

The Global Innovation Index Conceptual Framework

The Global Innovation Index (GII) relies on two sub-indices, the Innovation Input Sub-Index and the Innovation Output Sub-Index, each built around pillars.

Each pillar is divided into three sub-pillars and each sub-pillar is composed of individual indicators, for a total of 84 indicators (Figure 1; refer to Appendices III Sources and Definitions and IV Technical Notes for details on sources and computation of scores, respectively).

A table is included for each pillar that provides a list of its indicators; their type (composite indicators are identified with an asterisk ‘*’, survey questions with a dagger ‘†’, and the remaining indicators are hard data); their weight (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 for each indicator the average values (in their respective units) per income group (World Bank classification) and for the whole sample of 141 economies retained in the final computation (Tables 1a through 1g).

The Innovation Input Sub-Index

The GII has five enabler pillars: Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication. Enabler pillars define aspects

of the environment conducive to innovation within an economy.

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 on 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 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.¹

The business environment sub-pillar expands on three aspects that directly affect private entrepreneurial

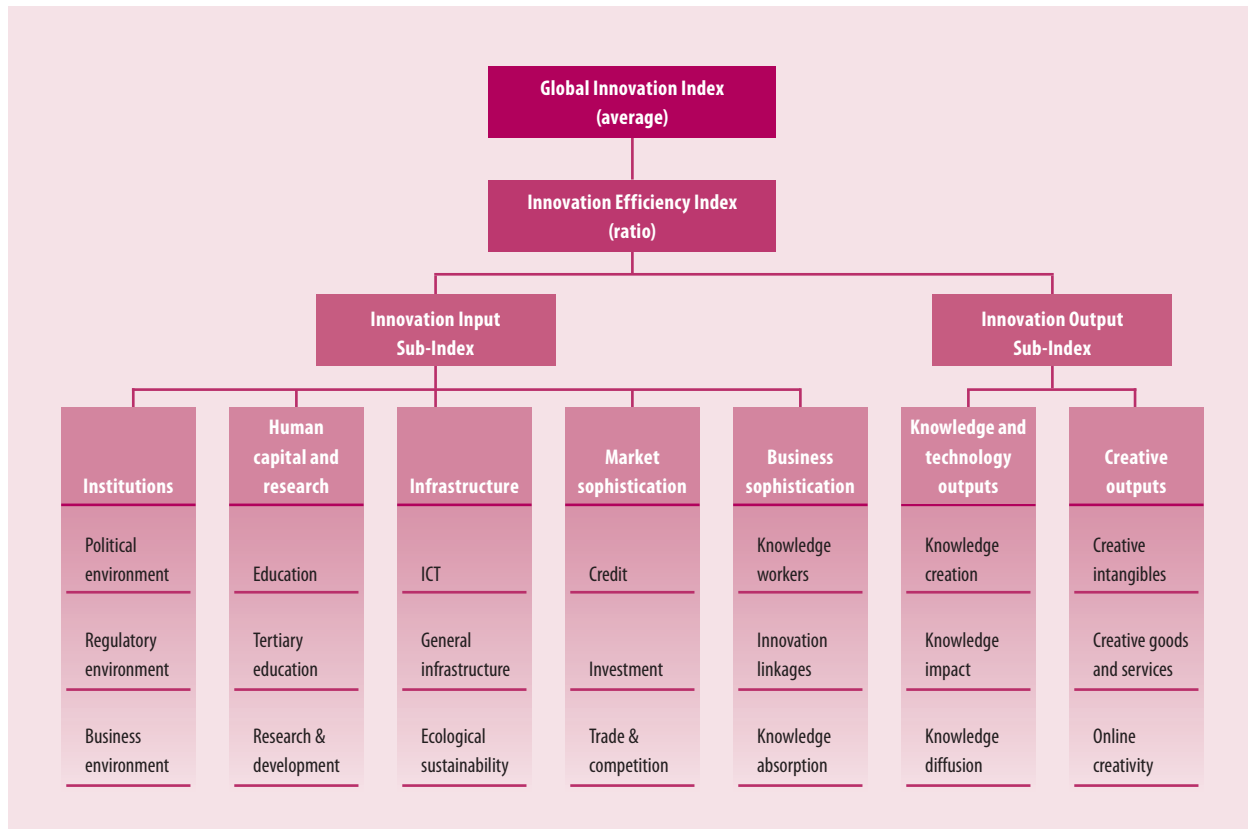
endeavours by using three World Bank indices on the ease of starting a business;² the ease of resolving insolvency (based on the recovery rate recorded as the cents on the dollar recouped by creditors through reorganization, liquidation or debt enforcement/foreclosure proceedings);³ and the ease of paying taxes.⁴ Changes to the business environment sub-pillar were driven by the need to acknowledge expert opinion; capture better multi-dimensional phenomena; and incorporate a series of methodological changes adopted by the World Bank. The World Bank’s changes included the establishment of a threshold (32.5% this year) in the inclusion of the total tax rate, with the intention “to mitigate the effect of very low tax rates on the ranking on the ease of paying taxes”.⁵

Human capital and research

The level and standard of education and research activity in a country are the 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. Public expenditure per pupil gives a sense of the level of priority given to

Figure 1: Framework of the Global Innovation Index 2012



education by the state. The quality of education is measured through the results to the Organisation for Economic Co-operation and Development (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.

The OECD PISA assessment is made every three years. The 2009 data used in the GII 2011 were, however, complemented this year with the addition of scores for eight countries that underwent the PISA assessment in 2010: Costa Rica, Georgia, India (Himachal Pradesh and Tamil Nadu), Malaysia, Malta, Mauritius, the Republic of Moldova, and the Bolivarian Republic of Venezuela (Miranda).

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); the priority given to the sectors traditionally associated with innovation (with a series on the percentage of tertiary graduates in science and engineering, manufacturing, and construction);⁶ and the inbound and gross outbound mobility of tertiary students,⁷ which play a crucial role in the exchange of ideas and skills necessary to innovation.

The last sub-pillar, on R&D, measures the level and quality of R&D activities, with indicators on researchers (headcounts), expenditure, and perceptions of the quality of scientific and research institutions (a survey question).

Infrastructure

In the 2011 GII, the Infrastructure pillar included three sub-pillars: Information and communication technologies (ICT), energy supply, and infrastructure. In 2012, the last two sub-pillars were reshuffled to render most explicit the importance, on one hand, of a good general infrastructure (new sub-pillar 7.2) and on the other hand of ecological sustainability (new sub-pillar 3.3, enriched with two indicators) (Table 1c).

A good and ecologically friendly communication, transport, and energy infrastructure facilitates the production and exchange of ideas, services, and goods and feeds into the innovation system through increased productivity and efficiency, lower

transaction costs, better access to markets, and sustainable growth.

The ICT 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 two indicators related to electricity supply (the average of electricity output and consumption in kWh per capita); a composite indicator on the quality of trade- and transport-related infrastructure (e.g., ports, railroads, roads, and information technology); 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.

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 University, and the number of certificates of conformity with standard ISO 14001 on environmental management systems issued. Reflecting the increased importance of green growth and innovation, the last two variables were included in this edition of the GII for the first time.⁸ In future editions, the theme of green growth and innovation will receive more and more attention. In the course of the next year adequate metrics for this objective will be assessed with the relevant experts.

Market sophistication

The ongoing global financial crisis has underscored how crucial the

Table 1a: Institutions pillar

Indicator	Average value by income group (0–100)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
1 Institutions					
1.1 Political environment*					
1.1.1 Political stability*.....	0.7	-0.2	-0.7	-0.7	-0.1
1.1.2 Government effectiveness*.....	1.3	0.0	-0.6	-0.7	0.1
1.1.3 Press freedom*.....	14.1	43.1	56.3	41.3	37.0
1.2 Regulatory environment					
1.2.1 Regulatory quality*.....	1.2	0.0	-0.5	-0.6	0.2
1.2.2 Rule of law*.....	1.2	-0.2	-0.7	-0.8	0.0
1.2.3 Cost of redundancy dismissal, salary weeks.....	13.8	17.8	23.4	20.5	18.4
1.3 Business environment					
1.3.1 Ease of starting a business*.....	0.7	0.5	0.4	0.4	0.5
1.3.2 Ease of resolving insolvency*.....	0.8	0.6	0.4	0.3	0.6
1.3.3 Ease of paying taxes*.....	0.7	0.5	0.3	0.4	0.5

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

Table 1b: Human capital & research pillar

Indicator	Average value by income group (0–100)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
2 Human capital & research					
2.1 Education					
2.1.1 Current expenditure on education, % GNI.....	4.6	4.2	4.0	3.9	4.2
2.1.2 Public expenditure/pupil, % GDP/cap.....	22.6	17.9	20.3	18.7	20.2
2.1.3 School life expectancy, years.....	15.7	13.6	11.3	9.6	13.1
2.1.4 PISA scales in reading, maths, & science.....	495.7	423.9	374.0	324.9	458.6
2.1.5 Pupil-teacher ratio, secondary.....	11.1	15.1	20.1	27.4	16.9
2.2 Tertiary education					
2.2.1 Tertiary enrolment, % gross.....	58.0	43.5	21.2	7.5	36.9
2.2.2 Graduates in science & engineering, %.....	22.8	19.9	17.1	17.2	20.0
2.2.3 Tertiary inbound mobility, %.....	10.0	2.6	2.5	2.2	5.3
2.2.4 Gross tertiary outbound enrolment, %.....	4.3	2.0	1.0	0.5	2.2
2.3 Research & development (R&D)					
2.3.1 Researchers, headcounts/mn pop.....	4,621.2	1,171.2	447.5	102.8	1,963.3
2.3.2 Gross expenditure on R&D, % GDP.....	1.8	0.5	0.3	0.2	0.9
2.3.3 Quality of scientific research institutions†.....	4.8	3.6	3.0	3.2	3.8

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

availability of credit, investment funds, and access to international markets are 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,⁹ 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, the gross loan portfolio of microfinance institutions.

The investment sub-pillar includes a percent rank index on

Table 1c: Infrastructure pillar

Indicator	Average value by income group (0–100)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
3 Infrastructure					
3.1 Information & communication technologies (ICT)					
3.1.1 ICT access*.....	7.3	4.5	3.0	1.9	4.6
3.1.2 ICT use*.....	5.2	1.9	0.8	0.3	2.5
3.1.3 Government's online service*.....	0.7	0.5	0.4	0.3	0.5
3.1.4 E-participation*.....	0.5	0.3	0.2	0.1	0.3
3.2 General infrastructure					
3.2.1 Electricity output, kWh/cap.....	10,019.7	2,805.3	1,190.2	535.2	4,754.8
3.2.2 Electricity consumption, kWh/cap.....	9,931.7	2,534.1	802.7	476.7	4,541.1
3.2.3 Quality of trade & transport infrastructure*.....	3.6	2.6	2.3	2.1	2.7
3.2.4 Gross capital formation, % GDP.....	20.4	24.9	24.0	22.7	23.0
3.3 Ecological sustainability					
3.3.1 GDP/unit of energy use, 2000 PPP\$/kg oil eq.....	6.1	6.5	5.3	4.2	5.9
3.3.2 Environmental performance*.....	60.3	52.3	48.2	49.7	53.8
3.3.3 ISO 14001 certificates/bn PPP\$ GDP.....	4.5	2.8	0.4	0.3	2.5

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)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
4 Market sophistication					
4.1 Credit					
4.1.1 Ease of getting credit*.....	0.7	0.7	0.5	0.4	0.6
4.1.2 Domestic credit to private sector, % GDP.....	121.4	54.8	33.7	24.1	65.9
4.1.3 Microfinance gross loans, % GDP.....	0.0	1.0	2.1	2.2	1.6
4.2 Investment					
4.2.1 Ease of protecting investors*.....	0.7	0.6	0.4	0.5	0.6
4.2.2 Market capitalization, % GDP.....	96.0	54.7	29.1	39.1	64.6
4.2.3 Total value of stocks traded, % GDP.....	61.3	18.2	7.2	4.4	31.9
4.2.4 Venture capital deals/tr PPP\$ GDP.....	69.7	9.5	7.7	18.3	29.1
4.3 Trade & competition					
4.3.1 Applied tariff rate, weighted mean, %.....	2.2	5.4	6.8	9.4	5.3
4.3.2 Non-agricultural mkt access weighted tariff, %.....	1.6	1.0	1.3	2.2	1.4
4.3.3 Imports of goods & services, % GDP.....	54.8	41.2	48.7	43.1	47.6
4.3.4 Exports of goods & services, % GDP.....	62.1	38.7	39.2	24.7	44.0
4.3.5 Intensity of local competition†.....	5.4	4.6	4.5	4.3	4.8

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

the ease of protecting investors.¹⁰ Three indicators on level of transactions are used. To show whether market size is matched by market dynamism, stock market capitalization is complemented by the total value of shares traded. These indicators are complemented by hard data on venture capital deals, taking into account a total of 6,306 deals in 71 countries in 2011.¹¹

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 market access conditions to foreign markets (five major export markets weighted actual applied tariffs for non-agricultural exports).¹² The sub-pillar then includes the total value of exports and imports

as a percentage of GDP. The last indicator is a survey question that reflects on the intensity of competition in local markets. Efforts made at finding hard data on competition proved unsuccessful.

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 already included in the GII 2011: employment in knowledge-intensive services; the availability of formal training at the level of the firm; and the percentage of total gross expenditure of R&D that is either financed or performed by business enterprise. In addition, this year two indicators related to the Graduate Management Admission Test (GMAT) were added.¹³ The GMAT mean scores and total number of test takers (scaled by population aged 20 to 34 years old) were taken as proxies for the entrepreneurship mindset of young graduates and for their overall level of aptitude to succeed in global innovation markets (where skills in English and mathematics are crucial).

Innovation linkages and public/private/academic partnerships are essential to innovation (see Chapter

4 of this report). 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 sub-pillar draws on both qualitative and quantitative data regarding business/university collaboration on R&D, the prevalence of well-developed and deep clusters, collaboration in inventive activities, 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 2,892 deals announced in 2011, with firms headquartered in 113 participating economies.¹⁴ In addition, the share of published patent applications filed by residents through the Patent Cooperation Treaty (PCT) with at least one foreign inventor is included 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. Open markets 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. 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 all linked to sectors with high-tech content or that are key to innovation: royalty and license

Table 1e: Business sophistication pillar

Indicator	Average value by income group (0–100)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
5 Business sophistication					
5.1 Knowledge workers					
5.1.1 Knowledge-intensive employment, %	36.6	23.1	17.7	6.8	26.2
5.1.2 Firms offering formal training, % firms	42.6	43.4	32.7	30.9	37.5
5.1.3 R&D performed by business, %	54.9	31.9	20.4	11.7	38.5
5.1.4 R&D financed by business, %	49.6	29.3	17.5	14.1	34.5
5.1.5 GMAT mean score	535.0	516.2	474.9	429.9	498.6
5.1.6 GMAT test takers/mn pop. 20–34	356.0	117.2	52.7	18.5	160.9
5.2 Innovation linkages					
5.2.1 University/industry research collaboration†	4.6	3.6	3.1	3.2	3.7
5.2.2 State of cluster development†	4.2	3.4	3.2	3.0	3.6
5.2.3 R&D financed by abroad, %	8.3	7.0	13.3	29.1	11.4
5.2.4 JV–strategic alliance deals/tr PPP\$ GDP	62.5	16.0	29.8	22.8	35.1
5.2.5 PCT patent filings with foreign inventor, %	46.3	55.7	73.5	87.5	56.6
5.3 Knowledge absorption					
5.3.1 Royalty & license fees payments/th GDP	11.5	1.9	1.6	0.4	4.5
5.3.2 High-tech imports less re-imports, %	13.5	10.7	7.4	6.8	10.4
5.3.3 Computer & comm. service imports, %	40.5	32.7	23.9	21.8	31.3
5.3.4 FDI net inflows, % GDP	10.0	3.8	3.9	3.6	5.7

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

fees payments as a percentage of GDP; high-tech imports (net of re-imports) as a percentage of total imports; imports of computer, communications, and other services as a percentage of commercial service imports; and net inflows of foreign direct investment (FDI) as a percentage of GDP.

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 (this pillar was labeled ‘Scientific outputs’ in the 2011 GII and Creative outputs).

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 four indicators that are the result of inventive and innovation 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; and scientific and technical published articles in peer-reviewed journals (Box 1).

The second sub-pillar, on knowledge impact, includes statistics representing the impact of innovation activities at the micro and macro-economic level or related proxies: increases in labour productivity, the entry density of new firms, and spending on software. This year for the first time, an indicator on the number of certificates of conformity with standard ISO 9001 on quality management systems issued was added.

The third sub-pillar, on knowledge diffusion, is the mirror image of the knowledge absorption sub-pillar

Box 1: Patent and trademark statistics now based on 'equivalent counts'

As of this year, patent applications and trademark applications/registrations are based on 'equivalent counts' as opposed to simple counts. In addition, trademark applications/registrations are based on 'equivalent class counts', to take into account multi-class systems. These new measures consider the multiplying effect of filings made at regional offices, and are therefore more comparable across countries.

These new definitions are not limited to resident data, but they apply to resident and filing-abroad data alike. One immediate effect of this new measurement system is the higher volume of application/grant/registration figures for patents and trademarks (Figure 1.1). Statistics at the Patent Cooperation Treaty (PCT) system or the Madrid system, however, were not affected.

Equivalent counts for patents concern the Eurasian Patent Organization (EAPO) and the African Intellectual Property Organization (OAPI). In contrast, for the

European Patent Office (EPO) and the African Regional Intellectual Property Organization (ARIPO), each application/grant/registration 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.

Equivalent counts for trademarks apply to offices such as the Office of Harmonization for the Internal Market (OHIM, which covers the 27 countries of the European Union), or the Benelux Office of Intellectual Property (BOIP).

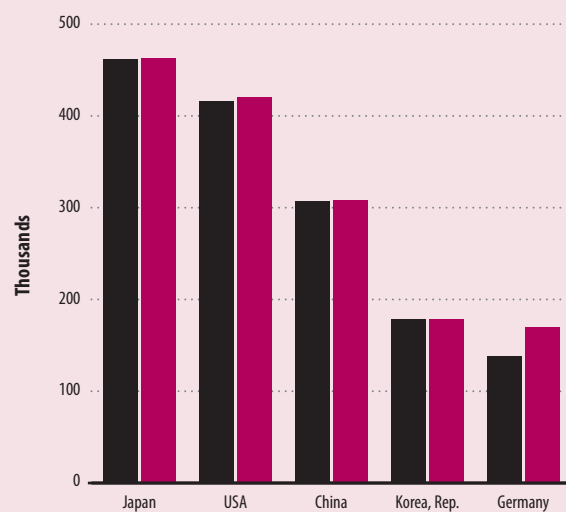
Trademark applications/registrations are based on equivalent class counts. For each trademark application, one or more classes may be specified, depending on whether the national office has a single- or multi-class filing system. For example, the offices of Japan, the Republic of Korea and the United 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. Such a single-class system can result in much higher numbers of applications/registrations. To improve international comparability between offices, the World Intellectual Property Organization (WIPO) has analysed the number of classes specified in trademark applications and registrations with time series going back to 2004, while taking into account whether an office has a single- or multi-class filing system. Statistics concerning class refer to the 45 classes of the International Classification of Goods and Services for the Purposes of the Registration of Marks under the Nice Agreement (www.wipo.int/classifications/en/). The first 34 of the 45 classes represent goods, and the remaining 11 refer to services.

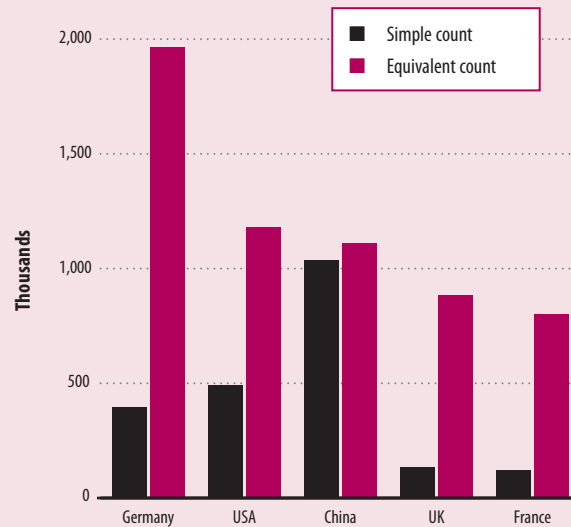
SOURCE: WIPO.

Figure 1.1: Equivalent and simple counts: Patent and trademark data, top five countries of origin

1.1a: Patent applications, 2010 (thousands)



1.1b: Trademark applications, 2010 (thousands)



under 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 GDP; high-tech exports (net of re-exports) as a percentage of total exports (net of re-exports); exports of computer, communications, and other services as a percentage of commercial service exports; and net outflows of FDI as a percentage of GDP.

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 put an emphasis on measuring creativity as part of its Innovation Outputs pillars.

The last pillar, on creative outputs, has now three sub-pillars (Table 1g): it has been strengthened by the addition of a third sub-pillar on online creativity.

The first sub-pillar on creative intangibles includes statistics on trademark registrations by residents at the national office and under the Madrid System, as well as two survey questions regarding the use of ICT in business and organizational models, new areas that are increasingly linked to process innovations in the literature. The second sub-pillar includes proxies to get at creativity and creative outputs in an economy. As discussed in a GII chapter of last year, indicators in this area are largely biased towards data on consumption, trade, and sometimes the production of entertainment and cultural products.¹⁵

Even with this focus, it is not easy to obtain data on cultural outputs in a given country and on a sectoral level.

Data with large country coverage are available from private sources on the revenue generated

Table 1f: Knowledge and technology outputs pillar

Indicator	Average value by income group (0–100)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
6 Knowledge & technology outputs					
6.1 Knowledge creation					
6.1.1 Domestic resident patent ap/bn PPP\$ GDP	11.6	3.2	2.6	1.4	5.7
6.1.2 PCT resident patent ap/bn PPP\$ GDP	3.1	0.3	0.2	0.1	1.2
6.1.3 Domestic res utility model ap/bn PPP\$ GDP	2.2	2.9	6.8	1.9	3.2
6.1.4 Scientific & technical articles/bn PPP\$ GDP	14.8	4.3	2.3	2.7	6.8
6.2 Knowledge impact					
6.2.1 Growth rate of PPP\$ GDP/worker, %	2.7	3.2	3.0	1.7	2.8
6.2.2 New businesses/th pop. 15–64	5.6	2.3	0.8	0.4	3.0
6.2.3 Computer software spending, % GDP	0.6	0.2	0.1	0.1	0.4
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	20.0	12.7	2.8	1.5	10.8
6.3 Knowledge diffusion					
6.3.1 Royalty & license fees receipts/th GDP	3.7	0.4	1.6	0.2	1.7
6.3.2 High-tech exports less re-exports, %	11.4	5.7	1.4	0.5	6.0
6.3.3 Computer & comm. service exports, %	39.8	27.3	27.3	25.6	31.0
6.3.4 FDI net outflows, % GDP	9.7	1.0	0.3	0.2	3.8

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)				Mean
	High income	Upper-middle income	Lower-middle income	Low income	
7 Creative outputs					
7.1 Creative intangibles					
7.1.1 Domestic res trademark reg/bn PPP\$ GDP	43.9	62.0	70.7	23.5	50.8
7.1.2 Madrid resident trademark reg/bn PPP\$ GDP	1.5	1.0	0.6	0.2	1.1
7.1.3 ICT & business model creation†	4.8	4.1	3.7	3.6	4.1
7.1.4 ICT & organizational model creation†	4.4	3.8	3.4	3.8	3.9
7.2 Creative goods & services					
7.2.1 Recreation & culture consumption, %	8.6	4.5	2.1	2.3	5.5
7.2.2 National feature films/mn pop. 15–69	6.2	2.3	2.6	1.0	3.7
7.2.3 Paid-for dailies, circulation/th pop. 15–69	245.0	85.5	40.6	8.1	114.5
7.2.4 Creative goods exports, %	2.1	3.9	1.5	1.5	2.4
7.2.5 Creative services exports, %	8.4	5.4	2.3	2.6	5.2
7.3 Creation of online content					
7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	42.3	8.8	4.1	0.3	16.8
7.3.2 Country-code TLDs/th pop. 15–69	52.2	28.3	13.7	4.5	28.7
7.3.3 Wikipedia monthly edits/mn pop. 15–69	6,947.8	1,737.6	502.4	41.7	3,091.6
7.3.4 Video uploads on YouTube/pop. 15–69	70.5	54.7	37.4	18.7	49.8

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

by various entertainment industry sectors—for example, the metrics in PricewaterhouseCoopers' annual *Global Entertainment and Media Outlook* and those published by the International Federation of the Phonographic Industry (IFPI) such as the *Recording Industry in Numbers*. However, these data relate more to

the market size of a given country (in US dollars) and hence consumption. They do not attempt to measure the level of creative outputs in a given country.

Statistics also increasingly exist to measure the contribution of copyrighted industries to the economy and to employment.¹⁶ The WIPO

Box 2: Online creativity in the Global Innovation Index 2012

The participative Internet is increasingly an important platform for creativity and innovation (see the contributions from Google (Chapter 11), The Internet Society (ISOC, Chapter 10), and the International Telecommunications (ITU, Chapter 9) in this report). Web users are now often contributors to developing, rating, collaborating, and distributing Internet content. New web tools have emerged around digital content- and data-rich web services.

As a result, studies supported by ISOC and the United Nations Educational, Scientific and Cultural Organization (UNESCO)—which are part of the GII Advisory Board—and the OECD show that digital content is growing very quickly in volume, often at high rates.¹ Low- and middle income countries are becoming important sources of content.

Online creativity is now established as an important new facet of innovation, but traditional innovation metrics do not capture this phenomenon. New approaches are needed. These could be facilitated by the fact that the emerging Internet is also a source of potentially real-time, complete, and detailed data about Internet user behaviours and content creations. As opposed to the offline world, where data collection is tedious and is based on samples and surveys, on the Internet one can potentially measure each and every online transaction.

That said, reliable metrics in this field are only nascent or difficult to access. Although this area of data is slowly moving into household surveys of national statistical offices, official data on the topic are still lacking.² Metrics collected on the behaviours of Internet users are mostly owned by private firms. Access to the full data is often restricted for reasons of confidentiality.

Despite all the focus on how the Internet is stimulating creativity, it is also still difficult to properly account for content creation. Internet measurement firms now enable us to get detailed data on the amount of time users spent online and what type of Internet sites they view. However, properly accounting for creative outputs on the Internet is largely impossible on the basis of these data.

To be sure, new metrics have emerged on the number of users of social networks and online encyclopaedias, the number of blogs and tweets, the number of online photos and online songs and others.³ Yet these often provide only a partial picture, because they are provided by private sources or are focused on specific Internet properties only (such as Facebook, Wikipedia, Technorati for blogs, and so on). These also might not be equally representative for all countries because of language and other biases. Taking this into account, the GII 2012 measures the creation of online content by including a new sub-pillar (7.3) comprising four metrics, two focused on the creation of Internet sites and two on online participation in the creation of content, all scaled by population aged 15–69 years old. These are:

7.3 Online creativity

7.3.1 Generic top-level domains (TLDs)

7.3.2 Country-code TLDs

7.3.3 Wikipedia monthly edits

7.3.4 Video uploads on YouTube

Earlier papers have discussed the pros and cons of these data in great detail.⁴

- The combination of domain name information provides a relatively good approximation for local content creation, although websites in themselves can be seen only as potential platforms for creative outputs. Also some country-specific biases exist that need to be factored in.⁵
- The edits provided to Wikipedia encyclopaedia sites are a relatively trustworthy indication of user activity on this global online encyclopaedia.
- Identifying data on online content creation is more difficult. In collaboration with Google, the GII is using video upload on YouTube, the online video sharing service, as a content creation proxy. It is the first time these data are published in this way, after transforming them into an index to avoid revealing the confidential underlying data. Three caveats apply. First,

video uploaded to YouTube may also be distributed through other traditional channels (e.g., a television broadcast that the station also uploads to their own YouTube channel). We do not attempt to disentangle the 'online-only' content in this dataset. Second, this video service does not operate in all countries and is blocked in some, which could bias the figures in these countries downward. Finally, since the data cover only YouTube, it is merely a proxy and misses content creation that is occurring on other video platforms.

With these caveats in mind, the creation of this new online creativity pillar does justice to better accounting for online creativity and furthering the development of right metrics in the field.

Notes

1. ISOC, OECD, and UNESCO, 2011.
2. OECD, 2008.
3. OECD, 2006, 2007.
4. OECD, 2006, 2007; Bruegge, 2011.
5. OECD, 2006, 2007; Bruegge, 2011.

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project on surveying the economic contribution of the copyright-based industries has produced data for 30 economies. This is still too small a sample for the GII, but it represents good progress from a few years ago, when these metrics existed only for the USA.¹⁷

International data on creative outputs are readily available for only two sectors: the national feature films produced in a given country and the daily newspapers in circulation.

In addition to data on these two sectors, this pillar includes the share of household expenditure in recreation and culture as a proxy for creative activities and consumption in a given country. Since statistics on creative industries are scarce, the pillar also relies on data on creative goods and services exports.

In future editions of the GII, attempts will be made to include a broader coverage of the production of cultural products, rather than emphasizing their consumption or trade. In terms of creative outputs, it will be key to attempt to extend the sectoral coverage to other creative industries—in particular, to book publishing, music, and computer games. It will help that the UNESCO Institute for Statistics (UIS) recently launched a new, pilot data collection programme, so that in a few years it will be able to supply a large range of media indicators across countries.¹⁸ In general, the creation of content online (e.g. online newspapers, online videos, and other formats) will however have to be increasingly accounted for to arrive at a sensible estimate at creative outputs.

For the above reason, a new and third sub-pillar on online creativity has been added to the GII 2012. This sub-pillar includes four Internet indicators, all scaled by population aged 15 to 69 years old (Box 2).

Tables 2a through 2g (on pages 52 through 65) provide the rankings per pillar, with details on sub-pillar scores.

Table 2a: Institutions pillar

Country/Economy	Institutions		Political environment		Regulatory environment		Business environment	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Denmark	95.3	1	94.9	2	99.4	1	91.6	5
Canada	95.0	2	91.7	9	95.5	11	97.8	2
New Zealand	93.9	3	93.4	8	98.6	2	89.7	7
Ireland	93.0	4	86.9	15	97.0	8	95.2	4
Norway	93.0	5	94.8	3	96.4	10	87.7	9
Finland	92.8	6	99.5	1	97.5	6	81.5	14
Hong Kong (China)	92.6	7	85.2	17	97.2	7	95.4	3
Singapore	92.5	8	81.5	24	97.5	5	98.5	1
United Kingdom	90.4	9	83.0	21	97.7	3	90.6	6
Australia	90.0	10	88.1	12	93.5	14	88.4	8
Netherlands	88.7	11	91.2	10	97.6	4	77.4	20
Sweden	88.6	12	94.1	6	92.3	16	79.6	16
Switzerland	88.0	13	94.4	5	95.0	12	74.6	24
Iceland	87.9	14	90.1	11	89.8	19	83.9	10
Cyprus	86.3	15	83.6	20	91.5	17	83.9	11
Belgium	86.2	16	87.3	14	92.4	15	78.8	18
United States of America	85.1	17	78.5	29	94.4	13	82.5	13
Malta	84.4	18	81.4	25	87.4	21	n/a	n/a
Luxembourg	83.8	19	94.6	4	84.1	26	72.6	26
France	82.7	20	82.6	22	89.7	20	76.0	22
Austria	82.3	21	93.6	7	96.4	9	56.8	56
Estonia	79.9	22	84.3	18	86.8	23	68.5	32
Japan	79.0	23	86.0	16	89.8	18	61.1	40
Mauritius	78.8	24	73.6	38	83.2	28	79.6	17
Slovenia	78.0	25	80.1	27	83.0	29	70.9	29
Germany	76.7	26	87.3	13	82.2	33	60.4	42
Korea, Rep.	73.8	27	74.9	36	68.0	66	78.6	19
Brunei Darussalam	73.5	28	71.6	41	87.2	22	61.6	39
Chile	73.1	29	75.2	34	84.4	25	59.7	44
Latvia	72.8	30	73.1	39	84.8	24	60.6	41
Botswana	72.3	31	75.6	33	68.7	64	72.6	26
Hungary	72.3	32	76.1	32	81.4	34	59.4	46
Oman	71.9	33	64.8	50	82.5	32	68.3	33
Portugal	70.6	34	79.9	28	61.4	84	70.7	30
Qatar	70.2	35	72.9	40	69.0	63	68.8	31
Italy	70.2	36	70.4	44	82.8	30	57.5	55
Lithuania	70.0	37	77.3	31	69.7	58	63.0	38
Slovakia	69.8	38	82.2	23	70.5	53	56.8	57
South Africa	69.7	39	66.6	46	76.7	41	65.9	34
United Arab Emirates	69.6	40	69.8	45	79.9	36	59.2	47
Croatia	69.2	41	71.5	42	72.6	44	63.5	35
Macedonia, FYR	68.8	42	54.0	77	69.8	57	82.7	12
Spain	68.5	43	71.5	43	81.1	35	53.0	62
Czech Republic	68.2	44	84.3	19	75.5	43	44.8	82
Poland	68.1	45	80.9	26	83.5	27	40.0	95
Bulgaria	67.2	46	63.1	56	78.2	38	60.4	43
Israel	67.2	47	58.4	64	69.1	62	74.1	25
Bahrain	66.7	48	40.8	115	82.7	31	76.4	21
Tunisia	66.3	49	55.4	72	71.5	47	72.1	28
Namibia	65.6	50	73.9	37	75.6	42	47.2	74
Georgia	65.2	51	55.0	74	77.1	40	63.5	37
Kazakhstan	64.5	52	50.3	83	68.0	65	75.0	23
Saudi Arabia	63.8	53	45.2	103	65.5	74	80.8	15
Jamaica	63.8	54	65.5	47	67.5	68	58.4	53
Malaysia	63.5	55	64.7	52	66.2	70	59.7	44
Romania	62.1	56	64.2	55	79.1	37	43.1	87
Jordan	61.7	57	52.3	81	77.9	39	55.1	60
Armenia	61.5	58	59.3	63	70.5	52	54.6	61
Greece	60.7	59	64.7	51	71.7	46	45.8	79
Kuwait	60.2	60	64.5	53	59.7	93	56.3	58
Uruguay	60.1	61	78.4	30	69.5	60	32.4	103
Montenegro	58.5	62	62.5	57	54.4	104	58.7	52
Mongolia	58.2	63	57.2	67	69.6	59	47.9	71
Rwanda	57.6	64	46.9	90	66.8	69	59.2	47
Lesotho	57.0	65	62.4	58	62.0	82	46.7	77
Trinidad and Tobago	56.8	66	65.1	48	64.1	79	41.2	93
Costa Rica	56.6	67	75.0	35	70.8	49	23.9	122
Panama	56.5	68	57.6	65	65.7	73	46.2	78
Belize	56.3	69	47.2	88	69.1	61	52.5	63
Peru	56.2	70	46.2	98	70.3	55	52.0	65
Serbia	56.0	71	55.7	71	72.2	45	40.2	94

Table 2a: Institutions pillar (continued)

Country/Economy	Institutions		Political environment		Regulatory environment		Business environment	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Mexico	55.9	72	45.2	102	59.1	96	63.5	35
Colombia	55.3	73	40.8	116	66.0	71	59.2	49
Albania	55.0	74	54.9	75	60.7	89	49.3	68
Lebanon	53.9	75	44.1	106	70.1	56	47.4	73
Uganda	52.8	76	38.2	122	70.7	50	49.6	67
Tanzania, United Rep.	52.7	77	60.7	60	67.5	67	29.9	109
Moldova, Rep.	52.6	78	54.0	76	57.0	99	46.7	76
Bosnia and Herzegovina	51.4	79	50.3	84	70.6	51	33.3	101
Burkina Faso	51.2	80	55.3	73	70.3	54	28.0	114
Swaziland	51.0	81	46.4	95	61.0	87	45.5	80
Malawi	50.8	82	48.4	86	61.8	83	42.4	90
El Salvador	50.6	83	65.0	49	56.7	100	30.2	107
Brazil	50.4	84	59.6	62	71.0	48	20.6	127
Morocco	50.4	85	46.6	92	60.4	90	44.1	83
Turkey	50.0	86	45.8	100	56.4	101	47.7	72
Fiji	49.8	87	46.5	93	62.9	81	40.0	95
Guyana	49.7	88	56.8	68	59.7	94	32.6	102
Madagascar	49.5	89	43.5	108	61.3	85	43.6	85
Ghana	49.5	90	64.3	54	33.6	133	50.6	66
Azerbaijan	49.5	91	37.0	124	52.7	110	58.7	51
Senegal	49.3	92	53.0	79	64.8	75	30.2	107
Russian Federation	49.1	93	41.1	114	57.9	97	48.4	70
Ethiopia	48.8	94	37.0	125	51.8	114	57.5	54
Thailand	48.6	95	43.6	107	47.1	120	55.1	59
Mali	48.0	96	56.8	69	63.2	80	24.1	121
Zambia	47.2	97	56.6	70	26.3	135	58.7	50
Mozambique	46.4	98	60.2	61	36.4	132	42.6	89
Nicaragua	46.3	99	47.7	87	60.2	91	30.9	105
Kyrgyzstan	46.2	100	44.3	105	55.5	103	38.8	97
Argentina	44.9	101	61.4	59	44.6	125	28.8	111
Benin	44.7	102	57.3	66	64.4	77	12.4	136
Kenya	43.7	103	45.5	101	59.7	92	25.8	118
Dominican Republic	43.6	104	53.7	78	50.2	117	26.8	115
Niger	43.3	105	50.6	82	65.8	72	13.4	134
Gabon	43.0	106	52.6	80	60.8	88	15.5	130
Paraguay	41.7	107	44.8	104	48.6	118	31.6	104
Togo	41.7	108	46.5	94	59.5	95	19.1	129
Belarus	41.5	109	33.4	131	47.0	121	44.1	84
Nepal	41.3	110	37.5	123	44.4	127	41.9	91
Syrian Arab Rep.	41.0	111	24.1	136	64.7	76	34.3	100
Viet Nam	40.9	112	39.2	117	53.0	108	30.4	106
Cambodia	40.7	113	41.9	112	53.4	106	26.8	116
Algeria	40.6	114	38.9	118	53.3	107	29.4	110
Bangladesh	40.5	115	34.8	127	41.5	130	45.0	81
Egypt	40.4	116	33.5	130	44.5	126	43.3	86
Ukraine	40.0	117	46.7	91	61.1	86	12.2	137
Guatemala	39.9	118	46.0	99	48.1	119	25.6	119
Tajikistan	39.9	119	38.6	120	52.8	109	28.2	113
Nigeria	39.3	120	26.9	135	53.8	105	37.3	98
China	39.1	121	30.8	133	51.9	112	34.7	99
Pakistan	39.0	122	21.1	138	46.9	122	49.1	69
Gambia	38.9	123	46.3	96	51.2	115	19.4	128
Cameroon	38.8	124	46.2	97	57.3	98	12.9	135
India	38.4	125	42.8	109	64.3	78	8.1	139
Sri Lanka	38.0	126	38.7	119	23.0	138	52.2	64
Honduras	36.4	127	42.6	110	45.7	123	20.8	126
Iran, Islamic Rep.	36.4	128	18.6	139	43.7	128	46.7	75
Burundi	35.0	129	31.5	132	51.8	113	21.6	124
Yemen	34.9	130	16.8	140	44.9	124	42.9	88
Angola	34.7	131	41.8	113	52.2	111	10.0	138
Philippines	34.6	132	38.5	121	50.4	116	14.8	133
Uzbekistan	34.4	133	34.6	128	42.2	129	26.6	117
Ecuador	34.4	134	47.0	89	32.0	134	24.2	120
Côte d'Ivoire	33.7	135	23.6	137	56.0	102	21.6	124
Bolivia, Plurinational St.	32.5	136	50.3	85	25.2	136	22.0	123
Sudan	30.4	137	10.1	141	39.7	131	41.4	92
Lao PDR	29.6	138	36.4	126	23.6	137	28.7	112
Indonesia	25.4	139	42.4	111	19.0	139	14.8	132
Venezuela, Bolivarian Rep.	16.2	140	34.2	129	7.9	140	6.7	140
Zimbabwe	15.4	141	30.7	134	0.0	141	15.5	131

Table 2b: Human capital and research pillar

Country/Economy	Human capital and research		Education		Tertiary education		Research and development (R&D)	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Iceland	68.3	1	73.3	6	54.8	13	76.7	4
Singapore	68.3	2	58.2	44	83.3	1	63.3	9
Finland	68.2	3	69.8	10	55.5	12	79.3	3
Israel	66.5	4	61.8	29	43.2	43	94.3	1
Denmark	62.9	5	75.0	4	43.9	38	69.7	5
Sweden	62.8	6	69.2	11	50.2	18	68.9	7
Ireland	59.9	7	75.7	1	54.5	14	49.6	23
Korea, Rep.	59.0	8	58.2	45	55.9	11	63.0	10
Austria	58.9	9	64.5	18	57.3	7	54.9	14
Switzerland	57.9	10	58.1	47	47.9	27	67.7	8
New Zealand	57.6	11	73.7	5	49.1	20	50.1	22
Luxembourg	56.5	12	53.5	62	70.6	3	45.3	28
Norway	56.1	13	63.8	21	47.0	28	57.6	13
Qatar	55.7	14	40.6	105	45.9	32	80.5	2
Portugal	55.6	15	66.6	12	48.0	26	52.2	19
Germany	55.4	16	63.6	23	41.8	45	60.7	11
France	55.1	17	63.0	26	49.2	19	53.0	18
Bahrain	54.7	18	54.6	57	74.1	2	35.4	34
Japan	54.6	19	56.6	52	37.6	56	69.6	6
Belgium	54.5	20	71.7	7	41.2	48	50.7	21
United Kingdom	53.8	21	62.8	27	45.3	33	53.2	17
United States of America	53.4	22	61.3	31	38.8	54	60.1	12
United Arab Emirates	53.3	23	49.3	77	56.9	8	53.8	15
Australia	53.3	24	59.4	39	46.8	29	53.6	16
Canada	53.2	25	64.7	17	43.4	40	51.4	20
Hong Kong (China)	51.5	26	53.5	63	66.9	4	34.3	36
Slovenia	51.5	27	66.4	14	41.2	47	46.9	25
Estonia	50.0	28	63.7	22	40.8	49	45.6	27
Montenegro	49.3	29	56.0	53	63.2	5	28.8	45
Cyprus	49.3	30	64.5	19	59.0	6	24.3	61
Czech Republic	49.1	31	57.8	49	46.3	30	43.3	29
Fiji	48.9	32	53.8	61	44.0	37	n/a	n/a
Spain	48.7	33	60.7	34	44.6	35	40.7	30
Netherlands	48.4	34	63.6	24	33.7	66	48.0	24
Uzbekistan	48.4	35	75.4	2	21.4	99	n/a	n/a
Oman	48.1	36	49.3	75	49.0	21	45.9	26
Lithuania	46.3	37	60.3	37	43.3	42	35.3	35
Hungary	46.0	38	63.5	25	34.1	62	40.4	31
Greece	45.6	39	58.5	41	56.6	9	21.7	71
Saudi Arabia	44.8	40	65.5	15	49.0	22	19.8	77
Italy	44.7	41	61.9	28	40.2	52	32.0	40
Malaysia	44.5	42	49.6	74	56.0	10	28.0	48
Russian Federation	43.8	43	55.2	55	44.3	36	31.8	41
Serbia	43.1	44	60.7	35	43.4	41	25.4	56
Belarus	42.7	45	60.5	36	52.2	16	15.2	104
Slovakia	42.6	46	52.8	66	49.0	23	26.0	53
Malta	42.3	47	66.6	13	35.3	58	25.1	58
Ukraine	42.2	48	56.6	51	44.8	34	25.1	57
Jordan	42.0	49	60.9	32	45.9	31	19.3	83
Latvia	42.0	50	65.3	16	32.7	70	27.9	49
Croatia	41.9	51	57.8	48	37.7	55	30.0	42
Bosnia and Herzegovina	41.6	52	70.3	9	40.3	51	14.3	108
Poland	40.5	53	61.4	30	31.5	73	28.7	46
Iran, Islamic Rep.	40.3	54	45.5	90	48.8	24	26.6	52
Moldova, Rep.	39.9	55	71.7	8	32.4	71	15.7	100
Bulgaria	39.9	56	54.3	58	43.6	39	21.8	70
Lebanon	39.4	57	40.8	104	53.9	15	23.6	62
Argentina	39.1	58	59.7	38	31.9	72	25.8	54
Namibia	38.1	59	52.8	65	22.1	96	39.3	32
Tunisia	38.0	60	59.0	40	21.8	97	33.3	38
Kuwait	37.6	61	55.4	54	42.5	44	15.0	105
Botswana	37.5	62	64.2	20	28.8	79	19.4	82
Trinidad and Tobago	37.1	63	48.3	81	48.5	25	14.6	107
Morocco	36.7	64	48.7	78	41.8	46	19.5	79
Macedonia, FYR	36.6	65	53.1	64	39.7	53	17.0	92
Brunei Darussalam	36.2	66	43.5	98	50.2	17	14.9	106
Romania	36.1	67	51.6	70	37.0	57	19.6	78
Jamaica	34.5	68	54.7	56	25.6	88	23.2	64
Venezuela, Bolivarian Rep.	34.4	69	60.7	33	26.5	86	16.0	99
Mauritius	34.1	70	42.6	101	35.2	60	24.7	60
Zimbabwe	33.5	71	38.2	112	28.7	80	33.6	37

Table 2b: Human capital and research pillar (continued)

Country/Economy	Human capital and research		Education		Tertiary education		Research and development (R&D)	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Kenya	33.0	72	44.2	96	34.7	61	20.0	75
Burundi	32.9	73	58.5	42	17.9	111	22.4	68
Uruguay	32.9	74	44.9	92	31.0	74	22.7	66
Chile	32.8	75	47.6	83	29.6	77	21.3	72
Armenia	32.5	76	46.9	85	33.3	67	17.4	89
Algeria	32.5	77	54.0	60	33.8	63	9.6	126
Costa Rica	32.2	78	52.1	68	19.4	104	25.0	59
Belize	32.2	79	57.1	50	16.3	116	23.0	65
Mongolia	31.8	80	48.6	79	33.2	68	13.7	112
Mexico	31.8	81	47.8	82	27.6	83	20.0	76
Turkey	31.8	82	41.2	103	30.8	75	23.3	63
Brazil	31.5	83	49.6	73	16.4	115	28.4	47
China	31.4	84	52.2	67	9.5	125	32.4	39
Kazakhstan	31.2	85	51.6	69	29.5	78	12.5	118
Kyrgyzstan	30.5	86	50.1	72	33.8	65	7.6	131
Colombia	30.4	87	39.3	110	35.3	59	16.6	95
Panama	30.4	88	42.0	102	32.7	69	16.4	98
Swaziland	30.3	89	58.5	43	12.8	119	19.5	81
Lesotho	30.2	90	75.1	3	7.9	129	7.6	132
Azerbaijan	30.0	91	45.5	89	26.9	84	17.7	87
Indonesia	29.9	92	48.6	80	23.9	91	17.2	90
Gabon	29.8	93	40.4	106	40.6	50	8.6	130
Guyana	29.8	94	35.3	117	18.2	110	35.8	33
Georgia	29.6	95	45.9	87	27.7	82	15.3	103
Tajikistan	29.1	96	40.3	107	33.8	64	13.3	115
Bolivia, Plurinational St.	28.7	97	49.3	76	23.6	93	13.2	116
Yemen	28.3	98	58.2	46	15.5	117	11.3	123
Burkina Faso	28.2	99	39.8	109	28.1	81	16.6	96
Cameroon	27.8	100	38.8	111	25.1	89	19.5	80
Thailand	27.6	101	43.8	97	20.0	103	18.8	84
Ghana	27.2	102	44.8	93	20.2	102	16.5	97
South Africa	27.2	103	51.4	71	0.7	141	29.5	43
Honduras	27.1	104	54.2	59	16.5	114	10.6	125
Syrian Arab Rep.	27.0	105	47.4	84	6.6	132	27.0	51
Albania	26.2	106	44.7	94	25.1	90	8.9	129
Viet Nam	26.1	107	42.9	100	18.8	108	16.7	94
Egypt	25.9	108	46.2	86	17.4	113	14.0	110
Ecuador	25.1	109	39.9	108	23.6	92	11.8	122
Malawi	24.2	110	44.3	95	5.8	133	22.4	67
Paraguay	23.9	111	45.9	88	19.4	105	6.5	135
Sri Lanka	23.8	112	45.1	91	8.2	128	18.1	86
El Salvador	23.8	113	33.7	121	30.3	76	7.4	134
Dominican Republic	23.7	114	25.8	130	17.6	112	27.5	50
Guatemala	23.4	115	36.4	115	21.6	98	12.2	119
Senegal	22.5	116	37.0	113	8.7	127	21.8	69
Peru	21.9	117	34.7	120	19.3	106	11.9	121
Côte d'Ivoire	21.2	118	42.9	99	5.4	136	15.4	102
Madagascar	21.0	119	31.0	123	21.3	100	10.8	124
Rwanda	20.9	120	35.8	116	6.9	131	20.1	74
Philippines	20.7	121	23.6	135	26.4	87	12.2	120
Tanzania, United Rep.	20.7	122	23.1	136	20.8	101	18.2	85
Benin	20.5	123	36.7	114	4.6	137	20.1	73
Nepal	20.4	124	24.6	132	26.9	85	9.6	127
Uganda	20.1	125	35.3	118	9.5	126	15.6	101
Gambia	19.9	126	26.8	129	18.9	107	14.0	111
Bangladesh	19.2	127	20.8	138	7.5	130	29.1	44
Ethiopia	19.0	128	20.3	139	23.1	94	13.7	113
Mozambique	19.0	129	31.7	122	12.0	120	13.4	114
Mali	18.5	130	35.2	119	3.4	139	16.9	93
India	18.5	131	24.6	133	5.4	135	25.6	55
Angola	18.0	132	21.5	137	23.0	95	9.4	128
Zambia	17.0	133	29.9	124	3.9	138	17.1	91
Cambodia	16.6	134	24.9	131	11.8	121	13.2	117
Niger	16.0	135	29.4	126	18.6	109	0.0	139
Nicaragua	14.9	136	26.9	128	10.3	124	7.5	133
Sudan	14.5	137	28.6	127	10.8	123	4.2	136
Togo	13.9	138	29.7	125	10.9	122	1.0	137
Nigeria	12.7	139	18.3	140	5.5	134	14.3	109
Lao PDR	12.6	140	24.2	134	13.5	118	0.3	138
Pakistan	10.0	141	10.0	141	2.2	140	17.6	88

Table 2c: Infrastructure pillar

Country/Economy	Infrastructure		Information and communication technologies (ICT)		General infrastructure		Ecological sustainability	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Sweden	69.8	1	78.5	6	63.6	6	67.3	2
Norway	64.3	2	74.7	12	74.8	1	43.5	31
Korea, Rep.	64.2	3	90.2	1	57.6	13	44.7	27
Hong Kong (China)	63.4	4	77.6	7	50.6	25	61.9	7
Finland	62.0	5	77.3	8	64.1	5	44.5	28
United Kingdom	61.8	6	84.4	3	44.3	37	56.8	10
Japan	61.6	7	75.5	10	53.8	17	55.4	12
Switzerland	60.8	8	63.1	21	53.2	18	66.2	3
Singapore	60.6	9	84.1	4	56.3	14	41.4	38
Spain	59.7	10	62.3	23	47.4	28	69.5	1
Netherlands	58.7	11	85.7	2	51.0	23	39.5	43
Denmark	56.8	12	73.2	13	46.8	32	50.4	18
Australia	56.3	13	75.1	11	60.2	9	33.6	59
United States of America	56.1	14	80.9	5	58.5	12	29.0	73
Canada	55.2	15	70.1	16	67.0	4	28.5	77
Germany	55.1	16	73.1	14	51.5	22	40.8	39
United Arab Emirates	55.0	17	69.7	17	69.3	2	25.9	92
Luxembourg	55.0	18	67.5	19	58.8	11	38.7	48
Estonia	54.9	19	67.2	20	40.4	47	57.2	9
France	54.5	20	70.1	15	51.8	21	41.6	36
Israel	54.2	21	76.1	9	43.7	38	42.6	35
Italy	53.5	22	50.8	41	44.9	36	64.9	4
Austria	53.4	23	62.0	24	50.5	26	47.8	20
Czech Republic	52.0	24	46.4	46	45.7	33	63.8	5
New Zealand	51.9	25	68.8	18	50.8	24	36.2	56
Lithuania	50.5	26	56.8	28	31.9	93	62.8	6
Qatar	49.0	27	61.4	25	67.4	3	18.2	117
Hungary	48.5	28	54.8	32	36.1	69	54.6	13
Slovenia	47.8	29	51.9	37	40.5	46	50.9	17
Iceland	47.6	30	56.2	30	61.4	8	25.1	93
Belgium	47.0	31	51.2	40	52.9	19	36.7	52
Portugal	46.5	32	56.4	29	39.0	56	44.0	30
Slovakia	46.3	33	42.4	53	41.0	45	55.6	11
Colombia	46.3	34	53.6	34	31.5	94	54.0	15
Ireland	45.0	35	48.2	43	40.1	49	46.7	22
Croatia	44.9	36	51.7	39	32.9	89	50.0	19
Bahrain	44.7	37	62.9	22	63.5	7	7.8	126
Latvia	44.7	38	45.7	48	34.2	83	54.3	14
China	44.3	39	32.5	73	58.8	10	41.6	37
Romania	44.3	40	36.6	61	36.1	70	60.1	8
Malaysia	44.1	41	51.9	38	41.6	40	38.9	46
Cyprus	43.3	42	43.3	51	39.1	55	47.4	21
Greece	43.2	43	50.2	42	36.3	68	43.1	33
Chile	42.7	44	53.9	33	35.8	74	38.4	49
Saudi Arabia	42.6	45	60.6	26	47.0	31	20.2	113
Malta	42.3	46	52.7	36	34.9	80	39.3	44
Bulgaria	41.2	47	35.3	66	35.9	72	52.5	16
Poland	39.7	48	43.8	50	37.2	63	38.2	50
Brazil	39.1	49	46.1	47	34.4	81	36.6	54
Mexico	38.4	50	47.3	44	37.1	64	30.9	66
Oman	38.3	51	46.7	45	47.0	30	21.2	108
Brunei Darussalam	38.3	52	53.0	35	34.9	79	26.9	89
Peru	38.0	53	35.7	65	32.5	90	45.6	24
Russian Federation	37.8	54	55.5	31	37.7	61	20.4	111
Uruguay	37.8	55	38.4	59	29.7	105	45.5	25
Costa Rica	37.5	56	36.2	64	29.8	103	46.6	23
Argentina	37.3	57	39.0	58	34.3	82	38.7	47
Kazakhstan	37.3	58	58.4	27	38.7	58	14.9	123
Panama	37.0	59	36.3	62	35.0	78	39.6	42
Thailand	36.9	60	32.3	75	39.4	51	39.0	45
Dominican Republic	35.6	61	37.0	60	24.7	125	45.1	26
Macedonia, FYR	35.1	62	36.3	63	36.0	71	33.2	60
Serbia	35.1	63	42.3	54	33.9	85	29.0	72
Tunisia	34.9	64	33.9	67	33.4	88	37.4	51
Kuwait	34.8	65	33.6	70	55.0	15	15.9	120
Belarus	34.5	66	32.5	74	47.1	29	24.0	96
Turkey	34.0	67	31.5	76	35.3	77	35.3	58
Montenegro	34.0	68	43.2	52	41.7	39	17.0	118
Philippines	33.8	69	29.2	80	28.2	112	44.1	29
Egypt	33.6	70	45.3	49	25.7	122	29.9	70
Albania	33.6	71	27.3	85	30.2	100	43.3	32

Table 2c: Infrastructure pillar (continued)

Country/Economy	Infrastructure		Information and communication technologies (ICT)		General infrastructure		Ecological sustainability	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Lebanon	33.5	72	32.8	72	45.1	34	22.6	100
Morocco	32.6	73	21.5	100	36.6	66	39.8	41
Mongolia	32.6	74	41.0	57	38.6	59	18.2	116
Viet Nam	32.5	75	28.2	83	41.5	41	27.8	83
El Salvador	31.6	76	41.5	55	22.4	131	30.9	68
Ecuador	31.3	77	29.8	78	31.4	95	32.8	61
India	31.0	78	24.7	94	41.1	44	27.3	87
South Africa	30.8	79	25.9	90	45.1	35	21.4	105
Indonesia	30.5	80	27.2	86	36.4	67	28.0	81
Sri Lanka	30.4	81	21.3	101	27.2	117	42.7	34
Botswana	30.2	82	18.6	107	35.9	73	36.3	55
Belize	30.1	83	29.1	82	52.8	20	8.5	125
Lesotho	29.8	84	12.0	131	47.7	27	n/a	n/a
Moldova, Rep.	29.8	85	41.3	56	26.7	118	21.4	106
Venezuela, Bolivarian Rep.	29.7	86	33.7	69	32.2	91	23.1	99
Georgia	29.4	87	33.7	68	26.0	120	28.4	78
Iran, Islamic Rep.	29.3	88	29.5	79	38.3	60	20.2	114
Armenia	29.0	89	22.2	99	36.8	65	28.1	80
Bosnia and Herzegovina	28.9	90	26.9	89	28.9	108	30.8	69
Paraguay	28.8	91	25.3	93	32.1	92	28.9	74
Senegal	28.7	92	21.3	102	34.0	84	30.9	67
Bangladesh	28.2	93	18.2	108	29.6	107	36.7	53
Gambia	28.1	94	14.7	121	41.5	42	n/a	n/a
Algeria	28.0	95	17.4	112	39.2	54	27.4	86
Honduras	27.6	96	22.8	97	27.9	114	32.0	64
Jordan	27.5	97	27.0	87	28.1	113	27.4	85
Ukraine	27.1	98	29.9	77	30.8	98	20.4	110
Nicaragua	27.0	99	18.7	106	30.1	102	32.3	63
Namibia	27.0	100	16.1	117	24.2	127	40.6	40
Guatemala	26.5	101	27.6	84	22.3	132	29.6	71
Kyrgyzstan	26.3	102	25.9	91	31.4	96	21.7	103
Azerbaijan	26.2	103	27.0	88	24.9	124	26.8	90
Trinidad and Tobago	24.8	104	32.9	71	25.4	123	16.2	119
Bolivia, Plurinational St.	24.8	105	24.6	95	22.8	129	27.1	88
Benin	24.8	106	12.7	129	30.2	99	31.5	65
Ghana	24.6	107	16.5	115	28.6	110	28.9	75
Gabon	24.3	108	16.2	116	28.6	109	28.2	79
Jamaica	23.9	109	20.6	103	26.2	119	24.9	94
Nepal	23.8	110	12.8	128	30.9	97	27.8	84
Uzbekistan	23.7	111	25.6	92	33.8	87	11.8	124
Mauritius	23.5	112	29.2	81	39.3	52	2.0	130
Cambodia	23.0	113	11.8	132	21.3	134	36.0	57
Ethiopia	22.9	114	24.2	96	21.2	135	23.2	98
Madagascar	22.9	115	13.6	125	54.7	16	0.3	137
Tajikistan	22.5	116	11.6	133	27.3	116	28.7	76
Syrian Arab Rep.	22.3	117	18.2	109	27.7	115	20.9	109
Rwanda	22.0	118	13.9	124	30.1	101	n/a	n/a
Tanzania, United Rep.	21.7	119	16.0	118	29.6	106	19.5	115
Kenya	21.6	120	20.1	104	24.3	126	20.2	112
Mozambique	21.5	121	17.1	113	25.9	121	21.3	107
Fiji	21.4	122	22.8	98	37.5	62	3.8	128
Pakistan	20.9	123	19.9	105	20.2	137	22.6	101
Sudan	20.9	124	14.0	123	22.8	130	25.9	91
Togo	20.7	125	10.2	136	19.4	138	32.3	62
Côte d'Ivoire	20.4	126	17.8	110	21.1	136	22.3	102
Cameroon	19.6	127	12.7	130	21.7	133	24.5	95
Guyana	19.4	128	16.9	114	40.1	48	1.3	133
Zambia	19.3	129	12.9	127	23.4	128	21.6	104
Uganda	18.9	130	14.4	122	41.4	43	1.0	135
Angola	18.2	131	14.9	120	16.0	140	23.8	97
Yemen	18.1	132	10.2	137	28.4	111	15.7	121
Lao PDR	17.4	133	11.6	134	38.9	57	1.8	131
Nigeria	16.8	134	17.5	111	18.1	139	15.0	122
Mali	16.6	135	12.9	126	35.6	75	1.3	132
Swaziland	16.6	136	10.9	135	33.9	86	5.0	127
Niger	16.5	137	8.9	140	39.3	53	1.3	134
Malawi	16.4	138	9.2	139	39.5	50	0.6	136
Zimbabwe	15.4	139	9.5	138	8.6	141	27.9	82
Burkina Faso	15.3	140	15.8	119	29.7	104	0.3	138
Burundi	15.1	141	7.5	141	35.5	76	2.4	129

Table 2d: Market sophistication pillar

Country/Economy	Market sophistication		Credit		Investment		Trade and competition	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Hong Kong (China)	85.5	1	81.4	3	91.0	1	84.2	2
United States of America	76.8	2	83.8	2	83.0	2	63.7	69
United Kingdom	76.6	3	85.6	1	78.2	3	66.1	57
Singapore	76.3	4	61.0	15	76.9	4	91.1	1
Switzerland	69.8	5	69.0	8	67.8	8	72.5	17
Ireland	69.4	6	80.5	4	50.8	18	76.9	9
Canada	68.4	7	60.6	17	72.9	6	71.8	20
Denmark	66.6	8	78.1	5	54.6	15	67.1	46
Israel	64.9	9	59.8	18	66.7	9	68.1	40
Sweden	64.3	10	52.8	23	70.4	7	69.5	30
Australia	63.2	11	65.6	12	57.4	11	66.7	51
New Zealand	62.6	12	74.2	6	46.7	21	67.0	48
South Africa	62.5	13	51.8	25	75.1	5	60.7	83
Malaysia	60.8	14	46.8	31	54.7	14	81.0	4
Netherlands	60.8	15	63.6	13	42.1	28	76.6	10
Korea, Rep.	60.5	16	60.7	16	63.0	10	57.9	95
Spain	58.3	17	65.8	11	45.7	22	63.4	71
Japan	57.7	18	68.0	9	49.2	19	55.9	110
Norway	57.5	19	43.3	38	56.9	12	72.3	18
Cyprus	56.2	20	69.3	7	32.4	49	66.8	50
Belgium	56.0	21	44.7	35	45.4	24	77.9	8
Latvia	55.1	22	66.0	10	32.7	48	66.5	55
Luxembourg	55.0	23	39.9	44	41.8	29	83.4	3
Germany	54.9	24	56.9	21	39.1	32	68.9	34
Peru	54.8	25	61.2	14	37.1	37	66.1	58
Finland	53.6	26	51.6	26	45.5	23	63.6	70
Estonia	52.8	27	52.0	24	31.7	51	74.7	16
Mongolia	52.6	28	50.1	27	39.8	31	68.0	41
France	52.0	29	48.2	29	43.6	27	64.1	66
Austria	51.8	30	59.5	19	25.2	69	70.7	25
Georgia	50.3	31	44.7	34	37.5	36	68.8	35
Albania	49.7	32	41.9	41	45.0	25	62.4	75
Thailand	48.9	33	30.0	71	47.4	20	69.3	31
Kyrgyzstan	47.8	34	48.5	28	22.8	75	72.2	19
China	47.8	35	32.6	62	52.8	16	58.0	94
Saudi Arabia	47.5	36	36.1	50	36.3	40	70.2	29
Portugal	47.4	37	43.8	37	35.3	43	63.3	73
Lithuania	46.8	38	39.5	45	29.6	55	71.3	22
Mauritius	46.1	39	33.9	56	29.2	56	75.1	15
Bahrain	45.8	40	23.6	87	34.9	45	78.9	5
Kenya	45.6	41	47.7	30	32.1	50	56.9	105
Iceland	45.3	42	53.9	22	13.3	106	68.7	37
Azerbaijan	44.9	43	29.9	72	41.0	30	63.8	68
Poland	44.8	44	35.0	52	33.0	47	66.5	54
Montenegro	44.8	45	40.1	43	27.2	63	67.1	47
India	44.6	46	30.2	70	51.8	17	51.7	118
Brunei Darussalam	44.5	47	17.3	101	44.8	26	71.3	21
Czech Republic	44.2	48	37.7	49	18.8	87	76.2	12
Viet Nam	44.1	49	58.1	20	16.9	95	57.3	103
Chile	44.0	50	25.6	85	38.3	34	68.1	39
Kuwait	43.2	51	27.1	80	36.9	38	65.5	62
Macedonia, FYR	43.1	52	34.3	55	24.4	72	70.7	26
Namibia	42.8	53	30.4	68	30.7	53	67.3	44
Bulgaria	42.6	54	43.0	39	18.1	91	66.6	52
United Arab Emirates	42.5	55	31.1	65	25.2	68	71.2	23
Hungary	42.2	56	31.7	64	18.5	90	76.5	11
Malta	42.1	57	44.9	32	3.0	135	78.5	6
Bosnia and Herzegovina	41.2	58	37.8	48	18.0	92	67.7	43
Italy	41.1	59	34.3	54	27.3	62	61.6	77
Slovenia	40.9	60	29.3	76	22.3	76	71.1	24
Rwanda	40.4	61	25.7	84	38.1	35	57.6	99
Colombia	40.3	62	27.3	79	38.5	33	55.0	113
Romania	39.7	63	34.7	53	25.5	67	58.8	93
Turkey	39.4	64	17.3	100	36.5	39	64.5	64
Tajikistan	39.4	65	33.1	58	29.1	57	56.0	109
Nicaragua	39.3	66	30.8	66	18.0	92	69.1	33
Trinidad and Tobago	39.0	67	27.8	77	25.9	66	63.3	72
Ukraine	38.7	68	33.1	59	18.6	88	64.2	65
Paraguay	38.4	69	32.8	61	14.6	100	67.9	42
Fiji	38.1	70	33.3	57	20.9	81	60.2	88
Slovakia	38.1	71	30.3	69	7.8	118	76.1	13

Table 2d: Market sophistication pillar (continued)

Country/Economy	Market sophistication		Credit		Investment		Trade and competition	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Armenia	37.8	72	42.9	40	9.0	115	61.6	79
Ghana	37.1	73	40.8	42	17.8	94	52.7	116
Bolivia, Plurinational St.	37.0	74	44.4	36	5.5	124	61.3	81
Belarus	36.9	75	20.3	90	14.7	98	75.7	14
Mexico	36.8	76	21.9	89	26.7	65	61.8	76
Croatia	36.8	77	24.4	86	19.1	86	67.0	49
Serbia	36.7	78	38.3	47	14.0	104	57.8	97
Dominican Republic	36.6	79	19.3	92	29.1	57	61.3	80
Guatemala	36.5	80	32.9	60	7.9	116	68.8	36
Zambia	36.2	81	29.8	73	13.3	105	65.6	60
Brazil	35.6	82	15.3	108	35.4	42	56.1	108
Cambodia	35.5	83	44.8	33	23.4	73	38.4	137
Qatar	35.3	84	15.6	107	21.0	80	69.2	32
Jordan	35.3	85	15.2	109	35.4	41	55.2	112
Botswana	35.1	86	31.7	63	19.3	85	54.2	114
Russian Federation	35.0	87	13.6	112	31.0	52	60.3	85
Greece	34.8	88	39.0	46	6.1	123	59.4	91
Honduras	34.1	89	35.6	51	1.8	137	64.9	63
Lebanon	34.0	90	22.3	88	12.6	108	67.2	45
Nigeria	34.0	91	15.7	106	28.5	61	57.8	96
Kazakhstan	34.0	92	17.2	102	20.8	82	63.9	67
Morocco	33.8	93	18.9	95	21.6	79	60.9	82
Uruguay	33.7	94	18.6	98	24.9	70	57.5	100
Mozambique	33.3	95	9.0	122	33.5	46	57.3	102
Moldova, Rep.	33.1	96	18.9	96	9.8	113	70.5	27
El Salvador	33.1	97	30.7	67	2.2	136	66.3	56
Indonesia	33.0	98	11.9	115	29.8	54	57.4	101
Guyana	32.7	99	6.9	128	13.0	107	78.2	7
Oman	32.6	100	15.1	110	14.2	102	68.6	38
Togo	31.9	101	17.1	103	56.4	13	22.2	141
Angola	31.8	102	6.7	129	29.1	57	59.6	90
Ecuador	31.6	103	29.6	75	4.8	125	60.4	84
Argentina	31.3	104	17.7	99	19.3	84	57.0	104
Tunisia	30.9	105	17.0	104	19.5	83	56.4	107
Philippines	30.7	106	11.0	120	18.6	89	62.5	74
Madagascar	30.6	107	3.0	136	29.1	57	59.8	89
Egypt	30.5	108	16.3	105	24.6	71	50.6	121
Lao PDR	30.2	109	3.8	133	35.3	44	51.4	119
Bangladesh	30.0	110	27.7	78	27.0	64	35.2	138
Nepal	29.9	111	26.5	82	14.5	101	48.6	126
Jamaica	29.8	112	11.7	116	16.1	97	61.6	78
Belize	29.8	113	19.1	94	11.2	109	59.2	92
Algeria	29.3	114	7.0	127	23.4	73	57.7	98
Panama	29.1	115	29.7	74	11.1	112	46.5	128
Malawi	29.1	116	12.9	114	14.1	103	60.2	87
Costa Rica	28.6	117	14.4	111	1.2	139	70.2	28
Zimbabwe	27.9	118	11.5	117	21.7	78	50.4	123
Uganda	27.8	119	26.3	83	4.0	128	53.0	115
Syrian Arab Rep.	27.6	120	2.5	139	14.7	98	65.5	61
Lesotho	27.1	121	8.8	123	6.5	119	65.9	59
Sri Lanka	27.0	122	19.5	91	16.3	96	45.2	131
Swaziland	26.4	123	27.0	81	6.2	122	46.1	130
Yemen	26.1	124	3.8	134	7.9	116	66.6	53
Uzbekistan	24.1	125	7.7	126	4.3	127	60.3	86
Pakistan	23.4	126	19.2	93	22.1	77	28.8	139
Cameroon	23.1	127	8.3	125	11.2	109	50.0	125
Ethiopia	22.3	128	11.5	118	11.2	109	44.3	134
Burkina Faso	22.0	129	8.4	124	6.5	119	51.2	120
Tanzania, United Rep.	21.7	130	11.2	119	9.5	114	44.3	132
Côte d'Ivoire	21.4	131	3.0	137	4.6	126	56.5	106
Burundi	21.1	132	4.1	132	3.6	129	55.6	111
Iran, Islamic Rep.	20.3	133	18.8	97	3.4	134	38.8	136
Senegal	19.6	134	13.4	113	1.8	137	43.8	135
Gambia	19.6	135	6.2	130	0.7	140	51.9	117
Mali	19.5	136	5.8	131	6.5	119	46.2	129
Gabon	19.2	137	3.8	135	3.6	129	50.2	124
Niger	19.0	138	2.8	138	3.6	129	50.5	122
Venezuela, Bolivarian Rep.	16.9	139	1.9	140	0.2	141	48.6	127
Sudan	16.4	140	1.5	141	3.6	129	44.3	133
Benin	12.1	141	10.5	121	3.6	129	22.4	140

Table 2e: Business sophistication pillar

Country/Economy	Business sophistication		Knowledge workers		Innovation linkages		Knowledge absorption	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Singapore	76.9	1	91.8	1	54.4	13	84.5	1
Ireland	69.8	2	77.0	13	49.4	25	82.8	2
Hong Kong (China)	66.9	3	71.4	21	54.2	14	75.0	4
Malta	65.2	4	69.6	26	44.3	39	81.5	3
Luxembourg	64.6	5	83.8	3	53.3	16	56.8	9
Switzerland	63.5	6	85.8	2	54.5	12	50.3	17
Finland	60.7	7	78.3	9	51.0	22	52.9	14
Qatar	60.3	8	48.6	61	67.8	3	64.6	5
United States of America	59.9	9	79.3	6	58.5	8	41.7	46
Sweden	58.6	10	77.6	12	50.0	23	48.2	21
Malaysia	58.2	11	68.4	28	42.4	45	63.7	6
Netherlands	58.0	12	75.2	16	48.6	27	50.1	18
Belgium	57.7	13	80.0	5	46.4	30	46.6	24
Canada	57.4	14	76.6	14	51.4	20	44.3	34
United Kingdom	57.3	15	75.0	17	51.4	21	45.5	29
United Arab Emirates	55.6	16	63.1	35	68.7	2	34.8	71
Denmark	55.2	17	78.0	10	45.5	35	42.2	41
Iceland	55.1	18	77.6	11	47.4	28	40.2	53
Israel	54.8	19	83.2	4	35.8	66	45.4	30
Australia	54.0	20	79.0	7	45.3	36	37.8	61
Japan	53.6	21	78.6	8	36.9	62	45.5	28
Czech Republic	53.0	22	73.4	18	33.6	78	52.0	15
Guyana	52.1	23	50.8	54	48.8	26	56.6	10
Germany	51.7	24	69.8	25	39.2	55	46.1	26
Korea, Rep.	51.7	25	64.9	31	32.2	88	57.9	7
France	51.3	26	75.5	15	36.7	63	41.6	47
New Zealand	50.9	27	72.3	19	38.1	56	42.2	42
China	50.9	28	69.1	27	34.4	73	49.1	20
Austria	50.9	29	72.1	20	43.7	42	36.7	62
Estonia	49.5	30	70.0	23	33.1	84	45.3	31
Norway	49.3	31	70.8	22	40.6	53	36.4	63
Thailand	48.6	32	55.8	41	32.3	87	57.9	8
Lebanon	48.3	33	64.8	33	41.9	47	38.2	59
Slovenia	47.9	34	67.4	29	28.8	104	47.4	22
Italy	47.8	35	69.9	24	32.1	90	41.4	48
Saudi Arabia	47.5	36	40.1	89	61.4	6	41.0	50
Cyprus	47.2	37	52.5	49	53.5	15	35.6	66
Hungary	46.9	38	54.7	45	31.1	95	54.7	12
Lao PDR	46.8	39	23.1	129	76.7	1	40.4	52
Bahrain	45.3	40	41.8	79	65.9	5	28.1	103
Spain	45.0	41	63.4	34	31.6	91	39.9	54
Brazil	44.4	42	52.6	48	38.0	57	42.6	38
Russian Federation	44.3	43	64.8	32	25.8	118	42.3	40
Costa Rica	44.2	44	49.2	56	41.3	50	42.1	43
Bosnia and Herzegovina	44.2	45	65.0	30	43.1	43	24.4	127
Swaziland	44.0	46	46.1	66	34.8	71	51.1	16
Oman	43.8	47	29.3	116	66.0	4	36.2	64
Venezuela, Bolivarian Rep.	43.4	48	55.7	42	40.0	54	34.4	73
Iran, Islamic Rep.	43.3	49	35.3	103	41.5	49	53.0	13
Zimbabwe	43.0	50	52.8	47	46.0	33	30.3	92
Ukraine	42.3	51	49.2	55	33.1	85	44.7	33
Poland	42.3	52	57.3	39	23.6	126	45.9	27
Latvia	42.2	53	62.1	36	33.3	83	31.3	91
Guatemala	42.1	54	45.7	68	54.6	11	25.9	121
South Africa	41.9	55	48.7	60	35.7	67	41.2	49
Viet Nam	41.5	56	34.6	106	43.8	41	46.2	25
Chile	41.5	57	61.4	37	31.1	96	32.0	88
Mauritius	40.9	58	43.7	71	46.1	31	33.1	78
Peru	40.6	59	53.7	46	35.9	65	32.2	84
Argentina	40.6	60	52.5	50	25.6	122	43.6	36
Panama	40.5	61	23.4	127	60.0	7	38.2	60
Kazakhstan	40.2	62	45.0	69	33.4	82	42.3	39
Slovakia	39.7	63	54.8	44	29.7	101	34.7	72
Croatia	39.4	64	48.0	63	28.2	107	41.9	44
Portugal	39.3	65	52.5	51	30.0	100	35.5	67
Kenya	39.1	66	38.3	95	47.1	29	32.0	87
Botswana	39.1	67	41.1	83	44.1	40	32.1	85
Colombia	39.0	68	49.0	59	28.4	106	39.5	55
Mongolia	38.9	69	42.8	76	41.7	48	32.3	83
Jamaica	38.9	70	40.9	86	42.9	44	32.8	80
Namibia	38.8	71	38.3	94	45.6	34	32.4	82

Table 2e: Business sophistication pillar (continued)

Country/Economy	Business sophistication		Knowledge workers		Innovation linkages		Knowledge absorption	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Philippines	38.8	72	48.3	62	34.9	70	33.1	79
Montenegro	38.4	73	39.0	91	31.2	94	45.0	32
Mozambique	38.2	74	16.1	141	58.1	9	40.5	51
India	37.6	75	42.9	74	37.4	59	32.5	81
Lithuania	37.5	76	57.3	38	31.4	92	23.7	130
Romania	37.4	77	46.0	67	23.5	127	42.7	37
Gabon	37.2	78	34.0	109	28.1	109	49.5	19
Trinidad and Tobago	37.1	79	43.9	70	34.2	74	33.2	76
Nicaragua	37.1	80	41.8	81	37.9	58	31.7	90
Uruguay	37.1	81	49.1	57	33.6	76	28.4	100
Tunisia	37.0	82	41.8	80	42.0	46	27.3	109
Ghana	36.9	83	37.8	97	29.0	102	44.0	35
Bulgaria	36.8	84	51.8	52	23.7	125	35.0	70
Brunei Darussalam	36.4	85	38.7	92	40.6	52	30.0	96
Serbia	36.3	86	42.4	77	27.1	114	39.4	56
Mexico	36.1	87	51.1	53	28.0	110	29.4	98
Greece	35.8	88	49.1	58	28.1	108	30.1	94
Uzbekistan	35.5	89	28.8	118	22.7	131	54.9	11
Armenia	34.8	90	46.2	65	30.1	98	28.1	104
Belize	34.6	91	43.5	72	33.4	81	26.8	113
Algeria	34.5	92	30.7	112	31.0	97	41.9	45
Sudan	34.4	93	28.4	119	54.9	10	19.9	140
Indonesia	34.2	94	17.8	139	46.0	32	38.8	57
Kuwait	34.0	95	34.4	107	34.5	72	33.1	77
Georgia	34.0	96	40.6	87	37.3	60	24.0	128
Honduras	33.8	97	36.9	99	32.3	86	32.1	86
El Salvador	33.7	98	41.6	82	33.5	80	26.1	120
Malawi	33.7	99	40.9	85	35.4	68	24.8	126
Bolivia, Plurinational St.	33.7	100	40.3	88	32.2	89	28.6	99
Dominican Republic	33.6	101	43.4	73	33.8	75	23.6	131
Azerbaijan	33.5	102	34.3	108	27.4	112	38.7	58
Ecuador	33.4	103	42.3	78	31.4	93	26.6	116
Moldova, Rep.	33.4	104	41.1	84	28.9	103	30.2	93
Belarus	33.1	105	54.9	43	16.3	136	28.1	105
Gambia	32.7	106	29.2	117	33.6	77	35.3	69
Turkey	32.5	107	47.0	64	22.9	130	27.5	108
Mali	32.4	108	22.1	131	51.5	18	23.5	132
Cameroon	32.2	109	35.3	104	26.9	115	34.3	74
Macedonia, FYR	32.2	110	34.9	105	25.8	119	35.8	65
Sri Lanka	32.1	111	36.3	102	33.5	79	26.7	114
Niger	32.1	112	19.9	136	50.0	24	26.5	118
Senegal	32.0	113	20.4	134	51.8	17	23.7	129
Egypt	31.9	114	42.8	75	26.8	116	26.2	119
Cambodia	31.8	115	24.5	126	44.3	38	26.5	117
Jordan	31.7	116	37.9	96	30.0	99	27.3	111
Tanzania, United Rep.	31.7	117	20.8	133	51.4	19	22.9	135
Benin	31.5	118	38.5	93	26.2	117	29.8	97
Burkina Faso	30.7	119	26.2	124	45.2	37	20.8	139
Rwanda	30.4	120	27.3	122	36.4	64	27.6	107
Lesotho	30.1	121	36.3	101	25.7	120	28.2	101
Paraguay	30.1	122	37.0	98	25.0	124	28.2	102
Bangladesh	30.0	123	27.8	120	41.2	51	20.9	138
Morocco	29.5	124	29.6	115	27.2	113	31.8	89
Ethiopia	29.2	125	30.1	113	35.2	69	22.4	137
Angola	28.8	126	22.3	130	17.0	134	47.2	23
Pakistan	28.3	127	30.0	114	27.7	111	27.3	110
Uganda	27.5	128	18.9	137	37.0	61	26.7	115
Nigeria	27.5	129	27.2	123	25.3	123	30.1	95
Madagascar	27.2	130	23.2	128	23.1	128	35.4	68
Kyrgyzstan	26.9	131	40.1	90	15.0	138	25.6	124
Fiji	26.6	132	57.1	40	0.0	140	22.6	136
Côte d'Ivoire	25.8	133	30.8	111	19.9	132	26.8	112
Syrian Arab Rep.	25.4	134	36.7	100	23.0	129	16.6	141
Zambia	24.8	135	20.3	135	28.7	105	25.5	125
Nepal	24.8	136	20.9	132	25.7	121	27.8	106
Tajikistan	23.3	137	17.3	140	18.7	133	33.8	75
Albania	22.6	138	27.7	121	17.0	135	23.0	134
Burundi	22.3	139	25.5	125	15.4	137	25.8	122
Togo	19.0	140	33.6	110	0.0	140	23.5	133
Yemen	18.7	141	17.8	138	12.5	139	25.7	123

Table 2f: Knowledge and technology outputs pillar

Country/Economy	Knowledge and technology outputs		Knowledge creation		Knowledge impact		Knowledge diffusion	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Switzerland	72.0	1	99.7	1	57.2	7	59.0	11
Sweden	67.9	2	84.6	2	49.1	21	70.0	5
Singapore	64.9	3	49.3	25	67.9	3	77.5	1
Finland	62.9	4	71.1	8	46.5	27	71.0	4
China	61.8	5	76.1	4	60.4	6	48.9	23
Ireland	60.9	6	54.2	20	51.9	16	76.6	2
Netherlands	59.4	7	66.2	10	50.2	19	61.7	7
United Kingdom	57.6	8	63.2	13	55.3	11	54.3	16
Korea, Rep.	57.5	9	81.5	3	40.0	43	50.9	20
Israel	57.2	10	72.9	6	40.8	41	57.8	12
United States of America	56.1	11	66.8	9	45.0	31	56.3	13
Germany	54.9	12	71.1	7	42.0	40	51.5	18
Estonia	53.8	13	55.3	18	70.4	2	35.6	39
Malta	53.1	14	35.8	37	55.4	10	67.9	6
Japan	51.7	15	62.5	14	36.4	57	56.3	14
Denmark	51.5	16	64.4	11	48.7	22	41.5	30
Belgium	50.6	17	57.7	15	43.0	37	51.2	19
Luxembourg	49.8	18	50.3	23	40.0	44	59.2	10
New Zealand	49.2	19	75.7	5	47.6	23	24.3	77
Czech Republic	48.4	20	46.2	27	61.8	4	37.3	35
Hungary	46.8	21	34.9	40	55.1	12	50.5	22
Canada	46.4	22	56.5	16	42.8	38	39.9	32
France	45.5	23	45.5	30	40.4	42	50.7	21
Iceland	45.5	24	64.4	12	55.0	13	17.0	114
Cyprus	44.7	25	36.4	36	60.9	5	36.7	36
Norway	42.1	26	55.7	17	37.1	53	33.4	46
Slovenia	41.7	27	49.0	26	47.4	24	28.7	58
Austria	41.4	28	50.8	22	38.9	48	34.4	42
Serbia	40.0	29	33.9	42	51.8	17	34.5	41
Ukraine	39.2	30	53.8	21	33.9	66	29.9	55
Moldova, Rep.	38.9	31	54.7	19	34.9	62	27.0	67
Russian Federation	38.4	32	45.5	29	39.9	45	29.9	56
Spain	38.4	33	39.4	32	46.5	26	29.3	57
Hong Kong (China)	38.4	34	5.7	119	55.9	8	53.5	17
Italy	38.2	35	36.9	35	43.9	34	33.9	45
Malaysia	38.0	36	22.8	65	42.5	39	48.7	24
Latvia	37.8	37	35.8	38	53.1	15	24.5	75
Paraguay	36.5	38	1.5	138	47.2	25	60.8	8
Slovakia	36.5	39	31.1	50	50.9	18	27.5	64
Swaziland	35.9	40	32.8	45	30.1	80	44.9	27
Bulgaria	35.7	41	27.3	59	55.5	9	24.2	79
Lithuania	35.3	42	31.6	46	53.6	14	20.9	103
Australia	34.9	43	43.7	31	37.8	50	23.3	83
Belarus	34.5	44	45.5	28	36.6	56	21.3	98
Croatia	34.0	45	35.1	39	44.9	33	22.1	91
Romania	34.0	46	21.4	71	36.7	55	43.9	28
India	34.0	47	28.9	54	33.8	67	39.2	33
Lebanon	33.9	48	15.2	95	45.5	29	40.9	31
Portugal	33.8	49	33.0	44	45.2	30	23.2	85
Thailand	33.5	50	22.0	68	43.2	36	35.5	40
Poland	32.9	51	31.1	49	36.0	59	31.7	48
Gabon	32.3	52	18.0	87	23.2	107	55.6	15
Kuwait	32.0	53	5.1	122	18.4	125	72.5	3
Armenia	31.7	54	37.1	34	31.8	75	26.1	69
Brazil	30.5	55	22.7	67	34.9	63	34.1	44
Costa Rica	30.5	56	12.2	106	37.2	52	42.1	29
Georgia	29.5	57	33.3	43	38.7	49	16.5	118
Viet Nam	29.4	58	14.2	101	39.7	46	34.3	43
Philippines	28.9	59	14.0	102	26.7	94	46.1	26
Macedonia, FYR	28.8	60	21.4	70	34.7	64	30.2	53
South Africa	28.2	61	30.6	51	35.2	61	18.9	106
Chile	27.9	62	23.9	63	37.6	51	22.2	90
Turkey	27.8	63	31.6	47	30.1	81	21.8	92
Belize	27.5	64	27.9	57	22.2	111	32.5	47
Bahrain	27.4	65	19.3	79	39.7	47	23.3	84
Sri Lanka	27.1	66	20.4	75	30.0	82	30.7	52
Oman	26.8	67	22.8	66	32.0	74	25.8	70
Tajikistan	26.7	68	30.5	52	21.2	114	28.3	61
Tunisia	26.7	69	27.8	58	28.5	89	23.8	82
Zimbabwe	26.2	70	34.1	41	43.7	35	0.8	137
Montenegro	26.0	71	26.1	60	46.4	28	5.5	134

Table 2f: Knowledge and technology outputs pillar (continued)

Country/Economy	Knowledge and technology outputs		Knowledge creation		Knowledge impact		Knowledge diffusion	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Bosnia and Herzegovina	25.9	72	18.0	86	34.1	65	25.7	72
Iran, Islamic Rep.	25.9	73	28.9	55	22.8	108	n/a	n/a
Bangladesh	25.6	74	2.1	135	26.7	95	48.1	25
Greece	25.6	75	29.9	53	27.1	92	19.7	105
Guyana	25.5	76	1.6	137	14.8	129	60.2	9
Qatar	25.2	77	1.5	139	74.2	1	0.0	139
Mauritius	24.9	78	2.1	134	49.5	20	23.0	87
Namibia	24.8	79	39.1	33	21.6	113	13.8	124
Morocco	24.5	80	20.4	76	25.5	100	27.6	63
Argentina	24.3	81	9.7	111	32.1	73	31.1	51
Uruguay	24.2	82	9.2	114	44.9	32	18.7	108
Jordan	24.1	83	20.8	73	28.7	88	22.9	88
Brunei Darussalam	23.9	84	1.6	136	31.5	76	38.6	34
Kazakhstan	23.8	85	13.1	103	37.1	54	21.3	97
Mozambique	23.3	86	3.0	130	35.5	60	31.5	49
Colombia	23.1	87	14.8	97	32.9	70	21.5	95
Fiji	22.9	88	25.7	61	28.3	90	14.7	123
Uzbekistan	22.7	89	12.1	107	33.4	69	n/a	n/a
Mongolia	22.7	90	49.4	24	2.8	140	15.8	119
Ghana	22.6	91	18.3	83	20.9	116	28.5	60
Egypt	22.6	92	21.0	72	26.1	97	20.6	104
Mali	22.6	93	17.7	88	26.2	96	23.8	81
Mexico	22.3	94	16.4	91	26.1	98	24.3	76
Zambia	22.1	95	16.0	92	29.3	86	21.2	100
Côte d'Ivoire	21.9	96	15.7	93	24.8	105	25.2	73
Senegal	21.7	97	18.3	84	20.2	119	26.8	68
Trinidad and Tobago	21.5	98	10.7	109	32.4	71	21.5	96
Malawi	21.5	99	14.3	100	22.5	109	27.7	62
Cameroon	21.5	100	18.7	80	17.1	126	28.6	59
Benin	21.2	101	19.7	77	16.8	127	27.2	65
Kenya	20.8	102	18.1	85	20.1	120	24.0	80
Azerbaijan	20.5	103	11.2	108	25.3	103	25.1	74
Indonesia	20.4	104	4.4	123	29.9	83	27.0	66
Peru	20.3	105	7.7	117	36.4	58	16.7	117
Botswana	20.1	106	20.5	74	8.5	135	31.3	50
Lao PDR	19.9	107	31.3	48	9.5	133	18.8	107
Algeria	19.9	108	10.0	110	19.5	123	30.1	54
El Salvador	19.5	109	14.3	99	21.1	115	23.1	86
United Arab Emirates	18.7	110	28.2	56	27.7	91	0.3	138
Nicaragua	18.6	111	21.4	69	24.9	104	9.5	128
Togo	18.6	112	23.8	64	7.7	136	24.2	78
Albania	18.5	113	12.8	104	25.7	99	17.1	113
Niger	18.5	114	18.6	81	15.7	128	21.1	101
Ecuador	18.4	115	14.9	96	29.1	87	11.0	127
Sudan	18.2	116	9.7	112	29.4	85	15.4	121
Pakistan	18.1	117	4.0	124	24.4	106	25.7	71
Tanzania, United Rep.	18.0	118	17.6	89	29.5	84	6.8	131
Kyrgyzstan	17.6	119	25.6	62	4.9	139	22.3	89
Burkina Faso	17.4	120	12.7	105	18.6	124	20.9	102
Venezuela, Bolivarian Rep.	17.4	121	3.1	128	12.6	131	36.5	37
Burundi	17.4	122	2.4	133	32.1	72	17.5	112
Angola	17.2	123	0.0	141	30.2	79	21.5	94
Honduras	17.2	124	9.0	115	20.9	117	21.7	93
Dominican Republic	17.2	125	14.8	98	31.1	77	5.7	133
Guatemala	16.5	126	8.5	116	19.7	122	21.2	99
Nigeria	16.4	127	9.4	113	22.1	112	17.8	111
Uganda	16.2	128	16.8	90	25.4	101	6.4	132
Syrian Arab Rep.	16.1	129	15.6	94	30.5	78	2.3	136
Saudi Arabia	15.3	130	2.7	132	25.4	102	17.9	110
Yemen	14.7	131	1.2	140	33.7	68	9.4	129
Lesotho	14.7	132	3.3	126	4.9	138	36.0	38
Bolivia, Plurinational St.	14.6	133	3.1	129	22.3	110	18.5	109
Gambia	14.0	134	19.4	78	9.5	134	13.0	126
Nepal	13.8	135	5.3	120	20.5	118	15.7	120
Ethiopia	13.6	136	5.8	118	26.8	93	8.1	130
Cambodia	13.2	137	2.9	131	19.9	121	16.8	116
Madagascar	12.5	138	18.4	82	5.3	137	13.7	125
Jamaica	11.7	139	5.1	121	13.3	130	16.8	115
Rwanda	6.9	140	3.2	127	2.4	141	15.2	122
Panama	6.4	141	3.5	125	10.7	132	4.9	135

Table 2g: Creative outputs pillar

Country/Economy	Creative outputs		Creative intangibles		Creative goods and services		Online creativity	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Switzerland	65.0	1	67.9	7	51.6	7	72.8	8
Malta	60.9	2	57.3	14	86.3	1	42.8	33
Netherlands	57.0	3	44.7	50	57.8	3	80.7	2
Iceland	55.8	4	55.5	15	30.9	40	81.3	1
Norway	55.5	5	45.4	47	53.2	6	78.0	3
Luxembourg	55.0	6	55.3	16	34.1	36	75.0	5
Sweden	53.6	7	47.9	35	45.1	13	73.3	7
Denmark	53.5	8	46.7	39	46.4	10	74.1	6
Estonia	52.8	9	51.6	22	42.2	16	65.7	11
Germany	52.6	10	46.2	40	45.8	11	72.2	9
Hong Kong (China)	52.6	11	50.3	27	55.0	4	54.7	22
Austria	52.1	12	46.1	42	54.6	5	61.7	15
Slovenia	51.5	13	58.9	13	39.2	21	49.2	25
United Kingdom	51.4	14	41.5	65	47.0	8	75.6	4
New Zealand	50.5	15	52.0	21	36.6	28	61.5	16
Canada	49.7	16	46.1	41	45.6	12	61.0	17
Finland	49.3	17	46.0	43	42.5	14	62.9	13
Chile	49.1	18	73.2	2	14.9	84	35.0	40
Qatar	48.6	19	76.2	1	22.9	64	19.2	78
United Arab Emirates	48.5	20	70.8	4	23.0	63	29.2	51
Latvia	47.4	21	51.5	23	38.3	24	48.1	27
Belgium	46.0	22	40.3	70	40.6	18	62.8	14
Australia	45.9	23	43.4	59	33.7	37	63.4	12
Jordan	45.1	24	68.8	5	24.6	59	18.1	81
Montenegro	44.6	25	44.9	49	17.3	79	71.3	10
Czech Republic	43.9	26	38.4	81	46.8	9	52.0	24
Israel	43.8	27	43.7	57	28.4	52	59.4	19
Portugal	43.6	28	48.1	34	34.3	35	43.7	32
Saudi Arabia	43.4	29	72.4	3	8.4	110	20.3	74
France	43.3	30	42.1	62	36.2	30	52.7	23
Mauritius	42.7	31	53.0	19	42.5	15	22.3	67
Moldova, Rep.	42.5	32	61.9	9	22.9	66	23.5	60
United States of America	42.2	33	37.0	84	37.2	27	57.6	20
India	40.7	34	60.8	10	30.7	42	10.5	109
Lithuania	40.3	35	39.5	73	37.9	25	44.3	30
Panama	39.9	36	49.9	29	36.5	29	23.4	61
Singapore	39.2	37	44.4	53	29.6	49	38.3	38
Ireland	39.0	38	34.4	97	30.5	43	56.6	21
Spain	38.5	39	33.7	99	38.7	22	48.0	28
Dominican Republic	37.3	40	52.2	20	25.5	57	19.5	76
Oman	37.3	41	64.4	8	7.4	115	12.9	102
Malaysia	37.3	42	50.5	26	23.8	62	24.3	56
Hungary	37.0	43	29.8	111	39.7	20	48.5	26
Serbia	36.9	44	38.9	76	40.2	19	29.3	50
Italy	36.8	45	29.1	115	40.9	17	47.9	29
Tunisia	36.4	46	60.0	11	12.6	91	13.1	101
Rwanda	36.1	47	68.1	6	1.9	131	6.1	122
Argentina	36.0	48	40.0	71	22.9	65	41.3	34
Bulgaria	35.9	49	43.9	55	24.6	60	31.2	45
Croatia	35.8	50	34.9	93	34.8	34	38.7	37
Guyana	35.7	51	47.8	37	24.8	58	22.2	68
Uruguay	35.7	52	45.6	45	19.5	76	32.0	44
Brunei Darussalam	35.5	53	54.3	17	9.1	104	24.1	57
Brazil	35.4	54	41.2	67	29.7	47	29.7	49
Costa Rica	35.2	55	50.0	28	17.9	77	22.9	64
China	34.4	56	47.3	38	35.3	33	7.7	120
Slovakia	34.4	57	34.0	98	29.7	48	40.0	35
Colombia	34.4	58	42.5	60	22.0	67	30.7	46
Korea, Rep.	34.3	59	38.8	78	29.8	46	29.8	48
Poland	34.3	60	28.6	117	36.0	31	44.0	31
Nepal	34.2	61	29.0	116	68.8	2	9.9	110
Bahrain	34.2	62	44.5	51	28.0	54	19.6	75
Cyprus	34.0	63	36.5	87	26.0	56	37.1	39
Turkey	33.7	64	40.4	69	30.8	41	23.1	63
Ecuador	33.5	65	45.2	48	24.1	61	19.4	77
Kuwait	32.8	66	39.5	72	28.6	51	23.7	59
Senegal	32.6	67	59.1	12	2.6	128	9.8	111
Jamaica	32.5	68	49.1	31	10.9	94	21.1	72
Japan	32.3	69	29.8	112	37.6	26	32.2	43
Viet Nam	32.2	70	34.8	95	36.0	32	23.2	62
Mongolia	31.6	71	48.5	33	10.6	98	19.0	79

Table 2g: Creative outputs pillar (continued)

Country/Economy	Creative outputs		Creative intangibles		Creative goods and services		Online creativity	
	Score (0–100)	Rank	Score	Rank	Score	Rank	Score	Rank
Peru	31.4	72	49.1	30	5.8	119	21.7	69
Indonesia	30.6	73	54.2	18	5.0	122	9.2	113
Trinidad and Tobago	30.4	74	45.5	46	9.4	103	21.3	71
Thailand	30.0	75	35.9	89	30.0	45	18.3	80
Nigeria	29.7	76	50.9	24	16.1	82	1.0	140
Guatemala	29.7	77	45.9	44	12.4	93	14.8	94
Macedonia, FYR	29.6	78	34.8	96	21.1	69	27.7	52
Mexico	29.5	79	38.8	77	16.3	81	24.1	58
El Salvador	29.4	80	43.5	58	14.6	85	16.1	91
Belize	29.3	81	28.1	119	0.5	140	60.7	18
Romania	29.3	82	26.9	123	29.0	50	34.4	41
Ukraine	29.2	83	33.5	100	19.7	75	30.0	47
Russian Federation	29.1	84	27.8	121	27.9	55	33.0	42
Sri Lanka	28.9	85	41.7	64	20.7	71	11.3	106
South Africa	28.8	86	42.3	61	9.5	101	21.0	73
Venezuela, Bolivarian Rep.	28.2	87	36.3	88	17.6	78	22.4	65
Albania	28.1	88	35.0	91	20.1	73	22.4	66
Armenia	28.0	89	37.1	83	12.4	92	25.5	55
Bosnia and Herzegovina	27.9	90	33.0	103	19.9	74	25.6	54
Azerbaijan	27.5	91	41.0	68	10.8	95	17.0	87
Greece	27.5	92	19.3	131	32.0	39	39.3	36
Lebanon	27.3	93	27.0	122	38.4	23	17.1	86
Uganda	27.1	94	50.5	25	2.8	126	4.8	131
Namibia	26.9	95	43.8	56	7.7	113	12.2	103
Bolivia, Plurinational St.	26.0	96	38.4	79	12.7	90	14.6	96
Zambia	25.8	97	48.7	32	0.9	137	4.9	130
Ghana	25.7	98	44.4	54	9.5	102	4.6	132
Pakistan	25.6	99	31.3	107	28.3	53	11.4	105
Mali	25.0	100	47.9	36	1.6	135	2.6	138
Swaziland	24.9	101	25.8	125	30.0	44	18.1	82
Morocco	24.9	102	38.4	80	7.2	116	15.7	93
Paraguay	24.8	103	36.7	85	7.7	114	18.1	83
Honduras	24.6	104	37.9	82	9.1	105	13.3	100
Georgia	24.2	105	26.9	124	17.1	80	25.9	53
Egypt	24.0	106	31.3	106	21.2	68	12.2	104
Madagascar	24.0	107	29.4	113	32.2	38	5.0	128
Philippines	23.7	108	34.9	94	7.1	117	17.8	84
Gambia	23.5	109	39.4	74	0.6	139	14.7	95
Benin	22.8	110	41.7	63	1.1	136	6.6	121
Ethiopia	22.7	111	44.4	52	1.9	133	0.1	141
Zimbabwe	22.7	112	36.6	86	9.0	106	8.6	116
Nicaragua	22.3	113	33.3	101	8.2	112	14.4	97
Burkina Faso	22.1	114	41.4	66	2.3	129	3.6	135
Cameroon	21.9	115	39.3	75	5.6	120	3.6	134
Kenya	21.9	116	33.2	102	12.9	87	8.2	119
Belarus	21.8	117	24.7	126	21.0	70	16.7	88
Cambodia	21.3	118	35.0	92	6.9	118	8.2	117
Kazakhstan	21.0	119	29.2	114	8.4	109	17.3	85
Botswana	19.7	120	31.2	109	2.7	127	13.8	98
Bangladesh	19.6	121	31.5	105	10.1	100	5.3	123
Côte d'Ivoire	19.6	122	35.5	90	2.0	130	5.2	125
Syrian Arab Rep.	19.1	123	23.8	129	12.8	88	16.0	92
Angola	19.1	124	30.3	110	10.7	96	4.9	129
Mozambique	18.7	125	27.8	120	15.8	83	3.3	136
Lesotho	18.4	126	31.2	108	0.1	141	10.9	108
Malawi	18.3	127	32.5	104	4.1	124	4.1	133
Tanzania, United Rep.	18.0	128	28.3	118	12.8	89	2.8	137
Tajikistan	17.4	129	24.2	127	4.4	123	16.5	89
Kyrgyzstan	17.0	130	19.0	132	20.6	72	9.4	112
Iran, Islamic Rep.	15.7	131	22.6	130	8.5	108	9.1	115
Fiji	14.9	132	n/a	n/a	8.2	111	21.6	70
Burundi	14.2	133	24.2	128	3.0	125	5.3	124
Togo	12.6	134	n/a	n/a	8.9	107	16.4	90
Gabon	12.1	135	n/a	n/a	10.7	97	13.6	99
Algeria	11.7	136	12.0	134	13.6	86	9.2	114
Yemen	11.5	137	18.5	133	0.8	138	8.2	118
Uzbekistan	6.6	138	5.3	135	10.6	99	5.2	126
Lao PDR	6.3	139	n/a	n/a	1.7	134	10.9	107
Niger	5.3	140	n/a	n/a	5.5	121	5.1	127
Sudan	2.4	141	2.7	136	1.9	132	2.2	139

Notes

- 1 This indicator replaces the rigidity of employment index used in the GII 2011, which has been temporarily discontinued following consultations between the World Bank and the International Labour Organization.
- 2 This indicator replaces two of its components included in the GII 2011, time and cost to start a business.
- 3 The World Bank Doing Business indicator, formerly known as 'Ease of closing a business', is reintroduced this year in the GII.
- 4 The ease of paying taxes index replaces the indicator total tax rate as a percentage of profits included in GII 2011 (the latter being one component of the former).
- 5 Following consultations within the International Tax Dialogue (ITD), a series of modifications to the computation of the ease of paying taxes index was adopted. Among others, a minimum threshold was applied to the total tax rate as a percentage of profits. The ITD is a collaborative project of the European Commission, the Inter-American Development Bank, the International Monetary Fund, the Organisation for Economic Co-operation and Development (OECD), and the World Bank. Refer to *Ease of Doing Business Data Notes*, page 52, and to the *Annex 13: Update on Paying Taxes* consultation process with the ITD, pages 51 to 56 of *Doing Business Employing Workers Indicator Consultative Group, Annexes*, April 27, 2011, both available at <http://www.doingbusiness.org>.
- 6 The percentage of tertiary students in science on one hand, and in engineering, manufacturing, and construction, on the other, which were included separately in the GII 2011 (2.2.2 and 2.2.3), were combined this year into a single indicator, 2.2.2.
- 7 The indicator tertiary outbound mobility included in the GII 2011 was deemed redundant and dropped from the model this year.
- 8 The share of renewables in energy use, included in the GII 2011, was eliminated because a similar metric—renewable electricity—is one component of the Environmental Performance Index. The ecological footprint and biocapacity indicator was eliminated because the series has not been updated since 2007.
- 9 The percent rank index is constructed on the basis of two indices that were included separately in the GII 2011. This change was made to incorporate the asymmetric weighting in the ease of getting credit rank of its components, by which weights of 62.5% and 37.5% are assigned to the strength of legal rights index and to the depth of credit information index (GII 2011 indicators 4.1.1 and 4.1.2), respectively.
- 10 This World Bank Ease of Doing Business indicator includes four components, one of which was included in the GII 2011, the strength of investor protection index, which it now replaces as indicator 4.2.1.
- 11 The global economic crisis has had its toll. In the GII 2011, this indicator was constructed on the basis 7,937 deals in 81 countries in 2010.
- 12 The latter, a World Trade Organization series, replaces the Market Access Trade Restrictiveness Index of the International Monetary Fund and the World Bank (included in the GII 2011), which has not been updated.
- 13 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 5,300 graduate management programmes in approximately 2,000 business schools worldwide.
- 14 This was determined from a query on joint ventures / strategic alliances deals announced in 2011 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 $1/n$. All country scores add up to 3,007 (1,247 in 2010, in 94 participating economies), the total number of deals.
- 15 Wunsch-Vincent, 2011.
- 16 See the GII 2011, Chapter 6.
- 17 This information is based on the WIPO website, http://www.wipo.int/export/sites/www/ip-development/en/creative_industry/pdf/table_results_of_studies.pdf.
- 18 Thanks go to Lydia Deloumeaux from UIS for providing this information.

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