

Technical Notes and Sources

The present section complements the data tables by providing additional information for all 54 indicators that enter the composition of the Networked Readiness Index 2013.

The number next to the indicator corresponds to the number of the data table that reports ranks and scores for all economies on this particular indicator.

The data used in this *Report* represent the most recent available figures from various international agencies and national authorities at the time when the data collection took place. It is possible that some data have been updated or revised since then.

1st pillar: Political and regulatory environment

1.01 Effectiveness of law-making bodies

How effective is your national parliament/congress as a law-making institution? [1 = very ineffective; 7 = very effective—among the best in the world] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.02 Laws relating to ICTs

How would you assess your country's laws relating to the use of ICTs (e.g., electronic commerce, digital signatures, consumer protection)? [1 = highly undeveloped; 7 = well-developed] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.03 Judicial independence

To what extent is the judiciary in your country independent from influences of members of government, citizens, or firms? [1 = heavily influenced; 7 = entirely independent] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.04 Efficiency of legal framework in settling disputes

How efficient is the legal framework in your country for private businesses in settling disputes? [1 = extremely inefficient; 7 = highly efficient] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.05 Efficiency of legal framework in challenging regulations

How efficient is the legal framework in your country for private businesses in challenging the legality of government actions and/or regulations? [1 = extremely inefficient; 7 = highly efficient] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.06 Intellectual property protection

How would you rate intellectual property protection, including anti-counterfeiting measures, in your country? [1 = very weak; 7 = very strong] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

1.07 Software piracy rate

Unlicensed software units as a percentage of total software units installed | 2011

This measure covers piracy of all packaged software that runs on personal computers (PCs), including desktops, laptops, and ultra-portables, including netbooks. This includes operating systems; systems software such as databases and security packages; business applications; and consumer applications such as games, personal finance, and reference software. The study does not include software that runs on servers or mainframes. For more information about the methodology, refer to the study available at <http://portal.bsa.org/globalpiracy2011/>.

Source: Business Software Alliance, *Shadow Market: 2011 BSA Global Software Piracy Study* (Ninth edition)

1.08 Number of procedures to enforce a contract

Number of procedures to resolve a dispute, counted from the moment the plaintiff files a lawsuit in court until payment | 2012

The list of procedural steps compiled for each economy traces the chronology of a commercial dispute before the relevant court. A *procedure* is defined as any interaction, required by law or commonly used in practice, between the parties or between them and the judge or court officer. This includes steps to file and serve the case, steps for trial and judgment, and steps necessary to enforce the judgment. For more details about the methodology employed and the assumptions made to compute this indicator, visit <http://www.doingbusiness.org/methodologysurveys/>.

Source: World Bank/International Finance Corporation, *Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises*

1.09 Time to enforce a contract

Number of days to resolve a dispute, counted from the moment the plaintiff decides to file the lawsuit in court until payment | 2012

Time is recorded in calendar days, counted from the moment the plaintiff decides to file the lawsuit in court until payment. This includes both the days when actions take place and the waiting periods between. For more details about the methodology employed and the assumptions made to compute this indicator, visit <http://www.doingbusiness.org/methodologysurveys/>.

Source: World Bank/International Finance Corporation, *Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises*

2nd pillar: Business and innovation environment

2.01 Availability of latest technologies

To what extent are the latest technologies available in your country? [1 = not available; 7 = widely available] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

2.02 Venture capital availability

In your country, how easy is it for entrepreneurs with innovative but risky projects to find venture capital? [1 = very difficult; 7 = very easy] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

2.03 Total tax rate

Sum of profit tax, labor tax and social contributions, property taxes, turnover taxes, and other taxes, as a share (%) of commercial profits | 2012

The total tax rate measures the amount of taxes and mandatory contributions borne by the business in the second year of operation, expressed as a share of commercial profit. *Doing Business 2013* reports the total tax rate for calendar year 2011. The total amount of taxes borne is the sum of all the different taxes and contributions payable after accounting for allowable deductions and exemptions. The taxes withheld (such as personal income tax) or collected by the company and remitted to the tax authorities (such as value-added tax, sales tax, or goods and service tax) but not borne by the company are excluded. The taxes included can be divided into 5 categories: profit or corporate income taxes; social contributions and labor taxes paid by the employer (in respect of which all mandatory contributions are included, even if paid to a private entity such as a required pension fund); property taxes; turnover taxes; and other taxes (such as municipal fees and vehicle and fuel taxes). For more details about the methodology employed and the assumptions made to compute this indicator, visit <http://www.doingbusiness.org/methodologysurveys/>.

Source: World Bank/International Finance Corporation, *Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises*

2.04 Time required to start a business

Number of days required to start a business | 2012

Time is recorded in calendar days. The measure captures the median duration that incorporation lawyers indicate is necessary in practice to complete a procedure with minimum follow-up with government agencies and no extra payments. For more details about the methodology employed and the assumptions made to compute this indicator, visit <http://www.doingbusiness.org/methodologysurveys/>.

Source: World Bank/International Finance Corporation, *Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises*

2.05 Number of procedures required to start a business

Number of procedures required to start a business | 2012

A procedure is defined as any interaction of the company founders with external parties (e.g., government agencies, lawyers, auditors, or notaries). For more details about the methodology employed and the assumptions made to compute this indicator, visit <http://www.doingbusiness.org/methodologysurveys/>.

Source: World Bank/International Finance Corporation, *Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises*

2.06 Intensity of local competition

How would you assess the intensity of competition in the local markets in your country? [1 = limited in most industries; 7 = intense in most industries] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

2.07 Tertiary education enrollment rate

Gross tertiary education enrollment rate (%) | 2010

Tertiary enrollment rate is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the tertiary education level. Tertiary education, whether or not leading to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

Sources: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (accessed November 29, 2011); UNESCO, *UNESCO Science Report 2010: The Current Status of Science around the World*; World Bank, *World Development Indicators 2009*; national sources

2.08 Quality of management schools

How would you assess the quality of management or business schools in your country? [1 = poor; 7 = excellent—among the best in the world] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

2.09 Government procurement of advanced technology products

Do government procurement decisions foster innovation in your country? [1 = no, not at all; 7 = yes, extremely effectively] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

3rd pillar: Infrastructure and digital content

3.01 Electricity production

Electricity production (kWh) per capita | 2009

Electricity production is measured at the terminals of all alternator sets in a station. In addition to hydropower, coal, oil, gas, and nuclear power generation, it 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 designed to produce electricity only, as well as that of combined heat and power plants. Total electricity production is then divided by total population. Population figures are from the World Bank's *World Development Indicators Online* (retrieved November 28, 2012).

Sources: The World Bank, *World Development Indicators Online* (accessed November 28, 2012); US Central Intelligence Agency (CIA), *The World Factbook* (accessed November 28, 2012)

3.02 Mobile network coverage rate

Percentage of total population covered by a mobile network signal | 2011

This indicator measures the percentage of inhabitants who are within range of a mobile cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants within range of a mobile cellular signal by the total population. Note that this is not the same as the mobile subscription density or penetration.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

3.03 International Internet bandwidth**International Internet bandwidth (kb/s) per Internet user | 2011**

International Internet bandwidth is the sum of capacity of all Internet exchanges offering international bandwidth measured in kilobits per second (kb/s).

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

3.04 Secure Internet servers**Secure Internet servers per million population | 2011**

Secure Internet servers are servers using encryption technology in Internet transactions.

Sources: The World Bank, *World Development Indicators Online* (accessed November 28, 2012); national sources

3.05 Accessibility of digital content

In your country, how accessible is digital content (e.g., text and audio-visual content, software products) via multiple platforms (e.g., fixed-line Internet, wireless Internet, mobile network, satellite)? [1 = not accessible at all; 7 = widely accessible] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

4th pillar: Affordability**4.01 Mobile cellular tariffs****Average per-minute cost of different types of mobile cellular calls (PPP \$) | 2011**

This measure is constructed by first taking the average per-minute cost of a local call to another mobile cellular phone on the same network (on-net) and on another network (off-net). This amount is then averaged with the per-minute cost of a local call to a fixed telephone line. All the tariffs are for calls placed during peak hours and based on a basic, representative mobile cellular pre-paid subscription service. The amount is adjusted for purchasing power parity (PPP) and expressed in current international dollars. PPP figures were sourced from the World Bank's *World Development Indicators Online* (retrieved November 29, 2012) and the International Monetary Fund's *World Economic Outlook* (October 2012 edition).

Sources: Authors' calculations based on International Telecommunication Union, *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition); International Monetary Fund, *World Economic Outlook* (October 2012 edition); World Bank, *World Development Indicators Online* (accessed November 29, 2012); and national sources

4.02 Fixed broadband Internet tariffs**Monthly subscription charge for fixed (wired) broadband Internet service (PPP \$) | 2011**

Fixed (wired) broadband is considered any dedicated connection to the Internet at downstream speeds equal to, or greater than, 256 kilobits per second, using DSL. The amount is adjusted for purchasing power parity (PPP) and expressed in current international dollars. PPP figures were sourced from the World Bank's *World Development Indicators Online* (retrieved November 29, 2012) and the International Monetary Fund's *World Economic Outlook* (October 2012 edition).

Sources: Authors' calculations based on International Telecommunication Union, *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition); International Monetary Fund, *World Economic Outlook* (October 2012 edition); World Bank, *World Development Indicators Online* (retrieved November 29, 2012); and national sources

4.03 Internet and telephony sectors competition index**Level of competition index for Internet services, international long distance services, and mobile telephone services on a 0-to-2 (best) scale | As of 2011**

This variable measures the degree of liberalization in 19 categories of ICT services, including 3G telephony, retail Internet access services, international long distance calls, and international gateways. For each economy, the level of competition in each of the categories is assessed as follows: monopoly, partial competition, and full competition. The results reflect the situation as of 2011. The index is calculated as the average of points obtained in each of the 19 categories for which data is available. Full liberalization across all categories yields a score of 2, the best possible score. For more information, consult <http://www.itu.int/ITU-D/ICTEYE/Reports.aspx>.

Source: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication Regulatory Database* (accessed November 29, 2012).

5th pillar: Skills**5.01 Quality of the educational system**

How well does the educational system in your country meet the needs of a competitive economy? [1 = not well at all; 7 = very well] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

5.02 Quality of math and science education

How would you assess the quality of math and science education in your country's schools? [1 = poor; 7 = excellent—among the best in the world] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

5.03 Secondary enrollment rate**Secondary education gross enrollment rate (%) | 2010**

The reported value corresponds to the ratio of total secondary enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary education level. Secondary education (ISCED levels 2 and 3) completes the provision of basic education that began at the primary level, and aims to lay the foundations for lifelong learning and human development, by offering more subject- or skills-oriented instruction using more specialized teachers.

Sources: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (accessed November 29, 2012); UNESCO, *UNESCO Science Report 2010: The Current Status of Science around the World*; national sources

5.04 Adult literacy rate**Adult literacy rate (%) | 2010**

Adult literacy is defined as the percentage of the population aged 15 years and over who can both read and write with understanding a short, simple statement on his/her everyday life. For OECD member countries, when data are missing, we apply a value of 99 percent for the purposes of calculating the NRI. This is in line with the approach adopted by the United Nations Development Programme (UNDP) in calculating the 2009 edition of the Human Development Index. In the corresponding table, those countries are identified by an asterisk.

Sources: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (accessed November 29, 2012); national sources

6th pillar: Individual usage

6.01 Mobile telephone subscriptions

Mobile telephone subscriptions (post-paid and pre-paid) per 100 population | 2011

A *mobile telephone subscription* refers to a subscription to a public mobile telephone service that provides access to the Public Switched Telephone Network using cellular technology, including number of pre-paid SIM cards active during the past three months. This includes both analog and digital cellular systems (IMT-2000, Third Generation, 3G) and 4G subscriptions, but excludes mobile broadband subscriptions via data cards or USB modems. Subscriptions to public mobile data services, private trunked mobile radio, telepoint or radio paging, and telemetry services are also excluded. It includes all mobile cellular subscriptions that offer voice communications.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

6.02 Internet users

Percentage of individuals using the Internet | 2011

Internet users are people with access to the worldwide network.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

6.03 Households with a personal computer

Percentage of households equipped with a personal computer | 2010

The proportion of households with a computer is calculated by dividing the number of households with a computer by the total number of households. A *computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs), or TV sets.

Sources: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition) and *ITU World Telecommunication/ICT Indicators Database 2011* (December 2011 edition); national sources

6.04 Households with Internet access

Percentage of households with Internet access at home | 2011

The share of households with Internet access at home is calculated by dividing the number of in-scope households with Internet access by the total number of in-scope households.

Sources: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition) and *ITU World Telecommunication/ICT Indicators Database 2011* (December 2011 edition); national sources

6.05 Fixed broadband Internet subscriptions

Fixed broadband Internet subscriptions per 100 population | 2011

This refers to total fixed (wired) broadband Internet subscriptions (that is, subscriptions to high-speed access to the public Internet—a TCP/IP connection—at downstream speeds equal to, or greater than 256 kb/s).

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

6.06 Mobile broadband Internet subscriptions

Mobile broadband Internet subscriptions per 100 population | 2011

Active mobile-broadband subscriptions refers to the sum of standard mobile-broadband and dedicated mobile-broadband subscriptions to the public Internet. It covers actual subscribers, not potential subscribers, even though the latter may have broadband enabled-handsets.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2012* (December 2012 edition)

6.07 Use of virtual social networks

How widely used are virtual social networks (e.g., Facebook, Twitter, LinkedIn) for professional and personal communications in your country? [1 = not used at all; 7 = used widely] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

7th pillar: Business usage

7.01 Firm-level technology absorption

To what extent do businesses in your country absorb new technology? [1 = not at all; 7 = aggressively absorb] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

7.02 Capacity for innovation

In your country, how do companies obtain technology? [1 = exclusively from licensing or imitating foreign companies; 7 = by conducting formal research and pioneering their own new products and processes] | 2011–2012 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

7.03 PCT patents applications

Number of applications filed under the Patent Cooperation Treaty (PCT) per million population | 2009–2010 average

This measures the total count of applications filed under the Patent Cooperation Treaty (PCT), by priority date and inventor nationality, using fractional count if an application is filed by multiple inventors. The average count of applications filed in 2009 and 2010 is divided by population, using figures for 2010 from the World Bank's *World Development Indicators Online* (retrieved November 28, 2012).

Sources: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2013; World Bank, *World Development Indicators Online* (retrieved November 28, 2012)

7.04 Business-to-business Internet use

To what extent do businesses in your country use ICTs for communicating and carrying out transactions with other businesses? [1 = not at all; 7 = extensively] | 2012

Source: World Economic Forum, Executive Opinion Survey, 2012 edition

7.05 Business-to-consumer Internet use

To what extent do businesses in your country use the Internet for selling their goods and services to consumers? [1 = not at all; 7 = extensively] | 2012

Source: World Economic Forum, Executive Opinion Survey, 2012 edition

7.06 Extent of staff training

[to what extent do companies in your country invest in training and employee development? \[1 = hardly at all; 7 = to a great extent\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

8th pillar: Government usage**8.01 Importance of ICTs to government vision of the future**

[To what extent does the government have a clear implementation plan for utilizing ICTs to improve your country's overall competitiveness? \[1 = no plan; 7 = clear plan\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

8.02 Government Online Service Index

[The Government Online Service Index assesses the quality of government's delivery of online services on a 0-to-1 \(best\) scale | 2012](#)

According to the United Nations' Public Administration Network, the Government Online Service Index captures a government's performance in delivering online services to the citizens. There are four stages of service delivery, *Emerging*, *Enhanced*, *Transactional* and *Connected*. Online services are assigned to each stage according to their degree of sophistication, from the more basic to the more sophisticated. In each country, the performance of the government in each of the four stages is measured as the number of services provided as a percentage of the maximum services in the corresponding stage. Examples of services include online presence, deployment of multimedia content, governments' solicitation of citizen input, widespread data sharing, and use of social networking. For more information about the methodology, consult www2.unpan.org/egovkb/datacenter/CountryView.aspx.

Source: United Nations, *United Nations E-Government Survey 2012: E-Government for the People*

8.03 Government success in ICT promotion

[How successful is the government in promoting the use of information and communication technologies \(ICTs\) in your country? \[1 = not successful at all; 7 = very successful\] | 2012](#)

Source: World Economic Forum, Executive Opinion Survey, 2012 edition

9th pillar: Economic impacts**9.01 Impact of ICTs on new services and products**

[To what extent are ICTs creating new business models, services and products in your country? \[1 = not at all; 7 = a significant extent\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

9.02 PCT ICT patent applications

Number of applications for information and communication technology-related patents filed under the Patent Cooperation Treaty (PCT) per million population | 2009-2010 average
This measures the count of applications filed under the Patent Cooperation Treaty (PCT) in the technology domain of information and communication technologies, by priority date and inventor nationality, using fractional count if an application is filed by multiple inventors. For more information, consult www.oecd.org/sti/innovation/science/technologyandindustry/oecdpatentdatabases.htm. The average count of applications filed in 2009 and 2010 is divided by population, using figures for 2010 from the World Bank's *World Development Indicators Online* (retrieved November 28, 2012).

Sources: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2013; World Bank, *World Development Indicators Online* (retrieved November 28, 2012)

9.03 Impact of ICTs on new organizational models

[To what extent are ICTs creating new organizational models \(e.g., virtual teams, remote working, telecommuting\) within businesses in your country? \[1 = not at all; 7 = a significant extent\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

9.04 Employment in knowledge-intensive activities

[Share of workforce employed in knowledge intensive activities \(%\) | 2008](#)

Count of people employed in categories 0 to 3 as a percentage of total people employed, according to ISCO-1968, ISCO-88, and NSCO (excluding 0 Armed forces in ISCO-88). Categories included: ISCO-1968: (0/1) Professional, technical and related workers; (2) Administrative and managerial workers; and (3) Clerical and related workers. ISCO-88: (1) Legislators, senior officials and managers; (2) Professionals, and (3) Technicians and associate professionals.

Source: Authors' calculations based on International Labour Organisation LaborSta database (access December 15th, 2011)

10th pillar: Social impacts**10.01 Impact of ICTs on access to basic services**

[To what extent do ICTs enable access for all citizens to basic services \(health, education, financial services, etc.\) in your country? \[1 = do not enable access at all; 7 = enable access significantly\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

10.02 Internet access in schools

[How would you rate the level of access to the Internet in schools in your country? \[1 = very limited; 7 = extensive\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

10.03 ICT use and government efficiency

[To what extent does the use of ICTs by the government improve the quality of government services to citizens \(e.g., speeding-up of delivery time, reducing errors, introducing new online services, enhancing transparency\) in your country? \[1 = not at all; 7 = has generated considerable improvements\] | 2011–2012 weighted average](#)

Source: World Economic Forum, Executive Opinion Survey, 2011 and 2012 editions

10.04 E-Participation Index

[The E-Participation Index assesses, on a 0-to-1 \(best\) scale, the quality, relevance, and usefulness of government websites in providing online information and participatory tools and services to their citizens | 2012](#)

According to the United Nations, the *E-Participation Index* assesses the quality and usefulness of information and services provided by a country for the purpose of engaging its citizens in public policy making through the use of e-government programs. As such it is indicative of both the capacity and the willingness of the state in encouraging the citizen in promoting deliberative, participatory decision-making in public policy and of the reach of its own socially inclusive governance program. For more information about the methodology, consult www2.unpan.org/egovkb/datacenter/CountryView.aspx.

Source: United Nations, *United Nations E-Government Survey 2012: E-Government for the People*