○
77	Namibia (2010)	1.53	1.94	0.17	
78	Kuwait (2009)	1.18	1.48	0.16	○
79	Nigeria (2007)	1.04	1.30	0.15	
80	Thailand (2009)	1.00	1.25	0.14	○
81	China (2012)	0.97	1.22	0.13	○
82	Pakistan	0.90	1.12	0.12	
83	Kyrgyzstan	0.87	1.09	0.11	
84	Mexico	0.69	0.86	0.10	○
85	Turkey	0.69	0.85	0.09	○
86	Tajikistan (2006)	0.65	0.80	0.08	
87	Argentina	0.52	0.64	0.07	○
88	Ecuador (2008)	0.50	0.61	0.05	○
89	Japan	0.48	0.58	0.04	○
90	Malaysia	0.31	0.36	0.03	○
91	Kazakhstan	0.27	0.32	0.02	○
92	Korea, Rep.	0.22	0.26	0.01	○
93	Azerbaijan (2010)	0.02	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brazil	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Indonesia	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2006–13)

NOTE: ● indicates a strength; ○ a weakness.

5.2.4 Joint venture/strategic alliance deals

Joint ventures/strategic alliances: Number of deals, fractional counting (per trillion PPP$ GDP) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Bahrain	0.40	100.00	0.96	●
1	Jordan	0.28	100.00	0.96	●
1	Oman	0.24	100.00	0.96	●
1	United Arab Emirates	0.32	100.00	0.96	●
1	Zimbabwe	0.20	100.00	0.96	●
6	Qatar	0.15	73.88	0.95	●
7	Barbados	0.14	71.21	0.94	●
8	Hong Kong (China)	0.14	70.22	0.93	
9	Singapore	0.14	68.27	0.92	
10	Bhutan	0.13	63.47	0.92	●
11	Luxembourg	0.12	58.36	0.91	
12	Kuwait	0.12	57.50	0.90	●
13	Greece	0.11	55.52	0.89	●
14	Ireland	0.10	47.44	0.88	
15	Myanmar	0.09	46.21	0.87	●
16	Cyprus	0.09	45.98	0.86	●
17	Switzerland	0.09	44.72	0.85	
18	Canada	0.09	44.39	0.84	
19	Mongolia	0.09	43.75	0.83	
20	Malta	0.09	43.32	0.82	
21	Saudi Arabia	0.08	42.01	0.81	
22	Kyrgyzstan	0.07	34.64	0.80	●
23	Denmark	0.07	34.37	0.79	
24	United Kingdom	0.07	33.32	0.78	
25	Israel	0.06	31.23	0.77	
26	Rwanda	0.06	30.19	0.76	
27	Australia	0.06	29.53	0.75	
28	Zambia	0.06	29.10	0.75	●
29	Malaysia	0.06	27.97	0.74	
30	Norway	0.05	27.10	0.73	
31	Sweden	0.05	26.72	0.72	
32	New Zealand	0.05	26.59	0.71	
33	Mozambique	0.05	26.28	0.70	●
34	Philippines	0.05	25.71	0.69	●
35	Egypt	0.05	25.24	0.68	●
36	Finland	0.05	24.78	0.67	
37	United States of America	0.05	24.24	0.66	
38	Armenia	0.05	23.88	0.65	
39	Lebanon	0.04	21.64	0.64	
40	Serbia	0.04	21.36	0.63	
41	Thailand	0.04	19.54	0.62	
42	Netherlands	0.04	18.81	0.61	○
43	Croatia	0.04	17.72	0.60	
44	Nicaragua	0.04	17.54	0.59	●
45	Japan	0.03	16.44	0.58	
46	France	0.03	14.93	0.58	
47	Cambodia	0.03	14.30	0.57	●
48	Botswana	0.03	14.29	0.56	
49	South Africa	0.03	14.27	0.55	
50	Slovenia	0.03	12.85	0.54	
51	Mali	0.03	12.80	0.53	●
52	Tajikistan	0.03	12.73	0.52	●
53	Kenya	0.02	12.00	0.51	
54	India	0.02	11.89	0.50	
55	Belarus	0.02	11.20	0.49	
56	Angola	0.02	10.95	0.48	●
57	Brunei Darussalam	0.02	10.80	0.47	
58	Viet Nam	0.02	10.71	0.46	
59	Germany	0.02	10.70	0.45	○
60	Sudan	0.02	10.68	0.44	●
61	Chile	0.02	10.50	0.43	
62	Russian Federation	0.02	10.27	0.42	
63	Austria	0.02	10.18	0.42	○
64	Belgium	0.02	9.84	0.41	○
65	Sri Lanka	0.02	9.47	0.40	
66	Korea, Rep.	0.02	9.22	0.39	
67	China	0.02	8.97	0.38	
68	Senegal	0.02	8.58	0.37	
69	Estonia	0.02	7.90	0.36	○
70	Italy	0.02	7.66	0.35	○
71	Indonesia	0.02	7.63	0.34	
72	Mauritius	0.02	7.51	0.33	
73	Ethiopia	0.02	7.31	0.32	
74	Lithuania	0.01	6.97	0.31	
75	Spain	0.01	6.75	0.30	○
76	Portugal	0.01	6.74	0.29	○
77	Bulgaria	0.01	6.72	0.28	○
78	Turkey	0.01	5.90	0.27	
79	Romania	0.01	5.48	0.26	
80	Kazakhstan	0.01	4.67	0.25	
81	Azerbaijan	0.01	4.52	0.25	
82	Bangladesh	0.01	4.16	0.24	
83	Georgia	0.01	4.12	0.23	
84	Uruguay	0.01	3.98	0.22	
85	Uzbekistan	0.01	3.98	0.21	
86	Ecuador	0.01	3.77	0.20	
87	Morocco	0.01	3.70	0.19	○
88	Argentina	0.01	3.64	0.18	
89	Nigeria	0.01	3.63	0.17	
90	Costa Rica	0.01	3.61	0.16	○
91	Nepal	0.01	3.50	0.15	
92	Brazil	0.01	3.11	0.14	○
93	Algeria	0.01	2.75	0.13	
94	Ghana	0.01	2.30	0.12	
95	Poland	0.01	2.30	0.11	○
96	Mexico	0.01	2.24	0.10	○
97	Yemen	0.01	2.19	0.09	
98	Hungary	0.01	2.07	0.08	○
99	Dominican Republic	0.00	2.01	0.08	○
100	Venezuela, Bolivarian Rep.	0.00	1.98	0.07	
101	Pakistan	0.00	1.93	0.06	○
102	Tunisia	0.00	1.83	0.05	○
103	Ukraine	0.00	1.75	0.04	○
104	Czech Republic	0.00	1.27	0.03	○
105	Peru	0.00	0.25	0.02	○
106	Iran, Islamic Rep.	0.00	0.11	0.01	○
107	Colombia	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Slovakia	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	

SOURCE: Thomson Reuters, *Thomson One Banker Private Equity, SDC Platinum* database; International Monetary Fund *World Economic Outlook 2013* database (PPP$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

5.2.5 Patent families filed in at least three offices

Number of patent families filed by residents in at least three offices (per billion PPP$ GDP) | 2010

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Japan	5.35	100.00	1.00	●
2	Korea, Rep.	5.00	98.35	0.99	●
3	Barbados	4.81	97.36	0.98	●
4	Switzerland	4.57	96.14	0.97	
5	Finland	3.33	88.39	0.96	
6	Israel	2.87	84.77	0.96	●
7	Germany	2.82	84.33	0.95	●
8	Luxembourg	2.76	83.77	0.94	
9	Sweden	2.49	81.33	0.93	
10	France	1.59	70.62	0.92	●
11	United States of America	1.59	70.59	0.91	
12	Netherlands	1.53	69.64	0.90	
13	Austria	1.50	69.25	0.89	
14	Seychelles	1.47	68.68	0.89	●
15	Denmark	1.23	64.67	0.88	
16	Singapore	1.11	62.26	0.87	
17	Belgium	1.10	62.07	0.86	
18	Canada	1.00	59.92	0.85	
19	United Kingdom	1.00	59.81	0.84	
20	Australia	0.95	58.66	0.83	
21	Malta	0.86	56.37	0.82	
22	Norway	0.83	55.71	0.82	
23	Ireland	0.75	53.38	0.81	
24	Italy	0.65	50.37	0.80	
25	Estonia	0.49	44.10	0.79	
26	Cyprus	0.48	43.75	0.78	
27	New Zealand	0.36	38.14	0.77	
28	Hong Kong (China)	0.31	35.16	0.76	
29	Burundi (2004)	0.30	34.52	0.75	●
30	Spain	0.22	29.25	0.75	
31	Slovenia	0.20	26.94	0.74	
32	Swaziland (2006)	0.19	26.74	0.73	●
33	Montenegro (2006)	0.18	25.58	0.72	
34	Hungary	0.17	24.78	0.71	
35	Iceland	0.17	24.75	0.70	
36	China	0.17	24.71	0.69	
37	Czech Republic	0.14	21.70	0.68	
38	Trinidad and Tobago (2007)	0.12	19.41	0.68	
39	Mauritius	0.11	18.55	0.67	
40	Portugal	0.11	17.85	0.66	
41	Niger (2008)	0.10	17.36	0.65	●
42	Mongolia (2009)	0.10	16.94	0.64	
43	Panama (2009)	0.10	16.94	0.63	
44	Guinea (2009)	0.10	16.68	0.62	●
45	Latvia (2009)	0.09	16.46	0.61	
46	Slovakia	0.09	16.18	0.61	
47	Croatia	0.09	16.13	0.60	
48	Moldova, Rep.	0.09	16.09	0.59	
49	Poland	0.08	14.87	0.58	
50	Namibia	0.07	12.92	0.57	
51	Uruguay	0.06	12.29	0.56	
52	Albania (2004)	0.06	12.25	0.55	
53	Armenia	0.06	11.62	0.54	
54	Jordan	0.06	11.20	0.54	
55	Brunei Darussalam	0.05	10.04	0.53	
56	Georgia (2009)	0.05	9.75	0.52	
57	Russian Federation	0.04	8.73	0.51	
58	Oman (2005)	0.04	8.16	0.50	
59	Brazil	0.04	8.10	0.49	
60	Bahrain (2008)	0.04	7.79	0.48	
61	Greece	0.04	7.64	0.47	
62	Lithuania	0.04	7.49	0.46	
63	United Arab Emirates	0.04	7.45	0.46	
64	Lebanon	0.03	7.27	0.45	
65	Argentina	0.03	6.73	0.44	
66	Saudi Arabia	0.03	6.64	0.43	
67	Turkey	0.03	6.11	0.42	
68	Malaysia	0.03	6.09	0.41	
69	Romania	0.03	6.01	0.40	
70	Serbia (2009)	0.03	5.95	0.39	
71	Cameroon (2006)	0.03	5.90	0.39	
72	Bolivia, Plurinational St. (2006)	0.03	5.87	0.38	
73	Mexico	0.02	5.36	0.37	
74	El Salvador (2009)	0.02	5.33	0.36	
75	Ecuador	0.02	5.24	0.35	
76	Kenya (2004)	0.02	4.97	0.34	
77	Bulgaria	0.02	4.65	0.33	
78	Costa Rica (2009)	0.02	4.64	0.32	
79	Tunisia	0.02	4.56	0.32	
80	Sri Lanka	0.02	4.32	0.31	
81	South Africa	0.02	3.92	0.30	○
82	Guatemala (2007)	0.02	3.64	0.29	
83	Dominican Republic (2006)	0.02	3.59	0.28	
84	India	0.01	3.39	0.27	
85	Uzbekistan (2008)	0.01	3.24	0.26	
86	Thailand	0.01	3.17	0.25	
87	Philippines	0.01	3.17	0.25	
88	Myanmar (2008)	0.01	2.99	0.24	
89	Azerbaijan (2009)	0.01	2.75	0.23	
90	Colombia	0.01	2.70	0.22	
91	Venezuela, Bolivarian Rep.	0.01	2.68	0.21	
92	Chile	0.01	2.57	0.20	○
93	Ukraine	0.01	2.33	0.19	○
94	Kuwait	0.01	1.84	0.18	
95	Belarus	0.01	1.82	0.18	○
96	Morocco (2009)	0.01	1.66	0.17	○
97	Viet Nam	0.01	1.65	0.16	
98	Kazakhstan (2006)	0.01	1.59	0.15	○
99	Egypt	0.00	0.98	0.14	
100	Algeria	0.00	0.98	0.13	
101	Peru	0.00	0.88	0.12	○
102	Nigeria	0.00	0.65	0.11	
103	Pakistan (2006)	0.00	0.61	0.11	
104	Iran, Islamic Rep. (2009)	0.00	0.28	0.10	
105	Indonesia	0.00	0.24	0.09	○
106	Bangladesh	0.00	0.00	0.00	○
106	Benin	0.00	0.00	0.00	○
106	Botswana	0.00	0.00	0.00	○
106	Côte d'Ivoire	0.00	0.00	0.00	○
106	Ghana	0.00	0.00	0.00	○
106	Jamaica	0.00	0.00	0.00	○
106	Kyrgyzstan	0.00	0.00	0.00	○
106	Nicaragua	0.00	0.00	0.00	○
106	TFYR of Macedonia	0.00	0.00	0.00	○
106	Zimbabwe	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

5.3.1 Royalties and license fees payments

Royalties and license fees, payments (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Ireland	20.44	100.00	0.98	●
1	Singapore	3.15	100.00	0.98	●
1	Switzerland (2011)	5.54	100.00	0.98	●
4	Netherlands	3.12	98.93	0.98	●
5	Argentina	2.43	77.04	0.97	●
6	Japan	2.07	65.61	0.96	
7	Guyana (2010)	2.02	64.04	0.95	●
8	Canada	1.91	60.57	0.94	
9	South Africa	1.77	56.02	0.94	●
10	New Zealand	1.76	55.87	0.93	
11	United States of America	1.72	54.44	0.92	
12	Russian Federation	1.47	46.53	0.91	●
13	Finland	1.35	42.83	0.90	
14	Australia	1.33	42.14	0.90	
15	Thailand	1.32	41.99	0.89	●
16	Korea, Rep.	1.31	41.44	0.88	
17	Iceland (2011)	1.26	40.08	0.87	
18	Brazil	1.26	39.97	0.87	●
19	Slovenia	1.24	39.19	0.86	
20	Malta	1.17	37.19	0.85	
21	Israel	1.17	36.97	0.84	
22	Croatia	1.16	36.85	0.83	●
23	Denmark	1.13	35.82	0.83	
24	Hungary	1.09	34.51	0.82	
25	France	1.09	34.51	0.81	
26	Italy	1.05	33.27	0.80	
27	United Kingdom	1.04	32.92	0.79	
28	Poland	1.01	32.16	0.79	
29	Sweden	0.98	31.11	0.78	
30	Serbia	0.95	30.00	0.77	
31	Chile	0.94	29.84	0.76	
32	Barbados (2010)	0.91	28.84	0.75	
33	Indonesia	0.85	26.92	0.75	●
34	China	0.83	26.35	0.74	
35	India	0.80	25.43	0.73	
36	Austria	0.77	24.25	0.72	
37	Jamaica	0.76	24.13	0.71	●
38	Ukraine	0.76	23.94	0.71	
39	Colombia	0.75	23.82	0.70	
40	Guatemala	0.75	23.76	0.69	●
41	Germany	0.73	23.14	0.68	
42	Philippines	0.72	22.73	0.67	●
43	Swaziland (2010)	0.70	22.17	0.67	●
44	Luxembourg	0.67	21.20	0.66	
45	Belgium	0.65	20.62	0.65	
46	Romania	0.62	19.75	0.64	
47	Malaysia	0.62	19.63	0.63	
48	Greece	0.57	17.94	0.63	
49	Czech Republic	0.55	17.41	0.62	
50	Portugal	0.55	17.32	0.61	
51	El Salvador	0.53	16.83	0.60	
52	Spain	0.53	16.75	0.60	
53	Peru (2011)	0.46	14.56	0.59	
54	Bulgaria	0.46	14.55	0.58	
55	Costa Rica	0.46	14.54	0.57	
56	Venezuela, Bolivarian Rep.	0.45	14.31	0.56	
57	TFYR of Macedonia	0.45	14.29	0.56	
58	Albania	0.45	14.21	0.55	
59	Egypt (2011)	0.43	13.65	0.54	
60	Pakistan	0.43	13.56	0.53	
61	Dominican Republic (2011)	0.42	13.33	0.52	
62	Moldova, Rep.	0.41	12.86	0.52	
63	Hong Kong (China) (2011)	0.38	12.10	0.51	
64	Honduras	0.36	11.32	0.50	●
65	Trinidad and Tobago (2011)	0.34	10.63	0.49	
66	Ecuador	0.33	10.58	0.48	
67	Turkey	0.33	10.35	0.48	
68	Norway	0.32	10.27	0.47	○
69	Cyprus (2011)	0.31	9.93	0.46	
70	Nigeria	0.29	9.15	0.45	
71	Estonia	0.28	8.84	0.44	○
72	Lesotho (2011)	0.27	8.66	0.44	
73	Zimbabwe (2011)	0.26	8.29	0.43	
74	Madagascar (2011)	0.25	7.87	0.42	
75	Latvia	0.25	7.75	0.41	
76	Bolivia, Plurinational St. (2011)	0.23	7.35	0.40	
77	Mauritius	0.23	7.25	0.40	
78	Belarus	0.21	6.73	0.39	
79	Cameroon (2010)	0.19	6.11	0.38	
80	Uruguay	0.19	6.08	0.37	
81	Kazakhstan	0.19	5.99	0.37	
82	Iran, Islamic Rep. (2010)	0.19	5.86	0.36	
83	Botswana	0.18	5.81	0.35	
84	Uganda	0.18	5.81	0.34	
85	Slovakia	0.17	5.47	0.33	
86	Côte d'Ivoire (2010)	0.15	4.77	0.33	
87	Panama	0.15	4.74	0.32	
88	Benin (2010)	0.15	4.64	0.31	
89	Kyrgyzstan (2011)	0.15	4.61	0.30	
90	Senegal (2010)	0.14	4.44	0.29	
91	Burundi (2011)	0.14	4.41	0.29	
92	Morocco	0.14	4.29	0.28	
93	Algeria (2011)	0.14	4.27	0.27	
94	Brunei Darussalam (2009)	0.13	4.11	0.26	
95	Mozambique	0.13	4.02	0.25	
96	Cambodia	0.12	3.90	0.25	
97	Kenya (2011)	0.12	3.75	0.24	
98	Montenegro (2011)	0.12	3.74	0.23	○
99	Mongolia	0.12	3.72	0.22	
100	Lithuania	0.11	3.50	0.21	○
101	Niger (2009)	0.11	3.44	0.21	
102	Bosnia and Herzegovina	0.11	3.39	0.20	
103	Togo (2010)	0.11	3.34	0.19	
104	Seychelles (2011)	0.10	3.26	0.18	○
105	Azerbaijan	0.10	3.25	0.17	
106	Georgia	0.10	3.16	0.17	○
107	Lebanon (2011)	0.09	2.68	0.16	○
108	Namibia	0.08	2.61	0.15	
109	Mali (2010)	0.07	2.04	0.14	
110	Zambia (2011)	0.06	1.98	0.13	
111	Tunisia (2011)	0.05	1.55	0.13	○
112	Fiji (2010)	0.05	1.51	0.12	○
113	Yemen (2011)	0.05	1.46	0.11	
114	Guinea (2011)	0.04	1.14	0.10	
115	Bangladesh (2011)	0.03	1.00	0.10	
116	Ethiopia	0.03	0.81	0.09	
117	Paraguay (2011)	0.02	0.59	0.08	○
118	Malawi (2011)	0.02	0.59	0.07	○
119	Sudan (2011)	0.01	0.41	0.06	
120	Nicaragua	0.01	0.35	0.06	○
121	Cabo Verde	0.01	0.20	0.05	○
122	Bhutan	0.01	0.17	0.04	○
123	Angola (2011)	0.01	0.14	0.03	
124	Rwanda (2011)	0.01	0.14	0.02	○
125	Burkina Faso (2010)	0.01	0.12	0.02	○
126	Tanzania, United Rep. (2011)	0.00	0.09	0.01	○
127	Tajikistan (2011)	0.00	0.00	0.00	○
n/a	Armenia	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Mexico	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

5.3.2 High-tech imports

High-tech net imports (% of total net imports) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	41.79	100.00	0.99	●
1	Malaysia	22.09	100.00	0.99	●
3	Costa Rica	21.78	98.46	0.98	●
4	Panama (2011)	21.31	96.12	0.98	●
5	Singapore	20.08	90.02	0.97	
6	Paraguay	19.93	89.28	0.96	●
7	Viet Nam	18.90	84.15	0.95	●
8	China	18.30	81.18	0.94	●
9	Mexico	16.88	74.14	0.94	●
10	Czech Republic	16.20	70.77	0.93	●
11	United States of America	15.94	69.43	0.92	
12	Kenya (2010)	15.46	67.05	0.91	●
13	Thailand	14.53	62.47	0.90	●
14	Hungary	14.12	60.41	0.90	●
15	Slovakia	13.60	57.84	0.89	●
16	Malawi (2011)	13.23	55.98	0.88	●
17	Japan	13.21	55.88	0.87	
18	Colombia	13.04	55.06	0.86	●
19	Malta	12.95	54.60	0.86	
20	Korea, Rep.	12.21	50.92	0.85	
21	Netherlands	12.21	50.91	0.84	
22	Estonia	11.98	49.75	0.83	
23	France	11.94	49.56	0.82	
24	Brazil	11.34	46.60	0.82	●
25	United Kingdom	10.85	44.16	0.81	
26	Argentina	10.60	42.92	0.80	●
27	Rwanda	10.16	40.72	0.79	●
28	Australia	10.06	40.22	0.78	
29	Canada	10.04	40.15	0.78	
30	Cabo Verde	9.95	39.71	0.77	●
31	Burundi (2010)	9.81	38.99	0.76	●
32	New Zealand	9.79	38.88	0.75	
33	South Africa	9.76	38.73	0.74	
34	Chile	9.70	38.47	0.74	
35	Sweden	9.65	38.19	0.73	
36	Germany	9.57	37.82	0.72	
37	Israel	9.46	37.24	0.71	
38	Indonesia	9.42	37.03	0.70	
39	Romania	9.26	36.28	0.70	
40	Tunisia (2011)	9.25	36.22	0.69	
41	Belgium	9.18	35.83	0.68	
42	Ecuador	9.10	35.48	0.67	●
43	Poland	8.94	34.66	0.66	
44	Nepal (2011)	8.93	34.62	0.66	●
45	El Salvador	8.86	34.25	0.65	●
46	Guatemala	8.56	32.79	0.64	●
47	Bulgaria	8.49	32.45	0.63	
48	Fiji	8.49	32.43	0.62	
49	Uganda	8.47	32.34	0.62	●
50	Guyana	8.44	32.19	0.61	
51	Peru	8.37	31.85	0.60	
52	Turkey	8.36	31.79	0.59	
53	Austria	8.32	31.58	0.58	
54	Mali	8.16	30.80	0.58	●
55	Uruguay	8.07	30.32	0.57	
56	Switzerland	7.97	29.86	0.56	
57	Pakistan	7.80	29.01	0.55	●
58	Sudan (2011)	7.79	28.96	0.54	●
59	Russian Federation	7.47	27.36	0.54	
60	Italy	7.46	27.29	0.53	
61	Finland	7.37	26.89	0.52	○
62	Serbia	7.18	25.91	0.51	
63	Zimbabwe	7.12	25.62	0.50	
64	Moldova, Rep.	7.00	25.04	0.50	
65	Nicaragua	6.98	24.94	0.49	
66	Bolivia, Plurinational St.	6.94	24.73	0.48	
67	Ghana	6.88	24.41	0.47	
68	Armenia	6.86	24.31	0.46	
69	Croatia	6.78	23.94	0.46	
70	Denmark	6.77	23.87	0.45	○
71	Greece	6.75	23.81	0.44	
72	Ukraine	6.71	23.59	0.43	
73	India	6.69	23.46	0.42	
74	Namibia	6.68	23.42	0.42	
75	Tanzania, United Rep.	6.63	23.20	0.41	
76	Georgia	6.56	22.84	0.40	
77	Egypt	6.46	22.33	0.39	
78	Portugal	6.45	22.30	0.38	○
79	Latvia	6.44	22.23	0.38	○
80	Honduras	6.39	22.00	0.37	
81	TFYR of Macedonia	6.17	20.89	0.36	
82	Ireland	6.05	20.29	0.35	○
83	Spain	6.02	20.15	0.34	○
84	Bhutan (2011)	6.01	20.10	0.34	
85	Dominican Republic	6.01	20.09	0.33	
86	Norway	5.89	19.52	0.32	○
87	Ethiopia	5.88	19.44	0.31	
88	Iceland	5.82	19.16	0.30	○
89	Saudi Arabia	5.80	19.06	0.30	○
90	Bosnia and Herzegovina	5.74	18.76	0.29	
91	Algeria	5.68	18.49	0.28	
92	Slovenia	5.67	18.40	0.27	○
93	United Arab Emirates (2008)	5.46	17.36	0.26	○
94	Jordan	5.39	17.01	0.26	○
95	Kazakhstan	5.32	16.70	0.25	
96	Kyrgyzstan	5.26	16.36	0.24	
97	Mauritius	5.25	16.34	0.23	○
98	Sri Lanka	4.97	14.92	0.22	
99	Mongolia (2007)	4.95	14.84	0.22	
100	Trinidad and Tobago (2010)	4.93	14.72	0.21	
101	Niger	4.89	14.52	0.20	
102	Togo	4.87	14.42	0.19	
103	Burkina Faso (2011)	4.84	14.28	0.18	
104	Côte d'Ivoire	4.71	13.65	0.18	
105	Luxembourg	4.62	13.20	0.17	○
106	Cyprus	4.58	13.02	0.16	○
107	Lithuania	4.53	12.73	0.15	○
108	Montenegro	4.48	12.49	0.14	○
109	Zambia (2011)	4.31	11.68	0.14	
110	Madagascar	4.27	11.44	0.13	
111	Bahrain (2011)	4.24	11.30	0.12	○
112	Belarus	4.15	10.87	0.11	○
113	Brunei Darussalam	4.07	10.44	0.10	○
114	Gambia (2011)	3.99	10.06	0.10	
115	Azerbaijan	3.98	9.99	0.09	○
116	Senegal	3.82	9.23	0.08	○
117	Iran, Islamic Rep. (2011)	3.55	7.89	0.07	
118	Jamaica	3.43	7.29	0.06	○
119	Oman	3.39	7.09	0.06	○
120	Albania	3.36	6.91	0.05	○
121	Mozambique	3.04	5.32	0.04	○
122	Nigeria	3.03	5.32	0.03	○
123	Lebanon (2011)	2.72	3.76	0.02	○
124	Yemen	2.55	2.91	0.02	
125	Cambodia	2.27	1.54	0.01	○
126	Myanmar (2010)	1.96	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Morocco	n/a	n/a	n/a	
n/a	Philippines	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	

SOURCE: United Nations, *COMTRADE* database; Eurostat *'High-technology' aggregations based on SITC Rev. 4*, April 2009 (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

5.3.3 Communications, computer and information services imports

Communications, computer and information services imports (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Fiji (2010)	4.52	100.00	1.00	●
2	Gambia (2009)	3.23	71.20	0.99	●
3	Finland	3.17	69.73	0.99	
4	Luxembourg	2.71	59.48	0.98	●
5	Guyana (2010)	2.60	57.07	0.97	●
6	Sweden	2.57	56.36	0.96	
7	Mali (2010)	2.45	53.66	0.96	●
8	Ethiopia	2.39	52.34	0.95	●
9	Benin (2010)	2.23	48.69	0.94	●
10	Burkina Faso (2010)	2.16	47.13	0.93	●
11	Senegal (2010)	2.05	44.70	0.93	●
12	Barbados (2010)	1.86	40.53	0.92	●
13	Slovenia	1.84	40.10	0.91	●
14	Belgium	1.83	39.82	0.91	
15	Croatia	1.82	39.52	0.90	●
16	United Kingdom	1.79	39.02	0.89	
17	Montenegro (2011)	1.76	38.30	0.88	●
18	Serbia (2011)	1.76	38.19	0.88	●
19	Italy	1.74	37.84	0.87	●
20	Germany	1.70	37.00	0.86	
21	Denmark	1.70	36.85	0.85	
22	Malta	1.70	36.84	0.85	
23	Estonia	1.69	36.78	0.84	
24	Niger (2010)	1.69	36.77	0.83	●
25	Norway	1.68	36.55	0.82	
26	Moldova, Rep.	1.68	36.49	0.82	
27	Madagascar (2011)	1.67	36.35	0.81	●
28	Jamaica	1.66	35.95	0.80	●
29	Brazil	1.64	35.48	0.80	●
30	Togo (2010)	1.59	34.37	0.79	●
31	Nepal (2011)	1.56	33.88	0.78	●
32	Iceland (2011)	1.56	33.71	0.77	
33	Netherlands	1.54	33.33	0.77	
34	Burundi (2011)	1.52	32.89	0.76	●
35	Cabo Verde	1.47	31.67	0.75	●
36	New Zealand	1.44	31.07	0.74	
37	Czech Republic	1.42	30.57	0.74	
38	Qatar	1.42	30.57	0.73	
39	Cyprus	1.42	30.57	0.72	
40	Greece	1.41	30.53	0.72	
41	Latvia	1.41	30.43	0.71	
42	Lebanon (2011)	1.38	29.83	0.70	
43	United States of America (2011)	1.38	29.82	0.69	
44	Austria	1.37	29.52	0.69	
45	TFYR of Macedonia	1.34	28.85	0.68	
46	France	1.31	28.18	0.67	
47	Spain	1.29	27.75	0.66	
48	Argentina	1.29	27.74	0.66	
49	Tajikistan (2011)	1.24	26.54	0.65	●
50	Portugal	1.22	26.10	0.64	
51	Albania	1.19	25.53	0.64	
52	Romania	1.17	25.09	0.63	
53	Mauritius	1.16	24.81	0.62	
54	Uganda	1.15	24.54	0.61	
55	Poland	1.14	24.47	0.61	
56	Malaysia	1.11	23.76	0.60	
57	Russian Federation	1.10	23.59	0.59	
58	Ireland	1.09	23.22	0.58	
59	Hungary	1.07	22.81	0.58	
60	Mongolia	1.06	22.69	0.57	
61	Pakistan	1.01	21.45	0.56	●
62	Mozambique	1.01	21.41	0.55	
63	Canada (2011)	1.00	21.34	0.55	○
64	Rwanda (2011)	0.91	19.19	0.54	
65	Bosnia and Herzegovina	0.89	18.83	0.53	
66	Trinidad and Tobago (2011)	0.88	18.69	0.53	
67	Bulgaria	0.87	18.48	0.52	
68	Chile	0.83	17.54	0.51	
69	Egypt (2011)	0.82	17.37	0.50	
70	Peru (2011)	0.80	16.79	0.50	
71	Côte d'Ivoire (2010)	0.78	16.30	0.49	●
72	Angola (2011)	0.72	15.01	0.48	●
73	Armenia	0.71	14.88	0.47	
74	Colombia	0.71	14.82	0.47	
75	India	0.71	14.71	0.46	
76	Bolivia, Plurinational St. (2011)	0.69	14.43	0.45	
77	Saudi Arabia	0.69	14.28	0.45	
78	Indonesia	0.68	14.16	0.44	
79	Nigeria	0.68	14.06	0.43	
80	Costa Rica	0.66	13.74	0.42	
81	Honduras	0.65	13.49	0.42	
82	Nicaragua	0.64	13.27	0.41	
83	El Salvador	0.64	13.18	0.40	
84	Iran, Islamic Rep. (2010)	0.61	12.57	0.39	
85	Singapore (2008)	0.60	12.33	0.39	○
86	Australia	0.60	12.25	0.38	○
87	Japan	0.59	12.10	0.37	○
88	Guinea (2011)	0.59	12.10	0.36	●
89	Ukraine	0.54	11.06	0.36	
90	Namibia (2011)	0.54	10.96	0.35	
91	Venezuela, Bolivarian Rep.	0.54	10.91	0.34	
92	Lithuania	0.53	10.84	0.34	
93	Lesotho (2011)	0.52	10.51	0.33	
94	Cambodia	0.51	10.43	0.32	
95	Bhutan	0.50	10.13	0.31	
96	Philippines	0.50	10.11	0.31	
97	Dominican Republic (2011)	0.50	10.04	0.30	
98	Hong Kong (China) (2011)	0.48	9.76	0.29	○
99	Azerbaijan	0.47	9.55	0.28	
100	Kenya (2011)	0.47	9.36	0.28	
101	Kyrgyzstan	0.44	8.77	0.27	
102	Georgia	0.44	8.77	0.26	
103	Guatemala	0.43	8.48	0.26	
104	South Africa	0.43	8.48	0.25	○
105	Tunisia (2011)	0.40	7.95	0.24	
106	Slovakia	0.40	7.92	0.23	○
107	Morocco (2011)	0.40	7.89	0.23	
108	Uruguay	0.39	7.74	0.22	
109	Sri Lanka	0.39	7.56	0.21	
110	Belarus	0.39	7.55	0.20	
111	Malawi (2011)	0.38	7.54	0.20	
112	Botswana	0.37	7.32	0.19	
113	Tanzania, United Rep. (2011)	0.35	6.69	0.18	
114	Korea, Rep.	0.33	6.23	0.18	○
115	Israel	0.32	6.03	0.17	○
116	Kazakhstan	0.32	6.03	0.16	○
117	Kuwait (2011)	0.30	5.68	0.15	○
118	Bahrain (2011)	0.30	5.56	0.15	
119	Yemen (2011)	0.29	5.51	0.14	
120	Cameroon (2010)	0.29	5.43	0.13	
121	Brunei Darussalam (2009)	0.27	5.00	0.12	○
122	Sudan	0.26	4.76	0.12	
123	China	0.26	4.69	0.11	○
124	Algeria (2011)	0.21	3.73	0.10	
125	Zambia (2011)	0.21	3.66	0.09	
126	Zimbabwe (2011)	0.21	3.57	0.09	
127	Switzerland	0.20	3.37	0.08	○
128	Panama	0.20	3.34	0.07	○
129	Thailand	0.19	3.14	0.07	○
130	Swaziland (2008)	0.18	2.95	0.06	○
131	Turkey	0.17	2.67	0.05	○
132	Oman	0.16	2.48	0.04	○
133	Bangladesh (2011)	0.10	1.08	0.04	○
134	Seychelles (2011)	0.08	0.67	0.03	○
135	Ecuador	0.06	0.33	0.02	○
136	Paraguay (2011)	0.05	0.03	0.01	○
137	Viet Nam	0.05	0.01	0.01	○
138	Mexico	0.05	0.00	0.00	○
n/a	Ghana	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

5.3.4 Foreign direct investment net inflows

Foreign direct investment (FDI), net inflows (% of GDP) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Hong Kong (China)	38.65	100.00	0.98	●
1	Luxembourg	31.02	100.00	0.98	●
1	Mongolia	53.81	100.00	0.98	●
1	Singapore (2012)	20.62	100.00	0.98	●
5	Guinea	18.76	92.09	0.97	●
6	Niger	16.85	83.95	0.96	●
7	Mozambique	16.54	82.66	0.96	●
8	Ireland (2012)	15.66	78.90	0.95	
9	Seychelles	13.09	68.00	0.94	●
10	Montenegro	12.40	65.03	0.94	●
11	Chile (2012)	11.31	60.40	0.93	●
12	Kyrgyzstan	11.19	59.91	0.92	●
13	Zambia	10.32	56.21	0.91	●
14	Albania (2012)	9.64	53.34	0.91	●
15	Panama (2012)	9.33	52.00	0.90	●
16	Madagascar	9.15	51.26	0.89	●
17	Lebanon	8.67	49.19	0.89	●
18	Uganda (2012)	8.66	49.14	0.88	●
19	Ghana	8.14	46.96	0.87	●
20	Nicaragua (2012)	7.71	45.11	0.87	●
21	Azerbaijan (2012)	7.70	45.08	0.86	●
22	Namibia	7.68	44.97	0.85	●
23	Barbados	7.64	44.80	0.84	
24	Estonia (2012)	7.40	43.80	0.84	
25	Brunei Darussalam	7.39	43.74	0.83	●
26	Kazakhstan	7.10	42.50	0.82	●
27	Cambodia	7.03	42.22	0.82	●
28	Hungary (2012)	6.77	41.11	0.81	
29	Portugal (2012)	6.49	39.92	0.80	
30	Guyana	6.42	39.62	0.79	●
31	Serbia	6.24	38.86	0.79	●
32	Viet Nam	6.01	37.88	0.78	●
33	Honduras	5.89	37.37	0.77	●
34	Czech Republic (2012)	5.41	35.33	0.77	
35	Fiji	5.35	35.09	0.76	●
36	Costa Rica	5.25	34.66	0.75	
37	Lesotho	5.23	34.59	0.74	●
38	Jordan	5.09	33.99	0.74	
39	Georgia (2012)	4.98	33.51	0.73	
40	Armenia (2012)	4.93	33.32	0.72	
41	Sudan	4.77	32.63	0.72	●
42	Australia	4.77	32.60	0.71	
43	Malta (2012)	4.72	32.41	0.70	
44	Uruguay	4.69	32.27	0.70	
45	Peru	4.66	32.13	0.69	
46	Tanzania, United Rep.	4.59	31.85	0.68	●
47	Ukraine	4.41	31.09	0.67	
48	Cyprus	4.32	30.70	0.67	
49	Israel	4.29	30.58	0.66	
50	Colombia (2012)	4.28	30.53	0.65	
51	Malaysia	4.17	30.06	0.65	
52	Dominican Republic	4.12	29.87	0.64	●
53	Bulgaria (2012)	4.01	29.39	0.63	
54	Zimbabwe	4.01	29.38	0.62	●
55	Gambia	4.01	29.38	0.62	●
56	Slovakia	3.81	28.54	0.61	
57	Iceland (2012)	3.75	28.28	0.60	
58	Bosnia and Herzegovina (2012)	3.71	28.13	0.60	
59	Nigeria	3.62	27.75	0.59	●
60	Bolivia, Plurinational St.	3.59	27.59	0.58	●
61	Brazil (2012)	3.38	26.71	0.57	
62	TFYR of Macedonia (2012)	3.38	26.69	0.57	
63	Latvia (2012)	3.24	26.10	0.56	
64	Uzbekistan	3.10	25.50	0.55	
65	China (2012)	3.03	25.23	0.55	
66	Cabo Verde (2012)	2.80	24.25	0.54	
67	New Zealand	2.70	23.80	0.53	
68	Bahrain	2.69	23.77	0.52	
69	Spain (2012)	2.68	23.75	0.52	
70	Argentina (2012)	2.67	23.68	0.51	
71	Russian Federation (2012)	2.55	23.19	0.50	
72	Morocco	2.54	23.15	0.50	
73	France (2012)	2.50	22.97	0.49	○
74	Canada (2012)	2.50	22.95	0.48	○
75	Trinidad and Tobago	2.44	22.73	0.48	
76	Mauritius	2.43	22.68	0.47	
77	Swaziland	2.39	22.49	0.46	
78	Thailand (2012)	2.35	22.35	0.45	
79	Moldova, Rep. (2012)	2.33	22.25	0.45	
80	United Kingdom (2012)	2.28	22.04	0.44	○
81	Belarus (2012)	2.28	22.03	0.43	
82	Guatemala	2.27	21.98	0.43	
83	Indonesia (2012)	2.26	21.95	0.42	
84	Croatia (2012)	2.26	21.95	0.41	
85	United Arab Emirates	2.20	21.71	0.40	
86	Botswana (2012)	2.03	20.97	0.40	
87	Senegal	1.98	20.76	0.39	
88	Ethiopia	1.98	20.74	0.38	
89	India	1.72	19.65	0.38	
90	Saudi Arabia (2012)	1.71	19.63	0.37	
91	Rwanda	1.67	19.45	0.36	
92	Mali	1.67	19.44	0.35	
93	Malawi	1.64	19.33	0.35	
94	Benin	1.62	19.25	0.34	
95	Sri Lanka	1.62	19.21	0.33	
96	Lithuania (2012)	1.60	19.14	0.33	
97	Turkey (2012)	1.59	19.11	0.32	
98	Paraguay	1.58	19.08	0.31	
99	Norway	1.48	18.65	0.30	○
100	South Africa	1.47	18.57	0.30	○
101	Switzerland (2012)	1.46	18.57	0.29	○
102	Togo	1.46	18.55	0.28	
103	Côte d'Ivoire	1.43	18.42	0.28	
104	Cameroon	1.42	18.39	0.27	
105	Romania	1.40	18.30	0.26	○
106	Algeria	1.37	18.17	0.26	
107	United States of America (2012)	1.31	17.92	0.25	○
108	Jamaica	1.20	17.43	0.24	
109	Greece (2012)	1.15	17.24	0.23	
110	Oman	1.13	17.13	0.23	
111	Philippines (2012)	1.12	17.10	0.22	
112	Mexico (2012)	1.07	16.91	0.21	○
113	El Salvador	1.07	16.89	0.21	
114	Bangladesh	1.02	16.67	0.20	
115	Kenya	0.98	16.50	0.19	
116	Tunisia	0.93	16.30	0.18	○
117	Bhutan	0.89	16.15	0.18	
118	Ecuador	0.83	15.89	0.17	
119	Iran, Islamic Rep.	0.81	15.78	0.16	
120	Germany (2012)	0.80	15.75	0.16	○
121	Finland (2012)	0.74	15.49	0.15	○
122	Sweden (2012)	0.74	15.47	0.14	○
123	Poland (2012)	0.61	14.92	0.13	○
124	Venezuela, Bolivarian Rep. (2012)	0.58	14.80	0.13	
125	Austria (2012)	0.54	14.62	0.12	○
126	Nepal	0.50	14.45	0.11	
127	Korea, Rep. (2012)	0.44	14.23	0.11	○
128	Denmark (2012)	0.40	14.06	0.10	○
129	Italy (2012)	0.40	14.05	0.09	○
130	Pakistan (2012)	0.37	13.91	0.09	
131	Kuwait	0.25	13.40	0.08	○
132	Tajikistan	0.17	13.07	0.07	
133	Burundi	0.14	12.95	0.06	
134	Burkina Faso	0.07	12.65	0.06	○
135	Japan	0.00	12.35	0.05	○
136	Slovenia (2012)	−0.02	12.25	0.04	○
137	Qatar	−0.05	12.13	0.04	○
138	Egypt	−0.20	11.47	0.03	○
139	Belgium (2012)	−0.40	10.66	0.02	○
140	Netherlands (2012)	−1.08	7.75	0.01	○
141	Yemen	−2.25	2.79	0.01	○
142	Angola	−2.90	0.00	0.00	○
n/a	Myanmar	n/a	n/a	n/a	

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates), extracted from World Bank *World Development Indicators* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.1.1 National office resident patent applications

Number of patent applications filed by residents at the national patent office (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	China	43.66	100.00	0.97	●
1	Japan	62.73	100.00	0.97	●
1	Korea, Rep.	92.72	100.00	0.97	●
1	United States of America	16.55	100.00	0.97	●
5	Germany	14.72	88.95	0.96	●
6	Belarus	11.57	69.90	0.95	●
7	Russian Federation	11.54	69.74	0.94	●
8	New Zealand	10.89	65.77	0.94	
9	Mongolia (2010)	10.02	60.52	0.93	●
10	Finland	8.75	52.82	0.92	
11	Kyrgyzstan	8.37	50.56	0.91	●
12	Slovenia (2011)	8.15	49.18	0.90	
13	Iran, Islamic Rep. (2006)	7.96	48.08	0.89	●
14	Moldova, Rep.	7.73	46.69	0.88	●
15	Ukraine	7.51	45.35	0.87	●
16	Armenia	7.05	42.54	0.86	●
17	Denmark	6.75	40.74	0.85	
18	United Kingdom	6.65	40.11	0.84	
19	Kazakhstan (2011)	6.61	39.92	0.83	●
20	France	6.50	39.21	0.83	
21	Austria	6.36	38.41	0.82	
22	Sweden	5.94	35.84	0.81	
23	Poland	5.57	33.57	0.80	
24	Georgia	5.29	31.91	0.79	
25	Latvia	5.23	31.57	0.78	
26	Montenegro	5.13	30.91	0.77	●
27	Israel	5.06	30.49	0.76	
28	Italy	4.65	28.06	0.75	
29	Switzerland	4.12	24.84	0.74	
30	Turkey	4.00	24.09	0.73	
31	Romania	3.77	22.68	0.72	
32	Norway	3.68	22.18	0.72	
33	Hungary	3.57	21.52	0.71	
34	Netherlands	3.41	20.55	0.70	
35	Singapore	3.35	20.15	0.69	
36	Canada	3.20	19.23	0.68	
37	Czech Republic	3.06	18.39	0.67	
38	Iceland	2.91	17.54	0.66	
39	Croatia	2.80	16.83	0.65	
40	Australia	2.73	16.44	0.64	
41	Rwanda	2.66	16.01	0.63	
42	Ireland	2.64	15.84	0.62	
43	Luxembourg	2.60	15.65	0.61	
44	Portugal	2.54	15.28	0.61	
45	Uzbekistan	2.48	14.89	0.60	●
46	Serbia	2.47	14.83	0.59	
47	Bulgaria	2.39	14.33	0.58	
48	Spain	2.35	14.14	0.57	
49	Greece	2.29	13.77	0.56	
50	Malaysia	2.25	13.53	0.55	
51	Brazil	2.06	12.37	0.54	
52	India	2.03	12.16	0.53	
53	Belgium	1.82	10.89	0.52	
54	TFYR of Macedonia (2011)	1.74	10.41	0.51	
55	Lithuania	1.69	10.16	0.50	
56	Sri Lanka (2011)	1.68	10.07	0.50	
57	Kenya	1.64	9.82	0.49	
58	Thailand	1.58	9.47	0.48	
59	Azerbaijan	1.50	9.00	0.47	
60	Slovakia	1.29	7.69	0.46	
61	Egypt	1.28	7.64	0.45	
62	Jordan	1.26	7.50	0.44	
63	Morocco	1.17	6.96	0.43	
64	Viet Nam	1.14	6.78	0.42	
65	Chile	1.06	6.32	0.41	
66	South Africa	1.06	6.29	0.40	
67	Mozambique (2007)	1.05	6.25	0.39	
68	Argentina	1.00	5.95	0.39	
69	Malta	0.98	5.85	0.38	○
70	Tunisia (2008)	0.83	4.94	0.37	
71	Jamaica (2011)	0.82	4.86	0.36	
72	Mexico	0.72	4.26	0.35	
73	Estonia	0.69	4.06	0.34	○
74	Côte d'Ivoire	0.65	3.85	0.33	
75	Yemen	0.62	3.64	0.32	
76	Indonesia (2011)	0.48	2.80	0.31	
77	Paraguay (2010)	0.48	2.78	0.30	
78	Hong Kong (China)	0.47	2.73	0.29	○
79	Algeria	0.44	2.54	0.28	
80	Colombia	0.43	2.49	0.28	
81	Saudi Arabia (2011)	0.42	2.44	0.27	○
82	Panama (2011)	0.42	2.44	0.26	
83	Uruguay	0.41	2.38	0.25	
84	Philippines	0.39	2.24	0.24	
85	Zambia	0.30	1.69	0.23	
86	Bangladesh	0.22	1.24	0.22	
87	Honduras	0.21	1.19	0.21	
88	Ethiopia (2007)	0.19	1.08	0.20	
89	Madagascar	0.19	1.04	0.19	
90	Dominican Republic	0.18	1.02	0.18	
91	Pakistan	0.18	0.96	0.17	
92	Cyprus	0.17	0.94	0.17	○
93	Tajikistan	0.17	0.94	0.16	
94	Costa Rica	0.17	0.94	0.15	○
95	Uganda (2007)	0.17	0.93	0.14	
96	Peru	0.17	0.91	0.13	○
97	Nicaragua	0.15	0.82	0.12	
98	Barbados (2008)	0.15	0.79	0.11	○
99	Mauritius (2008)	0.12	0.64	0.10	○
100	Albania (2011)	0.12	0.63	0.09	○
101	Burkina Faso (2010)	0.10	0.49	0.08	
102	Bahrain	0.09	0.45	0.07	○
103	Guatemala	0.09	0.45	0.06	○
104	Venezuela, Bolivarian Rep. (2011)	0.09	0.44	0.06	
105	Bosnia and Herzegovina	0.06	0.29	0.05	○
106	Sudan (2007)	0.04	0.14	0.04	
107	Trinidad and Tobago (2008)	0.04	0.13	0.03	○
108	Ecuador (2010)	0.03	0.09	0.02	○
109	Cambodia	0.03	0.07	0.01	○
110	Qatar	0.02	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

6.1.2 Patent Cooperation Treaty resident applications

Number of international patent applications filed by residents at the Patent Cooperation Treaty (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Barbados	23.70	100.00	1.00	●
2	Finland	11.98	79.73	0.99	●
3	Switzerland	11.68	78.98	0.98	●
4	Japan	9.54	73.17	0.97	●
5	Sweden	9.31	72.49	0.96	
6	Korea, Rep.	7.42	66.09	0.96	
7	Denmark	6.82	63.79	0.95	
8	Luxembourg	6.40	62.06	0.94	
9	Germany	5.92	59.96	0.93	
10	Netherlands	5.85	59.63	0.92	
11	Israel	5.27	56.87	0.91	
12	Seychelles	3.92	49.26	0.90	●
13	Austria	3.72	47.96	0.89	
14	France	3.51	46.51	0.88	
15	Iceland	3.39	45.67	0.88	
16	United States of America	3.18	44.14	0.87	
17	Belgium	2.95	42.38	0.86	
18	Norway	2.44	38.08	0.85	
19	New Zealand	2.32	36.99	0.84	
20	Singapore	2.19	35.74	0.83	
21	United Kingdom	2.12	34.99	0.82	
22	Cyprus	2.10	34.80	0.81	
23	Ireland	2.09	34.71	0.81	
24	Slovenia	2.01	33.91	0.80	
25	Canada	1.87	32.44	0.79	
26	Australia	1.78	31.39	0.78	
27	Malta	1.61	29.45	0.77	
28	Italy	1.58	29.10	0.76	
29	China	1.52	28.36	0.75	
30	Spain	1.23	24.52	0.74	
31	Estonia	1.17	23.73	0.73	
32	Latvia	0.98	20.86	0.73	
33	Namibia	0.83	18.52	0.72	●
34	Hungary	0.83	18.50	0.71	
35	Malaysia	0.58	14.04	0.70	
36	Czech Republic	0.57	13.85	0.69	
37	South Africa	0.55	13.27	0.68	
38	Portugal	0.53	12.93	0.67	
39	Turkey	0.48	12.00	0.66	
40	Lithuania	0.47	11.67	0.65	
41	Russian Federation	0.44	11.08	0.65	
42	Armenia	0.41	10.50	0.64	
43	Croatia	0.39	9.96	0.63	
44	Chile	0.37	9.63	0.62	
45	Ukraine	0.36	9.40	0.61	
46	Greece	0.34	8.98	0.60	
47	Saudi Arabia	0.33	8.71	0.59	
48	Swaziland (2011)	0.32	8.55	0.58	●
49	Slovakia	0.32	8.49	0.58	
50	Bulgaria	0.32	8.48	0.57	
51	Poland	0.32	8.40	0.56	
52	Kyrgyzstan	0.30	8.08	0.55	
53	Zimbabwe (2011)	0.30	7.90	0.54	
54	Ecuador	0.29	7.85	0.53	
55	Qatar	0.29	7.65	0.52	
56	Bosnia and Herzegovina	0.29	7.63	0.51	
57	Panama	0.28	7.59	0.50	
58	Montenegro (2011)	0.28	7.51	0.50	
59	India	0.28	7.47	0.49	
60	Serbia	0.26	6.95	0.48	
61	Brazil	0.25	6.85	0.47	
62	Moldova, Rep.	0.25	6.77	0.46	
63	Morocco	0.23	6.31	0.45	
64	Georgia	0.23	6.25	0.44	
65	United Arab Emirates	0.20	5.52	0.43	
66	Niger	0.15	4.35	0.42	
67	Colombia	0.14	4.10	0.42	
68	Brunei Darussalam	0.14	3.94	0.41	
69	Albania	0.12	3.32	0.40	
70	Sri Lanka	0.11	3.22	0.39	
71	Mexico	0.11	3.06	0.38	
72	Thailand	0.10	3.00	0.37	
73	Madagascar (2011)	0.10	2.83	0.36	
74	Belarus	0.10	2.79	0.35	
75	Guinea (2010)	0.09	2.70	0.35	●
76	TFYR of Macedonia	0.09	2.68	0.34	
77	Romania	0.09	2.67	0.33	
78	Mali (2004)	0.09	2.66	0.32	
79	Costa Rica	0.09	2.48	0.31	
80	Benin (2008)	0.08	2.27	0.30	
81	Egypt	0.08	2.24	0.29	
82	Mongolia (2011)	0.08	2.22	0.28	
83	Nicaragua	0.08	2.21	0.27	
84	Kenya	0.07	1.96	0.27	
85	Cameroon (2011)	0.06	1.87	0.26	
86	Bahrain	0.06	1.78	0.25	
87	Tunisia	0.06	1.70	0.24	
88	Burkina Faso (2008)	0.06	1.62	0.23	
89	Kazakhstan	0.05	1.55	0.22	
90	Azerbaijan	0.05	1.54	0.21	
91	Oman (2010)	0.05	1.51	0.20	
92	Zambia (2010)	0.05	1.48	0.19	
93	Philippines	0.04	1.27	0.19	
94	Uganda (2011)	0.04	1.22	0.18	
95	Dominican Republic	0.04	1.22	0.17	○
96	Viet Nam	0.04	1.15	0.16	
97	Senegal	0.04	1.13	0.15	
98	Trinidad and Tobago	0.04	1.13	0.14	
99	Botswana (2010)	0.04	1.06	0.13	
100	Peru	0.03	1.01	0.12	○
101	Honduras (2009)	0.03	0.93	0.12	○
102	Côte d'Ivoire	0.03	0.75	0.11	
103	Nigeria	0.02	0.74	0.10	
104	Sudan (2011)	0.02	0.69	0.09	
105	El Salvador (2011)	0.02	0.67	0.08	○
106	Tanzania, United Rep. (2008)	0.02	0.56	0.07	○
107	Algeria	0.01	0.44	0.06	
108	Guatemala	0.01	0.39	0.05	○
109	Ghana	0.01	0.36	0.04	○
110	Indonesia	0.01	0.33	0.04	○
111	Uzbekistan	0.01	0.29	0.03	○
112	Angola (2010)	0.01	0.28	0.02	○
113	Iran, Islamic Rep.	0.00	0.06	0.01	○
114	Togo (2013)	0.00	0.00	0.00	○
n/a	Argentina	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Hong Kong (China)	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Uruguay	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

6.1.3 National office utility model applications

Number of utility model applications filed by residents at the national patent office (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Belarus	7.63	100.00	0.93	●
1	China	59.90	100.00	0.93	●
1	Moldova, Rep.	14.22	100.00	0.93	●
1	Mongolia (2010)	11.57	100.00	0.93	●
1	Ukraine	30.22	100.00	0.93	●
6	Korea, Rep.	7.45	97.65	0.92	
7	Czech Republic	6.32	82.79	0.90	
8	Russian Federation	5.42	70.92	0.88	●
9	Tajikistan	3.93	51.25	0.87	●
10	Germany	3.77	49.16	0.85	
11	Turkey	3.36	43.71	0.83	●
12	Finland	2.29	29.59	0.82	
13	Slovakia	2.28	29.54	0.80	
14	Thailand	2.20	28.47	0.78	
15	Estonia	2.17	27.98	0.77	
16	Armenia	1.96	25.21	0.75	●
17	Bulgaria	1.86	23.95	0.73	
18	Georgia	1.83	23.51	0.72	
19	Spain	1.75	22.51	0.70	
20	Uzbekistan	1.67	21.41	0.68	●
21	Philippines	1.63	20.98	0.67	
22	Austria	1.47	18.75	0.65	
23	Italy	1.42	18.09	0.63	
24	Japan	1.38	17.56	0.62	
25	Kyrgyzstan	1.29	16.49	0.60	
26	Australia	1.25	15.96	0.58	
27	Brazil	1.24	15.72	0.57	
28	Hong Kong (China)	1.21	15.40	0.55	
29	Hungary	1.19	15.09	0.53	
30	Poland	1.19	15.08	0.52	
31	Ethiopia (2007)	1.17	14.80	0.50	
32	Croatia	1.08	13.71	0.48	
33	Serbia	0.96	12.13	0.47	
34	Kenya	0.91	11.38	0.45	
35	Rwanda	0.80	9.96	0.43	
36	Denmark	0.77	9.62	0.42	○
37	Uruguay	0.71	8.77	0.40	
38	Viet Nam	0.59	7.23	0.38	
39	Colombia	0.51	6.13	0.37	
40	Kazakhstan (2011)	0.36	4.23	0.35	
41	Peru	0.36	4.16	0.33	
42	Chile	0.35	4.04	0.32	○
43	Mexico	0.30	3.35	0.30	
44	Portugal	0.26	2.88	0.28	○
45	Honduras	0.24	2.57	0.27	
46	Romania	0.22	2.38	0.25	○
47	Indonesia (2011)	0.21	2.22	0.23	
48	Zimbabwe (2008)	0.20	2.11	0.22	
49	Argentina	0.20	2.09	0.20	
50	Guatemala	0.19	1.96	0.18	
51	Slovenia (2010)	0.16	1.53	0.17	○
52	Burkina Faso (2010)	0.14	1.33	0.15	
53	Ecuador (2010)	0.14	1.29	0.13	
54	Azerbaijan (2011)	0.14	1.28	0.12	○
55	Mozambique (2007)	0.12	0.96	0.10	
56	Costa Rica	0.10	0.77	0.08	○
57	Panama (2011)	0.10	0.74	0.07	○
58	Malaysia	0.09	0.65	0.05	○
59	France	0.07	0.34	0.03	○
60	Greece	0.05	0.14	0.02	○
61	Albania (2009)	0.04	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belgium	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	India	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Ireland	n/a	n/a	n/a	
n/a	Israel	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Lithuania	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Morocco	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Netherlands	n/a	n/a	n/a	
n/a	New Zealand	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Norway	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Singapore	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Sweden	n/a	n/a	n/a	
n/a	Switzerland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	United Kingdom	n/a	n/a	n/a	
n/a	United States of America	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.1.4 Scientific and technical publications

Number of scientific and technical journal articles (per billion PPP$ GDP) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Iceland	67.50	100.00	1.00	●
2	Switzerland	67.19	99.55	0.99	●
3	Denmark	67.13	99.45	0.99	●
4	Slovenia	64.00	94.79	0.98	●
5	Serbia	60.35	89.36	0.97	●
6	New Zealand	58.39	86.45	0.96	●
7	Sweden	57.61	85.29	0.96	
8	Finland	55.45	82.07	0.95	
9	Estonia	53.13	78.61	0.94	●
10	Portugal	50.06	74.04	0.94	●
11	Netherlands	48.55	71.79	0.93	
12	Australia	48.00	70.98	0.92	
13	Cyprus	44.92	66.39	0.91	●
14	Belgium	44.02	65.04	0.91	
15	United Kingdom	43.04	63.58	0.90	
16	Israel	42.93	63.42	0.89	
17	Croatia	40.58	59.92	0.89	●
18	Norway	38.81	57.28	0.88	
19	Canada	37.40	55.19	0.87	
20	Spain	36.67	54.11	0.87	●
21	Greece	36.21	53.41	0.86	●
22	Ireland	36.16	53.34	0.85	
23	Austria	35.73	52.70	0.84	
24	Zimbabwe	35.49	52.34	0.84	●
25	Czech Republic	34.83	51.37	0.83	
26	Armenia	33.77	49.78	0.82	●
27	Singapore	32.26	47.54	0.82	
28	Italy	31.00	45.65	0.81	
29	Hungary	30.71	45.23	0.80	
30	Korea, Rep.	29.47	43.39	0.79	
31	Germany	29.14	42.90	0.79	
32	Gambia	29.09	42.82	0.78	●
33	France	28.54	42.00	0.77	
34	Jordan	28.39	41.77	0.77	●
35	Romania	27.13	39.90	0.76	
36	Poland	26.64	39.17	0.75	
37	Lithuania	26.44	38.87	0.74	
38	Tunisia	26.27	38.62	0.74	●
39	Iran, Islamic Rep.	24.75	36.35	0.73	●
40	Fiji	24.49	35.97	0.72	●
41	Montenegro	23.15	33.98	0.72	
42	Slovakia	21.85	32.04	0.71	
43	Malawi	20.78	30.44	0.70	●
44	Turkey	20.76	30.41	0.70	
45	United States of America	20.51	30.04	0.69	
46	Bulgaria	19.88	29.10	0.68	
47	Georgia	19.31	28.25	0.67	
48	Luxembourg	19.17	28.05	0.67	
49	Malta	19.02	27.82	0.66	
50	Moldova, Rep.	18.93	27.69	0.65	
51	Seychelles	17.47	25.52	0.65	
52	Chile	17.07	24.92	0.64	
53	Malaysia	16.87	24.63	0.63	
54	Kenya	15.84	23.09	0.62	
55	South Africa	15.82	23.06	0.62	
56	China	15.76	22.97	0.61	
57	Japan	15.74	22.94	0.60	
58	Benin	15.26	22.22	0.60	●
59	Brazil	14.86	21.63	0.59	
60	Latvia	14.84	21.61	0.58	
61	Lebanon	14.45	21.01	0.57	
62	Ukraine	13.94	20.26	0.57	
63	Uganda	13.61	19.77	0.56	
64	Egypt	13.56	19.69	0.55	
65	Senegal	13.06	18.95	0.55	
66	TFYR of Macedonia	12.77	18.51	0.54	
67	Uruguay	12.69	18.39	0.53	
68	Mongolia	12.39	17.95	0.52	
69	Cameroon	12.23	17.71	0.52	●
70	Russian Federation	10.74	15.49	0.51	
71	Pakistan	10.63	15.32	0.50	
72	Argentina	10.27	14.79	0.50	
73	Nepal	10.20	14.69	0.49	●
74	India	9.84	14.15	0.48	
75	Barbados	9.71	13.96	0.48	
76	Bosnia and Herzegovina	9.55	13.72	0.47	
77	Burkina Faso	9.54	13.71	0.46	
78	Cabo Verde	9.45	13.57	0.45	
79	Saudi Arabia	9.30	13.35	0.45	
80	Zambia	9.27	13.30	0.44	
81	Madagascar	9.26	13.29	0.43	
82	Thailand	9.16	13.14	0.43	
83	Tanzania, United Rep.	8.98	12.87	0.42	
84	Morocco	8.45	12.08	0.41	
85	Togo	8.30	11.86	0.40	●
86	Namibia	7.31	10.38	0.40	
87	Rwanda	7.27	10.33	0.39	
88	Mali	7.20	10.22	0.38	
89	Algeria	7.09	10.06	0.38	
90	Ethiopia	7.05	10.00	0.37	
91	Ghana	6.86	9.71	0.36	
92	Belarus	6.82	9.66	0.35	
93	Swaziland	6.71	9.49	0.35	
94	Bhutan	6.69	9.46	0.34	
95	Costa Rica	6.51	9.20	0.33	
96	Kyrgyzstan	6.43	9.08	0.33	
97	Colombia	6.14	8.64	0.32	
98	Trinidad and Tobago	6.12	8.61	0.31	
99	Niger	6.01	8.45	0.30	
100	Mexico	5.86	8.23	0.30	
101	Botswana	5.85	8.22	0.29	
102	Viet Nam	5.82	8.17	0.28	
103	Panama	5.61	7.85	0.28	
104	Lesotho	5.39	7.53	0.27	
105	Jamaica	5.37	7.50	0.26	
106	Oman	5.32	7.43	0.26	
107	Albania	5.20	7.25	0.25	
108	United Arab Emirates	5.13	7.14	0.24	○
109	Mozambique	5.04	7.01	0.23	
110	Cambodia	4.89	6.79	0.23	
111	Mauritius	4.63	6.40	0.22	○
112	Bahrain	4.29	5.89	0.21	
113	Côte d'Ivoire	4.26	5.84	0.21	
114	Qatar	4.26	5.84	0.20	
115	Azerbaijan	4.20	5.76	0.19	
116	Kuwait	4.14	5.67	0.18	
117	Bangladesh	4.00	5.46	0.18	
118	Bolivia, Plurinational St.	3.81	5.17	0.17	
119	Sri Lanka	3.69	5.00	0.16	
120	Nigeria	3.68	4.98	0.16	
121	Brunei Darussalam	3.55	4.79	0.15	○
122	Tajikistan	3.53	4.75	0.14	
123	Sudan	3.15	4.19	0.13	
124	Burundi	2.96	3.90	0.13	
125	Guinea	2.94	3.89	0.12	
126	Yemen	2.78	3.64	0.11	
127	Uzbekistan	2.75	3.60	0.11	
128	Ecuador	2.67	3.47	0.10	○
129	Venezuela, Bolivarian Rep.	2.33	2.97	0.09	
130	Nicaragua	2.26	2.87	0.09	○
131	Philippines	2.14	2.69	0.08	○
132	Guyana	2.12	2.66	0.07	○
133	Peru	2.11	2.65	0.06	○
134	Kazakhstan	2.09	2.61	0.06	○
135	Guatemala	1.62	1.91	0.05	○
136	Paraguay	1.37	1.55	0.04	○
137	Honduras	1.35	1.51	0.04	○
138	Indonesia	1.15	1.21	0.03	○
139	El Salvador	0.74	0.60	0.02	○
140	Dominican Republic	0.66	0.49	0.01	○
141	Myanmar	0.54	0.31	0.01	
142	Angola	0.33	0.00	0.00	○
n/a	Hong Kong (China)	n/a	n/a	n/a	

SOURCE: Thomson Reuters, Web of Science, SCI and SSCI; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

6.1.5 Citable documents H index

The H index is the economy's number of published articles (H) that have received at least H citations in the period 1996–2013 | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Germany	740.00	100.00	0.99	●
1	United Kingdom	851.00	100.00	0.99	●
1	United States of America	1,380.00	100.00	0.99	●
4	France	681.00	91.90	0.98	●
5	Canada	658.00	88.74	0.97	●
6	Japan	635.00	85.58	0.96	●
7	Italy	588.00	79.12	0.96	●
8	Netherlands	576.00	77.47	0.95	
9	Switzerland	569.00	76.51	0.94	
10	Australia	514.00	68.96	0.94	
11	Sweden	511.00	68.54	0.93	
12	Spain	476.00	63.74	0.92	●
13	Belgium	454.00	60.71	0.92	●
14	Denmark	427.00	57.01	0.91	
15	Israel	414.00	55.22	0.90	
16	China	385.00	51.24	0.89	
17	Austria	378.00	50.27	0.89	
18	Finland	372.00	49.45	0.88	
19	Korea, Rep.	333.00	44.09	0.87	
20	Norway	327.00	43.27	0.87	
21	Russian Federation	325.00	42.99	0.86	●
22	Brazil	305.00	40.25	0.85	●
23	Poland	302.00	39.84	0.85	
24	India	301.00	39.70	0.84	●
25	Hong Kong (China)	292.00	38.46	0.83	
26	New Zealand	282.00	37.09	0.82	
27	Ireland	271.00	35.58	0.82	
28	Singapore	268.00	35.16	0.81	
29	Greece	266.00	34.89	0.80	
30	Hungary	254.00	33.24	0.80	
31	Czech Republic	239.00	31.18	0.79	
32	Portugal	234.00	30.49	0.78	
33	Mexico	232.00	30.22	0.77	●
34	South Africa	231.00	30.08	0.77	
35	Argentina	222.00	28.85	0.76	
36	Turkey	210.00	27.20	0.75	
37	Chile	194.00	25.00	0.75	
38	Thailand	167.00	21.29	0.74	
39	Iceland	160.00	20.33	0.73	
40	Slovenia	153.00	19.37	0.73	
41	Slovakia	148.00	18.68	0.72	
42	Croatia	143.00	17.99	0.71	
43	Ukraine	142.00	17.86	0.70	
44	Bulgaria	138.00	17.31	0.70	
45	Iran, Islamic Rep.	135.00	16.90	0.68	●
45	Romania	135.00	16.90	0.68	
47	Colombia	133.00	16.62	0.68	
48	Egypt	132.00	16.48	0.67	●
49	Kenya	131.00	16.35	0.66	
50	Estonia	130.00	16.21	0.65	
50	Venezuela, Bolivarian Rep.	130.00	16.21	0.65	●
52	Malaysia	125.00	15.52	0.64	
53	Saudi Arabia	124.00	15.38	0.63	
54	Philippines	116.00	14.29	0.63	
55	Indonesia	112.00	13.74	0.62	
56	Pakistan	111.00	13.60	0.61	●
57	Lithuania	109.00	13.32	0.60	
57	Peru	109.00	13.32	0.60	
59	Viet Nam	107.00	13.05	0.59	
60	Belarus	106.00	12.91	0.58	
60	Panama	106.00	12.91	0.58	
62	Armenia	105.00	12.77	0.57	
63	Uruguay	104.00	12.64	0.56	
64	Costa Rica	103.00	12.50	0.56	
65	Morocco	99.00	11.95	0.54	
65	Uganda	99.00	11.95	0.54	
67	Bangladesh	97.00	11.68	0.53	
67	Lebanon	97.00	11.68	0.53	
69	Tanzania, United Rep.	93.00	11.13	0.52	
70	Nigeria	89.00	10.58	0.51	
71	United Arab Emirates	87.00	10.30	0.51	
72	Cyprus	86.00	10.16	0.49	
72	Sri Lanka	86.00	10.16	0.49	
74	Latvia	85.00	10.03	0.48	
74	Tunisia	85.00	10.03	0.48	
76	Ecuador	83.00	9.75	0.46	
76	Kuwait	83.00	9.75	0.46	
78	Jordan	82.00	9.62	0.46	
79	Gambia	80.00	9.34	0.44	
79	Luxembourg	80.00	9.34	0.44	
79	Malawi	80.00	9.34	0.44	
82	Algeria	78.00	9.07	0.42	●
82	Georgia	78.00	9.07	0.42	
84	Senegal	75.00	8.65	0.42	
85	Ethiopia	73.00	8.38	0.40	
85	Ghana	73.00	8.38	0.40	
87	Cameroon	72.00	8.24	0.39	●
87	Zimbabwe	72.00	8.24	0.39	
89	Nepal	71.00	8.10	0.38	
90	Côte d'Ivoire	68.00	7.69	0.36	
90	Serbia	68.00	7.69	0.36	
90	Zambia	68.00	7.69	0.36	
93	Oman	63.00	7.01	0.35	
94	Burkina Faso	62.00	6.87	0.34	
94	TFYR of Macedonia	62.00	6.87	0.34	
96	Bolivia, Plurinational St.	61.00	6.73	0.32	
96	Trinidad and Tobago	61.00	6.73	0.32	
98	Malta	60.00	6.59	0.31	○
98	Moldova, Rep.	60.00	6.59	0.31	
100	Botswana	57.00	6.18	0.30	
100	Jamaica	57.00	6.18	0.30	
102	Madagascar	56.00	6.04	0.29	
103	Mali	55.00	5.91	0.27	
103	Mongolia	55.00	5.91	0.27	
103	Namibia	55.00	5.91	0.27	
106	Guatemala	53.00	5.63	0.25	
106	Mozambique	53.00	5.63	0.25	
106	Uzbekistan	53.00	5.63	0.25	
109	Kazakhstan	52.00	5.49	0.23	
109	Sudan	52.00	5.49	0.23	
111	Barbados	50.00	5.22	0.22	○
111	Qatar	50.00	5.22	0.22	
113	Benin	49.00	5.08	0.20	
113	Cambodia	49.00	5.08	0.20	
115	Niger	47.00	4.81	0.20	
116	Azerbaijan	45.00	4.53	0.18	
116	Nicaragua	45.00	4.53	0.18	
116	Paraguay	45.00	4.53	0.18	
119	Bosnia and Herzegovina	44.00	4.40	0.17	
120	Dominican Republic	41.00	3.98	0.15	○
120	Mauritius	41.00	3.98	0.15	○
122	Brunei Darussalam	40.00	3.85	0.14	○
122	Fiji	40.00	3.85	0.14	
124	Bahrain	39.00	3.71	0.13	
124	Honduras	39.00	3.71	0.13	○
126	Myanmar	38.00	3.57	0.12	
127	Yemen	37.00	3.43	0.11	
128	Albania	36.00	3.30	0.10	○
128	Rwanda	36.00	3.30	0.10	
130	Guinea	34.00	3.02	0.09	
131	Seychelles	33.00	2.88	0.08	○
132	El Salvador	31.00	2.61	0.06	○
132	Kyrgyzstan	31.00	2.61	0.06	○
132	Togo	31.00	2.61	0.06	
135	Swaziland	28.00	2.20	0.06	○
136	Guyana	27.00	2.06	0.05	○
137	Angola	25.00	1.79	0.04	
138	Burundi	24.00	1.65	0.04	
139	Tajikistan	23.00	1.51	0.03	○
140	Lesotho	22.00	1.37	0.02	○
141	Bhutan	18.00	0.82	0.01	○
142	Montenegro	17.00	0.69	0.01	○
143	Cabo Verde	12.00	0.00	0.00	○

SOURCE: SCImago. (2007). SJR — SCImago Journal & Country Rank. Retrieved February, 2014.

NOTE: ● indicates a strength; ○ a weakness.

6.2.1 Growth rate of GDP per person engaged

Growth rate of GDP per person engaged (constant 1990 PPP$, 2011 to 2012) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Niger	10.25	100.00	1.00	●
2	China	7.37	88.04	0.99	●
3	Georgia	6.68	85.17	0.98	●
4	Sri Lanka	6.06	82.57	0.97	●
5	Ghana	5.64	80.85	0.97	●
6	Uzbekistan	5.37	79.70	0.96	●
7	Côte d'Ivoire	5.27	79.31	0.95	●
8	Thailand	4.85	77.57	0.94	●
9	Belarus	4.83	77.47	0.93	●
10	Myanmar	4.57	76.38	0.92	●
11	Kazakhstan	4.52	76.17	0.91	●
12	Tajikistan	4.50	76.11	0.90	●
13	Mozambique	4.49	76.06	0.90	●
14	Peru	4.46	75.93	0.89	●
15	Cambodia	4.31	75.30	0.88	●
16	Nigeria	4.25	75.08	0.87	●
17	Chile	4.24	75.00	0.86	●
18	Kuwait	4.22	74.92	0.85	●
19	Indonesia	4.17	74.73	0.84	●
20	Moldova, Rep.	4.04	74.19	0.83	●
21	Ukraine	3.76	73.00	0.83	●
22	Venezuela, Bolivarian Rep.	3.68	72.67	0.82	●
23	Ethiopia	3.67	72.66	0.81	●
24	India	3.66	72.61	0.80	●
25	Latvia	3.57	72.24	0.79	
26	Bangladesh	3.55	72.13	0.78	●
27	Viet Nam	3.48	71.86	0.77	●
28	Saudi Arabia	3.47	71.83	0.77	
29	Burkina Faso	3.40	71.54	0.76	●
30	Russian Federation	3.39	71.47	0.75	
31	Tanzania, United Rep.	3.37	71.41	0.74	●
32	Zambia	3.33	71.24	0.73	●
33	Armenia	3.29	71.06	0.72	
34	South Africa	3.21	70.74	0.71	
35	Angola	3.15	70.48	0.70	●
36	Costa Rica	3.14	70.42	0.70	
37	Bulgaria	2.71	68.67	0.69	
38	Bolivia, Plurinational St.	2.71	68.67	0.68	●
39	Uruguay	2.67	68.47	0.67	
40	Azerbaijan	2.62	68.29	0.66	●
41	Australia	2.61	68.22	0.65	
42	Malaysia	2.60	68.22	0.64	
43	Colombia	2.59	68.15	0.63	
44	Jordan	2.56	68.02	0.63	
45	Philippines	2.48	67.71	0.62	
46	Iceland	2.48	67.68	0.61	
47	Oman	2.42	67.46	0.60	
48	Kenya	2.35	67.16	0.59	
49	Spain	2.33	67.07	0.58	
50	Lithuania	2.28	66.88	0.57	
51	Norway	2.21	66.58	0.57	○
52	Cameroon	2.20	66.53	0.56	●
53	Dominican Republic	2.14	66.30	0.55	
54	Poland	2.11	66.15	0.54	
55	Estonia	1.96	65.52	0.53	
56	Ecuador	1.95	65.48	0.52	
57	Tunisia	1.68	64.39	0.51	
58	Hong Kong (China)	1.68	64.36	0.50	
59	Slovakia	1.59	63.98	0.50	
60	Israel	1.56	63.88	0.49	○
61	Morocco	1.30	62.80	0.48	
62	Trinidad and Tobago	1.28	62.72	0.47	
63	Malawi	1.12	62.05	0.46	
64	New Zealand	1.06	61.81	0.45	○
65	Ireland	1.06	61.78	0.44	○
66	Sweden	1.01	61.58	0.43	○
67	Canada	0.99	61.49	0.43	○
68	Turkey	0.98	61.45	0.42	
69	Algeria	0.97	61.40	0.41	
70	United Arab Emirates	0.93	61.25	0.40	
71	Pakistan	0.93	61.24	0.39	
72	Korea, Rep.	0.80	60.72	0.38	
73	Mexico	0.75	60.49	0.37	
74	Senegal	0.62	59.94	0.37	
75	Qatar	0.57	59.78	0.36	
76	Japan	0.50	59.46	0.35	○
77	United States of America	0.49	59.43	0.34	○
78	Argentina	0.49	59.42	0.33	
79	Denmark	0.45	59.25	0.32	○
80	Malta	0.41	59.10	0.31	○
81	TFYR of Macedonia	0.40	59.07	0.30	
82	Austria	0.36	58.88	0.30	○
83	Portugal	0.36	58.88	0.29	○
84	Romania	0.35	58.83	0.28	
85	Barbados	0.34	58.79	0.27	○
86	Uganda	0.28	58.53	0.26	
87	Finland	0.22	58.31	0.25	○
88	Guatemala	0.10	57.80	0.24	
89	Singapore	0.03	57.51	0.23	○
90	Egypt	−0.05	57.19	0.23	
91	Netherlands	−0.23	56.43	0.22	○
92	Belgium	−0.24	56.40	0.21	○
93	Bosnia and Herzegovina	−0.24	56.39	0.20	
94	Switzerland	−0.25	56.37	0.19	○
95	France	−0.25	56.34	0.18	○
96	Brazil	−0.26	56.31	0.17	○
97	Germany	−0.35	55.95	0.17	○
98	Kyrgyzstan	−0.57	55.02	0.16	
99	Slovenia	−0.59	54.93	0.15	○
100	Jamaica	−0.65	54.70	0.14	○
101	Albania	−0.71	54.43	0.13	
102	United Kingdom	−0.74	54.31	0.12	○
103	Cyprus	−0.80	54.07	0.11	○
104	Bahrain	−1.02	53.13	0.10	○
105	Czech Republic	−1.11	52.78	0.10	○
106	Greece	−1.30	51.98	0.09	○
107	Madagascar	−1.39	51.61	0.08	
108	Italy	−1.47	51.26	0.07	○
109	Luxembourg	−1.59	50.78	0.06	○
110	Croatia	−1.81	49.84	0.05	○
111	Zimbabwe	−1.99	49.12	0.04	○
112	Hungary	−2.14	48.50	0.03	○
113	Iran, Islamic Rep.	−2.36	47.58	0.03	○
114	Yemen	−5.30	35.34	0.02	
115	Mali	−7.32	26.94	0.01	○
116	Sudan	−13.80	0.00	0.00	○
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Serbia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	

SOURCE: International Labour Organization, *Key Indicators of the Labour Market* (KILM) database, Table 17b Labour productivity, special tabulations

NOTE: ● indicates a strength; ○ a weakness.

6.2.2 New business density

New business density (new registrations per thousand population 15–64 years old) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Cyprus	22.51	100.00	0.97	●
1	Hong Kong (China)	28.12	100.00	0.97	●
1	Luxembourg	20.98	100.00	0.97	●
1	New Zealand	15.07	100.00	0.97	●
5	Panama	14.10	93.57	0.96	●
6	Malta	13.61	90.31	0.95	●
7	Botswana	12.30	81.60	0.94	●
8	Australia	12.16	80.69	0.93	
9	Latvia	11.63	77.17	0.92	●
10	United Kingdom	11.04	73.22	0.91	
11	Bulgaria	9.03	59.89	0.90	●
12	Iceland	8.17	54.19	0.89	
13	Singapore	8.04	53.38	0.88	
14	Norway	7.83	51.93	0.87	
15	Mauritius	7.40	49.07	0.86	●
16	South Africa	6.54	43.38	0.85	●
17	Sweden	6.41	42.52	0.84	
18	Chile	5.69	37.73	0.83	●
19	Slovakia	5.11	33.89	0.82	●
20	Georgia	4.86	32.26	0.81	
21	Hungary	4.75	31.55	0.80	
22	Lithuania	4.71	31.26	0.79	
23	Ireland	4.50	29.86	0.78	
24	Netherlands	4.44	29.48	0.77	
25	Slovenia	4.36	28.93	0.76	
26	Denmark	4.36	28.92	0.75	
27	Russian Federation	4.30	28.55	0.74	
28	Peru	3.83	25.41	0.73	●
29	TFYR of Macedonia	3.60	23.92	0.72	
30	Costa Rica	3.55	23.54	0.71	
31	Uruguay	2.98	19.79	0.70	
32	Czech Republic	2.96	19.66	0.69	
33	Israel	2.96	19.65	0.68	
34	France	2.88	19.10	0.67	
35	Croatia	2.82	18.72	0.66	
36	Spain	2.71	18.01	0.65	
37	Switzerland	2.53	16.81	0.64	
38	Belgium	2.48	16.45	0.63	
39	Finland	2.32	15.37	0.62	
40	Malaysia	2.28	15.12	0.61	
41	Brazil	2.17	14.38	0.60	
42	Korea, Rep.	2.03	13.46	0.59	
43	Colombia	2.00	13.27	0.58	
44	Italy	1.91	12.65	0.57	
45	Qatar	1.74	11.52	0.56	
46	Kazakhstan	1.71	11.37	0.55	
47	Serbia	1.68	11.12	0.54	
48	Armenia	1.55	10.28	0.53	
49	Lesotho	1.49	9.86	0.52	●
50	United Arab Emirates	1.38	9.14	0.51	
51	Zambia	1.36	9.01	0.50	
52	Germany	1.29	8.55	0.50	
53	Uganda	1.17	7.74	0.49	
54	Japan	1.15	7.64	0.48	
55	Belarus	1.14	7.56	0.47	
56	Jamaica	1.11	7.39	0.46	
57	Rwanda	1.07	7.12	0.45	
58	Canada	1.07	7.11	0.44	○
59	Dominican Republic	1.05	6.94	0.43	
60	Jordan	0.98	6.51	0.42	
61	Kyrgyzstan	0.92	6.12	0.41	
62	Ukraine	0.92	6.12	0.40	
63	Nigeria	0.91	6.01	0.39	
64	Mexico	0.88	5.82	0.38	
65	Albania	0.88	5.81	0.37	
66	Thailand	0.86	5.68	0.36	
67	Namibia	0.85	5.67	0.35	
68	Turkey	0.79	5.22	0.34	
69	Bosnia and Herzegovina	0.70	4.64	0.33	
70	Azerbaijan	0.70	4.62	0.32	
71	Nepal	0.66	4.37	0.31	
72	Uzbekistan	0.64	4.27	0.30	
73	Bolivia, Plurinational St.	0.56	3.73	0.29	
74	Algeria	0.53	3.54	0.28	
75	Guatemala	0.52	3.46	0.27	
76	Sri Lanka	0.51	3.42	0.26	
77	Austria	0.50	3.30	0.25	○
78	El Salvador	0.48	3.20	0.24	
79	Argentina	0.47	3.09	0.23	
80	Indonesia	0.29	1.95	0.22	
81	Philippines	0.27	1.80	0.21	
82	Senegal	0.27	1.77	0.20	
83	Tajikistan	0.26	1.70	0.19	
84	Guinea	0.23	1.50	0.18	
85	Bhutan	0.20	1.34	0.17	
86	Burkina Faso	0.15	0.99	0.16	
87	India	0.12	0.82	0.15	
88	Togo	0.12	0.81	0.14	
89	Bangladesh	0.09	0.61	0.13	
90	Madagascar	0.05	0.34	0.12	
91	Pakistan	0.04	0.25	0.11	
92	Estonia (2007)	0.00	0.00	0.00	○
92	Ethiopia (2009)	0.00	0.00	0.00	○
92	Kenya (2008)	0.00	0.00	0.00	○
92	Malawi (2009)	0.00	0.00	0.00	○
92	Moldova, Rep. (2009)	0.00	0.00	0.00	○
92	Montenegro (2011)	0.00	0.00	0.00	○
92	Morocco (2009)	0.00	0.00	0.00	○
92	Oman (2009)	0.00	0.00	0.00	○
92	Poland (2009)	0.00	0.00	0.00	○
92	Portugal (2010)	0.00	0.00	0.00	○
92	Tunisia (2011)	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	China	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Greece	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Romania	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	United States of America	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Bank, *Doing Business 2014, Entrepreneurship* (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.2.3 Total computer software spending

Total computer software spending (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United States of America	0.97	100.00	1.00	●
2	Ireland	0.79	77.64	0.99	●
3	Switzerland	0.77	75.68	0.97	
4	Canada	0.75	72.62	0.96	●
5	Netherlands	0.71	68.26	0.95	
6	United Kingdom	0.70	66.84	0.93	
7	Belgium	0.69	65.70	0.92	●
8	Portugal	0.66	62.08	0.90	●
9	Turkey	0.65	61.02	0.89	●
10	Spain	0.65	60.70	0.88	●
11	France	0.63	58.55	0.86	
12	Italy	0.61	56.48	0.85	
13	Austria	0.61	56.32	0.84	
14	Denmark	0.61	56.21	0.82	
15	Greece	0.61	55.96	0.81	
16	Germany	0.61	55.63	0.79	
17	Finland	0.60	54.88	0.78	
18	Norway	0.59	53.86	0.77	
19	Sweden	0.59	53.59	0.75	
20	Zimbabwe	0.48	39.88	0.74	●
21	Indonesia	0.45	36.64	0.73	●
22	Hong Kong (China)	0.40	30.52	0.71	
23	Malaysia	0.39	28.80	0.70	
24	China	0.37	27.25	0.68	
25	South Africa	0.37	27.14	0.67	
26	Singapore	0.37	26.39	0.66	
27	Bahrain	0.35	24.60	0.64	
28	Jamaica	0.35	24.44	0.63	
29	Israel	0.35	24.39	0.62	
30	Korea, Rep.	0.34	23.91	0.60	
31	Australia	0.34	23.50	0.59	
32	Thailand	0.34	23.31	0.58	
33	Tunisia	0.32	21.22	0.56	
34	Czech Republic	0.32	21.14	0.55	
35	Romania	0.32	20.62	0.53	
36	Jordan	0.31	19.98	0.52	
37	Sri Lanka	0.31	19.97	0.51	
38	Hungary	0.31	19.96	0.49	
39	New Zealand	0.31	19.88	0.48	○
40	Bulgaria	0.31	19.76	0.47	
41	Saudi Arabia	0.31	19.72	0.45	
42	Viet Nam	0.31	19.67	0.44	
43	Ukraine	0.30	18.52	0.42	
44	Costa Rica	0.29	17.80	0.41	
45	Kuwait	0.29	17.65	0.40	
46	Honduras	0.29	17.31	0.38	
47	Japan	0.29	17.23	0.37	○
48	Poland	0.29	16.88	0.36	
49	Slovakia	0.28	16.61	0.34	
50	Senegal	0.28	15.93	0.33	
51	Chile	0.28	15.77	0.32	○
52	Brazil	0.28	15.76	0.30	
53	Philippines	0.27	15.03	0.29	
54	Kenya	0.27	14.71	0.27	
55	Pakistan	0.26	14.12	0.26	
56	Uruguay	0.26	14.09	0.25	
57	Morocco	0.26	14.08	0.23	
58	Russian Federation	0.26	13.90	0.22	○
59	United Arab Emirates	0.26	13.61	0.21	○
60	Panama	0.26	13.23	0.19	
61	Peru	0.26	13.11	0.18	
62	Bolivia, Plurinational St.	0.25	12.69	0.16	○
63	Argentina	0.25	12.27	0.15	
64	Egypt	0.25	11.92	0.14	
65	Colombia	0.24	11.72	0.12	○
66	Iran, Islamic Rep.	0.24	11.45	0.11	
67	Qatar	0.24	11.16	0.10	○
68	Mexico	0.23	10.48	0.08	○
69	Venezuela, Bolivarian Rep.	0.23	9.84	0.07	
70	Ecuador	0.23	9.70	0.05	○
71	Nigeria	0.22	8.88	0.04	○
72	Cameroon	0.19	5.24	0.03	○
73	Bangladesh	0.17	2.93	0.01	○
74	India	0.15	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Estonia	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Lithuania	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Serbia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Slovenia	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: IHS Global Insight, *Information and Communication Technology Database*; International Monetary Fund *World Economic Outlook 2013* (current US$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

6.2.4 ISO 9001 quality certificates

ISO 9001 Quality management systems - Requirements: Number of certificates issued (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Bulgaria	59.30	100.00	0.98	●
1	Italy	75.77	100.00	0.98	●
1	Romania	67.78	100.00	0.98	●
1	Spain	42.82	100.00	0.98	●
5	Malta	39.50	92.21	0.97	●
6	Serbia	39.40	91.98	0.96	●
7	Bosnia and Herzegovina	39.25	91.64	0.96	●
8	Czech Republic	37.65	87.90	0.95	●
9	Hungary	37.52	87.59	0.94	●
10	Croatia	33.70	78.65	0.94	●
11	Slovakia	32.83	76.60	0.93	●
12	Switzerland	32.17	75.05	0.92	
13	Israel	31.96	74.56	0.91	
14	Estonia	30.25	70.57	0.91	●
15	Slovenia	28.21	65.78	0.90	
16	China	27.24	63.52	0.89	
17	Portugal	27.22	63.46	0.89	●
18	Malaysia	23.74	55.33	0.88	
19	TFYR of Macedonia	22.29	51.92	0.87	●
20	Latvia	21.45	49.97	0.87	●
21	Colombia	19.88	46.27	0.86	●
22	United Kingdom	19.31	44.96	0.85	
23	Viet Nam	18.27	42.52	0.84	●
24	Lithuania	18.11	42.15	0.84	●
25	Singapore	18.01	41.90	0.83	
26	Greece	17.79	41.39	0.82	
27	Bahrain	17.41	40.50	0.82	
28	Netherlands	16.41	38.16	0.81	
29	Germany	16.36	38.03	0.80	
30	Korea, Rep.	16.09	37.41	0.79	
31	Austria	14.89	34.59	0.79	
32	France	14.13	32.83	0.78	
33	Montenegro	14.13	32.82	0.77	●
34	Uruguay	13.82	32.08	0.77	●
35	Thailand	13.50	31.35	0.76	
36	Denmark	13.35	30.98	0.75	
37	Poland	12.76	29.61	0.74	
38	Cyprus	12.67	29.40	0.74	
39	United Arab Emirates	12.62	29.29	0.73	
40	Sweden	12.58	29.19	0.72	
41	Chile	12.58	29.18	0.72	
42	Ireland	12.49	28.97	0.71	
43	Finland	12.38	28.72	0.70	
44	Mauritius	12.01	27.85	0.70	
45	Brazil	11.07	25.65	0.69	
46	Japan	11.00	25.49	0.68	
47	Moldova, Rep.	10.89	25.24	0.67	
48	Hong Kong (China)	10.14	23.48	0.67	
49	Australia	9.56	22.11	0.66	
50	Jordan	9.52	22.02	0.65	
51	Belgium	9.42	21.79	0.65	
52	Argentina	8.98	20.77	0.64	
53	Lebanon	8.30	19.18	0.63	
54	New Zealand	7.51	17.32	0.62	
55	Turkey	7.00	16.11	0.62	
56	South Africa	6.80	15.66	0.61	
57	Barbados	6.32	14.53	0.60	
58	Ecuador	6.31	14.50	0.60	
59	India	6.24	14.33	0.59	
60	Kenya	6.13	14.09	0.58	
61	Albania	5.94	13.64	0.57	
62	Norway	5.80	13.31	0.57	○
63	Paraguay	5.61	12.88	0.56	
64	Russian Federation	5.02	11.50	0.55	
65	Tunisia	4.91	11.24	0.55	
66	Canada	4.69	10.71	0.54	○
67	Philippines	4.54	10.36	0.53	
68	Indonesia	4.48	10.22	0.52	
69	Egypt	4.46	10.18	0.52	
70	Iceland	4.33	9.88	0.51	
71	Sri Lanka	4.24	9.65	0.50	
72	Cabo Verde	4.17	9.49	0.50	
73	El Salvador	4.06	9.23	0.49	
74	Costa Rica	4.05	9.21	0.48	
75	Oman	4.01	9.12	0.48	
76	Luxembourg	3.94	8.96	0.47	
77	Seychelles	3.92	8.91	0.46	
78	Pakistan	3.90	8.86	0.45	
79	Honduras	3.69	8.38	0.45	
80	Morocco	3.64	8.24	0.44	
81	Bolivia, Plurinational St.	3.42	7.75	0.43	
82	Ukraine	3.29	7.44	0.43	
83	Swaziland	3.24	7.32	0.42	
84	Brunei Darussalam	3.24	7.31	0.41	
85	Mexico	3.06	6.90	0.40	
86	Fiji	3.05	6.88	0.40	
87	Georgia	3.01	6.77	0.39	
88	Peru	2.87	6.46	0.38	
89	Iran, Islamic Rep.	2.81	6.31	0.38	
90	Kuwait	2.79	6.26	0.37	
91	Qatar	2.71	6.09	0.36	
92	Saudi Arabia	2.48	5.53	0.35	
93	Kazakhstan	2.47	5.50	0.35	
94	Guatemala	2.33	5.18	0.34	
95	Zimbabwe	2.23	4.96	0.33	
96	Benin	2.11	4.67	0.33	
97	Guinea	2.08	4.59	0.32	●
98	Madagascar	1.98	4.38	0.31	
99	Panama	1.97	4.33	0.30	
100	Dominican Republic	1.92	4.24	0.30	
101	Azerbaijan	1.92	4.23	0.29	
102	Togo	1.89	4.16	0.28	
103	Uzbekistan	1.84	4.04	0.28	
104	Senegal	1.83	4.01	0.27	
105	Trinidad and Tobago	1.82	4.00	0.26	
106	Nicaragua	1.74	3.81	0.26	
107	Namibia	1.72	3.77	0.25	
108	Mozambique	1.70	3.70	0.24	
109	Bhutan	1.64	3.57	0.23	
110	United States of America	1.61	3.50	0.23	○
111	Zambia	1.60	3.49	0.22	
112	Algeria	1.57	3.40	0.21	
113	Venezuela, Bolivarian Rep.	1.56	3.39	0.21	
114	Côte d'Ivoire	1.55	3.37	0.20	
115	Guyana	1.46	3.14	0.19	
116	Malawi	1.42	3.05	0.18	
117	Armenia	1.34	2.86	0.18	○
118	Burkina Faso	1.26	2.69	0.17	
119	Nepal	1.22	2.60	0.16	
120	Belarus	1.17	2.47	0.16	○
121	Jamaica	1.05	2.20	0.15	○
122	Sudan	0.98	2.03	0.14	
123	Gambia	0.88	1.79	0.13	
124	Bangladesh	0.85	1.73	0.13	
125	Cameroon	0.76	1.51	0.12	
126	Mongolia	0.73	1.45	0.11	○
127	Tanzania, United Rep.	0.66	1.27	0.11	
128	Ethiopia	0.62	1.19	0.10	
129	Ghana	0.50	0.89	0.09	○
130	Botswana	0.50	0.89	0.09	○
131	Niger	0.46	0.81	0.08	
132	Kyrgyzstan	0.46	0.80	0.07	
133	Yemen	0.45	0.78	0.06	
134	Myanmar	0.44	0.76	0.06	
135	Cambodia	0.36	0.56	0.05	
136	Uganda	0.33	0.52	0.04	○
137	Angola	0.27	0.36	0.04	
138	Lesotho	0.25	0.31	0.03	○
139	Mali	0.22	0.26	0.02	○
140	Tajikistan	0.17	0.13	0.01	○
141	Rwanda	0.13	0.04	0.01	○
142	Nigeria	0.11	0.00	0.00	○
n/a	Burundi	n/a	n/a	n/a	

SOURCE: International Organization for Standardization, *The ISO Survey of Certifications, 2012*; International Monetary Fund *World Economic Outlook 2013* (2010–12)

NOTE: ● indicates a strength; ○ a weakness.

6.2.5 High-tech and medium-high-tech output

High-tech and medium-high-tech output (% of total manufactures output) | 2010

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Singapore	70.00	100.00	1.00	●
2	Switzerland (2007)	63.22	90.16	0.99	●
3	Ireland (2009)	62.26	88.76	0.98	●
4	Hungary (2009)	56.41	80.26	0.97	●
5	Slovakia (2009)	54.87	78.03	0.96	●
6	Germany (2009)	53.64	76.24	0.95	●
7	Malta (2008)	53.35	75.83	0.94	●
8	Japan	51.96	73.80	0.93	
9	Korea, Rep. (2008)	48.88	69.32	0.92	
10	Czech Republic (2007)	48.77	69.16	0.91	●
11	Sweden (2009)	47.76	67.69	0.89	
12	Slovenia	46.34	65.64	0.88	
13	Finland (2009)	44.97	63.65	0.87	
14	Denmark (2009)	44.75	63.33	0.86	
15	Thailand (2006)	43.88	62.06	0.85	
16	China	43.59	61.64	0.84	
17	United States of America (2008)	43.27	61.17	0.83	
18	France (2009)	42.57	60.17	0.82	
19	Malaysia	41.00	57.88	0.81	
20	Mexico	40.32	56.90	0.80	●
21	Brazil	39.57	55.81	0.79	●
22	Austria (2009)	38.10	53.67	0.78	
23	United Kingdom (2009)	37.95	53.45	0.77	
24	Netherlands (2008)	36.69	51.62	0.76	
25	Iran, Islamic Rep. (2009)	36.30	51.06	0.75	●
26	Italy (2009)	36.23	50.95	0.74	
27	Romania	34.99	49.15	0.73	
28	Spain (2009)	34.48	48.41	0.72	
29	Belgium (2009)	34.21	48.02	0.71	
30	Poland (2009)	33.83	47.47	0.69	
31	Israel (2009)	32.86	46.05	0.68	
32	Indonesia (2009)	32.04	44.87	0.67	
33	India (2009)	31.76	44.46	0.66	
34	Estonia	31.40	43.93	0.65	
35	Saudi Arabia (2006)	30.36	42.43	0.64	
36	Belarus (2009)	28.71	40.03	0.63	
37	Canada	28.68	39.98	0.62	
38	South Africa	28.24	39.35	0.61	
39	Morocco	27.43	38.17	0.60	
40	Turkey (2009)	27.23	37.88	0.59	
41	Viet Nam (2008)	26.17	36.33	0.58	
42	Portugal (2009)	24.73	34.25	0.57	
43	Trinidad and Tobago (2006)	24.11	33.35	0.56	
44	Russian Federation	23.88	33.02	0.55	
45	Pakistan (2006)	23.71	32.77	0.54	
46	Hong Kong (China)	23.51	32.48	0.53	
47	Colombia	22.05	30.36	0.52	
48	Lebanon (2007)	22.00	30.28	0.51	
49	Chile (2008)	21.73	29.89	0.49	
50	Ukraine	21.67	29.81	0.48	
51	Norway (2008)	21.65	29.77	0.47	○
52	Egypt	21.36	29.35	0.46	
53	Qatar	20.78	28.51	0.45	
54	Australia	20.25	27.74	0.44	○
55	Jordan	19.83	27.13	0.43	
56	Serbia	19.77	27.04	0.42	
57	Lithuania	19.65	26.86	0.41	
58	Bulgaria	18.36	25.00	0.40	
59	Gambia (2004)	16.81	22.74	0.39	
60	Philippines (2008)	16.28	21.97	0.38	
61	Senegal	15.28	20.52	0.37	
62	Latvia	15.20	20.40	0.36	○
63	New Zealand (2009)	15.06	20.20	0.35	○
64	Oman	14.87	19.93	0.34	
65	Greece (2007)	14.08	18.77	0.33	
66	Ecuador (2008)	13.96	18.61	0.32	
67	Cyprus	13.82	18.40	0.31	
68	TFYR of Macedonia	13.75	18.30	0.29	
69	Georgia	13.24	17.56	0.28	
70	Tunisia (2006)	11.78	15.44	0.27	
71	Uruguay (2008)	11.65	15.25	0.26	
72	Costa Rica	11.59	15.15	0.25	
73	Ethiopia (2009)	10.87	14.11	0.24	
74	Tanzania, United Rep. (2008)	10.54	13.63	0.23	
75	Peru	10.02	12.88	0.22	
76	Kuwait	9.99	12.84	0.21	
77	Kenya	9.86	12.64	0.20	
78	Sri Lanka	8.85	11.19	0.19	
79	Azerbaijan	8.40	10.53	0.18	
80	Moldova, Rep.	8.21	10.26	0.17	○
81	Malawi (2009)	7.94	9.86	0.16	
82	Iceland (2006)	7.13	8.69	0.15	○
83	Fiji (2009)	6.87	8.31	0.14	○
84	Kazakhstan (2007)	6.84	8.26	0.13	○
85	Panama (2005)	5.23	5.92	0.12	○
86	Cameroon (2008)	5.13	5.78	0.11	
87	Armenia	4.95	5.52	0.09	○
88	Mongolia (2008)	4.21	4.44	0.08	○
89	Mauritius	3.33	3.16	0.07	○
90	Kyrgyzstan	3.26	3.06	0.06	○
91	Yemen (2006)	2.94	2.59	0.05	
92	Luxembourg (2009)	2.74	2.31	0.04	○
93	Madagascar (2006)	2.42	1.84	0.03	○
94	Tajikistan (2008)	2.40	1.81	0.02	○
95	Nepal (2008)	1.36	0.30	0.01	○
96	Albania	1.15	0.00	0.00	○
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Argentina	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: United Nations Industrial Development Organization, *Industrial Statistics Database INDSTAT4 2012*; OECD, 'ISIC Rev. 3 Tech. Intensity Def. '(2004–10)

NOTE: ● indicates a strength; ○ a weakness.

6.3.1 Royalties and license fees receipts

Royalties and license fees, receipts (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United States of America	5.08	100.00	1.00	●
2	Switzerland (2011)	4.99	99.54	0.99	●
3	Netherlands	4.69	98.01	0.98	●
4	Finland	3.51	90.82	0.97	
5	Guyana (2010)	3.38	89.89	0.96	●
6	Japan	3.31	89.33	0.96	
7	Sweden	2.85	85.64	0.95	
8	Iceland (2011)	2.84	85.55	0.94	
9	Ireland	2.38	81.23	0.93	
10	Paraguay (2011)	2.37	81.15	0.92	●
11	Rwanda (2011)	2.07	77.82	0.91	●
12	France	1.59	71.56	0.90	●
13	Denmark	1.54	70.66	0.89	
14	United Kingdom	1.45	69.27	0.88	
15	Israel	1.25	65.88	0.88	
16	Hungary	0.96	59.67	0.87	●
17	Luxembourg	0.85	56.98	0.86	
18	Germany	0.80	55.56	0.85	
19	Belgium	0.66	51.29	0.84	
20	Canada	0.65	50.77	0.83	
21	Italy	0.64	50.36	0.82	
22	Korea, Rep.	0.54	46.64	0.81	
23	Madagascar (2011)	0.51	45.62	0.81	●
24	New Zealand	0.46	43.31	0.80	
25	Kenya (2011)	0.44	42.29	0.79	●
26	Yemen (2009)	0.40	40.40	0.78	●
27	Austria	0.37	39.12	0.77	
28	Romania	0.33	36.83	0.76	●
29	Uganda	0.33	36.76	0.75	●
30	Singapore	0.31	35.82	0.74	
31	Spain	0.30	34.81	0.73	
32	Australia	0.27	32.82	0.73	
33	Slovenia	0.26	31.97	0.72	
34	Egypt (2007)	0.25	31.72	0.71	●
35	Malta	0.25	31.50	0.70	
36	Norway	0.21	28.72	0.69	
37	Serbia	0.19	26.97	0.68	
38	Argentina	0.18	26.07	0.67	
39	Brazil	0.18	25.47	0.66	
40	Barbados (2010)	0.16	24.30	0.65	
41	Bosnia and Herzegovina	0.16	23.66	0.65	
42	Czech Republic	0.13	21.45	0.64	
43	Colombia	0.13	21.42	0.63	
44	Seychelles (2011)	0.13	21.41	0.62	
45	Guatemala	0.13	21.32	0.61	
46	El Salvador	0.13	21.22	0.60	
47	Ukraine	0.13	20.78	0.59	
48	Russian Federation	0.13	20.66	0.58	
49	Croatia	0.12	20.18	0.58	
50	Greece	0.12	20.09	0.57	
51	TFYR of Macedonia	0.11	19.07	0.56	
52	Tunisia (2011)	0.11	18.62	0.55	
53	Moldova, Rep.	0.10	17.27	0.54	
54	Bulgaria	0.10	17.25	0.53	
55	Poland	0.10	17.22	0.52	
56	Thailand	0.09	15.86	0.51	
57	Hong Kong (China) (2011)	0.09	15.75	0.50	
58	Chile	0.08	15.23	0.50	
59	Jamaica	0.08	14.92	0.49	
60	Bolivia, Plurinational St. (2011)	0.08	14.77	0.48	
61	India	0.06	12.31	0.47	
62	Estonia	0.06	11.99	0.46	
63	South Africa	0.06	11.60	0.45	
64	Portugal	0.06	11.03	0.44	
65	Malaysia	0.05	10.88	0.43	
66	Latvia	0.05	10.36	0.42	
67	Mozambique	0.05	10.16	0.42	
68	China	0.05	9.95	0.41	
69	Georgia	0.04	9.25	0.40	
70	Belarus	0.04	9.16	0.39	
71	Panama	0.04	8.96	0.38	
72	Cambodia	0.04	8.91	0.37	
73	Montenegro (2011)	0.03	7.41	0.36	
74	Kyrgyzstan (2011)	0.03	7.37	0.35	
75	Albania	0.03	6.93	0.35	
76	Senegal (2010)	0.03	6.42	0.34	
77	Fiji (2010)	0.03	6.39	0.33	
78	Indonesia	0.03	6.04	0.32	
79	Lebanon (2011)	0.03	5.65	0.31	
80	Cyprus (2011)	0.03	5.59	0.30	
81	Costa Rica	0.02	5.48	0.29	
82	Mongolia	0.02	5.42	0.28	
83	Tajikistan (2011)	0.02	5.35	0.27	
84	Angola (2008)	0.02	5.10	0.27	●
85	Sudan (2011)	0.02	5.09	0.26	
86	Burkina Faso (2010)	0.02	4.62	0.25	
87	Zimbabwe (2011)	0.02	4.55	0.24	
88	Mauritius	0.02	4.53	0.23	○
89	Pakistan	0.02	3.98	0.22	
90	Lithuania	0.01	3.37	0.21	○
91	Peru (2011)	0.01	2.69	0.20	
92	Philippines	0.01	2.67	0.19	
93	Swaziland (2010)	0.01	2.62	0.19	
94	Iran, Islamic Rep. (2010)	0.01	2.05	0.18	
95	Mali (2010)	0.01	1.80	0.17	
96	Guinea (2008)	0.01	1.49	0.16	
97	Slovakia	0.01	1.35	0.15	○
98	Cameroon (2010)	0.01	1.26	0.14	
99	Morocco	0.00	1.09	0.13	○
100	Ethiopia (2010)	0.00	0.83	0.12	
101	Bangladesh (2011)	0.00	0.74	0.12	
102	Botswana	0.00	0.73	0.11	○
103	Algeria (2011)	0.00	0.67	0.10	
104	Trinidad and Tobago (2011)	0.00	0.53	0.09	○
105	Uruguay	0.00	0.34	0.08	○
106	Côte d'Ivoire (2009)	0.00	0.29	0.07	○
107	Bhutan	0.00	0.26	0.06	○
108	Togo (2010)	0.00	0.17	0.05	
109	Burundi (2011)	0.00	0.03	0.04	
110	Namibia (2011)	0.00	0.03	0.04	○
111	Niger (2007)	0.00	0.02	0.03	
112	Azerbaijan	0.00	0.00	0.02	○
113	Cabo Verde	0.00	0.00	0.01	○
114	Benin (2010)	0.00	0.00	0.00	○
n/a	Armenia	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mexico	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Turkey	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.3.2 High-tech exports

High-tech net exports (% of total net exports) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	China	27.81	100.00	1.00	●
2	Malaysia	26.88	96.63	0.99	●
3	Singapore	26.04	93.64	0.98	●
4	Korea, Rep.	20.36	73.19	0.98	●
5	Panama (2011)	19.37	69.66	0.97	●
6	Viet Nam	17.78	63.92	0.96	●
7	Czech Republic	17.15	61.66	0.95	●
8	Hungary	15.36	55.22	0.94	●
9	Costa Rica	15.27	54.92	0.94	●
10	Malta	14.79	53.17	0.93	●
11	Mexico	14.68	52.77	0.92	●
12	France	14.26	51.27	0.91	●
13	Thailand	13.63	49.00	0.90	●
14	Switzerland	13.53	48.64	0.90	
15	Japan	13.42	48.25	0.89	
16	Israel	13.12	47.16	0.88	
17	Netherlands	12.60	45.30	0.87	
18	Ireland	12.21	43.91	0.87	
19	Germany	11.91	42.83	0.86	
20	Estonia	11.06	39.76	0.85	
21	Sweden	9.51	34.18	0.84	
22	United Kingdom	9.31	33.48	0.83	
23	Belgium	9.30	33.44	0.83	
24	Austria	8.30	29.85	0.82	
25	Slovakia	7.54	27.11	0.81	
26	United States of America	6.93	24.91	0.80	
27	Denmark	6.11	21.96	0.79	
28	Finland	5.30	19.07	0.79	
29	Romania	5.07	18.23	0.78	●
30	Italy	4.97	17.88	0.77	
31	Lithuania	4.85	17.42	0.76	
32	Canada	4.84	17.39	0.75	
33	Poland	4.74	17.03	0.75	
34	Tunisia (2011)	4.52	16.25	0.74	●
35	Slovenia	4.50	16.16	0.73	
36	Kazakhstan	4.47	16.07	0.72	
37	Latvia	4.42	15.89	0.71	
38	Croatia	3.77	13.54	0.71	
39	Indonesia	3.41	12.26	0.70	
40	Spain	3.31	11.89	0.69	
41	Brazil	3.26	11.71	0.68	
42	Norway	3.03	10.90	0.67	
43	Bulgaria	2.94	10.55	0.67	
44	Uganda	2.89	10.39	0.66	●
45	India	2.78	10.01	0.65	
46	Ukraine	2.75	9.89	0.64	
47	Zambia (2011)	2.67	9.59	0.63	
48	El Salvador	2.55	9.16	0.63	
49	Serbia	2.49	8.97	0.62	
50	Portugal	2.28	8.21	0.61	
51	Argentina	2.22	7.98	0.60	
52	Namibia	1.95	7.03	0.60	
53	TFYR of Macedonia	1.91	6.86	0.59	
54	South Africa	1.87	6.72	0.58	
55	Greece	1.77	6.36	0.57	
56	Australia	1.72	6.17	0.56	
57	Mozambique	1.65	5.92	0.56	
58	New Zealand	1.60	5.74	0.55	
59	Russian Federation	1.48	5.33	0.54	
60	Iceland	1.46	5.24	0.53	
61	Uruguay	1.44	5.18	0.52	
62	Guatemala	1.35	4.85	0.52	
63	Belarus	1.25	4.50	0.51	
64	Brunei Darussalam	1.23	4.42	0.50	
65	Luxembourg	1.19	4.26	0.49	
66	Kenya (2010)	1.09	3.93	0.48	
67	Turkey	1.03	3.69	0.48	
68	Malawi (2011)	1.03	3.69	0.47	
69	Bosnia and Herzegovina	0.96	3.45	0.46	
70	Tanzania, United Rep.	0.94	3.38	0.45	
71	Côte d'Ivoire	0.88	3.17	0.44	●
72	Colombia	0.85	3.06	0.44	
73	Pakistan	0.84	3.02	0.43	
74	Dominican Republic	0.83	2.97	0.42	
75	Chile	0.63	2.25	0.41	
76	Jordan	0.60	2.15	0.40	
77	Moldova, Rep.	0.58	2.07	0.40	
78	Cyprus	0.56	2.00	0.39	
79	Paraguay	0.54	1.92	0.38	
80	Bolivia, Plurinational St.	0.50	1.78	0.37	
81	Iran, Islamic Rep. (2011)	0.47	1.69	0.37	
82	Montenegro	0.45	1.60	0.36	
83	Peru	0.41	1.47	0.35	
84	Ghana	0.41	1.47	0.34	
85	Oman	0.38	1.36	0.33	
86	Honduras	0.37	1.35	0.33	
87	Zimbabwe	0.37	1.33	0.32	
88	Sri Lanka	0.34	1.23	0.31	
89	Kyrgyzstan	0.33	1.20	0.30	
90	Mongolia (2007)	0.29	1.03	0.29	
91	Georgia	0.28	0.99	0.29	
92	Niger	0.21	0.76	0.28	
93	Lebanon (2011)	0.21	0.75	0.27	
94	Armenia	0.21	0.75	0.26	
95	Ecuador	0.20	0.74	0.25	
96	Albania	0.19	0.69	0.25	
97	Cambodia	0.19	0.68	0.24	
98	Senegal	0.18	0.65	0.23	
99	Fiji	0.18	0.65	0.22	
100	Mali	0.17	0.63	0.21	
101	Hong Kong (China)	0.17	0.62	0.21	○
102	Azerbaijan	0.17	0.60	0.20	
103	Burundi (2010)	0.16	0.57	0.19	
104	Mauritius	0.16	0.57	0.18	○
105	Egypt	0.14	0.49	0.17	
106	Nicaragua	0.13	0.45	0.17	
107	Burkina Faso (2011)	0.11	0.39	0.16	
108	United Arab Emirates (2008)	0.09	0.32	0.15	○
109	Nigeria	0.09	0.32	0.14	
110	Saudi Arabia	0.09	0.32	0.13	○
111	Rwanda	0.08	0.28	0.13	
112	Jamaica	0.08	0.27	0.12	○
113	Ethiopia	0.07	0.26	0.11	
114	Nepal (2011)	0.07	0.24	0.10	
115	Sudan	0.07	0.24	0.10	
116	Madagascar	0.06	0.22	0.09	
117	Togo	0.05	0.19	0.08	
118	Trinidad and Tobago (2010)	0.03	0.11	0.07	○
119	Gambia (2011)	0.01	0.03	0.06	○
120	Bahrain (2011)	0.01	0.03	0.06	○
121	Cabo Verde (2011)	0.01	0.02	0.05	○
122	Yemen	0.01	0.02	0.04	
123	Guyana	0.00	0.01	0.03	○
124	Algeria	0.00	0.01	0.02	○
125	Qatar (2011)	0.00	0.01	0.02	○
126	Myanmar (2010)	0.00	0.00	0.01	
127	Bhutan (2011)	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Morocco	n/a	n/a	n/a	
n/a	Philippines	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	

SOURCE: United Nations, *COMTRADE* database; Eurostat *'High-technology' aggregations based on SITC Rev. 4*, April 2009 (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.3.3 Communications, computer and information services exports

Communications, computer and information services exports (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Costa Rica	10.50	100.00	0.97	●
1	Finland	6.02	100.00	0.97	
1	India	9.83	100.00	0.97	●
1	Ireland	23.66	100.00	0.97	●
1	Israel	12.69	100.00	0.97	●
6	Gambia (2009)	5.99	99.50	0.96	●
7	Luxembourg	4.69	77.77	0.96	
8	Senegal (2010)	4.42	73.25	0.95	●
9	Moldova, Rep.	4.26	70.62	0.94	●
10	Sweden	4.21	69.73	0.93	
11	Kuwait	3.95	65.45	0.93	●
12	Mali (2010)	3.92	64.94	0.92	●
13	Togo (2008)	3.80	62.95	0.91	●
14	Guyana (2010)	3.69	61.14	0.91	●
15	Philippines	3.59	59.43	0.90	●
16	Bahrain (2011)	3.40	56.29	0.89	●
17	Albania	3.32	54.97	0.88	●
18	United Kingdom	3.32	54.94	0.88	
19	Sri Lanka	3.10	51.17	0.87	●
20	Kenya (2011)	3.08	50.93	0.86	●
21	Morocco (2011)	2.78	45.89	0.85	●
22	Guatemala	2.78	45.84	0.85	●
23	Armenia	2.68	44.22	0.84	●
24	Mauritius	2.57	42.30	0.83	●
25	Jamaica (2011)	2.55	41.95	0.82	●
26	Cabo Verde	2.45	40.37	0.82	●
27	Burkina Faso (2010)	2.40	39.58	0.81	●
28	Nepal (2011)	2.40	39.51	0.80	●
29	El Salvador	2.39	39.32	0.80	●
30	Belgium	2.32	38.19	0.79	
31	Argentina	2.29	37.67	0.78	●
32	Estonia	2.29	37.63	0.77	
33	TFYR of Macedonia	2.28	37.49	0.77	
34	Serbia (2011)	2.26	37.23	0.76	
35	Croatia	2.21	36.40	0.75	
36	Romania	2.21	36.31	0.74	
37	Honduras	2.14	35.17	0.74	●
38	Austria	2.10	34.45	0.73	
39	Tajikistan (2011)	2.09	34.37	0.72	●
40	Bulgaria	2.04	33.55	0.72	
41	Montenegro (2011)	2.03	33.26	0.71	
42	Spain	1.97	32.30	0.70	
43	Germany	1.87	30.67	0.69	
44	Ethiopia	1.85	30.39	0.69	●
45	Panama	1.85	30.39	0.68	
46	Canada (2011)	1.84	30.08	0.67	
47	Latvia	1.82	29.90	0.66	
48	Barbados (2010)	1.81	29.63	0.66	
49	Netherlands	1.81	29.63	0.65	
50	Lebanon (2011)	1.70	27.75	0.64	
51	Benin (2010)	1.69	27.58	0.64	●
52	Czech Republic	1.68	27.41	0.63	
53	Egypt (2011)	1.66	27.22	0.62	
54	Slovenia	1.63	26.66	0.61	
55	Tunisia (2011)	1.61	26.31	0.61	
56	Ukraine	1.60	26.19	0.60	
57	Guinea (2011)	1.58	25.84	0.59	●
58	Denmark	1.56	25.55	0.58	
59	Pakistan	1.55	25.24	0.58	●
60	Uruguay	1.53	25.02	0.57	
61	Portugal	1.52	24.84	0.56	
62	Bangladesh (2011)	1.45	23.57	0.55	●
63	Malta	1.43	23.27	0.55	
64	Hungary	1.41	23.02	0.54	
65	Italy	1.38	22.47	0.53	
66	Greece	1.37	22.26	0.53	
67	Dominican Republic (2011)	1.37	22.23	0.52	
68	Norway	1.32	21.54	0.51	○
69	Poland	1.32	21.45	0.50	
70	Rwanda (2010)	1.31	21.37	0.50	
71	Madagascar (2011)	1.31	21.25	0.49	
72	France	1.31	21.24	0.48	○
73	Uganda	1.31	21.23	0.47	
74	Iceland (2011)	1.28	20.79	0.47	
75	Nicaragua	1.27	20.68	0.46	
76	Bosnia and Herzegovina	1.22	19.87	0.45	
77	United States of America (2011)	1.20	19.52	0.45	
78	Belarus	1.19	19.28	0.44	
79	Cyprus	1.17	18.98	0.43	
80	Malaysia	1.14	18.45	0.42	
81	Yemen (2011)	1.04	16.82	0.42	●
82	Cambodia	1.00	16.05	0.41	
83	Bolivia, Plurinational St. (2011)	0.99	15.96	0.40	
84	Swaziland (2010)	0.99	15.95	0.39	
85	New Zealand	0.97	15.66	0.39	○
86	Côte d'Ivoire (2010)	0.91	14.60	0.38	
87	Australia	0.88	14.14	0.37	○
88	Slovakia	0.82	13.15	0.36	
89	China	0.76	12.11	0.36	
90	Niger (2009)	0.71	11.21	0.35	
91	Georgia	0.70	11.15	0.34	
92	Cameroon (2010)	0.70	11.12	0.34	
93	Russian Federation	0.70	11.09	0.33	
94	Burundi (2011)	0.69	10.87	0.32	
95	Seychelles (2011)	0.66	10.42	0.31	
96	Singapore (2008)	0.65	10.31	0.31	○
97	Fiji (2010)	0.61	9.64	0.30	
98	Indonesia	0.61	9.60	0.29	
99	Mozambique	0.59	9.26	0.28	
100	Lithuania	0.59	9.24	0.28	
101	Ecuador	0.55	8.54	0.27	
102	Colombia	0.54	8.46	0.26	
103	Hong Kong (China) (2011)	0.48	7.39	0.26	○
104	Tanzania, United Rep. (2011)	0.43	6.55	0.25	
105	South Africa	0.42	6.42	0.24	○
106	Qatar	0.42	6.41	0.23	
107	Chile	0.40	6.15	0.23	○
108	Sudan	0.39	5.97	0.22	
109	Brunei Darussalam (2009)	0.37	5.65	0.21	
110	Azerbaijan	0.35	5.31	0.20	
111	Lesotho (2011)	0.34	5.15	0.20	
112	Mongolia	0.34	5.03	0.19	
113	Peru (2011)	0.34	5.03	0.18	
114	Brazil	0.34	5.01	0.18	○
115	Malawi (2011)	0.33	4.92	0.17	
116	Zambia (2011)	0.31	4.63	0.16	
117	Kyrgyzstan	0.30	4.48	0.15	
118	Algeria (2011)	0.30	4.33	0.15	
119	Japan	0.24	3.42	0.14	○
120	Namibia	0.24	3.41	0.13	○
121	Switzerland	0.23	3.30	0.12	○
122	Turkey	0.21	2.87	0.12	○
123	Korea, Rep.	0.21	2.83	0.11	○
124	Thailand	0.18	2.37	0.10	○
125	Venezuela, Bolivarian Rep.	0.18	2.32	0.09	
126	Oman	0.17	2.25	0.09	○
127	Kazakhstan	0.17	2.23	0.08	○
128	Iran, Islamic Rep. (2010)	0.15	1.90	0.07	
129	Bhutan	0.15	1.82	0.07	○
130	Paraguay (2011)	0.13	1.58	0.06	○
131	Viet Nam	0.11	1.31	0.05	○
132	Saudi Arabia	0.10	1.13	0.04	○
133	Botswana	0.10	0.99	0.04	○
134	Angola (2011)	0.07	0.62	0.03	○
135	Mexico	0.07	0.48	0.02	○
136	Trinidad and Tobago (2011)	0.06	0.43	0.01	○
137	Nigeria	0.06	0.37	0.01	○
138	Zimbabwe (2011)	0.04	0.00	0.00	○
n/a	Ghana	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

6.3.4 Foreign direct investment net outflows

Foreign direct investment (FDI), net outflows (% of GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Mauritius	655.23	100.00	1.00	●
2	Luxembourg	487.10	95.62	0.99	●
3	Hong Kong (China)	31.90	61.64	0.98	
4	Ireland	10.12	54.12	0.98	●
5	Singapore	8.40	53.34	0.97	
6	Chile	7.81	53.06	0.96	●
7	Barbados (2010)	7.66	52.99	0.95	●
8	Azerbaijan	6.73	52.54	0.94	●
9	Malta	6.21	52.28	0.94	●
10	Norway	6.19	52.27	0.93	
11	Malaysia	5.53	51.94	0.92	●
12	Kuwait (2011)	5.53	51.93	0.91	●
13	Switzerland	5.01	51.67	0.90	
14	Estonia	4.87	51.59	0.90	
15	Hungary	4.73	51.52	0.89	●
16	Trinidad and Tobago (2011)	4.50	51.40	0.88	●
17	Austria	4.45	51.37	0.87	
18	Sweden	3.53	50.87	0.86	
19	Qatar (2011)	3.52	50.87	0.85	
20	Thailand	3.45	50.83	0.85	
21	Finland	3.38	50.79	0.84	
22	Bahrain (2011)	3.08	50.62	0.83	●
23	Canada	3.05	50.61	0.82	
24	Belgium	2.98	50.57	0.81	
25	United Kingdom	2.88	50.51	0.81	
26	United States of America	2.62	50.37	0.80	
27	Albania	2.60	50.35	0.79	●
28	Germany	2.56	50.33	0.78	
29	Togo (2010)	2.40	50.24	0.77	●
30	Angola	2.40	50.24	0.77	●
31	Russian Federation	2.39	50.24	0.76	
32	Portugal	2.36	50.22	0.75	
33	Korea, Rep.	2.09	50.06	0.74	
34	Japan	2.07	50.05	0.73	
35	Israel (2011)	2.06	50.05	0.73	
36	Mexico	1.99	50.00	0.72	
37	TFYR of Macedonia	1.92	49.97	0.71	
38	Denmark	1.72	49.85	0.70	
39	Costa Rica	1.72	49.85	0.69	
40	France	1.52	49.73	0.69	
41	China	1.42	49.67	0.68	
42	Georgia	1.38	49.65	0.67	
43	Lebanon	1.33	49.62	0.66	
44	Kazakhstan	1.32	49.61	0.65	
45	Malawi	1.17	49.52	0.65	●
46	South Africa	1.12	49.49	0.64	
47	Bulgaria	1.07	49.46	0.63	
48	Panama	1.00	49.42	0.62	
49	Australia	0.88	49.35	0.61	
50	Zambia	0.86	49.33	0.60	
51	Oman (2011)	0.82	49.31	0.60	
52	Viet Nam	0.77	49.28	0.59	
53	Philippines	0.74	49.26	0.58	
54	Italy	0.72	49.25	0.57	
55	Ukraine	0.68	49.23	0.56	
56	Czech Republic	0.68	49.23	0.56	
57	Lithuania	0.65	49.21	0.55	
58	Montenegro	0.64	49.20	0.54	
59	Saudi Arabia	0.62	49.19	0.53	
60	Indonesia	0.60	49.18	0.52	
61	Nigeria	0.59	49.17	0.52	●
62	Latvia	0.57	49.16	0.51	
63	Turkey	0.52	49.13	0.50	
64	India	0.46	49.09	0.49	
65	Dominican Republic	0.46	49.09	0.48	
66	Mongolia	0.43	49.07	0.48	
67	Nicaragua	0.42	49.07	0.47	
68	Moldova, Rep.	0.41	49.06	0.46	
69	Venezuela, Bolivarian Rep.	0.38	49.04	0.45	
70	Uruguay	0.38	49.04	0.44	
71	Morocco	0.37	49.04	0.44	
72	Paraguay	0.36	49.03	0.43	
73	Spain	0.36	49.03	0.42	○
74	Brazil	0.36	49.03	0.41	
75	Poland	0.28	48.98	0.40	
76	Greece	0.27	48.98	0.40	
77	Belarus	0.25	48.96	0.39	
78	Argentina	0.22	48.94	0.38	
79	Cambodia	0.22	48.94	0.37	
80	Cabo Verde	0.22	48.94	0.36	
81	Côte d'Ivoire (2010)	0.19	48.93	0.35	
82	Fiji (2010)	0.18	48.92	0.35	
83	Armenia	0.16	48.90	0.34	
84	Namibia (2011)	0.16	48.90	0.33	
85	Brunei Darussalam (2006)	0.15	48.90	0.32	
86	Sri Lanka	0.14	48.89	0.31	
87	Serbia	0.14	48.89	0.31	
88	Lesotho	0.14	48.89	0.30	
89	Swaziland (2010)	0.11	48.87	0.29	
90	Senegal (2010)	0.09	48.86	0.28	
91	Honduras	0.08	48.86	0.27	
92	Egypt	0.08	48.86	0.27	
93	Mozambique	0.06	48.84	0.26	
94	Romania	0.06	48.84	0.25	○
95	Seychelles	0.05	48.84	0.24	
96	Kenya	0.04	48.83	0.23	
97	Pakistan	0.04	48.83	0.23	
98	Algeria	0.04	48.83	0.22	
99	Burundi (2008)	0.04	48.83	0.21	
100	Guinea	0.03	48.83	0.20	
101	Jordan	0.02	48.82	0.19	○
102	Burkina Faso (2010)	0.01	48.81	0.19	
103	Ghana	0.00	48.81	0.18	
104	Bolivia, Plurinational St. (2011)	0.00	48.81	0.17	
105	Bangladesh	0.00	48.81	0.16	
106	Kyrgyzstan	0.00	48.81	0.15	
107	Bosnia and Herzegovina	0.00	48.80	0.15	○
108	Uganda (2011)	−0.01	48.80	0.14	
109	Guatemala	−0.03	48.79	0.13	
110	Peru	−0.03	48.79	0.12	○
111	Botswana	−0.07	48.76	0.11	
112	Colombia	−0.08	48.75	0.10	○
113	Jamaica	−0.16	48.70	0.10	○
114	El Salvador	−0.21	48.68	0.09	○
115	Croatia	−0.24	48.65	0.08	○
116	New Zealand	−0.30	48.62	0.07	○
117	Netherlands	−0.95	48.20	0.06	○
118	Slovenia	−0.97	48.18	0.06	○
119	Cameroon	−1.12	48.09	0.05	○
120	Cyprus	−1.49	47.84	0.04	○
121	Slovakia	−1.55	47.80	0.03	○
122	Benin (2010)	−2.15	47.39	0.02	○
123	Niger (2010)	−3.57	46.38	0.02	○
124	Mali (2010)	−3.94	46.11	0.01	○
125	Iceland	−23.54	0.00	0.00	○
n/a	Bhutan	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates),extracted from World Bank *World Development Indicators* (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

7.1.1 National office resident trademark applications

Number of trademark applications issued to residents by the national office (per billion PPP$ GDP) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Moldova, Rep.	257.80	100.00	0.98	●
1	Mongolia (2010)	294.59	100.00	0.98	●
1	Paraguay (2010)	347.56	100.00	0.98	●
4	Turkey	174.68	67.76	0.97	●
5	Bulgaria	145.96	56.62	0.96	●
6	Luxembourg	135.73	52.65	0.95	
7	Iceland	124.64	48.35	0.94	
8	China	122.54	47.53	0.93	
9	Belarus	121.70	47.21	0.92	●
10	New Zealand	121.30	47.05	0.91	
11	Czech Republic	115.23	44.70	0.90	
12	Costa Rica	111.07	43.09	0.89	●
13	Malta	107.77	41.80	0.88	
14	Viet Nam	104.40	40.50	0.87	●
15	Armenia	102.12	39.61	0.86	●
16	Switzerland	101.78	39.48	0.85	
17	TFYR of Macedonia (2004)	96.94	37.60	0.84	●
18	Madagascar	94.30	36.58	0.83	●
19	Portugal	93.75	36.37	0.82	
20	Ukraine	91.69	35.57	0.81	●
21	Chile	88.88	34.48	0.80	
22	Morocco	88.83	34.46	0.79	●
23	Korea, Rep.	88.20	34.21	0.78	
24	Romania	83.52	32.40	0.77	●
25	Argentina	83.20	32.27	0.76	●
26	Cyprus	81.13	31.47	0.75	
27	Estonia	81.06	31.44	0.74	
28	Panama	80.03	31.04	0.73	
29	Uruguay	77.25	29.97	0.72	●
30	Germany	75.47	29.27	0.71	
31	Austria	75.42	29.25	0.70	
32	Australia	73.45	28.49	0.69	
33	Netherlands	70.78	27.46	0.68	
34	Latvia	70.74	27.44	0.67	
35	Finland	69.30	26.88	0.66	
36	Ecuador (2010)	68.84	26.70	0.65	●
37	Hong Kong (China)	68.82	26.70	0.64	
38	Slovakia	68.15	26.44	0.63	
39	Sweden	65.29	25.32	0.62	○
40	Russian Federation	64.17	24.89	0.61	
41	Uzbekistan	62.01	24.05	0.60	●
42	Norway (2009)	59.89	23.23	0.59	
43	Jordan	59.79	23.19	0.58	
44	Spain	59.49	23.08	0.57	
45	Lithuania	57.30	22.23	0.56	
46	Croatia	56.58	21.95	0.55	
47	Peru	56.02	21.73	0.54	
48	Italy	56.01	21.73	0.53	
49	Denmark	55.88	21.68	0.52	○
50	Guatemala (2010)	54.04	20.96	0.51	
51	Hungary	53.51	20.75	0.50	
52	Poland	53.19	20.63	0.50	
53	Canada	52.26	20.27	0.49	○
54	Brazil	51.72	20.06	0.48	
55	Honduras	51.35	19.92	0.47	
56	United Kingdom	48.74	18.91	0.46	○
57	Belgium	47.37	18.37	0.45	○
58	Bolivia, Plurinational St. (2007)	46.76	18.14	0.44	
59	Georgia	46.20	17.92	0.43	
60	Myanmar	43.09	16.71	0.42	●
61	Thailand	42.64	16.54	0.41	
62	Mexico	42.27	16.39	0.40	
63	Seychelles (2011)	41.51	16.10	0.39	
64	Philippines	39.18	15.20	0.38	
65	Yemen (2011)	39.17	15.19	0.37	●
66	Azerbaijan	37.73	14.64	0.36	
67	Sri Lanka (2010)	37.71	14.63	0.35	
68	Colombia	37.39	14.50	0.34	
69	India	37.33	14.48	0.33	
70	South Africa	35.58	13.80	0.32	
71	Serbia	32.32	12.54	0.31	
72	Mozambique (2007)	30.19	11.71	0.30	
73	Venezuela, Bolivarian Rep. (2011)	29.89	11.59	0.29	
74	Kazakhstan (2008)	28.94	11.22	0.28	
75	Malaysia (2011)	28.25	10.96	0.27	○
76	Pakistan	28.05	10.88	0.26	
77	Barbados	28.01	10.87	0.25	○
78	Bangladesh	27.39	10.62	0.24	
79	Zambia	26.72	10.36	0.23	
80	Malawi (2006)	25.52	9.90	0.22	
81	Cambodia	24.79	9.62	0.21	
82	Singapore	21.57	8.37	0.20	○
83	Nepal (2007)	20.79	8.07	0.19	
84	United States of America	20.30	7.88	0.18	○
85	Kyrgyzstan	17.51	6.79	0.17	
86	Albania (2011)	17.02	6.60	0.16	
87	Bosnia and Herzegovina	16.95	6.57	0.15	○
88	Gambia (2007)	16.06	6.23	0.14	
89	Tajikistan	15.61	6.05	0.13	
90	Ireland	13.78	5.35	0.12	○
91	Algeria	12.76	4.95	0.11	
92	Israel	12.37	4.80	0.10	○
93	Slovenia	12.32	4.78	0.09	○
94	France	10.85	4.21	0.08	○
95	Sudan	9.96	3.86	0.07	
96	Bahrain	9.39	3.64	0.06	○
97	Rwanda	7.26	2.81	0.05	○
98	Greece	5.05	1.96	0.04	○
99	Brunei Darussalam	3.93	1.52	0.03	○
100	Tanzania, United Rep. (2007)	0.96	0.37	0.02	○
101	Japan (2009)	0.00	0.00	0.01	○
102	Iran, Islamic Rep. (2008)	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Egypt	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Indonesia	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

7.1.2 Madrid System trademark applications by country of origin

Number of international trademark applications issued through the Madrid System by country of origin (per billion PPP$ GDP) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Cyprus	8.56	100.00	0.95	●
1	Iceland	9.53	100.00	0.95	●
1	Luxembourg	6.45	100.00	0.95	●
1	Moldova, Rep.	5.65	100.00	0.95	●
1	Switzerland	8.07	100.00	0.95	●
6	Slovenia	3.72	65.83	0.93	●
7	Austria	3.20	56.57	0.92	
8	Denmark	2.95	52.13	0.91	
9	Bulgaria	2.74	48.39	0.89	●
10	Estonia	2.72	48.02	0.88	
11	Latvia	2.44	43.17	0.86	●
12	Serbia	2.34	41.36	0.85	●
13	TFYR of Macedonia	2.31	40.89	0.84	●
14	Finland	2.14	37.81	0.82	
15	Germany	2.07	36.54	0.81	
16	Belarus	1.98	34.93	0.80	●
17	France	1.83	32.40	0.78	
18	Netherlands	1.83	32.33	0.77	
19	Croatia	1.81	31.92	0.76	
20	Belgium	1.73	30.59	0.74	
21	Sweden	1.71	30.30	0.73	
22	Lithuania	1.60	28.32	0.72	
23	Czech Republic	1.54	27.31	0.70	
24	Italy	1.54	27.18	0.69	
25	Hungary	1.32	23.29	0.68	
26	Armenia	1.29	22.75	0.66	
27	Norway	1.16	20.52	0.65	
28	Australia	1.09	19.23	0.64	
29	Turkey	1.08	19.02	0.62	
30	United Kingdom	1.00	17.64	0.61	○
31	Ukraine	0.90	15.95	0.59	
32	Spain	0.83	14.66	0.58	
33	Portugal	0.82	14.55	0.57	
34	Slovakia	0.80	14.23	0.55	
35	Singapore	0.74	13.09	0.54	
36	Israel	0.67	11.86	0.53	
37	Ireland	0.65	11.46	0.51	○
38	Georgia	0.53	9.42	0.50	
39	Russian Federation	0.53	9.39	0.49	
40	Poland	0.50	8.77	0.47	
41	Japan	0.46	8.09	0.46	
42	Montenegro	0.42	7.35	0.45	
43	Bosnia and Herzegovina	0.38	6.72	0.43	
44	Morocco	0.36	6.28	0.42	
45	Greece	0.35	6.13	0.41	
46	Kazakhstan	0.34	5.95	0.39	
47	United States of America	0.33	5.91	0.38	○
48	Bahrain (2011)	0.32	5.71	0.36	
49	Romania	0.32	5.60	0.35	
50	Korea, Rep.	0.31	5.56	0.34	○
51	Ghana (2011)	0.29	5.17	0.32	
52	New Zealand	0.24	4.32	0.31	○
53	Kyrgyzstan	0.23	4.04	0.30	
54	Viet Nam	0.21	3.79	0.28	
55	China	0.18	3.14	0.27	
56	Botswana (2012)	0.15	2.74	0.26	
57	Madagascar	0.14	2.51	0.24	
58	Mongolia	0.13	2.35	0.23	
59	Albania	0.11	1.98	0.22	
60	Mozambique (2012)	0.08	1.36	0.20	
61	Algeria	0.07	1.23	0.19	
62	Egypt	0.06	1.03	0.18	
63	Azerbaijan	0.05	0.92	0.16	
64	Philippines	0.05	0.84	0.15	
65	Kenya	0.04	0.71	0.14	
66	Sudan (2009)	0.02	0.42	0.12	
67	Iran, Islamic Rep.	0.02	0.30	0.11	
68	Oman (2011)	0.01	0.21	0.09	○
69	Tunisia (2007)	0.01	0.21	0.08	○
70	Uzbekistan	0.01	0.17	0.07	
71	Mexico	0.01	0.09	0.05	○
72	India	0.00	0.06	0.04	○
73	Colombia	0.00	0.04	0.03	○
74	Qatar	0.00	0.00	0.00	○
74	Tajikistan	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Argentina	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Brazil	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Canada	n/a	n/a	n/a	
n/a	Chile	n/a	n/a	n/a	
n/a	Costa Rica	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Hong Kong (China)	n/a	n/a	n/a	
n/a	Indonesia	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Malaysia	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Thailand	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uruguay	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

7.1.3 ICTs and business model creation

Average answer to the survey question: In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent] | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Finland	5.83	80.50	1.00	●
2	Korea, Rep.	5.70	78.33	0.99	●
3	Sweden	5.69	78.17	0.99	●
4	United Arab Emirates	5.59	76.50	0.98	●
5	Luxembourg	5.57	76.17	0.97	
6	Netherlands	5.55	75.83	0.95	
6	Qatar	5.55	75.83	0.95	●
6	United Kingdom	5.55	75.83	0.95	
9	Estonia	5.49	74.83	0.94	●
10	Singapore	5.48	74.67	0.93	
11	Malaysia	5.42	73.67	0.92	●
11	Norway	5.42	73.67	0.92	
13	Ireland	5.35	72.50	0.91	
14	Germany	5.33	72.17	0.90	
15	United States of America	5.28	71.33	0.90	
16	New Zealand	5.27	71.17	0.89	
17	Hong Kong (China)	5.26	71.00	0.87	
17	Switzerland	5.26	71.00	0.87	
19	Japan	5.24	70.67	0.87	
20	France	5.21	70.17	0.86	
21	Australia	5.15	69.17	0.84	
21	Portugal	5.15	69.17	0.84	
23	Saudi Arabia	5.14	69.00	0.84	
24	Malta	5.13	68.83	0.83	
25	Israel	5.12	68.67	0.82	
26	Spain	5.10	68.33	0.81	
27	Canada	5.06	67.67	0.81	
28	Chile	5.02	67.00	0.80	
29	Belgium	5.01	66.83	0.79	
29	Iceland	5.01	66.83	0.79	
31	Lithuania	4.96	66.00	0.78	
32	Denmark	4.95	65.83	0.77	
33	Rwanda	4.92	65.33	0.76	
34	Austria	4.88	64.67	0.75	
34	Jordan	4.88	64.67	0.75	●
36	Panama	4.86	64.33	0.74	
37	Indonesia	4.85	64.17	0.73	●
38	Viet Nam	4.84	64.00	0.73	
39	India	4.81	63.50	0.71	
39	Kenya	4.81	63.50	0.71	
41	Azerbaijan	4.80	63.33	0.70	●
41	Philippines	4.80	63.33	0.70	●
43	Costa Rica	4.75	62.50	0.69	
44	Armenia	4.73	62.17	0.66	
44	Bahrain	4.73	62.17	0.66	
44	South Africa	4.73	62.17	0.66	
44	Sri Lanka	4.73	62.17	0.66	●
48	Oman	4.72	62.00	0.65	
49	Brazil	4.68	61.33	0.64	
50	China	4.64	60.67	0.64	
51	Turkey	4.63	60.50	0.63	
52	Senegal	4.60	60.00	0.62	●
53	Mexico	4.59	59.83	0.61	
53	Nigeria	4.59	59.83	0.61	●
55	Dominican Republic	4.58	59.67	0.60	●
56	Guatemala	4.57	59.50	0.59	
56	Mauritius	4.57	59.50	0.59	
58	Uruguay	4.56	59.33	0.58	
59	Colombia	4.55	59.17	0.56	
59	Gambia	4.55	59.17	0.56	●
61	Mali	4.54	59.00	0.56	●
62	Croatia	4.52	58.67	0.55	
63	Hungary	4.50	58.33	0.54	
64	Brunei Darussalam	4.47	57.83	0.53	
65	Thailand	4.44	57.33	0.53	
66	Latvia	4.39	56.50	0.52	
67	Slovenia	4.37	56.17	0.51	
68	Montenegro	4.36	56.00	0.50	
68	Zambia	4.36	56.00	0.50	
70	Peru	4.35	55.83	0.49	
71	Barbados	4.33	55.50	0.48	
72	Ghana	4.32	55.33	0.47	
73	Cyprus	4.29	54.83	0.47	
74	Cambodia	4.28	54.67	0.45	
74	Czech Republic	4.28	54.67	0.45	
76	Cabo Verde	4.27	54.50	0.44	
77	Kazakhstan	4.26	54.33	0.44	
78	TFYR of Macedonia	4.25	54.17	0.43	
79	Paraguay	4.23	53.83	0.42	
80	Ecuador	4.22	53.67	0.41	
81	Slovakia	4.20	53.33	0.41	
82	Jamaica	4.18	53.00	0.40	
83	Morocco	4.17	52.83	0.39	
83	Seychelles	4.17	52.83	0.39	
85	Burkina Faso	4.11	51.83	0.37	
85	El Salvador	4.11	51.83	0.37	
87	Uganda	4.10	51.67	0.36	
88	Bosnia and Herzegovina	4.09	51.50	0.36	
89	Mongolia	4.08	51.33	0.35	
90	Guyana	4.07	51.17	0.34	
91	Namibia	4.06	51.00	0.33	
92	Côte d'Ivoire	4.04	50.67	0.32	
92	Tunisia	4.04	50.67	0.32	
94	Cameroon	4.02	50.33	0.31	
95	Pakistan	3.98	49.67	0.30	
96	Benin	3.95	49.17	0.29	
96	Zimbabwe	3.95	49.17	0.29	
98	Egypt	3.94	49.00	0.28	
99	Georgia	3.93	48.83	0.27	
100	Romania	3.92	48.67	0.27	
101	Bulgaria	3.91	48.50	0.26	○
102	Iran, Islamic Rep.	3.90	48.33	0.24	
102	Poland	3.90	48.33	0.24	○
104	Bolivia, Plurinational St.	3.88	48.00	0.24	
105	Bhutan	3.87	47.83	0.21	
105	Honduras	3.87	47.83	0.21	
105	Tanzania, United Rep.	3.87	47.83	0.21	
108	Italy	3.84	47.33	0.21	○
109	Bangladesh	3.82	47.00	0.20	
110	Russian Federation	3.77	46.17	0.19	○
111	Madagascar	3.76	46.00	0.19	
112	Malawi	3.75	45.83	0.18	
113	Argentina	3.74	45.67	0.16	
113	Moldova, Rep.	3.74	45.67	0.16	○
115	Trinidad and Tobago	3.71	45.17	0.16	
116	Albania	3.64	44.00	0.14	
116	Botswana	3.64	44.00	0.14	
118	Mozambique	3.63	43.83	0.13	
119	Serbia	3.57	42.83	0.13	○
120	Ukraine	3.56	42.67	0.12	○
121	Nicaragua	3.55	42.50	0.11	○
122	Venezuela, Bolivarian Rep.	3.52	42.00	0.10	
123	Greece	3.50	41.67	0.09	○
123	Swaziland	3.50	41.67	0.09	○
125	Nepal	3.46	41.00	0.08	○
126	Ethiopia	3.41	40.17	0.07	
127	Lebanon	3.38	39.67	0.07	○
128	Kuwait	3.32	38.67	0.06	○
129	Guinea	3.28	38.00	0.05	
130	Angola	3.27	37.83	0.04	
131	Kyrgyzstan	3.25	37.50	0.04	○
132	Myanmar	3.14	35.67	0.03	
133	Lesotho	3.04	34.00	0.02	○
134	Burundi	2.91	31.83	0.01	○
135	Algeria	2.89	31.50	0.01	○
136	Yemen	2.77	29.50	0.00	○
n/a	Belarus	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

7.1.4 ICTs and organizational model creation

Average answer to the survey question: In your country, to what extent do ICTs enable new organizational models (e.g. virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent] | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Finland	5.74	79.00	1.00	●
2	Qatar	5.53	75.50	0.99	●
3	Estonia	5.46	74.33	0.99	●
4	Sweden	5.44	74.00	0.98	●
5	Netherlands	5.41	73.50	0.97	●
6	United Kingdom	5.39	73.17	0.96	
7	United States of America	5.32	72.00	0.96	
8	Norway	5.31	71.83	0.93	
8	Singapore	5.31	71.83	0.93	
8	United Arab Emirates	5.31	71.83	0.93	●
11	Malaysia	5.25	70.83	0.93	●
12	Canada	5.14	69.00	0.92	
13	Luxembourg	5.10	68.33	0.91	
14	Ireland	5.09	68.17	0.90	
14	Korea, Rep.	5.09	68.17	0.90	
16	Germany	5.07	67.83	0.89	
17	Hong Kong (China)	5.06	67.67	0.88	
18	Israel	4.99	66.50	0.87	
19	New Zealand	4.98	66.33	0.87	
20	Australia	4.94	65.67	0.84	
20	Iceland	4.94	65.67	0.84	
20	Saudi Arabia	4.94	65.67	0.84	●
23	Azerbaijan	4.89	64.83	0.84	●
24	Lithuania	4.87	64.50	0.83	●
25	Portugal	4.84	64.00	0.82	
26	Denmark	4.82	63.67	0.81	
26	Philippines	4.82	63.67	0.81	●
28	Belgium	4.81	63.50	0.80	
29	Switzerland	4.79	63.17	0.79	
30	Malta	4.77	62.83	0.79	
31	China	4.69	61.50	0.76	
31	Jordan	4.69	61.50	0.76	●
31	Spain	4.69	61.50	0.76	
34	Armenia	4.68	61.33	0.76	●
35	Japan	4.67	61.17	0.75	
36	Chile	4.66	61.00	0.74	
37	Costa Rica	4.63	60.50	0.73	
38	India	4.60	60.00	0.73	
39	Indonesia	4.58	59.67	0.72	●
40	France	4.57	59.50	0.71	
41	Brazil	4.54	59.00	0.70	
41	Dominican Republic	4.54	59.00	0.70	●
43	Sri Lanka	4.53	58.83	0.69	●
44	Bahrain	4.52	58.67	0.68	
45	Panama	4.51	58.50	0.67	
46	Austria	4.49	58.17	0.66	
46	Uruguay	4.49	58.17	0.66	
48	Guatemala	4.48	58.00	0.64	●
48	South Africa	4.48	58.00	0.64	
50	Kenya	4.46	57.67	0.64	
51	Rwanda	4.44	57.33	0.63	
52	Brunei Darussalam	4.42	57.00	0.62	
53	Peru	4.41	56.83	0.61	
54	Colombia	4.39	56.50	0.59	
54	Mexico	4.39	56.50	0.59	
54	Oman	4.39	56.50	0.59	
57	Viet Nam	4.36	56.00	0.59	
58	Mauritius	4.34	55.67	0.58	
59	Turkey	4.33	55.50	0.57	
60	Cambodia	4.32	55.33	0.56	●
61	Jamaica	4.28	54.67	0.56	
62	Gambia	4.27	54.50	0.55	●
63	Latvia	4.25	54.17	0.54	
64	Croatia	4.24	54.00	0.53	
64	Ecuador	4.24	54.00	0.53	
66	Mali	4.23	53.83	0.51	
66	Slovenia	4.23	53.83	0.51	
68	Kazakhstan	4.19	53.17	0.50	
69	Montenegro	4.17	52.83	0.50	
70	Czech Republic	4.15	52.50	0.49	
71	Guyana	4.13	52.17	0.47	
71	Hungary	4.13	52.17	0.47	
73	Barbados	4.12	52.00	0.47	
74	Zambia	4.06	51.00	0.46	
75	Egypt	4.05	50.83	0.45	
76	El Salvador	4.04	50.67	0.44	
77	Bosnia and Herzegovina	4.03	50.50	0.43	
77	Nigeria	4.03	50.50	0.43	
79	Cyprus	4.02	50.33	0.42	
80	Slovakia	4.01	50.17	0.41	
81	Cabo Verde	4.00	50.00	0.41	
82	Paraguay	3.99	49.83	0.40	
83	Thailand	3.98	49.67	0.39	
84	Tunisia	3.92	48.67	0.39	
85	Argentina	3.91	48.50	0.36	
85	Ghana	3.91	48.50	0.36	
85	TFYR of Macedonia	3.91	48.50	0.36	
88	Uganda	3.90	48.33	0.36	
89	Pakistan	3.85	47.50	0.34	
89	Russian Federation	3.85	47.50	0.34	
91	Honduras	3.84	47.33	0.33	
92	Poland	3.76	46.00	0.32	
92	Trinidad and Tobago	3.76	46.00	0.32	
94	Tanzania, United Rep.	3.74	45.67	0.31	
95	Bolivia, Plurinational St.	3.73	45.50	0.28	
95	Morocco	3.73	45.50	0.28	
95	Namibia	3.73	45.50	0.28	
95	Seychelles	3.73	45.50	0.28	
99	Bulgaria	3.72	45.33	0.27	○
100	Côte d'Ivoire	3.71	45.17	0.27	
101	Senegal	3.70	45.00	0.26	
102	Madagascar	3.68	44.67	0.25	
103	Malawi	3.63	43.83	0.24	
104	Cameroon	3.62	43.67	0.22	
104	Iran, Islamic Rep.	3.62	43.67	0.22	
104	Moldova, Rep.	3.62	43.67	0.22	
107	Mongolia	3.60	43.33	0.20	
107	Venezuela, Bolivarian Rep.	3.60	43.33	0.20	
107	Zimbabwe	3.60	43.33	0.20	
110	Swaziland	3.59	43.17	0.19	
111	Bhutan	3.58	43.00	0.18	
111	Romania	3.58	43.00	0.18	○
113	Nicaragua	3.57	42.83	0.17	
114	Georgia	3.54	42.33	0.16	○
115	Bangladesh	3.49	41.50	0.16	
116	Burkina Faso	3.45	40.83	0.14	
116	Italy	3.45	40.83	0.14	○
118	Albania	3.39	39.83	0.13	
118	Nepal	3.39	39.83	0.13	
120	Mozambique	3.38	39.67	0.12	
121	Botswana	3.36	39.33	0.11	○
122	Ukraine	3.34	39.00	0.10	○
123	Greece	3.27	37.83	0.10	○
124	Ethiopia	3.25	37.50	0.09	
125	Serbia	3.23	37.17	0.08	○
126	Benin	3.11	35.17	0.07	
127	Kuwait	3.07	34.50	0.07	○
128	Kyrgyzstan	2.96	32.67	0.05	○
128	Myanmar	2.96	32.67	0.05	
130	Angola	2.94	32.33	0.04	
131	Lebanon	2.93	32.17	0.04	○
132	Algeria	2.91	31.83	0.02	○
132	Yemen	2.91	31.83	0.02	
134	Guinea	2.88	31.33	0.01	○
135	Lesotho	2.74	29.00	0.01	○
136	Burundi	2.65	27.50	0.00	○
n/a	Belarus	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

7.2.1 Cultural and creative services exports

Cultural and creative services exports (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Luxembourg	3.93	100.00	0.99	●
1	United Kingdom (2011)	1.44	100.00	0.99	●
3	Croatia (2011)	1.40	97.68	0.98	●
4	Latvia (2011)	1.34	93.15	0.97	●
5	Serbia	1.22	84.85	0.96	●
6	Poland (2011)	1.06	73.63	0.95	●
7	Argentina	1.03	72.02	0.94	●
8	Hungary	0.99	69.00	0.93	●
9	Sweden (2011)	0.99	68.79	0.92	
10	Slovenia (2011)	0.91	63.70	0.91	●
11	Russian Federation	0.84	58.48	0.90	●
12	France (2011)	0.81	56.56	0.89	
13	Moldova, Rep.	0.79	54.72	0.88	●
14	Bulgaria (2011)	0.77	53.72	0.88	●
15	Albania	0.71	49.53	0.87	●
16	Cyprus	0.65	45.59	0.86	●
17	Romania	0.63	43.61	0.85	●
18	Denmark (2011)	0.61	42.60	0.84	
19	Austria (2011)	0.60	41.51	0.83	
20	Turkey (2011)	0.59	41.24	0.82	●
21	Portugal (2011)	0.59	41.16	0.81	
22	Netherlands (2011)	0.53	37.11	0.80	
23	Morocco	0.43	30.03	0.79	●
24	United States of America (2011)	0.41	28.27	0.78	
25	Montenegro	0.41	28.27	0.77	●
26	Malaysia (2009)	0.39	27.15	0.76	
27	Ecuador	0.37	26.07	0.75	●
28	Barbados (2010)	0.32	21.99	0.74	
29	Italy (2011)	0.32	21.97	0.73	
30	Norway	0.31	21.37	0.72	
31	Egypt	0.30	20.96	0.71	●
32	Slovakia	0.28	19.79	0.70	
33	Korea, Rep.	0.28	19.55	0.69	
34	Singapore (2011)	0.26	17.77	0.68	
35	Brazil	0.25	17.68	0.67	
36	Iceland (2011)	0.25	17.53	0.66	
37	Spain	0.25	17.20	0.65	
38	Zambia (2011)	0.24	16.61	0.64	●
39	China	0.23	15.87	0.63	
40	Finland (2011)	0.23	15.71	0.63	
41	Belarus (2008)	0.22	15.43	0.62	
42	Colombia	0.21	14.72	0.61	
43	Algeria	0.19	13.35	0.60	●
44	New Zealand	0.18	12.51	0.59	
45	Hong Kong (China) (2011)	0.18	12.40	0.58	
46	Malta (2011)	0.17	11.88	0.57	
47	Canada	0.16	11.20	0.56	
48	Czech Republic	0.15	10.10	0.55	
49	Uganda	0.14	9.73	0.54	
50	Belgium	0.14	9.62	0.53	
51	Ireland	0.13	9.20	0.52	○
52	Armenia	0.12	8.16	0.51	
53	Israel (2007)	0.10	6.98	0.50	
54	Panama	0.09	6.26	0.49	
55	Pakistan	0.09	5.92	0.48	
56	Kyrgyzstan	0.08	5.73	0.47	
57	Mali (2010)	0.08	5.69	0.46	
58	Burkina Faso (2010)	0.08	5.64	0.45	
59	Estonia	0.08	5.54	0.44	○
60	Burundi (2011)	0.07	4.91	0.43	
61	Peru (2011)	0.07	4.66	0.42	
62	Philippines	0.07	4.61	0.41	
63	Georgia	0.06	4.32	0.40	
64	Australia	0.06	4.14	0.39	○
65	India	0.06	3.99	0.38	
66	Bolivia, Plurinational St. (2011)	0.05	3.74	0.38	
67	Kazakhstan	0.05	3.67	0.37	
68	Germany	0.05	3.63	0.36	○
69	Côte d'Ivoire (2010)	0.05	3.37	0.35	
70	Mozambique	0.05	3.28	0.34	
71	Iran, Islamic Rep. (2008)	0.05	3.20	0.33	
72	Senegal (2010)	0.04	3.06	0.32	
73	Tunisia (2010)	0.04	2.89	0.31	
74	Ukraine	0.04	2.56	0.30	
75	Guatemala	0.04	2.43	0.29	
76	Malawi (2011)	0.03	2.34	0.28	
77	Greece (2011)	0.03	2.25	0.27	
78	Mauritius	0.03	1.88	0.26	
79	Angola (2011)	0.03	1.87	0.25	
80	Mexico	0.02	1.37	0.24	
81	Tanzania, United Rep. (2011)	0.02	1.10	0.23	
82	Guinea	0.02	1.01	0.22	
83	Cabo Verde	0.01	0.89	0.21	
84	Uruguay (2011)	0.01	0.78	0.20	○
85	Costa Rica	0.01	0.67	0.19	○
86	Azerbaijan	0.01	0.63	0.18	
87	Japan (2011)	0.01	0.62	0.17	○
88	Rwanda	0.01	0.60	0.16	
89	Venezuela, Bolivarian Rep.	0.01	0.59	0.15	
90	Togo (2010)	0.01	0.51	0.14	
91	Bosnia and Herzegovina	0.01	0.46	0.13	○
92	Swaziland	0.01	0.39	0.13	
93	Lesotho (2011)	0.01	0.39	0.12	
94	Sudan (2011)	0.01	0.34	0.11	
95	Niger (2009)	0.00	0.29	0.10	
96	Lithuania	0.00	0.29	0.09	○
97	Jamaica (2011)	0.00	0.20	0.08	○
98	Ethiopia	0.00	0.17	0.07	
99	Paraguay (2011)	0.00	0.17	0.06	○
100	Bangladesh (2011)	0.00	0.16	0.05	○
101	Mongolia (2011)	0.00	0.13	0.04	○
102	El Salvador	0.00	0.06	0.03	○
103	Benin (2010)	0.00	0.02	0.02	○
104	Kenya (2011)	0.00	0.01	0.01	○
105	Botswana	0.00	0.00	0.00	○
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Chile	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Indonesia	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Oman	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	South Africa	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Switzerland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Thailand	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Viet Nam	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

7.2.2 National feature films produced

Number of national feature films produced (per million population 15–69 years old) | 2011

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Bhutan	58.51	100.00	0.95	●
1	Guyana	22.86	100.00	0.95	●
1	Iceland	57.22	100.00	0.95	●
1	Luxembourg	42.88	100.00	0.95	●
1	Mauritius	32.65	100.00	0.95	●
1	Switzerland	14.54	100.00	0.95	●
7	Estonia	14.04	96.54	0.94	●
8	Slovenia	12.48	85.84	0.93	●
9	Nigeria	11.16	76.75	0.92	●
10	Finland	10.96	75.37	0.91	
11	Denmark	10.89	74.88	0.90	
12	Norway	10.02	68.88	0.89	
13	Ireland	10.01	68.85	0.88	
14	Hong Kong (China)	9.52	65.45	0.87	
15	Austria	8.78	60.38	0.86	
16	New Zealand	8.04	55.32	0.85	
17	United Kingdom	6.80	46.78	0.84	
18	Mongolia	6.69	45.98	0.83	●
19	Sweden	6.44	44.25	0.82	
20	France	6.20	42.65	0.81	
21	Belgium (2009)	6.16	42.35	0.80	
22	Netherlands	6.10	41.94	0.79	
23	Spain	5.93	40.77	0.78	
24	Korea, Rep.	5.79	39.82	0.77	
25	Czech Republic	5.63	38.71	0.76	
26	Greece	5.45	37.50	0.75	
27	Israel	5.30	36.43	0.75	
28	Japan	4.96	34.09	0.74	
29	Georgia	4.47	30.72	0.73	
30	Lebanon	4.35	29.91	0.72	
31	Bolivia, Plurinational St. (2009)	4.13	28.37	0.71	●
32	Serbia	4.12	28.32	0.70	
33	Latvia	4.00	27.47	0.69	
34	Portugal	3.95	27.13	0.68	
35	Singapore	3.75	25.82	0.67	
36	United States of America	3.66	25.14	0.66	
37	Argentina	3.61	24.85	0.65	
38	Italy	3.61	24.84	0.64	
39	Cyprus	3.60	24.77	0.63	
40	Germany	3.59	24.66	0.62	
41	Uruguay	3.49	24.01	0.61	
42	Canada	3.39	23.31	0.60	
43	Hungary (2010)	3.24	22.30	0.59	
44	Malta	3.16	21.73	0.58	
45	Azerbaijan (2010)	3.01	20.73	0.57	
46	Croatia	2.91	19.99	0.56	
47	Slovakia	2.88	19.82	0.55	
48	Bulgaria	2.77	19.07	0.54	
49	Australia	2.64	18.18	0.53	○
50	TFYR of Macedonia (2010)	2.54	17.49	0.52	
51	Bosnia and Herzegovina	2.50	17.19	0.51	
52	Malaysia	2.43	16.74	0.50	
53	Armenia	2.36	16.24	0.49	
54	Chile	1.84	12.68	0.48	
55	Poland	1.78	12.24	0.47	
56	Tajikistan (2009)	1.75	12.03	0.46	
57	Fiji (2009)	1.72	11.85	0.45	
58	India	1.53	10.53	0.44	
59	Tunisia	1.42	9.78	0.43	
60	Turkey	1.39	9.56	0.42	
61	Iran, Islamic Rep.	1.38	9.51	0.41	
62	Cambodia	1.37	9.39	0.40	
63	Philippines	1.30	8.96	0.39	
64	Russian Federation	1.30	8.95	0.38	
65	Guatemala (2010)	1.26	8.63	0.37	
66	Paraguay (2009)	1.25	8.63	0.36	
67	Viet Nam	1.16	7.95	0.35	
68	Morocco	1.09	7.48	0.34	
69	Kazakhstan (2009)	1.08	7.43	0.33	
70	Romania	1.05	7.23	0.32	
71	Thailand (2010)	0.99	6.78	0.31	
72	Dominican Republic (2009)	0.94	6.48	0.30	
73	Mexico	0.92	6.32	0.29	
74	Lithuania	0.89	6.13	0.28	
75	Costa Rica	0.89	6.12	0.27	
76	Namibia (2005)	0.85	5.83	0.26	
77	Guinea (2010)	0.83	5.71	0.25	
78	Venezuela, Bolivarian Rep.	0.81	5.55	0.25	
79	Niger	0.75	5.13	0.24	
80	Myanmar (2009)	0.74	5.12	0.23	
81	Brazil	0.71	4.91	0.22	
82	Senegal	0.69	4.72	0.21	
83	Bangladesh (2009)	0.66	4.53	0.20	
84	South Africa	0.63	4.34	0.19	○
85	Colombia	0.56	3.87	0.18	○
86	China	0.56	3.84	0.17	○
87	Egypt	0.54	3.72	0.16	
88	Indonesia	0.51	3.52	0.15	
89	Burkina Faso (2009)	0.51	3.48	0.14	
90	Panama (2010)	0.41	2.82	0.13	○
91	Peru	0.41	2.80	0.12	○
92	Moldova, Rep. (2009)	0.37	2.53	0.11	○
93	Nicaragua (2009)	0.28	1.93	0.10	○
94	El Salvador (2008)	0.26	1.80	0.09	○
95	Pakistan (2009)	0.26	1.78	0.08	○
96	Honduras (2009)	0.22	1.54	0.07	○
97	Belarus	0.14	0.98	0.06	○
98	Mali	0.14	0.93	0.05	
99	Ukraine	0.09	0.61	0.04	○
100	Mozambique (2006)	0.09	0.60	0.03	○
101	Cameroon (2009)	0.00	0.00	0.00	○
101	Kyrgyzstan	0.00	0.00	0.00	○
101	Oman (2009)	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Jordan	n/a	n/a	n/a	
n/a	Kenya	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Qatar	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Saudi Arabia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: UNESCO Institute for Statistics, *UIS online database*; United Nations, *World Population Prospects: The 2012 Revision* (population data) (2005–11)

NOTE: ● indicates a strength; ○ a weakness.

7.2.3 Global entertainment and media output

Global entertainment and media output (per thousand population 15–69 years old) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Norway	3.29	100.00	1.00	●
2	Switzerland	2.64	80.09	0.98	●
3	Australia	2.27	68.66	0.97	●
4	United States of America	2.21	66.86	0.95	
5	Japan	2.17	65.58	0.93	
6	Sweden	2.15	65.08	0.91	
7	Denmark	2.04	61.68	0.90	
8	United Kingdom	1.94	58.55	0.88	
9	Austria	1.83	55.32	0.86	
10	Finland	1.80	54.33	0.84	
11	Germany	1.66	49.93	0.83	
12	Netherlands	1.65	49.71	0.81	
13	Canada	1.62	48.94	0.79	
14	France	1.58	47.58	0.78	
15	Belgium	1.53	46.25	0.76	
16	New Zealand	1.48	44.63	0.74	
17	Ireland	1.43	43.16	0.72	
18	Hong Kong (China)	1.35	40.63	0.71	
19	Singapore	1.21	36.32	0.69	
20	Korea, Rep.	1.20	36.00	0.67	
21	Italy	0.99	29.68	0.66	
22	Israel	0.93	27.63	0.64	
23	Portugal	0.89	26.50	0.62	
24	Qatar (2011)	0.85	25.23	0.60	
25	Spain	0.79	23.62	0.59	
26	Czech Republic	0.57	16.78	0.57	
27	Kuwait (2011)	0.57	16.70	0.55	
28	Greece	0.56	16.42	0.53	
29	Saudi Arabia	0.53	15.41	0.52	
30	Argentina	0.47	13.83	0.50	
31	Hungary	0.41	11.72	0.48	
32	United Arab Emirates (2011)	0.37	10.63	0.47	
33	Malaysia	0.36	10.27	0.45	
34	Poland	0.34	9.73	0.43	
35	South Africa	0.31	8.86	0.41	
36	Brazil	0.30	8.58	0.40	
37	Chile	0.29	8.13	0.38	
38	Mexico	0.27	7.53	0.36	
39	Oman (2011)	0.26	7.23	0.34	
40	Russian Federation	0.24	6.57	0.33	
41	Bahrain (2011)	0.23	6.41	0.31	
42	Venezuela, Bolivarian Rep.	0.20	5.57	0.29	
43	Turkey	0.20	5.44	0.28	
44	Colombia	0.20	5.32	0.26	
45	Lebanon	0.18	4.91	0.24	
46	Thailand	0.17	4.60	0.22	○
47	Romania	0.15	3.96	0.21	○
48	Algeria	0.11	2.71	0.19	
49	China	0.11	2.68	0.17	○
50	Jordan	0.10	2.38	0.16	○
51	Philippines	0.08	1.89	0.14	○
52	Egypt	0.07	1.52	0.12	○
53	Indonesia	0.07	1.49	0.10	
54	Morocco	0.06	1.21	0.09	○
55	Kenya	0.06	1.20	0.07	○
56	Nigeria	0.03	0.23	0.05	○
57	Viet Nam	0.03	0.20	0.03	○
58	India	0.03	0.17	0.02	○
59	Pakistan	0.02	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Bulgaria	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Costa Rica	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Estonia	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Lithuania	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Peru	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Senegal	n/a	n/a	n/a	
n/a	Serbia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Slovakia	n/a	n/a	n/a	
n/a	Slovenia	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	Ukraine	n/a	n/a	n/a	
n/a	Uruguay	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Yemen	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: PwC's *Global entertainment and media outlook, 2013–2017*; United Nations, *World Population Prospects: The 2010 Revision* (population data)

NOTE: ● indicates a strength; ○ a weakness.

7.2.4 Printing and publishing output

Printing and publishing manufactures output (% of manufactures total output) | 2010

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Greece (2007)	0.07	100.00	0.99	●
1	Hong Kong (China) (2004)	0.18	100.00	0.99	●
3	Malta (2008)	0.07	92.06	0.98	●
4	Iceland (2006)	0.06	89.10	0.97	●
5	Australia (2006)	0.06	85.50	0.96	●
6	Norway (2008)	0.06	81.43	0.95	
7	Panama (2005)	0.05	73.78	0.93	●
8	Netherlands (2008)	0.04	60.67	0.92	
9	Lebanon (2007)	0.04	57.96	0.91	●
10	Switzerland (2007)	0.04	52.29	0.90	
11	Mauritius	0.04	49.69	0.89	●
12	Tanzania, United Rep. (2008)	0.03	46.91	0.88	●
13	Georgia	0.03	46.87	0.87	●
14	Mongolia (2008)	0.03	44.29	0.86	●
15	Cyprus	0.03	41.54	0.85	
16	TFYR of Macedonia	0.03	40.34	0.84	●
17	Peru	0.03	39.19	0.83	●
18	Israel (2009)	0.03	38.00	0.82	
19	Saudi Arabia (2006)	0.03	37.34	0.80	
20	Ethiopia (2009)	0.03	37.03	0.79	●
21	Moldova, Rep.	0.03	36.95	0.78	
22	Estonia	0.03	36.70	0.77	
23	Colombia	0.03	36.27	0.76	
24	Costa Rica	0.03	36.15	0.75	
25	Kenya	0.03	35.36	0.74	
26	Latvia	0.03	35.33	0.73	
27	South Africa	0.02	32.91	0.72	
28	United Kingdom (2009)	0.02	32.68	0.71	
29	Japan	0.02	30.53	0.70	
30	Fiji (2009)	0.02	29.73	0.68	
31	Czech Republic (2007)	0.02	29.09	0.67	
32	Madagascar (2006)	0.02	27.80	0.66	●
33	Spain (2009)	0.02	27.31	0.65	
34	Jordan	0.02	25.79	0.64	
35	New Zealand (2009)	0.02	25.35	0.63	
36	Slovenia	0.02	25.26	0.62	
37	Malawi (2009)	0.02	25.03	0.61	●
38	United States of America (2008)	0.02	25.00	0.60	
39	Portugal (2009)	0.02	24.37	0.59	
40	Austria (2009)	0.02	24.23	0.58	○
41	Sri Lanka	0.02	24.06	0.57	
42	Serbia	0.02	23.94	0.55	
43	Ukraine	0.02	23.93	0.54	
44	Denmark (2009)	0.02	22.81	0.53	○
45	Armenia	0.02	22.52	0.52	
46	Belgium (2009)	0.02	22.48	0.51	○
47	Kazakhstan (2007)	0.02	22.17	0.50	
48	Nepal (2008)	0.02	21.71	0.49	●
49	Ireland (2009)	0.02	21.59	0.48	○
50	Sweden (2009)	0.02	21.21	0.47	○
51	Italy (2009)	0.02	21.11	0.46	
52	Luxembourg (2009)	0.02	20.49	0.45	
53	France (2009)	0.02	20.36	0.43	○
54	Finland (2009)	0.02	20.32	0.42	○
55	Ecuador (2008)	0.02	20.25	0.41	
56	Germany (2009)	0.02	20.05	0.40	○
57	Senegal	0.01	19.49	0.39	
58	Russian Federation	0.01	17.71	0.38	
59	Bulgaria	0.01	17.28	0.37	
60	Cameroon (2008)	0.01	16.41	0.36	
61	Viet Nam (2008)	0.01	15.96	0.35	
62	Romania	0.01	15.73	0.34	
63	Qatar	0.01	14.87	0.33	
64	Poland (2009)	0.01	14.51	0.32	○
65	Thailand (2006)	0.01	14.36	0.30	
66	Turkey (2009)	0.01	14.34	0.29	
67	Trinidad and Tobago (2006)	0.01	13.98	0.28	
68	Uruguay (2008)	0.01	13.78	0.27	
69	Indonesia (2009)	0.01	12.77	0.26	
70	Morocco	0.01	12.71	0.25	
71	Hungary (2009)	0.01	12.70	0.24	○
72	Kyrgyzstan	0.01	12.64	0.23	
73	Singapore	0.01	11.85	0.22	○
74	Lithuania	0.01	11.56	0.21	○
75	Slovakia (2009)	0.01	10.98	0.20	○
76	Malaysia	0.01	10.45	0.18	○
77	Brazil	0.01	10.27	0.17	○
78	Kuwait	0.01	9.10	0.16	○
79	Azerbaijan	0.01	7.59	0.15	○
80	Egypt	0.01	7.24	0.14	
81	Chile (2008)	0.01	6.88	0.13	○
82	India (2009)	0.01	6.58	0.12	○
83	China	0.01	6.39	0.11	○
84	Tajikistan (2008)	0.01	6.02	0.10	
85	Canada	0.00	4.94	0.09	○
86	Yemen (2006)	0.00	4.28	0.08	
87	Mexico	0.00	4.26	0.07	○
88	Oman	0.00	3.95	0.05	○
89	Korea, Rep. (2008)	0.00	3.24	0.04	○
90	Philippines (2008)	0.00	3.20	0.03	○
91	Pakistan (2006)	0.00	2.75	0.02	○
92	Iran, Islamic Rep. (2009)	0.00	1.98	0.01	○
93	Gambia (2004)	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Algeria	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Argentina	n/a	n/a	n/a	
n/a	Bahrain	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Ghana	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Nigeria	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Tunisia	n/a	n/a	n/a	
n/a	Uganda	n/a	n/a	n/a	
n/a	United Arab Emirates	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: United Nations Industrial Development Organization (UNIDO), *Industrial Statistics Database* ISIC Revision 3 (INDSTAT4 2012) (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

7.2.5 Creative goods exports

Creative goods exports (% of total trade) | 2012

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	China	14.94	100.00	1.00	●
2	Czech Republic	11.27	90.37	0.99	●
3	Mexico	10.63	88.41	0.98	●
4	Malaysia	10.61	88.36	0.98	●
5	Slovakia	10.27	87.24	0.97	●
6	Thailand	10.05	86.54	0.96	●
7	Bhutan (2011)	7.05	74.92	0.95	●
8	Hungary	6.92	74.29	0.94	●
9	Netherlands	5.88	69.13	0.94	
10	Singapore	5.44	66.72	0.93	
11	Panama (2011)	4.73	62.46	0.92	●
12	Pakistan	4.34	59.88	0.91	●
13	India	4.32	59.77	0.90	●
14	Poland	4.22	59.09	0.90	●
15	Viet Nam	4.12	58.39	0.89	●
16	Latvia	3.23	51.40	0.88	●
17	Switzerland	3.16	50.79	0.87	
18	United Kingdom	2.88	48.22	0.86	
19	Tunisia (2011)	2.80	47.50	0.86	●
20	Japan	2.70	46.55	0.85	
21	Turkey	2.51	44.62	0.84	●
22	Korea, Rep.	2.49	44.36	0.83	
23	Ireland	2.21	41.39	0.82	
24	Italy	2.14	40.59	0.82	
25	Indonesia	2.10	40.08	0.81	●
26	Portugal	2.04	39.37	0.80	
27	Belgium	2.03	39.25	0.79	
28	Romania	1.90	37.73	0.78	●
29	Germany	1.87	37.33	0.78	
30	Sweden	1.80	36.41	0.77	
31	Israel	1.79	36.27	0.76	
32	Denmark	1.72	35.41	0.75	
33	United States of America	1.71	35.25	0.74	
34	France	1.67	34.69	0.74	
35	Lithuania	1.55	33.14	0.73	
36	Estonia	1.26	28.82	0.72	
37	Austria	1.26	28.68	0.71	
38	Malta	1.08	25.74	0.70	
39	Dominican Republic	0.98	24.08	0.70	●
40	Spain	0.92	22.84	0.69	
41	Mauritius	0.91	22.75	0.68	
42	Bulgaria	0.86	21.74	0.67	
43	Serbia	0.82	20.91	0.66	
44	Slovenia	0.79	20.38	0.66	
45	Jordan	0.77	19.98	0.65	
46	El Salvador	0.75	19.60	0.64	
47	Finland	0.75	19.56	0.63	
48	Costa Rica	0.70	18.67	0.62	
49	Canada	0.67	17.90	0.62	
50	Bolivia, Plurinational St.	0.66	17.79	0.61	●
51	Ukraine	0.66	17.67	0.60	
52	Australia	0.65	17.42	0.59	
53	South Africa	0.54	15.11	0.58	
54	Norway	0.54	14.98	0.58	
55	Greece	0.53	14.97	0.57	
56	Kenya (2010)	0.53	14.78	0.56	
57	Guatemala	0.50	14.05	0.55	
58	Egypt	0.47	13.53	0.54	
59	Iran, Islamic Rep. (2011)	0.47	13.48	0.54	
60	Lebanon (2011)	0.46	13.14	0.53	
61	Belarus	0.45	12.99	0.52	
62	Croatia	0.45	12.95	0.51	
63	Namibia	0.43	12.52	0.50	
64	Kazakhstan	0.43	12.39	0.50	
65	Brunei Darussalam	0.36	10.80	0.49	
66	Nepal (2011)	0.36	10.58	0.48	
67	New Zealand	0.34	10.12	0.47	○
68	Cambodia	0.31	9.44	0.46	
69	Sri Lanka	0.30	9.20	0.46	
70	Colombia	0.30	9.05	0.45	
71	Peru	0.30	9.03	0.44	
72	Armenia	0.30	9.02	0.43	
73	Hong Kong (China)	0.29	8.89	0.42	○
74	Zimbabwe	0.28	8.60	0.42	
75	Fiji	0.28	8.59	0.41	
76	Russian Federation	0.26	8.03	0.40	
77	Chile	0.21	6.74	0.39	
78	Brazil	0.21	6.60	0.38	
79	Senegal	0.19	6.03	0.38	
80	Luxembourg	0.18	5.80	0.37	
81	Bosnia and Herzegovina	0.18	5.70	0.36	
82	Argentina	0.17	5.54	0.35	
83	Iceland	0.15	4.90	0.34	○
84	TFYR of Macedonia	0.15	4.88	0.34	
85	Montenegro	0.12	3.89	0.33	
86	Burundi (2010)	0.12	3.88	0.32	
87	Uganda	0.12	3.83	0.31	
88	Saudi Arabia	0.11	3.61	0.30	○
89	Madagascar	0.11	3.56	0.30	
90	Uruguay	0.10	3.26	0.29	
91	Honduras	0.10	3.25	0.28	
92	Kyrgyzstan	0.09	2.88	0.27	
93	Malawi (2011)	0.08	2.72	0.26	
94	Sudan	0.08	2.61	0.26	
95	Albania	0.08	2.53	0.25	
96	Nigeria	0.07	2.34	0.24	
97	Moldova, Rep.	0.07	2.27	0.23	
98	United Arab Emirates (2008)	0.06	2.07	0.22	○
99	Ecuador	0.06	2.06	0.22	
100	Georgia	0.06	2.01	0.21	
101	Paraguay	0.06	2.01	0.20	
102	Tanzania, United Rep.	0.06	1.95	0.19	
103	Trinidad and Tobago (2010)	0.06	1.92	0.18	
104	Jamaica	0.05	1.77	0.18	
105	Nicaragua	0.05	1.67	0.17	
106	Zambia (2011)	0.05	1.59	0.16	
107	Rwanda	0.03	1.16	0.15	
108	Togo	0.03	1.15	0.14	
109	Myanmar (2010)	0.03	0.99	0.14	
110	Burkina Faso (2011)	0.03	0.92	0.13	
111	Cyprus	0.02	0.78	0.12	○
112	Côte d'Ivoire	0.02	0.77	0.11	
113	Ethiopia	0.02	0.72	0.10	
114	Ghana	0.02	0.65	0.10	○
115	Mozambique	0.02	0.58	0.09	
116	Mongolia (2007)	0.01	0.41	0.08	○
117	Gambia (2011)	0.01	0.38	0.07	
118	Oman	0.01	0.35	0.06	○
119	Niger	0.01	0.34	0.06	
120	Guyana	0.01	0.34	0.05	○
121	Azerbaijan	0.01	0.24	0.04	○
122	Mali	0.01	0.23	0.03	○
123	Bahrain (2011)	0.01	0.16	0.02	○
124	Algeria	0.00	0.04	0.02	○
125	Qatar (2011)	0.00	0.01	0.01	○
126	Yemen	0.00	0.00	0.00	○
n/a	Angola	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Kuwait	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Morocco	n/a	n/a	n/a	
n/a	Philippines	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Venezuela, Bolivarian Rep.	n/a	n/a	n/a	

SOURCE: United Nations, *COMTRADE* database; 2009 UNESCO Framework for Cultural Statistics; World Trade Organization, *Trade in Commercial Services* (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

7.3.1 Generic top-level domains (gTLDs)

Generic top-level domains gTLDs (per thousand population 15–69 years old) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Iceland	100.00	100.00	0.98	●
1	Luxembourg	100.00	100.00	0.98	●
1	Seychelles	100.00	100.00	0.98	●
1	United States of America	100.00	100.00	0.98	●
5	Malta	97.54	97.54	0.97	●
6	Canada	92.90	92.90	0.96	●
7	Cyprus	90.62	90.62	0.96	●
8	Netherlands	89.04	89.04	0.95	
9	Hong Kong (China)	84.61	84.61	0.94	
10	Australia	83.58	83.58	0.94	
11	Switzerland	77.20	77.20	0.93	
12	United Kingdom	76.04	76.04	0.92	
13	Ireland	74.13	74.13	0.92	
14	Panama	67.33	67.33	0.91	●
15	Germany	65.67	65.67	0.90	
16	Norway	60.62	60.62	0.89	
17	Denmark	58.66	58.66	0.89	
18	Austria	49.41	49.41	0.88	
19	Sweden	49.01	49.01	0.87	
20	France	48.59	48.59	0.87	
21	New Zealand	41.12	41.12	0.86	
22	Singapore	33.24	33.24	0.85	
23	Israel	32.14	32.14	0.85	
24	Spain	31.01	31.01	0.84	
25	Slovenia	29.07	29.07	0.83	
26	Finland	28.79	28.79	0.82	
27	Italy	25.06	25.06	0.82	
28	Bulgaria	23.28	23.28	0.81	●
29	Belgium	22.72	22.72	0.80	
30	Portugal	21.34	21.34	0.80	
31	Japan	20.33	20.33	0.79	
32	Mauritius	17.51	17.51	0.78	
33	Costa Rica	15.69	15.69	0.77	●
34	Lithuania	15.10	15.10	0.77	
35	Czech Republic	15.06	15.06	0.76	
36	Croatia	14.94	14.94	0.75	
37	Estonia	14.34	14.34	0.75	
38	Greece	14.04	14.04	0.74	
39	United Arab Emirates	13.85	13.85	0.73	
40	Turkey	13.84	13.84	0.73	
41	Brunei Darussalam	13.55	13.55	0.72	
42	Barbados	12.94	12.94	0.71	
43	Latvia	12.63	12.63	0.70	
44	Hungary	12.52	12.52	0.70	
45	Kuwait	12.29	12.29	0.69	●
46	Lebanon	11.57	11.57	0.68	
47	Namibia	11.00	11.00	0.68	●
48	Korea, Rep.	10.15	10.15	0.67	
49	Jordan	9.99	9.99	0.66	
50	Bahrain	9.21	9.21	0.65	
51	Poland	8.67	8.67	0.65	
52	Uruguay	8.41	8.41	0.64	
53	Albania	6.79	6.79	0.63	
54	Thailand	6.70	6.70	0.63	
55	Guatemala	6.68	6.68	0.62	●
56	Trinidad and Tobago	6.67	6.67	0.61	
57	Malaysia	6.09	6.09	0.61	
58	Romania	5.60	5.60	0.60	
59	Ukraine	5.08	5.08	0.59	
60	Qatar	4.93	4.93	0.58	
61	Peru	4.75	4.75	0.58	
62	Slovakia	4.47	4.47	0.57	
63	Saudi Arabia	4.42	4.42	0.56	
64	South Africa	4.22	4.22	0.56	
65	Russian Federation	4.07	4.07	0.55	
66	Colombia	3.80	3.80	0.54	
67	Argentina	3.74	3.74	0.54	
68	Montenegro	3.35	3.35	0.53	
69	Guyana	3.24	3.24	0.52	
70	Chile	3.22	3.22	0.51	
71	Jamaica	3.19	3.19	0.51	
72	TFYR of Macedonia	3.19	3.19	0.50	
73	Dominican Republic	3.14	3.14	0.49	
74	Oman	2.99	2.99	0.49	
75	Mexico	2.90	2.90	0.48	
76	Belarus	2.88	2.88	0.47	
77	Nicaragua	2.88	2.88	0.46	
78	Fiji	2.88	2.88	0.46	
79	Moldova, Rep.	2.84	2.84	0.45	
80	Tunisia	2.73	2.73	0.44	
81	Bosnia and Herzegovina	2.73	2.73	0.44	
82	El Salvador	2.57	2.57	0.43	
83	Armenia	2.54	2.54	0.42	
84	Iran, Islamic Rep.	2.32	2.32	0.42	
85	Venezuela, Bolivarian Rep.	2.26	2.26	0.41	
86	China	2.23	2.23	0.40	
87	Paraguay	2.18	2.18	0.39	
88	Viet Nam	2.12	2.12	0.39	
89	Bhutan	2.10	2.10	0.38	
90	Morocco	2.08	2.08	0.37	
91	Niger	2.02	2.02	0.37	
92	Brazil	2.01	2.01	0.36	
93	Georgia	2.01	2.01	0.35	
94	Ecuador	1.94	1.94	0.35	
95	Bolivia, Plurinational St.	1.94	1.94	0.34	
96	Indonesia	1.87	1.87	0.33	
97	Swaziland	1.78	1.78	0.32	
98	Egypt	1.73	1.73	0.32	
99	Azerbaijan	1.70	1.70	0.31	
100	Philippines	1.54	1.54	0.30	
101	Sri Lanka	1.36	1.36	0.30	
102	India	1.22	1.22	0.29	
103	Botswana	1.15	1.15	0.28	
104	Senegal	1.06	1.06	0.27	
105	Kenya	0.94	0.94	0.27	
106	Mongolia	0.94	0.94	0.26	
107	Ghana	0.82	0.82	0.25	
108	Togo	0.82	0.82	0.25	
109	Honduras	0.78	0.78	0.24	
110	Benin	0.74	0.74	0.23	
111	Cabo Verde	0.73	0.73	0.23	
112	Cambodia	0.71	0.71	0.22	
113	Nigeria	0.71	0.71	0.21	
114	Nepal	0.64	0.64	0.20	
115	Pakistan	0.63	0.63	0.20	
116	Yemen	0.56	0.56	0.19	
117	Kazakhstan	0.53	0.53	0.18	
118	Zimbabwe	0.53	0.53	0.18	
119	Bangladesh	0.53	0.53	0.17	
120	Kyrgyzstan	0.52	0.52	0.16	
121	Serbia	0.49	0.49	0.15	○
122	Côte d'Ivoire	0.46	0.46	0.15	
123	Algeria	0.46	0.46	0.14	
124	Cameroon	0.41	0.41	0.13	
125	Uganda	0.39	0.39	0.13	
126	Lesotho	0.23	0.23	0.12	
127	Malawi	0.23	0.23	0.11	
128	Gambia	0.22	0.22	0.11	
129	Rwanda	0.20	0.20	0.10	
130	Tanzania, United Rep.	0.19	0.19	0.09	
131	Zambia	0.19	0.19	0.08	
132	Madagascar	0.18	0.18	0.08	
133	Sudan	0.18	0.18	0.07	
134	Mali	0.16	0.16	0.06	
135	Angola	0.12	0.12	0.06	
136	Tajikistan	0.11	0.11	0.05	○
137	Guinea	0.11	0.11	0.04	
138	Uzbekistan	0.11	0.11	0.04	○
139	Myanmar	0.09	0.09	0.03	
140	Mozambique	0.07	0.07	0.02	○
141	Burundi	0.05	0.05	0.01	○
142	Burkina Faso	0.01	0.01	0.01	○
143	Ethiopia	0.00	0.00	0.00	○

SOURCE: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.

7.3.2 Country-code top-level domains (ccTLDs)

Country-code top-level domains ccTLDs (per thousand population 15–69 years old) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Montenegro	100.00	100.00	1.00	●
2	Netherlands	82.35	82.35	0.99	●
3	Denmark	77.59	77.59	0.99	●
4	Switzerland	77.48	77.48	0.98	
5	Germany	75.32	75.32	0.97	●
6	United Kingdom	73.87	73.87	0.96	●
7	Luxembourg	71.89	71.89	0.96	
8	Iceland	71.56	71.56	0.95	
9	Sweden	71.55	71.55	0.94	
10	Austria	71.34	71.34	0.94	●
11	Belgium	70.36	70.36	0.93	●
12	New Zealand	69.37	69.37	0.92	
13	Norway	69.34	69.34	0.92	
14	Australia	68.88	68.88	0.91	
15	Czech Republic	66.52	66.52	0.90	
16	Argentina	62.90	62.90	0.89	●
17	Hungary	60.41	60.41	0.89	●
18	Finland	60.39	60.39	0.88	
19	Poland	60.17	60.17	0.87	●
20	Canada	59.95	59.95	0.87	
21	Estonia	59.23	59.23	0.86	
22	Portugal	59.07	59.07	0.85	
23	Latvia	58.25	58.25	0.85	●
24	Slovakia	58.06	58.06	0.84	●
25	Slovenia	58.01	58.01	0.83	
26	Lithuania	57.94	57.94	0.82	
27	Seychelles	56.21	56.21	0.82	●
28	Italy	55.69	55.69	0.81	
29	France	55.67	55.67	0.80	
30	Ireland	55.00	55.00	0.80	
31	Greece	53.76	53.76	0.79	
32	Spain	53.12	53.12	0.78	
33	Russian Federation	51.90	51.90	0.77	
34	Israel	51.89	51.89	0.77	
35	Colombia	51.82	51.82	0.76	
36	Romania	51.46	51.46	0.75	
37	Singapore	48.99	48.99	0.75	
38	Chile	48.72	48.72	0.74	
39	Uruguay	46.07	46.07	0.73	●
40	Korea, Rep.	45.42	45.42	0.73	
41	Croatia	44.65	44.65	0.72	
42	Hong Kong (China)	44.52	44.52	0.71	
43	South Africa	43.94	43.94	0.70	
44	Brazil	42.98	42.98	0.70	
45	Ukraine	41.26	41.26	0.69	
46	Malta	40.63	40.63	0.68	
47	Japan	37.74	37.74	0.68	
48	Cyprus	37.41	37.41	0.67	
49	Belarus	36.40	36.40	0.66	
50	United Arab Emirates	35.21	35.21	0.65	
51	Venezuela, Bolivarian Rep.	34.53	34.53	0.65	●
52	Serbia	34.17	34.17	0.64	
53	Armenia	32.61	32.61	0.63	
54	Malaysia	31.25	31.25	0.63	
55	China	31.16	31.16	0.62	
56	Qatar	31.04	31.04	0.61	
57	Kazakhstan	30.89	30.89	0.61	
58	Moldova, Rep.	30.87	30.87	0.60	
59	Mexico	30.06	30.06	0.59	
60	Iran, Islamic Rep.	30.04	30.04	0.58	
61	United States of America	29.84	29.84	0.58	
62	Mauritius	29.61	29.61	0.57	
63	Viet Nam	27.60	27.60	0.56	
64	Georgia	27.41	27.41	0.56	
65	Turkey	27.37	27.37	0.55	
66	Bulgaria	27.35	27.35	0.54	
67	Fiji	27.15	27.15	0.54	
68	Guyana	25.80	25.80	0.53	
69	Bosnia and Herzegovina	25.07	25.07	0.52	
70	Mongolia	24.16	24.16	0.51	
71	TFYR of Macedonia	23.04	23.04	0.51	
72	Costa Rica	22.64	22.64	0.50	
73	Bahrain	22.60	22.60	0.49	
74	Brunei Darussalam	21.31	21.31	0.49	
75	Peru	20.84	20.84	0.48	
76	Barbados	20.74	20.74	0.47	
77	Dominican Republic	20.64	20.64	0.46	
78	Paraguay	20.32	20.32	0.46	
79	Panama	20.16	20.16	0.45	
80	Jamaica	20.00	20.00	0.44	
81	Ecuador	19.93	19.93	0.44	
82	Albania	19.62	19.62	0.43	
83	Azerbaijan	18.64	18.64	0.42	
84	Trinidad and Tobago	17.01	17.01	0.42	
85	Cabo Verde	16.92	16.92	0.41	
86	Bhutan	15.24	15.24	0.40	
87	Nepal	14.93	14.93	0.39	
88	India	14.91	14.91	0.39	
89	Morocco	14.38	14.38	0.38	
90	Nicaragua	13.87	13.87	0.37	
91	El Salvador	13.59	13.59	0.37	
92	Saudi Arabia	13.31	13.31	0.36	
93	Swaziland	12.50	12.50	0.35	
94	Guatemala	12.38	12.38	0.35	
95	Kuwait	12.10	12.10	0.34	
96	Bolivia, Plurinational St.	12.06	12.06	0.33	
97	Kyrgyzstan	12.04	12.04	0.32	
98	Honduras	11.57	11.57	0.32	
99	Thailand	10.97	10.97	0.31	
100	Kenya	10.80	10.80	0.30	
101	Tajikistan	10.73	10.73	0.30	
102	Gambia	10.48	10.48	0.29	
103	Philippines	10.12	10.12	0.28	
104	Cameroon	9.51	9.51	0.27	
105	Lebanon	9.10	9.10	0.27	
106	Jordan	8.67	8.67	0.26	○
107	Uzbekistan	8.44	8.44	0.25	
108	Tunisia	7.19	7.19	0.25	
109	Indonesia	6.38	6.38	0.24	
110	Oman	6.11	6.11	0.23	
111	Sri Lanka	6.11	6.11	0.23	
112	Senegal	5.11	5.11	0.22	
113	Lesotho	4.97	4.97	0.21	
114	Pakistan	4.39	4.39	0.20	
115	Mozambique	3.47	3.47	0.20	
116	Tanzania, United Rep.	3.42	3.42	0.19	
117	Côte d'Ivoire	3.33	3.33	0.18	
118	Botswana	3.30	3.30	0.18	
119	Burundi	3.28	3.28	0.17	
120	Malawi	2.96	2.96	0.16	
121	Algeria	2.45	2.45	0.15	
122	Uganda	2.15	2.15	0.15	
123	Cambodia	2.02	2.02	0.14	
124	Madagascar	1.95	1.95	0.13	
125	Namibia	1.92	1.92	0.13	○
126	Zimbabwe	1.80	1.80	0.12	
127	Nigeria	1.66	1.66	0.11	
128	Rwanda	1.45	1.45	0.11	
129	Egypt	1.42	1.42	0.10	○
130	Yemen	0.86	0.86	0.09	
131	Benin	0.86	0.86	0.08	
132	Bangladesh	0.62	0.62	0.08	
133	Angola	0.39	0.39	0.07	
134	Ethiopia	0.31	0.31	0.06	
135	Guinea	0.27	0.27	0.06	
136	Myanmar	0.26	0.26	0.05	
137	Sudan	0.26	0.26	0.04	
138	Niger	0.23	0.23	0.04	
139	Burkina Faso	0.13	0.13	0.03	○
140	Zambia	0.05	0.05	0.02	○
141	Ghana	0.04	0.04	0.01	○
142	Mali	0.03	0.03	0.01	○
143	Togo	0.00	0.00	0.00	○

SOURCE: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.

7.3.3 Wikipedia monthly edits

Wikipedia monthly page edits (per million population 15–69 years old) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	Estonia	58,894.49	100.00	1.00	●
2	Norway	43,209.91	73.37	0.99	●
3	Finland	42,876.24	72.80	0.99	
4	Iceland	42,761.21	72.60	0.98	●
5	Sweden	38,695.25	65.70	0.97	●
6	Israel	38,503.33	65.37	0.96	●
7	Netherlands	33,562.32	56.98	0.96	
8	Hong Kong (China)	30,069.00	51.05	0.95	
9	Belgium	29,735.82	50.49	0.94	●
10	Luxembourg	27,784.58	47.17	0.94	
11	United Kingdom	27,536.22	46.75	0.93	
12	Malta	27,516.41	46.72	0.92	
13	France	27,124.11	46.05	0.91	●
14	Slovenia	26,997.82	45.84	0.91	
15	Germany	24,636.86	41.83	0.90	
16	Ireland	24,573.80	41.72	0.89	
17	Italy	24,558.72	41.69	0.89	●
18	Switzerland	23,126.31	39.26	0.88	
19	Czech Republic	21,838.57	37.08	0.87	
20	Latvia	21,760.91	36.94	0.87	●
21	Denmark	21,687.27	36.82	0.86	
22	New Zealand	21,448.63	36.41	0.85	
23	Hungary	21,090.52	35.80	0.84	
24	Canada	20,635.97	35.03	0.84	
25	Australia	20,276.21	34.42	0.83	
26	Uruguay	20,274.89	34.42	0.82	●
27	Austria	19,348.09	32.85	0.82	
28	Spain	19,110.67	32.44	0.81	
29	Bulgaria	18,504.05	31.41	0.80	
30	Croatia	17,144.13	29.10	0.79	●
31	Lithuania	16,213.07	27.52	0.79	
32	Serbia	15,063.82	25.57	0.78	
33	Armenia	14,960.06	25.39	0.77	●
34	TFYR of Macedonia	14,509.18	24.63	0.77	
35	Greece	14,207.28	24.12	0.76	
36	Poland	14,002.95	23.77	0.75	
37	United States of America	13,812.18	23.45	0.74	
38	Montenegro	12,433.82	21.10	0.74	
39	Slovakia	12,016.74	20.40	0.73	
40	Portugal	11,967.62	20.31	0.72	
41	Georgia	11,912.30	20.22	0.72	
42	Bosnia and Herzegovina	11,760.88	19.96	0.71	●
43	Ukraine	10,862.71	18.44	0.70	
44	Cyprus	10,396.96	17.65	0.70	
45	Chile	10,125.82	17.19	0.69	
46	Japan	9,289.18	15.76	0.68	
47	Russian Federation	9,098.54	15.44	0.67	
48	Singapore	8,573.57	14.55	0.67	
49	Belarus	7,714.70	13.09	0.66	
50	Korea, Rep.	7,577.28	12.86	0.65	
51	Argentina	7,140.88	12.12	0.65	
52	Azerbaijan	6,203.32	10.52	0.64	
53	Albania	5,681.04	9.64	0.63	
54	Kuwait	5,220.24	8.86	0.62	
55	Moldova, Rep.	4,845.79	8.22	0.62	
56	Qatar	4,842.34	8.21	0.61	
57	Malaysia	4,707.53	7.98	0.60	
58	Mongolia	4,504.56	7.64	0.60	
59	Costa Rica	4,284.15	7.27	0.59	
60	Kazakhstan	4,267.04	7.24	0.58	
61	Romania	4,163.91	7.06	0.57	
62	United Arab Emirates	3,798.39	6.44	0.57	
63	Turkey	3,514.90	5.96	0.56	
64	Colombia	3,505.18	5.94	0.55	
65	Brazil	3,464.70	5.87	0.55	
66	Bahrain	3,226.24	5.47	0.54	
67	Saudi Arabia	3,212.55	5.45	0.53	
68	Peru	3,190.15	5.41	0.52	
69	Barbados	3,174.54	5.38	0.52	
70	Iran, Islamic Rep.	2,736.42	4.64	0.51	
71	Mauritius	2,545.23	4.31	0.50	
72	Ecuador	2,516.35	4.26	0.50	
73	Thailand	2,472.01	4.19	0.49	
74	Trinidad and Tobago	2,459.96	4.17	0.48	
75	Venezuela, Bolivarian Rep.	2,381.60	4.04	0.48	
76	Mexico	2,306.95	3.91	0.47	
77	Panama	2,261.69	3.83	0.46	
78	Lebanon	2,259.84	3.83	0.45	
79	Philippines	2,190.87	3.71	0.45	
80	Jordan	2,151.77	3.64	0.44	
81	El Salvador	2,043.95	3.46	0.43	
82	Paraguay	1,957.28	3.31	0.43	
83	Brunei Darussalam	1,852.59	3.14	0.42	
84	Dominican Republic	1,759.97	2.98	0.41	
85	Fiji	1,651.02	2.79	0.40	
86	Jamaica	1,541.43	2.61	0.40	
87	Honduras	1,398.69	2.37	0.39	
88	Tunisia	1,389.37	2.35	0.38	
89	Nicaragua	1,360.01	2.30	0.38	
90	Kyrgyzstan	1,342.61	2.27	0.37	
91	Sri Lanka	1,282.50	2.17	0.36	
92	Guatemala	1,239.66	2.10	0.35	
93	Viet Nam	1,142.91	1.93	0.35	
94	Oman	1,139.35	1.93	0.34	
95	South Africa	1,071.90	1.81	0.33	
96	Egypt	1,006.16	1.70	0.33	
97	Bolivia, Plurinational St.	995.06	1.68	0.32	
98	Morocco	967.75	1.63	0.31	
99	Seychelles	920.67	1.55	0.30	
100	Namibia	853.57	1.44	0.30	
101	Indonesia	836.88	1.41	0.29	
102	Nepal	751.45	1.27	0.28	
103	Algeria	700.51	1.18	0.28	
104	Cabo Verde	675.64	1.14	0.27	
105	Guyana	541.44	0.91	0.26	
106	India	536.87	0.90	0.26	
107	Pakistan	467.15	0.78	0.25	
108	Bhutan	371.44	0.62	0.24	
109	Cambodia	337.44	0.56	0.23	
110	Tajikistan	332.02	0.55	0.23	
111	Yemen	317.74	0.53	0.22	
112	Angola	291.99	0.49	0.21	
113	Ghana	278.40	0.46	0.21	
114	Botswana	244.97	0.41	0.20	
115	Bangladesh	238.32	0.40	0.19	
116	Kenya	234.33	0.39	0.18	
117	China	190.12	0.31	0.18	
118	Uzbekistan	146.67	0.24	0.17	
119	Swaziland	145.07	0.24	0.16	
120	Senegal	107.00	0.17	0.16	
121	Zimbabwe	92.34	0.15	0.15	
122	Rwanda	90.08	0.14	0.14	
123	Tanzania, United Rep.	82.63	0.13	0.13	
124	Mozambique	79.24	0.13	0.13	
125	Sudan	75.78	0.12	0.12	
126	Zambia	74.34	0.12	0.11	
127	Cameroon	74.30	0.12	0.11	
128	Uganda	70.34	0.11	0.10	○
129	Nigeria	62.00	0.10	0.09	
130	Gambia	61.64	0.10	0.09	
131	Lesotho	43.49	0.06	0.08	
132	Madagascar	37.70	0.05	0.07	
133	Togo	36.78	0.05	0.06	
134	Myanmar	35.17	0.05	0.06	
135	Benin	31.71	0.04	0.05	○
136	Ethiopia	28.63	0.04	0.04	
137	Mali	26.66	0.04	0.04	○
138	Malawi	23.91	0.03	0.03	○
139	Burkina Faso	17.80	0.02	0.02	○
140	Burundi	13.49	0.01	0.01	○
141	Niger	12.83	0.01	0.01	○
142	Guinea	5.33	0.00	0.00	○
n/a	Côte d'Ivoire	n/a	n/a	n/a	

SOURCE: Wikimedia Foundation; United Nations, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.

7.3.4 Video uploads on YouTube

Number of video uploads on YouTube (scaled by population 15-69 years old) | 2013

Rank	Country/Economy	Value	Score (0–100)	Percent rank	
1	United States of America	100.00	100.00	1.00	●
2	Hong Kong (China)	96.15	96.15	0.98	
3	Netherlands	95.86	95.86	0.97	
4	United Kingdom	95.56	95.56	0.95	
5	Finland	94.67	94.67	0.92	
5	Israel	94.67	94.67	0.92	
7	Canada	92.60	92.60	0.89	
7	Sweden	92.60	92.60	0.89	
9	Denmark	91.12	91.12	0.87	
10	Ireland	90.68	90.68	0.86	
11	Norway	89.05	89.05	0.84	
12	Singapore	88.02	88.02	0.83	
13	Australia	87.57	87.57	0.79	
13	France	87.57	87.57	0.79	
15	New Zealand	87.43	87.43	0.78	
16	Spain	87.28	87.28	0.76	
17	Belgium	86.69	86.69	0.75	
18	Czech Republic	86.24	86.24	0.73	
19	Hungary	85.65	85.65	0.71	
20	Germany	83.88	83.88	0.70	
21	Greece	83.73	83.73	0.67	
21	Poland	83.73	83.73	0.67	
23	Switzerland	82.69	82.69	0.65	
24	Portugal	82.54	82.54	0.63	
25	Austria	81.66	81.66	0.62	
26	Italy	81.51	81.51	0.59	
26	Romania	81.51	81.51	0.59	
28	Saudi Arabia	80.47	80.47	0.56	
28	Ukraine	80.47	80.47	0.56	
30	Japan	78.99	78.99	0.54	
31	Chile	78.85	78.85	0.52	
32	Korea, Rep.	78.55	78.55	0.51	
33	Russian Federation	78.25	78.25	0.49	
34	Argentina	77.37	77.37	0.48	
35	Slovakia	76.78	76.78	0.46	
36	Kuwait	76.48	76.48	0.44	
37	Brazil	75.44	75.44	0.43	
38	Bahrain	74.85	74.85	0.41	
39	United Arab Emirates	71.30	71.30	0.40	
40	Mexico	70.86	70.86	0.38	
41	Peru	70.41	70.41	0.37	
42	Turkey	70.27	70.27	0.35	
43	Thailand	69.53	69.53	0.33	
44	Qatar	68.93	68.93	0.32	
45	Malaysia	68.64	68.64	0.30	○
46	Colombia	67.31	67.31	0.29	
47	Viet Nam	65.83	65.83	0.27	
48	Philippines	65.09	65.09	0.25	
49	Jordan	62.13	62.13	0.24	○
50	Egypt	61.69	61.69	0.22	
51	Venezuela, Bolivarian Rep.	59.91	59.91	0.21	
52	Morocco	58.88	58.88	0.17	○
52	Tunisia	58.88	58.88	0.17	○
54	Oman	56.80	56.80	0.16	
55	Indonesia	48.67	48.67	0.14	
56	Algeria	46.01	46.01	0.13	
57	South Africa	42.46	42.46	0.11	○
58	India	41.57	41.57	0.10	○
59	Yemen	36.24	36.24	0.08	
60	Senegal	31.07	31.07	0.06	○
61	Kenya	29.88	29.88	0.05	○
62	Ghana	22.63	22.63	0.03	○
63	Uganda	15.68	15.68	0.02	○
64	Nigeria	0.00	0.00	0.00	○
n/a	Albania	n/a	n/a	n/a	
n/a	Angola	n/a	n/a	n/a	
n/a	Armenia	n/a	n/a	n/a	
n/a	Azerbaijan	n/a	n/a	n/a	
n/a	Bangladesh	n/a	n/a	n/a	
n/a	Barbados	n/a	n/a	n/a	
n/a	Belarus	n/a	n/a	n/a	
n/a	Benin	n/a	n/a	n/a	
n/a	Bhutan	n/a	n/a	n/a	
n/a	Bolivia, Plurinational St.	n/a	n/a	n/a	
n/a	Bosnia and Herzegovina	n/a	n/a	n/a	
n/a	Botswana	n/a	n/a	n/a	
n/a	Brunei Darussalam	n/a	n/a	n/a	
n/a	Bulgaria	n/a	n/a	n/a	
n/a	Burkina Faso	n/a	n/a	n/a	
n/a	Burundi	n/a	n/a	n/a	
n/a	Cabo Verde	n/a	n/a	n/a	
n/a	Cambodia	n/a	n/a	n/a	
n/a	Cameroon	n/a	n/a	n/a	
n/a	China	n/a	n/a	n/a	
n/a	Costa Rica	n/a	n/a	n/a	
n/a	Côte d'Ivoire	n/a	n/a	n/a	
n/a	Croatia	n/a	n/a	n/a	
n/a	Cyprus	n/a	n/a	n/a	
n/a	Dominican Republic	n/a	n/a	n/a	
n/a	Ecuador	n/a	n/a	n/a	
n/a	El Salvador	n/a	n/a	n/a	
n/a	Estonia	n/a	n/a	n/a	
n/a	Ethiopia	n/a	n/a	n/a	
n/a	Fiji	n/a	n/a	n/a	
n/a	Gambia	n/a	n/a	n/a	
n/a	Georgia	n/a	n/a	n/a	
n/a	Guatemala	n/a	n/a	n/a	
n/a	Guinea	n/a	n/a	n/a	
n/a	Guyana	n/a	n/a	n/a	
n/a	Honduras	n/a	n/a	n/a	
n/a	Iceland	n/a	n/a	n/a	
n/a	Iran, Islamic Rep.	n/a	n/a	n/a	
n/a	Jamaica	n/a	n/a	n/a	
n/a	Kazakhstan	n/a	n/a	n/a	
n/a	Kyrgyzstan	n/a	n/a	n/a	
n/a	Latvia	n/a	n/a	n/a	
n/a	Lebanon	n/a	n/a	n/a	
n/a	Lesotho	n/a	n/a	n/a	
n/a	Lithuania	n/a	n/a	n/a	
n/a	Luxembourg	n/a	n/a	n/a	
n/a	Madagascar	n/a	n/a	n/a	
n/a	Malawi	n/a	n/a	n/a	
n/a	Mali	n/a	n/a	n/a	
n/a	Malta	n/a	n/a	n/a	
n/a	Mauritius	n/a	n/a	n/a	
n/a	Moldova, Rep.	n/a	n/a	n/a	
n/a	Mongolia	n/a	n/a	n/a	
n/a	Montenegro	n/a	n/a	n/a	
n/a	Mozambique	n/a	n/a	n/a	
n/a	Myanmar	n/a	n/a	n/a	
n/a	Namibia	n/a	n/a	n/a	
n/a	Nepal	n/a	n/a	n/a	
n/a	Nicaragua	n/a	n/a	n/a	
n/a	Niger	n/a	n/a	n/a	
n/a	Pakistan	n/a	n/a	n/a	
n/a	Panama	n/a	n/a	n/a	
n/a	Paraguay	n/a	n/a	n/a	
n/a	Rwanda	n/a	n/a	n/a	
n/a	Serbia	n/a	n/a	n/a	
n/a	Seychelles	n/a	n/a	n/a	
n/a	Slovenia	n/a	n/a	n/a	
n/a	Sri Lanka	n/a	n/a	n/a	
n/a	Sudan	n/a	n/a	n/a	
n/a	Swaziland	n/a	n/a	n/a	
n/a	Tajikistan	n/a	n/a	n/a	
n/a	Tanzania, United Rep.	n/a	n/a	n/a	
n/a	TFYR of Macedonia	n/a	n/a	n/a	
n/a	Togo	n/a	n/a	n/a	
n/a	Trinidad and Tobago	n/a	n/a	n/a	
n/a	Uruguay	n/a	n/a	n/a	
n/a	Uzbekistan	n/a	n/a	n/a	
n/a	Zambia	n/a	n/a	n/a	
n/a	Zimbabwe	n/a	n/a	n/a	

SOURCE: Google, parent company of YouTube; United Nations, *World Population Prospects: The 2012 Revision* (population data)

NOTE: ● indicates a strength; ○ a weakness.

Appendix III

Sources and Definitions

Sources and Definitions

This appendix complements the data tables by providing, for each of the 81 indicators included in the Global Innovation Index (GII), its title, its description, its definition, and its source. For each indicator for each country/economy, the most recent value within the period 2004–13 was used. The single year given next to the description corresponds to the most frequent year for which data were available; when more than one year is considered, the period is indicated at the end of the indicator's source in parenthesis.

Some indicators received special treatment in the computation. A few variables required scaling by some other indicator to be comparable across countries, through division by gross domestic product (GDP) in current US dollars, purchasing power parity GDP in international dollars (PPP$ GDP), population, total exports, and so on. Details are provided in this appendix. The scaling factor was in each case the value corresponding to the same year of the particular indicator. In addition, 36 indicators that were assigned half weight are singled out with an 'a'. Finally, indicators for which higher scores indicate worse outcomes, commonly known as 'bads', are differentiated with a 'b' (details on the computation can be found in Appendix IV Technical Notes). See also Annex 2 in Chapter 1 for more information regarding the use of 'n/a' and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

A total of 56 variables are hard data; 20 are composite indicators from international agencies, distinguished with an asterisk (*); and 5 are survey questions from the World Economic Forum's Executive Opinion Survey (EOS), singled out with a dagger (†).

1 Institutions

1.1 Political environment

1.1.1 Political stability and absence of violence/terrorism

Political stability and absence of violence/terrorism index* | 2012

Index that captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism. Scores are standardized.

Source: World Bank, World Governance Indicators, 2013 update. (http://info.worldbank.org/governance/wgi/index.aspx#home)

1.1.2 Government effectiveness

Government effectiveness index* | 2012

Index that captures perceptions of the quality of public and civil services and the degree of their independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Scores are standardized.

Source: World Bank, World Governance Indicators, 2013 update. (http://info.worldbank.org/governance/wgi/index.aspx#home)

1.1.3 Press freedom

Press freedom index*[b] | 2013

Index that captures perceptions on violations of press freedom in the world. It reflects the degree of freedom that journalists and news organizations enjoy in each country and the efforts made by the authorities to respect and ensure respect for this freedom. It is based on events between the start of December 2012 and the end of November 2013.

Source: Reporters Without Borders, Press Freedom Index 2013. (http://en.rsf.org/press-freedom-index-2013,1054.html)

1.2 Regulatory environment

1.2.1 Regulatory quality

Regulatory quality index*[a] | 2012

Index that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Scores are standardized.

Source: World Bank, World Governance Indicators, 2013 update. (http://info.worldbank.org/governance/wgi/index.aspx#home)

1.2.2 Rule of law

Rule of law index*[a] | 2012

Index that captures perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Scores are standardized.

Source: World Bank, World Governance Indicators, 2013 update. (http://info.worldbank.org/governance/wgi/index.aspx#home)

1.2.3 Cost of redundancy dismissal

Sum of notice period and severance pay for redundancy dismissal (in salary weeks, averages for workers with 1, 5, and 10 years of tenure, with a minimum threshold of 8 weeks)[b] | 2013

Doing Business, in its indicators on employing workers, measures flexibility in the regulation on redundancy in a manner consistent with relevant ILO conventions to strike a better balance between labour market flexibility and social protection (including unemployment protection). The redundancy cost indicator is the sum of the cost of advance notice requirements added to severance payments due when terminating a redundant worker, expressed in weeks of salary. The average value of notice requirements and severance payments applicable to a worker with 1 year of tenure, a worker with 5 years of tenure, and a worker with 10 years of tenure is used to assign the score. If the redundancy cost adds up to 8 or fewer weeks of salary, a value of 8 is assigned but the actual number of weeks is published. If the cost adds up to more than 8 weeks of salary, the score is the number of weeks. One month is recorded as 4 and 1/3 weeks. Assumptions about the worker: the worker earns a salary plus benefits equal to the economy's average wage during the entire period of his employment; has a pay period that is the most common for workers in the economy; is a lawful citizen who belongs to the same race and religion as the majority of the economy's population; resides in the economy's largest business city; and is not a member of a labour union, unless membership is mandatory. Assumptions about the business: the business is a limited liability company; it operates in the economy's largest business city; it is 100% domestically owned; it operates in the manufacturing sector; it has 60 employees; it is subject to collective bargaining agreements in economies where such agreements cover more than half the manufacturing sector and apply even to firms not party to them; and it abides by every law and regulation but does not grant workers more benefits than mandated by law, regulation, or (if applicable) collective bargaining agreement.

Source: World Bank, Doing Business 2014, Employing Workers. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

1.3 Business environment

1.3.1 Ease of starting a business

Ease of starting a business (distance to frontier)* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of starting a business index: procedures (number); time (days); cost to complete each procedure (% of income per capita); and paid-in minimum capital (% of income per capita). *Doing Business* records all procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business. These include obtaining all necessary licenses and permits and completing any required notifications, verifications, or inscriptions for the company and employees with relevant authorities. To make the data comparable across economies, *Doing Business* uses a standardized business that is a limited liability company (or its legal equivalent); operates in the economy's largest business city; is 100% domestically owned and has 5 owners (none of whom is a legal entity); has start-up capital of 10 times income per capita, paid in cash; performs general industrial or commercial activities; it is not using heavily polluting production processes; leases the commercial plant or offices and is not a proprietor of real estate; does not qualify for investment incentives or any special benefits; has at least 10 and up to 50 employees 1 month after the commencement of operations, all of them domestic nationals; has a turnover of at least 100 times income per capita; and has a company deed 10 pages long. The distance to frontier measure benchmarks economies to the frontier in regulatory practice, measuring the absolute distance to the best performance on each indicator and showing how much the regulatory environment for local entrepreneurs in each economy has changed over time in absolute terms.

Source: World Bank, Ease of Doing Business Index 2014, Doing Business 2014. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

1.3.2 Ease of resolving insolvency

Ease of resolving insolvency (distance to frontier)* | 2013

The ranking on the ease of resolving insolvency is based on the recovery rate (cents on the dollar). To make the data comparable across economies, several assumptions about the business and the case are used: the recovery rate is recorded as cents on the dollar recouped by creditors through reorganization, liquidation, or debt enforcement (foreclosure) proceedings. The calculation takes into account the outcome: whether the business emerges from the proceedings as a going concern or the assets are sold piecemeal. Then the costs of the proceedings are deducted (1 cent for each percentage point of the value of the debtor's estate). Finally, the value lost as a result of the time the money remains tied up in insolvency proceedings is taken into account, including the loss of value due to depreciation of furniture, etc. The recovery rate is the present value of the remaining proceeds, based on end-2012 lending rates from the International Monetary Fund's *International Financial Statistics,* supplemented with data from central banks and the Economist Intelligence Unit. If an economy had zero cases a year over the past 5 years involving a judicial reorganization, judicial liquidation or debt enforcement procedure (foreclosure), the economy receives a 'no practice' ranking. This means that creditors are unlikely to recover their money through a formal legal process (in or out of court). The recovery rate for 'no practice' economies is zero. Indicators resolving insolvency—time (in years) and cost (% of estate), while also computed by *Doing Business,* are not taken into account for the ranking on the ease of resolving insolvency. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, Ease of Doing Business Index 2014, Doing Business 2014. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

1.3.3 Ease of paying taxes

Ease of paying taxes (distance to frontier)* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of paying taxes: payments (number per year); time (hours per year); profit tax (%); labour tax and contributions (%); other taxes (%); and total tax rate (% profit). Since 2012, a threshold calculated and adjusted on a yearly basis is applied to the total tax rate. The threshold is equivalent to the highest total tax rate among the top 15% of economies in the ranking on the total tax rate; this year the threshold is 25.5% (i.e., for all economies with a total tax rate below this threshold, the total tax rate is set at 25.5%). The threshold is not based on any underlying theory, but is intended to mitigate the effect of very low tax rates on the ranking of the ease of paying taxes. To make the data comparable across economies, several assumptions about the business and the taxes and contributions are used. The methodology benefited from discussion with members of the International Tax Dialogue and other stakeholders, which led to a refinement of the survey questions on the time to pay taxes, the collection of additional data on the labour tax wedge for further research, and the introduction of a threshold applied to the total tax rate for the purpose of calculating the ranking on the ease of paying taxes. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, Ease of Doing Business Index 2014, Doing Business 2014. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

2 Human capital and research

2.1 Education

2.1.1 Expenditure on education

Government expenditure on education (% of GDP) | 2010

Government operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment, as a percentage of gross domestic product (GDP).

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (http://stats.uis.unesco.org)

2.1.2 Government expenditure on education per pupil, secondary

Government expenditure per pupil, secondary (% of GDP per capita) | 2010

Government spending on education divided by the total number of secondary students, as a percentage of GDP per capita. Government expenditure (current and capital) includes government spending on educational institutions (both public and private), education administration, and subsidies for private entities (students/households and other private entities).

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (http://stats.uis.unesco.org)

2.1.3 School life expectancy

School life expectancy, primary to tertiary education (years) | 2011

Total number of years of schooling that a child of a certain age can expect to receive in the future, assuming that the probability of his or her being enrolled in school at any particular age is equal to the current enrolment ratio for that age.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

2.1.4 Assessment in reading, mathematics, and science

PISA average scales in reading, mathematics, and science[a] | 2012

The Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) develops three-yearly surveys that examine 15-year-old students' performance in reading, mathematics, and science. The scores are calculated in each year so that the mean is 500 and the standard deviation 100. The scores for China come from Shanghai; those for India from Himachal Pradesh and Tamil Nadu (average); those for the United Arab Emirates from Dubai; and those for the Bolivarian Republic of Venezuela from Miranda. These scores are those from the GII 2013 report.

Source: OECD Programme for International Student Assessment (PISA) (2010–12). (www.pisa.oecd.org/)

2.1.5 Pupil-teacher ratio, secondary

Pupil-teacher ratio, secondary[a,b] | 2011

The number of pupils enrolled in secondary school divided by the number of secondary school teachers (regardless of their teaching assignment). Where the data are missing for some countries, the ratios for upper-secondary are reported; if these are also missing, the ratios for lower-secondary are reported instead.

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (http://stats.uis.unesco.org)

2.2 Tertiary education

2.2.1 Tertiary enrolment

School enrolment, tertiary (% gross)[a] | 2011

The ratio of total tertiary enrolment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education. Tertiary education, whether or not to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

2.2.2 Graduates in science and engineering

Tertiary graduates in engineering, manufacturing, and construction (% of total tertiary graduates) |2011

The share of all tertiary graduates in manufacturing, engineering, and construction over all tertiary graduates.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

2.2.3 Tertiary inbound mobility

Tertiary inbound mobility ratio (%)[a] | 2011

The number of students from abroad studying in a given country, as a percentage of the total tertiary enrolment in that country.

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (http://stats.uis.unesco.org)

2.3 Research and development (R&D)

2.3.1 Researchers

Researchers, headcounts (per million population) | 2011

Researchers per million population, head counts. Researchers in R&D are professionals engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in the management of the projects concerned. Postgraduate PhD students (ISCED97 level 6) engaged in R&D are included. The series with full-time equivalents (FTE) also exists, but has a lower country coverage.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

2.3.2 Gross expenditure on R&D (GERD)

GERD: Gross expenditure on R&D (% of GDP) | 2011

Total domestic intramural expenditure on R&D during a given period as a percentage of GDP. Intramural R&D expenditure is all expenditure for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (http://stats.uis.unesco.org)

2.3.3 QS university ranking average score of top 3 universities

Average score of the top 3 universities at the QS world university ranking* | 2013

Average score of the top three universities per country. If fewer than three universities are listed in the QS ranking of the global top 700 universities, the sum of the scores of the listed universities is divided by three, thus implying a score of zero for the non-listed universities.

Source: QS Quacquarelli Symonds Ltd, QS World University Ranking 2013/2014, Top Universities. (http://www.topuniversities.com/university-rankings/world-university-rankings/2013)

3 Infrastructure

3.1 Information and communication technologies (ICTs)

3.1.1 ICT access

ICT access index* | 2012

The ICT access index is a composite index that weights five ICT indicators (20% each): (1) Fixed telephone lines per 100 inhabitants; (2) Mobile cellular telephone subscriptions per 100 inhabitants; (3) International Internet bandwidth (bit/s) per Internet user; (4) Percentage of households with a computer; and (5) Percentage of households with Internet access. It is the first sub-index in ITU's ICT Development Index (IDI).

Source: International Telecommunication Union, Measuring the Information Society 2013, ICT Development Index 2013. (http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2013.aspx)

3.1.2 ICT use

ICT use index* | 2012

The ICT use index is a composite index that weights three ICT indicators (33% each): (1) Percentage of individuals using the Internet; (2) Fixed (wired)-broadband Internet subscriptions per 100 inhabitants; and (3) Active mobile-broadband subscriptions per 100 inhabitants. It is the second sub-index in ITU's ICT Development Index (IDI).

Source: International Telecommunication Union, Measuring the Information Society 2013, ICT Development Index 2013. (http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2013.aspx)

3.1.3 Government's online service

Government's online service index* | 2012

To arrive at a set of online service index values, research teams assessed each country's national website, including the national central portal, e-services portal, and e-participation portal as well as the websites of the related ministries of education, labour, social services, health, finance, and environment, as applicable. In addition to being assessed for content and features, the national sites were tested for a minimal level of web content accessibility as described in the *Web Content Accessibility Guidelines* of the World Wide Web Consortium. The survey covers four stages of government's online service development, with points assigned for (1) an emerging presence, providing limited and basic information; (2) an enhanced presence, providing greater public policy and governance sources of information, such as policies, laws and regulation, downloadable databases, etc.; (3) a transactional presence, allowing two-way interactions between government and citizens (G2C and C2G), including paying taxes and applying for ID cards, birth certificates, passports, license renewals, etc.; and (4) a connected presence, characterized by G2G, G2C, and C2G interactions; participatory deliberative policy- and decision-making. A citizen-centric approach was followed. It is the first of three components of the E-Government Development Index (EGDI) of the United Nations Public Administration Network (UNPAN), together with components on telecommunication infrastructure and human capital.

Source: United Nations Public Administration Network, e-Government Survey 2012. (http://www2.unpan.org/egovkb/)

3.1.4 Online e-participation

E-Participation Index* | 2012

The United Nations E-Participation Index is based on the survey used for the UN Online Service Index. The survey was expanded with questions emphasizing quality in the connected presence stage of e-government. These questions focus on the use of the Internet to facilitate the provision of information by governments to citizens ('e-information sharing'), interaction with stakeholders ('e-consul-

tation'), and engagement in decision-making processes ('e-decision making'). A country's E-Participation Index value reflects how useful these features are and the extent to which they have been deployed by the government compared with all other countries. The purpose of this measure is to offer insight into how different countries are using online tools to promote interaction between citizens and government, as well as among citizens, for the benefit of all. The index ranges from 0 to 1, with 1 showing greater e-participation.

Source: United Nations Public Administration Network, e-Government Survey 2012. (http://www2.unpan.org/egovkb/)

3.2 General infrastructure

3.2.1 Electricity output

Electricity output (kWh per capita)[a] | 2011

Electricity production, measured at the terminals of all alternator sets in a station. In addition to hydropower, coal, oil, gas, and nuclear power generation, this indicator covers generation by geothermal, solar, wind, and tide and wave energy, as well as that from combustible renewables and waste. Production includes the output of electricity plants that are designed to produce electricity only as well as that of combined heat and power plants. Electricity output in KWh is scaled by population.

Source: International Energy Agency, World Energy Balances online data service (2011–12). (http://www.iea.org/stats/)

3.2.2 Logistics performance

Logistics Performance Index*[a] | 2012

A multidimensional assessment of logistics performance, the Logistics Performance Index (LPI) compares the trade logistics profiles of 160 countries and rates them on a scale of 1 (worst) to 5 (best). The ratings are based on 6,000 individual country assessments by nearly 1,000 international freight forwarders, who rated the eight foreign countries their company serves most frequently. The LPI's six components include: (1) the efficiency of the clearance process (speed, simplicity, and predictability of formalities) by border control agencies, including customs; (2) the quality of trade- and transport-related infrastructure (ports, railroads, roads, information technology); (3) the ease of arranging competitively priced shipments; (4) the competence and quality of logistics services (transport operators, customs brokers); (5) the ability to track and trace consignments; and (6) the frequency with which shipments reach the consignee within the scheduled or expected delivery time. Details of the survey methodology are in Arvis et al.'s *Connecting to Compete 2014: Trade Logistics in the Global Economy* (2014). Scores are averaged across all respondents.

Source: World Bank and Turku School of Economics, Logistics Performance Index 2014; Arvis et al., 2014, Connecting to Compete 2014: Trade Logistics in the Global Economy. (http://lpi.worldbank.org/)

3.2.3 Gross capital formation

Gross capital formation (% of GDP) | 2013

Ratio of total gross capital formation in current local currency to GDP in current local currency. Gross capital formation or investment is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less disposals of valuables for a unit or sector, on the basis of the System of National Accounts (SNA) of 1993. Gross fixed capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales and 'work in progress'. Net acquisitions of valuables are also considered capital formation.

Source: International Monetary Fund, World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx)

3.3 Ecological sustainability

3.3.1 GDP per unit of energy use

GDP per unit of energy use (2005 PPP$ per kg of oil equivalent) | 2011

Purchasing power parity gross domestic product (PPP$ GDP) per kilogram of oil equivalent of energy use. Energy use or total primary energy supply (TPES) is calculated as the production of fuels + inputs from other sources + imports – exports – international marine bunkers +/– stock changes. It includes coal, crude oil, natural gas liquids, refinery feedstocks, additives, petroleum products, gases, combustible renewables and waste, electricity, and heat. Domestic supply (also called 'energy apparent consumption') differs from final consumption in that it does not take account of distribution losses. The supply (or use) of energy commodities is converted to kilograms or tons of oil equivalent (koe, toe) using standard coefficients for each energy source.

Source: International Energy Agency, World Energy Balances online data service (2011–12). (http://www.iea.org/stats/)

3.3.2 Environmental performance

Environmental Performance Index* | 2014

This index ranks countries on 20 performance indicators tracked across policy categories that cover both environmental public health and ecosystem vitality. These indicators gauge how close countries are to established environmental policy goals. The index ranges from 0 to 100, with 100 indicating best performance.

Source: Yale University and Columbia University Environmental Performance Index 2014. (http://epi.yale.edu/)

3.3.3 ISO 14001 environmental certificates

ISO 14001 Environmental management systems—Requirements with guidance for use: Number of certificates issued (per billion PPP$ GDP)[a] | 2012

Number of certificates of conformity to 'ISO 14001:2004 Environmental management systems: Requirements with guidance for use' issued, according to the ISO survey. Single-site and multiple-site certificates are not distinguished. The ISO survey is published on an annual basis by the International Organization for Standardization (ISO). Only certification bodies accredited by national members of the International Accreditation Forum (www.iaf.nu) were used as sources (except for certificates in the Russian Federation, which were accredited locally). Certification of conformity with standards is not a requirement and the standards can be implemented without certification, but certification is perceived as adding value and trust. ISO is a network of the national standards institutes of 162 countries, and it is the world's largest developer of voluntary International Standards for business, government, and society, with a portfolio of more than 19,500 standards in almost every sector of economic activity and technology. ISO itself does not perform certification to its standards, does not issue certificates, and does not control certification performed independently of ISO by other organizations. The data are reported per billion PPP$ GDP.

Source: International Organization for Standardization (ISO), The ISO Survey of Management System Standard Certifications, 1999–2012; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (www.iso.org; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx)

4 Market sophistication

4.1 Credit

4.1.1 Ease of getting credit

Ease of getting credit (distance to frontier)* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of getting credit index: strength of legal rights index (range 0–10); and depth of credit information index (range 0–6). *Doing Business* measures the legal rights of borrowers and lenders with respect to secured transactions through one set of indicators and the sharing of credit information through another. The first set of indicators describes how well collateral and bankruptcy laws facilitate lending. The second set measures the coverage, scope, and accessibility of credit information available through public credit registries and private credit bureaus. Although *Doing Business* compiles data on getting credit for public registry coverage (% of adults) and for private bureau coverage (% of adults), these indicators are not included in the ranking. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, Ease of Doing Business Index 2014, Doing Business 2014. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

4.1.2 Domestic credit to private sector

Domestic credit to private sector (% of GDP) | 2012

Financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries, these claims include credit to public enterprises.

Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2005–12). (http://data.worldbank.org/)

4.1.3 Microfinance institutions' gross loan portfolio

Microfinance institutions: Gross loan portfolio (% of GDP) | 2012

Combined gross loan balances per microfinance institution (current US$), divided by GDP (current US$) and multiplied by 100.

Source: Microfinance Information Exchange, Mix Market database; International Monetary Fund:World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://www.mixmarket.org/crossmarket-analysis-report/download; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

4.2 Investment

4.2.1 Ease of protecting investors

Ease of protecting investors (distance to frontier)* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of protecting investors index: the extent of disclosure index (0–10); the extent of director liability index (0–10); the ease of shareholder suits index (0–10); and the strength of investor protection index (0–10). *Doing Business* measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain. The indicators distinguish three dimensions of investor protections: transparency of related-party transactions (extent of disclosure index), liability for self-dealing (extent of director liability index), and shareholders' ability to sue officers and directors for misconduct (ease of shareholder suits index). The data come from a survey of corporate and securities lawyers and are based on securities regulations, company laws, civil procedure codes, and court rules of evidence. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, Ease of Doing Business Index 2014, Doing Business 2014. (http://www.doingbusiness.org/reports/global-reports/doing-business-2014)

4.2.2 Market capitalization

Market capitalization of listed companies (% of GDP)[a] | 2012

Market capitalization (also known as 'market value') is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles.

Source: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2005–12). (http://data.worldbank.org/)

4.2.3 Total value of stocks traded

Stocks traded, total value (% of GDP)[a] | 2012

Total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.

Source: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2005–12). (http://data.worldbank.org/)

4.2.4 Venture capital deals

Venture capital per investment location: Number of deals (per trillion PPP$ GDP)[a] | 2013

Thomson Reuters data on private equity deals, per deal, with details on the location of investment, investment company, investor firms, and funds, among others. The series corresponds to a query on venture capital deals from 1 January 2013 to 31 December 2013, with the data collected by investment location, for a total of 18,887 deals in 77 countries in 2013. The data are reported per trillion PPP$ GDP.

Source: Thomson Reuters, Thomson One Banker Private Equity database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://banker.thomsonib.com; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

4.3 Trade and competition

4.3.1 Applied tariff rate, weighted mean

Tariff rate, applied, weighted mean, all products (%)[a,b] | 2011

The average of effectively applied rates weighted by the product import shares corresponding to each partner country. Data are classified using the Harmonized System of trade at the six- or eight-digit level. Tariff line data were matched to Standard International Trade Classification (SITC) revision 3 codes to define commodity groups and import weights. To the extent possible, specific rates have been converted to their ad valorem equivalent rates and have been included in the calculation of weighted mean tariffs. Effectively applied tariff rates at the six- and eight-digit product level are averaged for products in each commodity group. When the effectively applied rate is unavailable, the most-

favoured nation rate is used instead. World Bank estimates use the World Integrated Trade Solution (WITS) system, based on tariff data from the UNCTAD Trade Analysis and Information System (TRAINS) database and import weights calculated using the UN Comtrade database.

Source: World Bank, based on WITS, UNCTAD TRAINS, and UN COMTRADE; extracted from World Bank World Development Indicators database (2005–12). (http://data.worldbank.org/)

4.3.2 Market access for non-agricultural exports

Non-agricultural market access: Five major export markets weighted actual applied tariff (%)[a,b] | 2011

Non-agricultural market access (NAMA) conditions are measured by the actual average weighted (AAW) tariff rate applied by the five major export markets. The applied tariff rate is the difference between the most-favoured nation (MFN) duty and the preference margin (if any); and average tariff rates are weighted by actual imports calculated from mirror imports data (any of the two reference years, 2011 or 2010). For example, imports from Albania into the EU (China) benefit from an AAW preference margin of 4.7 (0.4) over an AAW MFN duty of 4.7 (0), thus implying an AAW applied tariff of 0.0 (0.4). Once the three other major export markets for Albania are considered as well (the Former Yugoslav Republic of Macedonia, India, and Turkey), the NAMA conditions for Albania can be summarized in an AAW applied tariff of 0.04%. For EU countries, the extra-EU data are assigned to each of the 27 (28 if considering Croatia) countries. When information on preferential tariff regimes is missing, MFN treatment is assumed (it is also assumed that a country avails itself of preferential tariffs, even if the exporter chooses not to for whatever reason—such as the more onerous prerequisites attached to the preferential tariff).

Source: World Trade Organization (WTO), International Trade Centre (ITC), and United Nations Conference on Trade and Development (UNCTAD) World Tariff Profiles 2013; Annex 1 of the WTO Agreement on Agriculture (NAMA classification) (2010–11). (http://stat.wto.org/TariffProfile/WSDBTariffPFHome.aspx?Language=E)

4.3.3 Intensity of local competition

Average answer to the survey question: In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense][†] | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014 . (https://wefsurvey.org)

5 Business sophistication

5.1 Knowledge workers

5.1.1 Employment in knowledge-intensive services

Employment in knowledge-intensive services (% of workforce) | 2012

Sum of people in categories 1 to 3 as a percentage of total people employed, according to the International Standard Classification of Occupations (ISCO). Categories included: ISCO-08: 1 Managers, 2 Professionals, and 3 Technicians and associate professionals (years 2009–12); ISCO-88: 1 Legislators, senior officials and managers, 2 Professionals, 3 Technicians and associate professionals (2004–12); ISCO-1968: 1 Professional, technical and related workers (category 0 Armed forces is excluded), 2 Administrative and managerial workers, 3 Clerical and related workers (years 2004–08).

Source: International Labour Organization, LABORSTA Database of Labour Statistics (2004–08), and ILOSTAT Database of Labour Statistics Beta version (2004–12). (http://www.ilo.org/ilostat/; http://laborsta.ilo.org/)

5.1.2 Firms offering formal training

Firms offering formal training (% of firms) | 2009

The percentage of firms offering formal training programmes for their permanent, full-time employees.

Source: International Finance Corporation and World Bank, Enterprise Surveys (2005–13). (http://www.enterprisesurveys.org/)

5.1.3 GERD performed by business enterprise

GERD: Performed by business enterprise (% of GDP)[a] | 2012

Gross expenditure on R&D performed by business enterprise as a percentage of GDP.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

5.1.4 GERD financed by business enterprise

GERD: Financed by business enterprise (% of total GERD)[a] | 2012

Percentage of gross expenditure on R&D financed by business enterprise.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (http://stats.uis.unesco.org)

5.1.5 GMAT test takers

Number of test takers of the Graduate Management Admission Test (GMAT) by citizenship (scaled by million population 20–34 years old)[a] | 2013

Total number of test takers of the Graduate Management Admission Test (GMAT) by citizenship, scaled by population 20–34 years old (if for a given country/economy the data for citizens do not exist, the data for residents are given instead).

Source: Graduate Management Admission Council (GMAC); United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data) (2004–13). (www.gmac.com/research; http://esa.un.org/unpd/wpp/Excel-Data/population.htm)

5.2 Innovation linkages

5.2.1 University/industry research collaboration

Average answer to the survey question: In your country, to what extent do business and universities collaborate on research and development (R&D)? [1 = do not collaborate at all; 7 = collaborate extensively] [†a] | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (https://wefsurvey.org)

5.2.2 State of cluster development

Average answer to the survey question on the role of clusters in the economy: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields] [†] | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (https://wefsurvey.org)

5.2.3 GERD financed by abroad

GERD: Financed by abroad (% of total GERD) | 2011

Percentage of gross expenditure on R&D financed by abroad—i.e., with foreign financing.

Source: UNESCO Institute for Statistics, UIS online database (2006–13). (http://stats.uis.unesco.org)

5.2.4 Joint venture/strategic alliance deals

Joint ventures/strategic alliances: Number of deals, fractional counting (per trillion PPP$ GDP)[a] | 2013

Thomson Reuters data on joint ventures/strategic alliances deals, per deal, with details on the country of origin of partner firms, among others. The series corresponds to a query on joint venture/strategic alliance deals from 1 January 2013 to 31 December 2013, for a total of 2,978 deals announced in 2013, with firms headquartered in 127 participating economies. Each participating nation of each company in a deal (*n* countries per deal) gets, per deal, a score equivalent to 1/*n* (with the effect that all country scores add up to 2,978). The data are reported per trillion PPP$ GDP.

Source: Thomson Reuters, Thomson One Banker Private Equity, SDC Platinum database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://banker.thomsonib.com; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

5.2.5 Patent families filed in at least three offices

Number of patent families filed by residents in at least three offices (per billion PPP$ GDP)[a] | 2010

A 'patent family' is defined as a set of interrelated patent applications filed in one or more countries/jurisdictions to protect the same invention (either directly or through the WIPO-administered Patent Cooperation Treaty). In this report, 'patent families data' refers to patent applications filed by residents in at least three offices; the data are scaled by PPP$ GDP (billions). A 'patent' is a set of exclusive rights granted by law to applicants for inventions that are new, non-obvious, and commercially applicable. It is valid for a limited period of time (generally 20 years), during which patent holders can commercially exploit their inventions on an exclusive basis. In return, applicants are obliged to disclose their inventions to the public in a manner that enables others, skilled in the art, to replicate the invention. The patent system is designed to encourage innovation by providing innovators with time-limited exclusive legal rights, thus enabling innovators to appropriate a return on their innovative activity.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

5.3 Knowledge absorption

5.3.1 Royalties and license fees payments

Royalty and license fees, payments (% of total trade)[a] | 2012

Royalties and license fees payments (% of total service imports) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of total trade. 'Total trade' is defined as the sum of total imports code G100 goods and code S200CS commercial services (excluding government services) plus total exports of code G100 goods and code S200CS commercial services (excluding government services), divided by 2. According to the fifth edition of the IMF's *Balance of Payments Manual* (BPM5), the item 'Goods' covers general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers, and nonmonetary gold. The 'commercial services' category is defined as being equal to 'services' minus 'government services, not included elsewhere'. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E; http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

5.3.2 High-tech imports

High-tech net imports (% of total net imports) | 2012

High-technology imports minus re-imports over total imports minus re-imports. The list of commodities contains technical products with a high intensity of R&D, based on the Eurostat classification, itself based on SITC Rev.4 and the Organisation for Economic Co-operation and Development (OECD) definition. Commodities belong to the following sectors: aerospace; computers & office machines; electronics, telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; non-electrical machinery; and armament.

Source: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12). (http://comtrade.un.org/; http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf)

5.3.3 Communications, computer and information services imports

Communications, computer and information services imports (% of total trade) | 2012

Communication, computer and information services imports (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002, including codes 245 Communications services (postal, courier services, and telecommunications services); and 262 Computer and information services, as a percentage of total trade.

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E; http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

5.3.4 Foreign direct investment net inflows

Foreign direct investment (FDI), net inflows (% of GDP) | 2011

Net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP.

Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2007–12). (http://data.worldbank.org/)

6 Knowledge and technology outputs

6.1 Knowledge creation

6.1.1 National office resident patent applications

Number of patent applications filed by residents at the national patent office (per billion PPP$ GDP)[a] | 2012

Number of patent applications filed by residents at the national patent office. Data are scaled by PPP$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. Patent applications by resident data are based on 'equivalent count', by which applications at regional offices are multiplied by the corresponding number of member states. This concerns the Eurasian Patent Office (EAPO) and the African Intellectual Property Organization (OAPI). For the European Patent Office (EPO) and the African Regional Intellectual Property Organization (ARIPO), each application is counted as one application abroad if the applicant does not reside in a member state; or as one resident and one application abroad if the applicant resides in a member state.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

6.1.2 Patent Cooperation Treaty resident applications

Number of international patent applications filed by residents at the Patent Cooperation Treaty (per billion PPP$ GDP)[a] | 2012

Number of patent applications filed by residents under the World Intellectual Property Organization (WIPO)-administered Patent Cooperation Treaty (PCT). Data are reported for PCT member countries only, and scaled by PPP$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. PCT applications are assigned to a particular country of origin according to the country of residence of the first-named applicant. The PCT system simplifies the process of multiple national patent filings by reducing the requirement to file a separate application in each jurisdiction. However, the decision of whether to grant patent rights remains in the hands of national and regional patent offices, and the patent rights remain limited to the jurisdiction of the patent granting authority. The PCT international application process starts with the international phase, during which an international search and, possibly, a preliminary examination are performed, and concludes with the national phase, during which national and regional patent offices decide on the patentability of an invention according to national law.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2006–12). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

6.1.3 National office resident utility model applications

Number of utility model applications filed by residents at the national patent office (per billion PPP$ GDP) | 2012

Number of utility model applications filed by residents at the national patent office. Resident UM data are scaled by PPP$ GDP (billions). Like a patent, a UM is a special form of patent right granted by a state/jurisdiction to an inventor or inventor's assignee for a fixed period of time. The terms and conditions for granting a utility model are slightly different from those for normal patents (including a shorter term of protection and less stringent patentability requirements). The term 'utility model' can also describe what are known in certain countries as 'petty patents', 'short-term patents', or 'innovation patents'.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2007–12). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

6.1.4 Scientific and technical publications

Number of scientific and technical journal articles (per billion PPP$ GDP)[a] | 2013

The number of scientific and engineering articles published in the following fields: physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences. Article counts are from a set of journals covered by the Science Citation Index (SCI) and the Social Sciences Citation Index (SSCI). Articles are classified by year of publication and assigned to each country/economy on basis of the institutional address(es) listed in the article. Articles are counted on a count basis (rather than a fractional basis)—that is, for articles with collaborating institutions from multiple countries/economies, each country/economy receives credit on basis of its participating institutions. The data are reported per trillion PPP$ GDP.

Source: Special tabulations from Thomson Reuters, Web of Science, Science Citation Index (SCI) and Social Sciences Citation Index (SSCI); International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP). (http://thomsonreuters.com/products_services/science/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

6.1.5 Citable documents H index

The H index is the economy's number of published articles (H) that have received at least H citations in the period 1996–2013.*[a] | 2013

The H index is an economy's number of published articles (H) that have received at least H citations in the period 1996–2013. It quantifies both country scientific productivity and scientific impact and is also applicable to scientists, journals, etc. The SCImago Journal & Country Rank is a portal that includes journal and economy scientific indicators developed from the information contained in the Scopus® database (Elsevier B.V.). This platform takes its name from the SCImago Journal Rank (SJR), developed by SCImago from the algorithm Google PageRank™. The H index is tabulated from the number of citations received in subsequent years by articles published in a given year, divided by the number of articles published that year.

Source: SCImago (2007) SJR—SCImago Journal & Country Rank. Retrieved February 2014. (http://www.scimagojr.com)

6.2 Knowledge impact

6.2.1 Growth rate of GDP per person engaged

Growth rate of GDP per person engaged (constant 1990 PPP$) | 2012

Growth of gross domestic product (GDP) per person engaged provides a measure of labour productivity (defined as output per unit of labour input). GDP per person employed is GDP divided by total employment in the economy. PPP$ GDP is converted to 1990 constant international dollars using PPP rates. An international dollar has the same purchasing power over GDP that a US dollar has in the United States of America.

Source: International Labour Organization, Key Indicators of the Labour Market (KILM) database, Table 17b Labour productivity (Conference board estimates), special tabulations prepared using KLIM Excel Add-in.

6.2.2 New business density

New business density (new registrations per thousand population 15–64 years old)[a] | 2012

Number of new firms, defined as firms registered in the current year of reporting, per thousand population aged 15–64 years old.

Source: World Bank, Doing Business 2014, Entrepreneurship (2007–12). (http://www.doingbusiness.org/data/exploretopics/entrepreneurship)

6.2.3 Total computer software spending

Total computer software spending (% of GDP)[a] | 2012

Computer software spending includes the total value of purchased or leased packaged software such as operating systems, database systems, programming tools, utilities, and applications. It excludes expenditures for internal software development and outsourced custom software development. The data are a combination of actual figures and estimates. Data are reported as a percentage of GDP.

Source: IHS Global Insight, Information and Communication Technology Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (current US$ GDP). (http://www.ihsglobalinsight.com/ProductsServices/ProductDetail2370.htm; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

6.2.4 ISO 9001 quality certificates

ISO 9001 Quality management systems—Requirements: Number of certificates issued (per billion PPP$ GDP)[a] | 2012

Number of certificates of conformity to standard 'ISO 9001:2008 Quality management systems—Requirements' issued, according to the ISO Survey. Single-site and multiple-site certificates are not distinguished. The data are reported per billion PPP$ GDP. Refer to indicator 3.3.3 for details.

Source: International Organization for Standardization (ISO), The ISO Survey of Management System Standard Certifications, 1999–2012; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2010–12). (www.iso.org; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx)

6.2.5 High-tech and medium-high-tech output

High-tech and medium-high-tech output (% of total manufactures output)[a] | 2010

High-tech and medium-high-tech output as a percentage of total manufactures output, on the basis of the Organisation for Economic Co-operation and Development (OECD) classification of Technology Intensity Definition, itself based on International Standard Industrial Classification ISIC Revision 3.

Source: United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database, 3- and 4-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT4 2012); OECD, Directorate for Science, Technology and Industry, Economic Analysis and Statistics Division, 'ISIC REV. 3 Technology Intensity Definition: Classification of Manufacturing Industries into Categories Based on R&D Intensities', 7 July 2011 (2004–10). (www.unido.org/statistics.html; http://unstats.un.org/unsd/cr/registry/regcst.asp?cl=27; http://www.oecd.org/sti/ind/48350231.pdf)

6.3 Knowledge diffusion

6.3.1 Royalties and license fees receipts

Royalty and license fees, receipts (% of total trade)[a] | 2012

Royalties and license fees receipts (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of total trade. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E; http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

6.3.2 High-tech exports

High-tech net exports (% of total net exports)[a] | 2012

High-technology exports minus re-exports over total exports minus re-exports. See indicator 5.3.2 for details.

Source: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12). (http://comtrade.un.org/; http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf)

6.3.3 Communications, computer and information services exports

Communications, computer and information services exports (% of total trade)[a] | 2012

Communication, computer and information services exports (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002, including codes 245 Communications services (postal, courier services, and telecommunications services) and 262 Computer and information services, as a percentage of total trade.

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E; http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

6.3.4 Foreign direct investment net outflows

Foreign direct investment (FDI), net outflows (% of GDP) | 2012

Net outflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net outflows of investment from the reporting economy to the rest of the world and is divided by GDP.

Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2005–12). (http://data.worldbank.org/)

7 Creative outputs

7.1 Intangible assets

7.1.1 National office resident trademark applications

Number of trademark applications issued to residents by the national office (per billion PPP$ GDP) | 2012

Number of trademark applications at the national trademark office, based on equivalent class counts. Data are scaled by PPP$ GDP (billions). A 'trademark' is a distinctive sign that identifies certain goods or services as those produced or provided by a specific person or enterprise. The holder of a trademark applica-

tion has the legal right to exclusive use of the mark in relation to the products or services for which it is registered. The owner can prevent unauthorized use of the trademark, or a confusingly similar mark, so as to prevent consumers and the public in general from being misled. Unlike patents, trademarks can be maintained indefinitely by paying renewal fees. The procedures for registering trademarks are governed by the rules and regulations of national and regional IP offices. Trademark rights are limited to the jurisdiction of the authority that registers the trademark. Resident trademark registrations are based on equivalent class counts. 'Class count' refers to the number of classes specified in a trademark registration. In the international trademark system and at certain offices, an applicant can file a trademark application that specifies one or more of the 45 goods and services classes of the Nice Classification. Offices use either a single- or multi-class filing system. For example, the offices of Japan, the Republic of Korea, and the United States of America as well as many European offices have multi-class filing systems. The offices of Brazil, China, and Mexico follow a single-class filing system, requiring a separate application for each class in which applicants seek trademark protection. To capture the differences in application numbers across offices, it is useful to compare their respective registration class counts. 'Equivalent registrations' refers to registrations at regional offices and are equivalent to multiple registrations, one in each of the states that is a member of those offices. To calculate the number of equivalent registrations for regional office data, each registration is multiplied by the corresponding number of member states.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2004–12). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

7.1.2 Madrid System trademark applications by country of origin

Number of international trademark applications issued through the Madrid System by country of origin (per billion PPP$ GDP)[a] | 2013

Number of international trademark applications by country of origin under the WIPO-administered Madrid System. Data are reported for Patent Cooperation Treaty (PCT) member countries only, and scaled by PPP$ GDP (billions). 'Trademark' is defined in the description of indicator 7.1.1. The Madrid System for the International Registration of Marks, established under the Madrid Agreement and the Madrid Protocol and administered by WIPO, makes it possible for an applicant to register a trademark in a large number of countries by filing a single application at their national or regional IP office that is party to the system. The Madrid System simplifies the process of multinational trademark registration by reducing the requirement to file separate applications at each office. It also simplifies the subsequent management of the mark, since it is possible to record changes or to renew the registration through a single procedural step. Registration through the Madrid System does not create an 'international' trademark, and the decision to register or refuse the trademark remains in the hands of national and/or regional office(s). Trademark rights are limited to the jurisdiction of the trademark registration office(s).

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP$ GDP) (2007–13). (http://www.wipo.int//ipstats/; http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx)

7.1.3 ICTs and business model creation

Average answer to the question: In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent][†] | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (https://wefsurvey.org)

7.1.4 ICTs and organizational model creation

Average answer to the question: In your country, to what extent do ICTs enable new organizational models (e.g. virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent][†] | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (https://wefsurvey.org)

7.2 Creative goods and services

7.2.1 Cultural and creative services exports

Cultural and creative services exports (% of total trade)[a] | 2012

Creative services exports (% of total exports) according to the Extended Balance of Payments Services Classification EBOPS 2002—that is, EBOPS code 264 Information services; code 278 Advertising, market research and public opinion polling; code 288 Audiovisual and related services; and code 897 Other, personal, cultural and recreational services as a percentage of total trade. The score for the United States of America (USA) includes the category Film and TV tape distribution in the absence of available data for code 288 Audiovisual and related services. The category Film and tape distribution is specific to the USA and does not have a code. However, these transactions have been classified by the USA under the EBOPS item 266 (Royalties and licence fees).

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E; http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

7.2.2 National feature films produced

Number of national feature films produced (per million population 15–69 years old)[a] | 2011

A film with a running time of 60 minutes or longer. It includes works of fiction, animation, and documentaries. It is intended for commercial exhibition in cinemas. Feature films produced exclusively for television broadcasting, as well as newsreels and advertising films, are excluded. Data are reported per million population 15–69 years old. For Cambodia and Cameroon, this indicator covers only feature films in video format; for Slovenia, feature films with a running time of 75 minutes or longer.

Source: UNESCO Institute for Statistics, UIS online database; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data) (2005–11). (http://stats.uis.unesco.org; http://esa.un.org/unpd/wpp/Excel-Data/population.htm)

7.2.3 Global entertainment and media output

Global entertainment and media output (per thousand population 15–69 years old)*[a] | 2012

The Global entertainment and media outlook (the Outlook) provides global analysis for consumer and advertising spend with like-for-like, five-year historical and forecast data across 13 industry segments in 59 countries. The Outlook allows one to compare and contrast regional growth rates and consumer and advertising spend. The segments covered by the Outlook are: TV subscriptions and license fees; TV advertising; Internet access; radio; out-of-home advertising; video games; filmed entertainment; newspaper publishing; consumer magazine publishing; business-to-business markets; Internet advertising; and con-

sumer and educational book publishing and music. The score and rankings for the Global Media Expenditures for the 59 countries considered in this report are based on advertising and consumer digital and non-digital data in US$ millions at average 2012 exchange rates for the year 2012. These results are reported normalized per thousand population, 15–69 years old, for the year 2012. The figures for Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, and the United Arab Emirates were estimated from a total corresponding to Middle East and North Africa (MENA) countries using a breakdown of total GDP (current US$) for the above-mentioned countries to define referential percentages.

Source: The source of the data for the base of these calculations was derived from PwC's Global entertainment and media outlook, 2013–2017; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2010 Revision (population data). (www.pwc.com/outlook)

7.2.4 Printing and publishing output

Printing and publishing manufactures output (% of manufactures total output) | 2010

Publishing, printing, and reproduction of recorded media output (ISIC Rev. 3 code 22) as a percentage of total manufacturing output (ISIC rev.3 code D).

Source: United Nations Industrial Development Organization, Industrial Statistics Database, 2-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT4 2012) (2007–12). (www.unido.org/statistics.html; http://unstats.un.org/unsd/cr/registry/regcst.asp?cl=2)

7.2.5 Creative goods exports

Creative goods exports (% of total trade) | 2012

Total value of creative goods exports, net of re-exports (current US$) over total trade. 'Total trade' is defined as the sum of total imports code G100 goods and code S200CS commercial services (excluding government services) plus total exports of code G100 goods and code S200CS commercial services (excluding government services), divided by 2. According to the fifth edition of the IMF's *Balance of Payments Manual* (BPM5), the item 'Goods' covers general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers, and nonmonetary gold. The 'commercial services' category is defined as being equal to 'services' minus 'government services, not included elsewhere'.

Source: United Nations, COMTRADE database; 2009 UNESCO Framework for Cultural Statistics, Table 3, International trade of cultural goods and services based on the 2007 Harmonised System (HS 2007); World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). (http://unctadstat.unctad.org/; http://www.uis.unesco.org/culture/Documents/framework-cultural-statistics-culture-2009-en.pdf; http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx?Language=E)

7.3 Online creativity

7.3.1 Generic top-level domains (gTLDs)

Generic top-level domains gTLDs (per thousand population 15–69 years old) | 2013

A generic top-level domain (gTLD) is one of the categories of top-level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Generic TLDs can be unrestricted (com, info, net, and org) or restricted—that is, used on the basis of fulfilling eligibility criteria (biz, name, and pro). Of these, the statistic covers the five generic domains biz, info, org, net, and com. Generic domains .name and .pro, and sponsored domains (arpa, aero, asia, cat, coop, edu, gov, int, jobs, mil, museum, tel, travel, and xxx) are not included. Neither are country-code top-level domains (refer to indicator 7.3.2). The statistic represents the total number of registered domains (i.e., net totals by December 2013, existing domains + new registrations – expired domains). Data are collected on the basis of a 4% random sample of the total population of domains drawn from the root zone files (a complete listing of active domains) for each TLD. The geographic location of a domain is determined by the registration address for the domain name registrant that is returned from a whois query. These registration data are parsed by country and postal code and then aggregated to any number of geographic levels such as county, city, or country/economy. The original hard data were scaled by thousand population 15–69 years old. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (http://www.zooknic.com; http://esa.un.org/unpd/wpp/Excel-Data/population.htm)

7.3.2 Country-code top-level domains (ccTLDs)

Country-code top-level domains ccTLDs (per thousand population 15–69 years old) | 2013

A country-code top-level domain (ccTLD) is one of the categories of top-level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Country-code TLDs are two-letter domains especially designated for a particular economy, country, or autonomous territory (there are 324 ccTLDs, in various alphabets/characters). The statistic represents the total number of registered domains (i.e., net totals by December 2013, existing domains + new registrations – expired domains). Data are collected from the registry responsible for each ccTLD and represent the total number of domain registrations in the ccTLD. Each ccTLD is assigned to the country with which it is associated rather than based on the registration address of the registrant. ZookNIC reports that, for the ccTLDs it covers, 85–100% of domains are registered in the same country; the only exceptions are the ccTLDs that have been licensed for commercial worldwide use. Of this year's GII sample of countries, this is the case for the ccTLDs of the following economies: Armenia am, Austria at, Belarus by, Belgium be, Colombia co, Denmark dk, Finland fi, Iceland is, India in, Iran ir, Italy it, Lao People's Democratic Republic la, Latvia lv, Moldova md, Mongolia mn, Montenegro me, Nicaragua ni, Serbia rs, Seychelles sc, Slovenia si, Spain es, and Switzerland ch (this list is based on www.wikipedia.org). Data are reported per thousand population 15–69 years old. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (http://www.zooknic.com; http://esa.un.org/unpd/wpp/Excel-Data/population.htm)

7.3.3 Wikipedia monthly edits

Wikipedia monthly page edits (per million population 15–69 years old) | 2013

Data extracted from Wikimedia Traffic Analysis Report, Wikipedia Page Edits per Country, Overview on the portal www.wikipedia.org. The count of monthly page edits data is based on a 1:1,000 sampled server log (squids), averages of quarterly reports. Wikimedia Foundation (WMF) traffic logging service suffered from server capacity problems in August/September/October 2011. Data loss occurred only during peak hours. It there-

fore may have had a somewhat different impact for traffic from different parts of the world. From mid-September until late November, squid log records for mobile traffic were in invalid format. Data could be repaired for logs from mid-October onwards. Older logs were no longer available. In an unrelated server outage, precisely half of traffic to WMF mobile sites was not counted from 16 October–29 November (one of two load-balanced servers did not report traffic). Countries are included only if the number of page edits in the period exceeds 100,000 (100 matching records in 1:1,000 sampled log). Page edits by bots are not included. Also all IP addresses that occur more than once on a given day are discarded for that day. A few false negatives are taken for granted. Data are reported per million population 15–69 years old.

Source: Wikimedia Foundation; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (http://stats.wikimedia.org/wikimedia/squids/SquidReportsCountriesLanguagesVisitsEdits.htm; http://esa.un.org/unpd/wpp/Excel-Data/population.htm)

7.3.4 Video uploads on YouTube

Number of video uploads on YouTube (scaled by population 15–69 years old)* | 2013

Total number of video uploads on YouTube, per country, scaled by population 15–69 years old. The raw data are survey based: the country of affiliation is chosen by each user on the basis of a multi-choice selection. This metric counts all video upload events by users. The following countries are reported with n/a because of total or partial service blockage: Bangladesh (YouTube banned for 261 days, ban lifted on 5 June 2013); China (Google inaccessible for 1,590 days); Iran (YouTube blocked for 1,711 days). In addition, only countries with a reach for YouTube equal to or above 45%, according to comScore's Multi-Country Key Measures, were included. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: Google, parent company of YouTube; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (www.youtube.com; http://esa.un.org/unpd/wpp/Excel-Data/population.htm; http://www.comscore.com/Industries/Media)

Appendix IV

Technical Notes

Technical Notes

Audit by the Joint Research Centre of the European Commission

The Joint Research Centre (JRC) of the European Commission has researched extensively on the complexity of composite indicators ranking economies' performances along policy lines. For the fourth consecutive year, the JRC has agreed to perform a thorough robustness and sensitivity analysis of the Global Innovation Index (GII) to look at some structural changes made to the list of indicators by the GII developing team (see Table 1 of Annex 2 to Chapter 1 for more details).

An earlier version of the 2014 GII model was submitted to the JRC in April 2014. The recommendations and flexibilities allowed by the JRC preliminary audit were taken into account in the final version of the GII model and are explained below as appropriate.

A final audit was performed in May on that last model, the results of which are included in Annex 3 to Chapter 1.

Composite indicators

The GII relies on seven pillars. Each pillar is divided into three sub-pillars, and each sub-pillar is composed of three to five individual indicators. Each sub-pillar score is calculated as the weighted average of its individual indicators. Each pillar score is calculated as the weighted average of its sub-pillar scores.

The notion of weights as importance coefficients was, as in the previous two years, discarded to ensure a greater statistical coherence of the model, following the recommendations of the JRC.[1]

The GII includes three indices and one ratio:

1. The Innovation Input Sub-Index is the simple average of the first five pillar scores.
2. The Innovation Output Sub-Index is the simple average of the last two pillar scores.
3. The Global Innovation Index is the simple average of the Input and Output Sub-Indices.
4. The Innovation Efficiency Ratio is the ratio of the Output Sub-Index over the Input Sub-Index.

Country/economy rankings are provided for indicator, sub-pillar, pillar, and index scores.

The Innovation Efficiency Ratio serves to highlight those economies that have achieved more with less as well as those that lag behind in terms of fulfilling their innovation potential. In theory, assuming that innovation results go hand in hand with innovation enablers, efficiency ratios should evolve around the number one. This measure thus allows us to complement the GII by providing an insight that should be neutral to the development stages of economies.[2]

Individual indicators

The model includes 81 indicators, which fall within the following three categories:

1. quantitative/objective/hard data (56 indicators),
2. composite indicators/index data (20 indicators), and
3. survey/qualitative/subjective/soft data (5 indicators).

Hard data

Hard data series (56 indicators) are drawn from a variety of public and private sources such as United Nations agencies (the United Nations Educational, Scientific and Cultural Organization, the World Intellectual Property Organization), the World Bank, PwC, Thomson Reuters, and IHS Global Insight.

Indicators are often correlated with population, gross domestic product (GDP), or some other size-related factor; they require scaling by some relevant size indicator for economy comparisons to be valid. Most indicators are either scaled at the source or do not need to be scaled; for the rest, the scaling factor was chosen to represent a fair

picture of economy differences. This affected 39 indicators, which can be broadly divided into four groups:

1. Indicators 2.1.1, 2.3.2, 3.2.3, 4.1.2, 4.1.3, 4.2.2, 4.2.3, 5.1.3, 5.3.4, 6.2.3, and 6.3.4 were scaled by GDP in current US dollars.[3]
2. The count variables 3.3.3, 4.2.4, 5.2.4, 5.2.5, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.2.4, 7.1.1, and 7.1.2 were scaled by GDP in purchasing power parity current international dollars (PPP$ GDP). This choice of denominator was dictated by a willingness to appropriately account for differences in development stages; in addition, scaling these variables by population would improperly bias results to the detriment of economies with large young or large ageing populations.[4]
3. Variables 5.1.5, 6.2.2, 7.2.2, 7.2.3, 7.3.1, 7.3.2, 7.3.3, and 7.3.4 were scaled by population (population 20–34 years old for 5.1.5, population 15–64 years old for 6.2.2, and population 15–69 years old for the rest).[5]
4. Sectoral indicators 5.3.1, 5.3.3, 6.3.1, 6.3.3, and 7.2.1 were scaled by total trade; indicators 5.3.2, 6.2.5, 6.3.2, and 7.2.4 were scaled by the total unit corresponding to the particular statistic.[6]

Indices

Composite indicators come from a series of specialized agencies and academic institutions such as the World Bank, the International Telecommunication Union (ITU), the UN Public Administration Network (UNPAN), and Yale and Columbia Universities. Statisticians discourage the use of an 'index within an index' on two main grounds: the distorting effect of the use of different computing methodologies and the risk of duplicating variables. The normalization procedure partially solves for the former (more on this below). To avoid incurring the mistake of including a particular indicator more than once (directly and indirectly through a composite indicator), only indices with a narrow focus (20 in total) were selected.

Any remaining downside is outweighed by the gains in terms of model parsimony, acknowledgement of expert opinion, and focus on multi-dimensional phenomena that can hardly be captured by a single indicator.[7]

Survey data

Survey data are drawn from the World Economic Forum's Executive Opinion Survey (EOS). Survey questions are drafted to capture subjective perceptions on specific topics; five EOS questions were retained to capture phenomena strongly linked to innovative activities for which hard data either do not exist or have low economy coverage.

Country/economy coverage and missing data

This year's GII covers 143 economies, which were selected on the basis of the availability of data. Economies with a minimum indicator coverage of 51 indicators out of 81 (63%) and with scores for at least two sub-pillars per pillar were retained. These criteria were determined jointly with the JRC in 2011. The last record available for each economy was considered, with a cut-off at year 2004. For the sake of transparency and replicability of results, no additional effort was made to fill missing values. Missing values are indicated with 'n/a' and are not considered in the sub-pillar score. However, the JRC audit assessed the robustness of the GII modelling choices (i.e., no imputation of missing data, fixed predefined weights, and arithmetic averages) by imputing missing data, applying random weights, and using geometric averages. Since 2012, on the basis of this assessment, a confidence interval is provided for each ranking in the GII as well as the Input and Output Sub-Indices (see Annex 2 to Chapter 1). Please refer to Annex 2 of Chapter 1 for more information regarding the use of 'n/a' and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

Treatment of series with outliers

Potentially problematic indicators with outliers that could polarize results and unduly bias the rankings were treated according to the rules listed below, following the recommendations of the JRC. This affected 31 out of the 56 hard data indicators.

First rule: Selection

The identification of indicators as problematic used skewness or kurtosis. The problematic indicators had either:

- an absolute value of skewness greater than 2, or
- a kurtosis greater than 3.5.[8]

Second rule: Treatment

Series with one to five outliers (24 cases) were winsorized: The values distorting the indicator distribution were assigned the next highest value, up to the level where skewness and/or kurtosis entered within the ranges specified above.[9]

For series with six or more outliers (7 cases), skewness and/or kurtosis entered within the ranges specified above after multiplication by a given factor *f* and transformation

by natural logs.[10] Since only 'goods' were affected (i.e., indicators for which higher values indicate better outcomes, as opposed to 'bads'), the formula used was:

$$\ln\left[\frac{(\max \times f - 1)\ (\text{economy value} - \min)}{\max - \min} + 1\right]^{11}$$

where 'min' and 'max' are the minimum and maximum indicator sample values.

Normalization

The 81 indicators were then normalized into the [0, 100] range, with higher scores representing better outcomes. Normalization was made according to the min-max method, where the min and max values were given by the minimum and maximum indicator sample values respectively, except for index and survey data, for which the original series' range of values was kept as min and max values (for example, [1, 7] for the World Economic Forum Executive Opinion Survey questions; [0, 100] for World Bank's World Governance Indicators; [0, 10] for ITU indices, etc.). The following formula was applied:

- **Goods:**

$$\frac{\text{economy value} - \min}{\max - \min} \times 100$$

- **Bads:**

$$\frac{\max - \text{economy value}}{\max - \min} \times 100$$

Notes

1 Paruolo et al. (2013) show that a theoretical inconsistency exists between the real theoretical meaning of weights and the meaning generally attributed to them by the standard practice in constructing composite indicators that use them as importance coefficients in combination with linear aggregation rules. The approach followed in the GII this year is to assign weights of 0.5 or 1.0 to each component in a composite to ensure the highest correlations between them (i.e., indicator/sub-pillar, sub-pillar/pillar, etc.). Three sub-pillars (6.1 Knowledge creation, 7.2 Creative goods and services, and 7.3 Online creativity) and 36 indicators (1.2.1, 1.2.2, 2.1.4, 2.1.5, 2.2.1, 2.2.3, 3.2.1, 3.2.2, 3.3.3, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 5.1.3, 5.1.4, 5.1.5, 5.2.1, 5.2.4, 5.2.5, 5.3.1, 6.1.1, 6.1.2, 6.1.4, 6.1.5, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.3.1, 6.3.2, 6.3.3, 7.1.2, 7.2.1, 7.2.2, and 7.2.3) are weighted 0.5; the rest have a weight of 1.0.

Five indicators with Pearson correlation coefficients with their respective sub-pillar scores below 0.5 were kept in the model to ensure a conceptual coherence (as opposed to a statistical coherence) in the belief that some cyclical (as opposed to structural) dimension might be at the source of their behaviour as 'noise' (see also Annex 3 to Chapter 1): 4.3.2 Market access for non-agricultural exports, 5.3.3 Communications, computer and information services imports, 6.2.1 Growth rate of GDP per person engaged, 6.2.2 New business density, and 6.3.4 Foreign direct investment net outflows.

2 To account for differences in development, other composite indicators use weighting schemes differentiated by income level.

3 These indicators are 2.1.1 Expenditure on education, 2.3.2 Gross expenditure on R&D, 3.2.3 Gross capital formation, 4.1.2 Domestic credit to private sector, 4.1.3 Microfinance institutions' gross loan portfolio, 4.2.2 Market capitalization, 4.2.3 Total value of stocks traded, 5.1.3 GERD performed by business enterprise, 5.3.4 Foreign direct investment net inflows, 6.2.3 Total computer software spending, and 6.3.4 Foreign direct investment net outflows.

4 These count variables are mainly indicators that increase disproportionately with economic growth. They include: ISO 14001 environmental (3.3.3) and ISO 9001 quality (6.2.4) certificates issued; venture capital (4.2.4) and joint venture and strategic alliance (5.2.4) deals; Patent Cooperation Treaty (PCT) published patent family applications filed in at least three offices (5.2.5); resident patent applications at the national office (6.1.1) and at the PCT (6.1.2); national office resident utility model applications (6.1.3); publications in scientific and technical journals (6.1.4); national office resident trademark applications (7.1.1); and trademark applications under the Madrid System by country of origin (7.1.2).

5 These variables are GMAT test takers (5.1.5); new business density (6.2.2); national feature films produced (7.2.2); global entertainment and media composite output (7.2.3); generic (7.3.1) and country-code (7.3.2) top-level Internet domains; Wikipedia monthly edits (7.3.3); and video uploads on YouTube (7.3.4).

6 Royalty and license fees payments (5.3.1), communication, computer, information services imports (5.3.3), royalty and license fees receipts (6.3.1), communication, computer, and information services exports (6.3.3), cultural and creative services exports (7.2.1) and creative goods exports minus re-exports (7.2.5) were scaled by total trade; high-tech goods imports minus re-imports by total imports minus re-imports (5.3.2); high-tech and medium-high-tech output (6.2.5), and printing and publishing output (7.2.4) by total manufactures output; and high-tech goods exports minus re-exports (6.3.2) by total exports minus re-exports. Refer to Annex 1 of Chapter 1 and Appendix III for details.

7 For example, GII sub-pillar 3.1 Information and communication technologies (ICTs) is composed of four indices: ITU's ICT Access and Use sub-indices and UNPAN's Government Online Service and E-Participation Indices. The first two are components of ITU's ICT Development Index together with an ICT skills sub-index that was not considered, as it duplicates GII pillar 2. Similarly, the Online Service Index is a component of UNPAN's E-Government Development Index together with two indices on Telecommunication Infrastructure and Human Capital that were not considered, as they duplicate GII pillars 3 and 2, respectively. The e-Participation Index was developed separately by UNPAN in 2010.

8 Based on Groeneveld and Meeden (1984), which sets the criteria of absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to account for the small sample at hand (143 economies).

9 This distributional issue affects the following variables: 3.3.3, 4.2.2, 5.3.2, 7.2.1, 7.2.4 (1 outlier) 3.2.1, 5.3.1, 6.1.5, 7.1.1 (2 outliers); 4.2.3, 5.3.4, 6.1.1, 6.2.2, 6.2.4, 7.3.1 (3 outliers); and 1.2.3, 4.1.3, 4.2.4, 5.2.4, 6.1.3, 6.3.3, 7.1.2 (4 outliers). The treatment criterion was relaxed this year to allow series with 5 outliers to be winsorized instead of subjected to natural log transformation. Two indicator series (2.2.3 and 7.2.2) with 5 outliers each required no further transformation once these were winsorized.

10 This distributional issue affects variables 5.1.5, 6.1.2, 6.3.4, 7.2.5, 7.3.2 (factor f of 1); 5.2.5, 6.3.1 (factor f of 10).

11 The corresponding formula for bads is:

$$\ln\left[\frac{(\max \times f - 1) \times (\max - \text{economy value})}{\max - \min} + 1\right]$$

These formulas achieve two things: converting all series into 'goods' and scaling the series to the range [1, max] so that natural logs are positive starting at 0.

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Appendix V

About the Authors

About the Authors

Ilham Bennani is Head of the Technological Innovation Department in the Moroccan Industrial and Commercial Property Office (OMPIC). She is responsible for managing operations dealing with innovation, including activities with universities, engineering schools, and research centres. She is also in charge of the management of training activities in the Moroccan Academy of Intellectual Property and Commercial (AMAPIC), created in 2012 by OMPIC. Since 1992, she has held several positions, including Head of Patents Service, Head of Industrial Design Service, and Head of the Patent and Industrial Designs Department at OMPIC. She has taken part in many courses at the World Intellectual Property Organization, the European Patent Office, and the USPTO Global Intellectual Property Academy. She received an Engineering Diploma in Process Engineering in 1991 from the Engineers Mohammedia School (EMI) in Morocco and a Master of Organic Chemistry in 1989 from the Science Faculty, University Sidi Mohammed Ben Abdellah Fes in Morocco.

Alexandra L. Bernard joined Cornell University in September 2013. She is the Project Manager of the Global Innovation Index 2014. Her previous professional experience includes working as a senior consultant in the transfer pricing international tax team at PwC in Melbourne, Australia. Prior to that she worked as a financial analyst for Australia and New Zealand Banking Group. She has also worked as a senior event coordinator for an Australian event management company, which involved running tour marketing campaigns, brand management activations, and social media development. She obtained her Bachelor of Commerce from Monash University in Melbourne, Australia.

Marwan Berrada is from Rabat, Morocco. At the Ministry in Charge of Moroccans Living Abroad and Migration Affairs, he was Head of Research and Economic Action between 2011 and 2012 and has been Head of the Networks Skills Development since 2012. He ensures the monitoring and coordination of the creation of several Diaspora experts networks, including geographic networks (Germany, France, Canada, USA) and thematic ones (World Moroccan Medical Skills Network). He has represented the Ministry in several meetings and conferences abroad, including in France, Spain, Italy, Germany, Slovenia, Canada, Egypt, and the United Arab Emirates. He holds a Bachelor's degree in Geography (2006) and a Master of Country Planning (2008) from the Mohammed V University in Rabat.

Ahmad Bin Byat is the Founding Chairman of du and one of the most prominent corporate leaders in Dubai. He holds a number of high-ranking directorial positions and plays an instrumental role in leading key economic initiatives designed to drive Dubai's knowledge-based economy forward. He is currently Chief Executive Officer of Dubai Holding, a member of the Board of Trustees at Dubai School of Government, and Director General at Dubai Technology and Media Free Zone Authority. Mr Bin Byat has also held a number of other senior roles, including stints as Executive Chairman of TECOM Investments; Chairman of Dubai Real Estate Corporation (DREC); Secretary General of the Dubai Executive Council; President of the Dubai Government Excellence Programme; Chairman of the Dubai Education Council; a member of the Board of Trustees for Zayed University; Chairman of the Board of Directors at The Consulting Office; and a member of the Board of Thuraya Telecommunications Company. Additionally, he is a former Member of the Supreme Committee for the Supervision of the Telecommunication Sector in the UAE and the Dubai Supreme Fiscal Committee. He is a highly resourceful and inspiring corporate leader successful in building high-performing teams, creating partnerships, and nurturing long-term relationships.

Nour-Eddine Boukharouaa is from Beni Mellal, Morocco, and joined the Moroccan Industrial and Commercial Property Office (OMPIC) in 2005 as a Patent Engineer Examiner in charge of the examination of patents in areas such as thermal energy, plastics, and building materials. He has undergone training programmes given by the World Intellectual Property Organization (WIPO), the European Patent Office, and the USPTO Global Intellectual Property Academy. Currently Mr Boukharouaa is in charge of innovation enhancement at OMPIC. His main duties concern developing a patent system in Morocco for universities, R&D centres, and small and medium-size enterprises. He has conducted many training programmes for national and international organizations such as WIPO and the Organization of Islamic Cooperation (OIC). He obtained a Baccalaureate degree from Ecole Royale de l'Air in Marrakech in 1999. In 2005, he graduated from the National School of Applied Sciences in the field of Industrial Engineering, and in 2012, he followed a training programme in Licensing and Technology Commercialisation at in the University of California, Davis.

Abdelhak Chaibi is an expert in innovation management, and has worked since 2000 at R&D Maroc (Association R&D Morocco). R&D Maroc's general mission is to initiate, implement, and foster innovation and research development and to conduct activities that accelerate innovation in industry, business, and society. As Project Manager, he manages projects to facilitate the transfer and synergy among technology companies, R&D laboratories, and research institutions. Mr Chaibi is a member of several expert groups on measuring innovation; a member of the Ad Hoc Committee for Monitoring Indicators of Science and Technology, chaired by the Academy of Science and Technology; and a member of RDT (Technological Network of Diffusion). Since July 2008, Mr Chaibi has coordinated two Seventh Framework coordination and support projects within R&D Maroc: M2ERA (a bilateral project for integrating Morocco into the European research area, 2009–2012) and MOBILISE—Morocco and the EU: Strengthening Bilateral Links in Innovation and Science for Economy (2012–2015).

Salma Dinia has attended several trainings related to science, technology, innovation, and entrepreneurship management and evaluation. She joined the National Centre for Scientific and Technical Research (CNRST) in 1993 as a Researcher at the Remote Sensing and Digital Image Processing Lab. In 2003, she managed a national research programme called PROTARS3 (among 120 projects funded, 13 projects were supported to promote enterprises' competitiveness). In 2004, she joined the Moroccan Incubation and Spin-offs Network (Réseau Maroc Incubation et Essaimage, or RMIE) and became the Manager of this network in 2005 (which has 14 incubators and has funded more than 50 start-ups). Since 2006, she has worked as Head of Relations with Enterprises Unit, CNRST. Ms Dinia conducted and contributed to several studies and projects dealing with marketing, incubation, entrepreneurship, and innovation at national and international levels. She organized, contributed, and chaired many national and international workshops and conferences addressing research, innovation, business incubation, and entrepreneurship issues and has consulted nationally on these topics. During the last 10 years, she has been involved in science technology and innovation programmes supported by the European Investment Bank, the European Union, and programmes of bilateral and multilateral cooperation. Ms Dinia has an Engineering Diploma in Civil Engineering (Hydraulic).

Soumitra Dutta is the Anne and Elmer Lindseth Dean and Professor of Management at the Samuel Curtis Johnson Graduate School of Management at Cornell University, New York. Prior to July 2012, he was the Roland Berger Chaired Professor of Business and Technology at INSEAD and the founding director of eLab, a centre of excellence in the digital economy. His current research is on technology strategy and innovation policies at both corporate and national levels. He has won several awards for research and pedagogy and is actively involved in strategy and policy consulting. His research has been showcased in the global media and he has received a number of awards, including the Light of India Award '12 (from the Times of India media group) and the Global Innovation Award '13 (from INNOVEX in Israel). Professor Dutta obtained his PhD in Computer Science and his MSc in Business Administration from the University of California at Berkeley.

Abdesselam El Ftouh is a former Inspector of Trade at the Ministry of Trade and Industry in Morocco, and he joined the administration of the Prime Minister as a Research Officer and Policy Officer Representative to the Head of Government. He served in the Department of Economic Affairs in the 1980s, where he was responsible for monitoring several strategic economic sectors and worked on structural adjustment and Moroccan economic liberalization. He participated in building the Administration in charge of Privatization in Morocco, which he joined in 1991, becoming the Director and Coordinator of Transfer Operations in 1995. Four years later, in July 1999, he was appointed Director of the Economic Development Division at the Hassan II Foundation for Moroccans Residing Abroad; he has been the General Treasurer of the same foundation since April 2011. Mr El Ftouh supervised several studies in economic, financial, and banking fields as he participated in research on Moroccan migration, both at the Hassan II Foundation and the university, and he has led several international cooperation programmes on migration. He is also a seminar leader for Master's degree programmes in the field of migration at the University Mohamed V Agdal Rabat. He is a member of the Moroccan Association for Research on International Migration, where he accompanied, as a member of the scientific council of the research programme Mim-AMERM, 30 research projects; he has also made other contributions in the area of international migration of Moroccans.

Omar Elyoussoufi Attou is the Head of the Division of Innovation and Valorization (Directorate of Scientific Research and Innovation, Ministry of Higher Education, Scientific Research and Executive Training, Rabat Morocco). A Senior Engineer and a national expert in innovation policies and R&D valorization, Mr Elyoussoufi has worked for 12 years at the Directorate of Scientific Research, where he has experience in innovation policies and has been involved in various projects at national and regional levels. During the last 10 years, his work has focused on establishing and managing national programmes that aim to strengthen and boost the valorization of research, to stimulate innovation and university-business linkage, and to enable new youth employment opportunities through the creation of technology start-ups, with the ultimate goal of upgrading the national system of research and innovation. He also participated in the elaboration of several studies related to innovation and the valorization of research results (Evaluation Study of the Potential of Prototyping Activities in Morocco, Patent and Inventive Activity in Morocco, and Venture Capital and the Financing of Innovation in Morocco). Mr Elyoussoufi holds an Engineering Diploma in Production Systems from the National School of Mineral Industry (Morocco) and a Post-Graduate Diploma in IT from the National School of Computer Science and Systems Analysis (Morocco).

Adil El Maliki is from Casablanca, Morocco. He joined the Division of Chemical Industry of the Ministry of Industry and Trade in 1993, and became Head of the Department of Building Materials Industries in 1996. During 1997, he was in charge of central business registry and became Head of the Inventions and Trade Studies division until 2000. After the creation of the OMPIC (Moroccan Industrial and Commercial Property Office) in 2000, he was responsible for the Information and Communication Department until 2007. Since 2008, he has been Director General of the OMPIC. He has been an administrator of the Moroccan Centre for Innovation since October 2012, and a member of R&D Maroc since July 2011. He is the president of the Standing Committee on the Law of Trademarks, Industrial Designs and Geographical Indications, and has participated in the establishment of the ACTA (Anti-Counterfeiting Agreement) treaty. In 1992, he graduated from Mohammadia Engineering School in Chemistry Process.

Rafael Escalona Reynoso has been Lead Researcher at the Global Innovation Index since October 2013. His previous professional experience includes working as Economic and Science and Technology Policy Advisor to the Senate of Mexico and as a member of the Trade and Foreign Investment Advisory Board at the office the President of Mexico. His research experience at Cornell University includes comparative studies between Mexico and Spain on the regulatory aspects of modern biotechnology and the biosafety of genetically modified organisms (GMOs), and on the reach of intellectual property rights (IPRs) in the information technologies era. He holds a PhD in Regional Planning and a Master in Public Administration from Cornell University as well as a BA in Economics from Universidad Panamericana in Mexico.

Karima Farah has been Director of Patents and Technological Innovation Department in the Moroccan Industrial and Commercial Property Office (OMPIC) since 2011. Her main duties are the management of national and international patent applications' processing procedures and the promotion of the use of the patent system. Ms Farah joined OMPIC in 2001 initially as an Engineer in the Patent Service. She then held the position of Trademarks Service Head. From 2007 to 2011, she headed the Department of Trademarks and Distinctive Signs in OMPIC. Before joining OMPIC, Ms Farah began her career in the private sector in 1991, initially with a position where she was responsible for Maintenance, then as a technical director of a company operating in the textile sector. Ms Farah holds an Engineering Diploma in Electrotechnics and Power Electronics.

Naushad Forbes is Director of Forbes Marshall, India's leading Steam Engineering and Control Instrumentation firm. He chairs the Steam Engineering Companies within the group. Dr Forbes was a Lecturer and Consulting Professor at Stanford University in the Program in Science, Technology and Society from 1987 to 2004. He has held various positions in the Confederation of Indian Industry and is Vice President for 2014–15.

Leonid Gokhberg is the First Vice-Rector of the National Research University – Higher School of Economics (HSE)—one of the most prominent universities in Russia—and Director of HSE Institute for Statistical Studies and Economics of Knowledge. From 1988 to 1991 he was Head of the Laboratory for S&T Statistics at the Research Institute for Statistics, and from 1991 to 2002 was Deputy Director at the Centre for Science Research and Statistics (CSRS) in Moscow. Professor Gokhberg coordinated more than 300 national and international projects sponsored by various national authorities, regional agencies, and industrial companies as well as by the European Commission, the World Bank, UNIDO, the US National Science Foundation, and IIASA among others, in the areas of S&T and innovation indicators, analyses, foresight, and policies. Professor Gokhberg has served as a consultant to the OECD, Eurostat, UNESCO, the UN Economic Commission for Europe, and other international and national agencies. He is also Editor-in-Chief of the Moscow-based scientific journal *Foresight-Russia,* which ranks 1st in science studies and in management and 4th in economics according to the Russian National Science Citation Index. Professor Gokhberg is a member of the OECD and Eurostat expert groups on indicators for S&T, information society, and education and serves on the International Advisory Board of the Global Innovation Index (WIPO/INSEAD). In 2011, he was appointed Chairman of the Expert Group on Innovation Policy established by the Government of the Russian Federation to provide recommendations for a Socio-Economic Development Strategy for the Russian Federation until 2020 (Strategy-2020). Professor Gokhberg is the author of over 350 papers published in the Russian Federation and internationally, including several monographs and textbooks for universities. He holds a Doctorate and a Professor Diploma in Economics.

Bruno Lanvin is the Executive Director of INSEAD's European Competitiveness Initiative (IECI). From 2007 to 2012, he was the Executive Director of INSEAD's eLab, managing INSEAD's teams in Paris, Singapore, and Abu Dhabi. He is a Commissioner on the Broadband Commission. From 2000 to 2007, Dr Lanvin worked for the World Bank, where he was inter alia Senior Advisor for E-strategies and Regional Coordinator (Europe and Central Asia) for ICT and e-government issues. He also headed the Capacity Building Practice of the World Bank's Global ICT Department and was Chairman of the Bank's e-Thematic Group. From June 2001 to December 2003, he was the Manager of the Information for Development Program (infoDev) at the World Bank. In 2000, Dr Lanvin was appointed Executive Secretary of the G8-DOT Force. Until then, he was Head of Electronic Commerce in the United Nations Conference on Trade and Development (UNCTAD) in Geneva, and occupied various senior positions including Chief of the Cabinet of the Director General of the United Nations in New York, Head of Strategic Planning, and later Chief of the SME Trade Competitiveness Unit of UNCTAD/SITE. He was the main drafter, team leader, and editor of *Building Confidence: Electronic Commerce and Development,* published in January 2000. Since 2002, he has been co-authoring *The Global Information Technology Report* (INSEAD-World Economic Forum-Cornell University); he is currently the co-editor of the *Global Innovation Index* report (INSEAD-WIPO-Cornell University). He holds a BA in Mathematics and Physics from the University of Valenciennes (France), an MBA from Ecole des Hautes Etudes Commerciales (HEC) in Paris, and a PhD in Economics from the University of Paris I (La Sorbonne) in France. A frequent speaker at high-level meetings, he advises a number of global companies and governments and is a member of numerous boards, including that of the Tallinn e-government Academy.

Yassine Ouardirhi has been Division Chief of Development and Promotion of Innovation since 2010 at the Ministry of Industry, Trade, Investment and the Digital Economy in Morocco. He is in charge of the deployment of three strategic axes of the Morocco Innovation strategy: the Governance and Regulatory Framework, Funding and Support, and Talents Mobilization. Before 2010, he held several senior positions, including Head of the Department of Computer Science programmes and coordinator for e-education and ICT Research at the former Moroccan Department of Telecommunications and Information Technologies. Mr Ouardirhi was the project leader of the ICT Observatory in Morocco and a member of the International Working Group of the United Nations (and the African Regional Group) for measuring the information society in the framework of the second World Summit on the Information Society in Tunis (2005). Today he is a proponent of the Innovation Observatory in Morocco, which will be based on the core indicators of the GII. Mr Ouardirhi graduated as Chief Engineer in 1986 from the Ecole Mohammedia of Engineers, Rabat, in Automation and Industrial Computing.

Valentina Poliakova is a Researcher at the Institute for Statistical Studies and Economics of Knowledge, the National Research University – Higher School of Economics (HSE) in Moscow, Russian Federation. Her academic interests include sociological studies of innovation behaviour of populations, science and technology, and medicine as well as the sociology of expertise. Ms Poliakova has participated in a number of research projects related to the examination of public opinion on science and technology, innovative practices of populations, and the social legitimation of innovation. She holds a Master in Sociology with a specialization in the sociological theory and applied social knowledge from HSE.

Michaela Saisana is a Senior Scientific Officer at the Joint Research Centre of the European Commission (Italy). She conducts and coordinates research (a team of 10 post-doc researchers) on multidimensional measures for policy making on social, economic, and environmental issues. She is offering regular training courses on composite indicator development to European Commission Officials and to international organizations and academia. Since 2005, she has audited over 60 well-known composite indicators at the invitation of the United Nations, Transparency International, the World Economic Forum, INSEAD, and the World Intellectual Property Organization, among others. She has co-authored two books: *Handbook on Constructing Composite Indicators: Methodology and User Guide* (OECD/JRC, 2008) and *Global Sensitivity Analysis: The Primer* (2008). Her publications deal with sensitivity analysis, composite indicators, multicriteria analysis, multivariate analysis, data envelopment analysis, and multi-objective optimization (20 peer-reviewed publications, 60 working papers). In 2004 she was awarded the European Commission's JRC Young Scientist Prize in Statistics and Econometrics in recognition of her research on composite indicators. She has a PhD and an MSc in Chemical Engineering.

Andrea Saltelli has worked on physical chemistry, environmental sciences, and applied statistics, publishing over 80 peer-reviewed papers and three books. His main disciplinary focus is on *sensitivity analysis* of model output, a discipline where statistical tools are used to interpret the output from mathematical or computational models; and on *sensitivity auditing,* an extension of sensitivity analysis to the entire evidence-generating process in a policy context. A second focus is the construction of composite indicators or indices. Mr Saltelli presently leads the Econometric and Applied Statistics Unit of the European Commission at the Joint Research Centre in Ispra (I). The Unit, with a staff of 30, develops econometric and statistic applications, mostly in support to the services of the European Commission, in fields such as lifelong learning, inequality, employment, competitiveness, and innovation. He participates to the training of European Commission staff on impact assessment.

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The global economy is on a much stronger footing in 2014 than in preceding years. Considering all factors, because of progress being made in many advanced economies, economic growth is now more balanced across emerging markets and high-income countries, and the confidence of the private sector and investors is on the rise. Yet questions remain about what drives the sources of global economic growth and new jobs. Aware of these questions, the GII recognizes the key role of innovation as a driver of economic growth and well-being. In this context, it aims to capture the multi-dimensional facets of innovation and provide the tools that can assist in tailoring policies to promote long-term output growth, improved productivity, and job growth.

To guide policies and to help overcome divides between developed and emerging economies, metrics are needed to assess innovation and policy performance. For this purpose, *The Global Innovation Index 2014: The Human Factor in Innovation* is timely and relevant. The Global Innovation Index (GII) helps to create an environment in which innovation factors are continually evaluated. It provides a key tool and a rich database of detailed metrics for 143 economies, which represent 92.9% of the world's population and 98.3% of global GDP.

Putting the right environment in place that will nurture, promote, and enable the human factor in business and social innovation is a complex task, but a critical one. Metrics to capture essential elements of the human factor in innovation have been included in the GII model. The chapter contributions to this report also describe many strands of action in the fields of education, training, skill formation, and related areas.

Launched by INSEAD in 2007, the GII project today is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. This year, the GII draws on the support and expertise of its Knowledge Partners: the Confederation of Indian Industry, du, and Huawei, as well as an Advisory Board of 14 eminent international experts. The Joint Research Centre (JRC) of the European Commission again performed a thorough robustness and sensitivity analysis of the index for the fourth consecutive year.

The GII is primarily concerned with improving the 'journey' towards better measuring and understanding innovation and with identifying targeted policies, good practices, and other levers that can foster innovation. Written in a nontechnical language and style, the GII appeals to diverse groups including policy makers, business leaders, academics, and different organizations of civil society.

The full report can be downloaded at www.globalinnovationindex.org.

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