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Insight Report

The Global Information Technology Report 2015

ICTs for Inclusive Growth

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The Global Information Technology Report 2015

ICTs for Inclusive Growth

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Editors

The Global Information Technology Report 2015 is a special project within the framework of the World Economic Forum's Global Competitiveness and Risks Team and the Industry Partnership Programme for Information and Communication Technologies. It is the result of collaboration between the World Economic Forum and INSEAD.

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Preface

ESPEN BARTH EIDE
Managing Director, World Economic Forum

The 2015 edition of *The Global Information Technology Report* is released at a time when many economies around the world are struggling to ensure that economic growth is equitable and provides benefits for their entire populations. Advanced economies have not yet reached their full potential and they struggle with persistently high unemployment, rising inequalities, and fiscal challenges. Emerging markets and developing economies are facing stronger headwinds than before and need to adjust their development models to ensure economic growth and a more broad-based distribution of gains.

As a general-purpose technology, the impact of information and communication technologies—or ICTs—extends well beyond productivity gains. As shown in this *Report,* ICTs act as a vector of social development and transformation by improving access to basic services, enhancing connectivity, and creating employment opportunities.

Since 2001, *The Global Information Technology Report* series published by the World Economic Forum in partnership with Cornell University and INSEAD has measured the drivers of the ICT revolution using the Networked Readiness Index. For each of the 143 economies covered, it allows areas of priority to be identified to more fully leverage ICTs for development.

Four important messages emerge from the 2015 edition. First, as mentioned above, the ICT revolution holds the potential of transforming economies and societies and of addressing some of the most pressing global challenges of our time. Second, this ICT revolution is well under way in some parts of the world. In these places, it is even accelerating as a result of the ubiquity of broadband Internet, the democratization of technologies, and the accelerating pace of innovation. Third, the ICT revolution has not so far reached large parts of the planet. Many of those who stand to gain the most from it are not yet connected. In order to better leverage ICTs for development, a higher level of preparedness and better infrastructure and access are needed. In this context, government leadership and vision are critical. Finally, we observe that digital divides exist within countries. Even in the most advanced economies, only certain segments of the population are benefitting from ICTs. Many are left behind because of their age, limited digital literacy, lack of access, or remoteness.

It would be wrong to assume that these divides will be bridged by merely increasing ICT use. The *Report* therefore concludes with a call for action. Policymakers must work with other stakeholders to swiftly adopt holistic long-term strategies for ICT development, implement sound legislation, and make smart investments. Under the theme "ICTs for Inclusive Growth," *The Global Information Technology Report 2015* offers many solutions and examples of enabling policies and investments to help countries to better leverage ICTs for shared prosperity

As the ICT revolution unfolds, it will indeed bring benefits, but it will also bring risks and challenges. Some of these are seen in the increasing incidents related to breaches of cybersecurity or cyberwarfare, and in questions related to privacy and the neutrality of the Internet. The World Economic Forum is addressing these issues through its *Future of the Internet* Global Challenge. This endeavor aims to ensure that the Internet remains a core engine of human progress and to safeguard its globally integrated, highly distributed, and multi-stakeholder nature. It includes the *Cyber Resilience* initiative, which aims to raise awareness of cyber risk and to build commitment regarding the need for more rigorous approaches to cyber risk mitigation. We hope that through this *Report* and its initiatives, the World Economic Forum contributes to making the ICT revolution truly global, growth supportive, and inclusive.

Acknowledgments

ALAN MARCUS
World Economic Forum

In 2001, the World Economic Forum and its partner INSEAD recognized the need for a report such as *The Global Information Technology Report* (GITR) because of the increasing proliferation of technology and its effects on advancing global competitiveness. Now, nearly 15 years later, we are fully experiencing the profound impact that ICTs can bring to businesses, countries, and societies and that stimulate the global economy. Although technology presents unparalleled opportunities for advancing inclusive growth, we are still lacking effective policies that can help foster further developments. The theme of this year's edition, "ICTs for Inclusive Growth," is directly related to the Forum's commitment to this issue and one of its newest initiatives, launched earlier this year at the Annual Meeting 2015: *The Future of the Internet Global Challenge*. This initiative aims to address some of the global trends that the *Report* has been tracking for a number of years: digital inclusion and access, cybercrime and cybersecurity, data privacy and usage, shifting business models, and, finally, creating effective and resilient policies for technologies.

Each year, the ICT Industries and Competitiveness Teams at the World Economic Forum collaborate on the annual production of *The Global Information Technology Report.* Together the teams have seen the series evolve over time to become one of the most respected publications of its kind. More and more policymakers and Forum constituents leverage the *Report* each year to inform their decision-making processes.

We would like to acknowledge the editors of the *Report,* Professor Soumitra Dutta at the Samuel Curtis Johnson Graduate School of Management at Cornell University, Thierry Geiger at the World Economic Forum, and Bruno Lanvin at INSEAD. The World Economic Forum and INSEAD have been publishing the GITR since 2002; through this longstanding partnership, both institutions have developed the Networked Readiness Index (NRI) to reflect the growing importance of technology and innovation across the world.

A special thanks also goes out to our *Report* partners, Cisco and Strategy& (formerly Booz & Company), for their continuous support and engagement for this year's edition.

We also wish to convey our gratitude toward the contributors of the *Report:* Robert Pepper and John Garrity at Cisco Systems; Bahjat El-Darwiche, Mathias Herzog, Milind Singh, and Rami Maalouf at Strategy&, formerly Booz & Company; Michael Kende at the Internet Society; Luis Enriquez, Ferry Grijpink, James Manyika, Lohini Moodley, Sergio Sandoval, Kara Sprague, and Malin Strandell-Jansson at McKinsey & Company; Luis Alvarez at BT Global Services; Anurag Behar at Wipro and the Azim Premji Foundation and Punya Mishra at the Michigan State University; Mikael Hagstroem at SAS; Dale Wiggins at Philips; Dominic Vergine at ARM and the Humanitarian Centre and Laura Hosman at California Polytechnic State University; and Juan Jung at AHCIET – CET.LA. Their unique contributions build upon the insights generated by the NRI and enhance the thematic elements and overall distinctiveness of the *Report.*

Furthermore, we would like to extend our sincere thanks to Professor Klaus Schwab, Chairman of the World Economic Forum, as well as the core project team: Ciara Browne, Attilio Di Battista, Danil Kerimi, and Oliver Cann. More broadly, we also wish to acknowledge the leadership of the Centre for Global Strategies, Espen Barth Eide, Managing Director, and Jennifer Blanke, Chief Economist, as well as the members of the Global Competitiveness and Risks Team: Margareta Drzeniek-Hanouz, Head, Roberto Crotti, Gaëlle Dreyer, Caroline Galvan, Tania Gutknecht, and Cecilia Serin, as well as the members of the Information and Communication Technology Industries Team, under the leadership of Jim Snabe, Chairman of the Centre for Global Industries, and Murat Sönmez, Chief Business Officer: Aurélie Corre, Aurélien Goutorbe, Qin He, William Hoffman, Dimitri Kaskoutas, Derek O'Halloran, Alexandra Shaw, Adam Sherman, and Bruce Weinelt.

Last but not least, we would like to express our gratitude to our 160 Partner Institutes around the world and to all the business executives who completed our Executive Opinion Survey.

Foreword

JOHN CHAMBERS
Chairman and Chief Executive Officer, Cisco Systems

Everyday around the world, people are facing difficult challenges: poverty, unemployment, lack of access to quality education, and climate change, to name but a few. At Cisco, we have learned that technology helps people find innovative solutions to address these problems.

That is why we are pleased, again, to collaborate with the World Economic Forum and INSEAD to produce *The Global Information Technology Report* (GITR) and the Networked Readiness Index (NRI). The NRI provides policymakers, business leaders, and concerned citizens with valuable insights into current market conditions and the state of connectivity across the world, and it helps to identify where more can be done to accelerate the Internet's positive impact on the world in which we live.

We believe there has never been a better time to combine human ingenuity and technological innovation to help people and the planet. Everything is coming online, and we are connecting more of our world every day. At this very moment, over 12 billion devices are connected to the Internet, and that number is expected to increase to over 20 billion by 2020. These connections provide more data for better decision-making and improve the way governments, businesses, and individuals operate. This is the Internet of Everything, and it makes networked connections more valuable and more relevant than ever before.

The Internet of Everything offers countries around the world the opportunity to provide better, richer lives for their citizens and to create new ways for companies to do business. Whether these take the form of connected education and healthcare, smarter cities, more efficient government services, or job creation, we believe the societal benefits of the Internet of Everything will impact our lives in ways never before imagined. It is not the act of getting connected—or even the number of connections—that creates the value, it is the outcomes those connections make possible.

With companies, individuals, and governments working together, we can help improve societies worldwide. Governments alone cannot solve the global challenges we face today. We can tackle many of the inequities in society—such as those in education, employment, and healthcare—by bringing together a diverse set of stakeholders.

For example, more than 4.25 million students have participated in the Cisco Networking Academy since 1997; this involvement is the result of partnerships with over 10,000 educational institutions, governments, nonprofits, nongovernmental organizations, and community centers in 170 countries. Annually the program trains over 1 million students, 20 percent of whom are female, although in certain regions, such as the Middle East, girls and women make up more than 35 percent of the students. This program provides greater economic opportunities for individuals and builds a pipeline of innovators for the future workforce. Many of these students go on to pursue further education, successful ICT careers, or business ownership, advancing economic growth in communities worldwide.

In healthcare, our Jordan Healthcare Initiative is an example of how broadband can connect medical specialists to patients at rural hospitals, saving patients the time and expense of travel and enabling doctors and specialists to collaborate on patient care. Technology can multiply positive impacts for society and through networks, both people- and technology-based. Together we can make amazing things happen.

Throughout our 30-year history, we have been committed to developing world-class Internet technologies to help businesses, governments, and individuals. Ultimately the success and impact of Cisco and the Internet of Everything will be measured by the extent to which we are able to harness the Internet's benefits for humanity.

Foreword

CESARE MAINARDI
Chief Executive Officer, Strategy& (formerly Booz & Company)

Technology has incredible power to improve people's lives, foster economic growth, and create opportunities for individuals, companies, and nations around the globe. Over the past 13 years, the transformative potential of information and communication technologies has been well documented in the annual *Global Information Technology Report* (GITR).

This year's theme—centered on ensuring inclusive growth—is an important reminder that the work is far from over. Many regions and billions of people remain unconnected or underserved, and significant opportunities for further social improvement and economic growth exist. As the following chapters will show, the social and economic challenges of inclusive growth are inseparable from key topics on the global corporate agenda.

We are living in an age of unparalleled digital disruption, with massive amounts of technology-driven change, huge innovation, and significant evolution in the ways people use technology. In this era of dynamic disruption, our Strategy& colleague Christopher Vollmer has often noted that "the enemy is standing still." Whether to facilitate social progress or commercial leadership, in order to unlock the growth that digitization promises, companies and governments alike must act swiftly, decisively, and strategically along three important dimensions.

First, it is critical to get the strategy right. Chart your future with digital at the center and be clear-minded about where you can lead. Identify the solutions you can provide better than anyone else. Every truly great strategy answers the fundamental question "Who are we going to be?" Digital strategy is no exception. The most capable organizations have a clear understanding of who they are and how they add value. This allows them to stay true to their unique identities and focus on developing the powerful capabilities that will reimagine and reinvent what they do and how they do it in order to thrive in a more digital world. The right strategy is bold yet practical—one that can actually be executed to drive transformations and to fuel sustainable and inclusive growth.

Second, it is important to put the user of technology at the center of everything. The user may be a student in a remote school with no Internet access or a consumer looking for a smart phone to help run a small business. Only when we truly understand the individuals using the technology—their behaviors, needs, and problems—can we create better solutions, solve bigger problems, and achieve significant change. Constantly listening to users' feedback and continually iterating strategies and solutions based on deep observational understanding of the needs of citizens and consumers will drive smarter innovation and greater success.

Third, digital leadership requires a bias for action. Disruption presents a myriad of opportunities—but in a swiftly evolving landscape their value often dissipates if not captured quickly. Mobilizing rapid decision-making and action can be particularly challenging for governments and public enterprises, but many established, historically successful companies face this problem as well. Organizations that quickly build or acquire the capabilities they need to be "first and fast" will be best placed to secure and sustain advantage in our increasingly technology-driven world.

Doing these three things extraordinarily well will chart a path for significant growth. With untold economic value and billions more people poised to get connected, governments and business leaders have both a tremendous opportunity and a responsibility. It is up to us to ensure that we fully leverage the potential of digital disruption. One of the dangers is that we might set the bar too low and the horizon too close, and fail to strive far enough. The worst thing we could do is box ourselves in by using technology simply to achieve incremental growth or make the status quo more efficient.

The greatest opportunity lies in reimagining what is possible—to compel ourselves to become fearless explorers and innovators who push past boundaries, create bold visions, and make plans not constrained by today, but fueled by what technology will be able to do tomorrow. The goal for all of us should be to propel ourselves into uncharted territory that will transform our collective futures and accelerate the social, political, and economic benefits that only strategic global connectivity can deliver.

Executive Summary

SOUMITRA DUTTA, Cornell University
THIERRY GEIGER, World Economic Forum
BRUNO LANVIN, INSEAD

Part 1 of the 2015 edition of *The Global Information Technology Report* assesses the state of networked readiness of 143 economies using the Networked Readiness Index (NRI) (Chapter 1.1) and examines the role of ICTs in supporting inclusive growth through a number of contributions by leading experts and practitioners (Chapters 1.2 through 1.11). Part 2 consists of an extensive data compendium with the detailed performance of each economy in the NRI (Section 2.1) and rankings for each of the 53 individual indicators included in the NRI (Section 2.2).

PART 1: LEVERAGING ICTS FOR SHARED PROSPERITY

Since 2001, when *The Global Information Technology Report* was launched, information and communication technologies (ICTs) have become more powerful, more accessible, and more widespread. They are now pivotal in enhancing competitiveness, enabling development, and bringing progress to all levels of society. The results of the NRI, presented in Chapter 1.1, and Chapter 1.2, which reviews the empirical literature on the impact of ICTs in past decades, provide ample evidence of these advances.

But the NRI results also reveal that, so far, it is mostly the rich countries that have been benefiting from this ICT revolution. Paradoxically, ICTs have opened up new digital divides. The question of whether opportunities offered by ICTs are inclusive by nature or whether they are likely to increase the distance between the haves and the have-nots is a pertinent one. Some segments of the population may be exposed differently than others to labor market shifts induced by technological innovation, which can aggravate inequalities across groups with different levels of skills. Progress made in improving national competitiveness may create or deepen domestic inequalities if the unconnected become second-class citizens. In the absence of corrective mechanisms, ICTs could indeed contribute to a non-inclusive type of growth, thus exacerbating the problem rather than mitigating it.

The first part of the *Report* showcases compelling solutions and makes policy recommendations for avoiding the pitfalls, bridging the divides, and allowing everyone to benefit from, and participate in, the ICT revolution.

The Networked Readiness Index 2015: Taking the Pulse of the ICT Revolution

Chapter 1.1 presents the results of the Networked Readiness Index (NRI) 2015, which measures the capacity of countries to leverage ICTs for increased competitiveness and well-being.

The Networked Readiness Index

The networked readiness framework rests on six principles: (1) a high-quality regulatory and business environment is critical in order to fully leverage ICTs and generate impact; (2) ICT readiness—as measured by ICT affordability, skills, and infrastructure—is a pre-condition to generating impact; (3) fully leveraging ICTs requires a society-wide effort: the government, the business sector, and the population at large each have a critical role to play; (4) ICT use should not be an end in itself. The impact that ICTs actually have on the economy and society is what ultimately matters; (5) the set of drivers—the environment, readiness, and usage—interact, co-evolve, and reinforce each other to form a virtuous cycle; and (6) the networked readiness framework should provide clear policy guidance.

The framework translates into the NRI, a composite indicator made up of four main categories (subindexes), 10 subcategories (pillars), and 53 individual indicators distributed across the different pillars:

A. Environment subindex
1. Political and regulatory environment (9 indicators)
2. Business and innovation environment (9 indicators)

B. Readiness subindex
3. Infrastructure (4 indicators)
4. Affordability (3 indicators)
5. Skills (4 indicators)

C. Usage subindex
6. Individual usage (7 indicators)
7. Business usage (6 indicators)
8. Government usage (3 indicators)

D. Impact subindex
9. Economic impacts (4 indicators)
10. Social impacts (4 indicators)

The computation of the overall NRI score is based on successive aggregations of scores: individual indicators are aggregated to obtain pillar scores, which

are then combined to obtain subindex scores. Subindex scores are in turn combined to produce a country's overall NRI score. The appendix of Chapter 1.1 presents the detailed methodology and composition of the NRI.

About half of the individual indicators used in the NRI are sourced from international organizations. The main providers are the International Telecommunication Union, UNESCO and other UN agencies, and the World Bank. The other half of the NRI indicators are derived from the World Economic Forum's Executive Opinion Survey (the Survey). The Survey is used to measure concepts that are qualitative in nature or for which internationally comparable statistics are not available for enough countries. The 2014 edition of the Survey was completed by over 13,000 business executives.

Networked Readiness Index 2015: Results overview

Tables 1–5 in Chapter 1.1 report the rankings of the overall NRI 2015, its four subindexes, and their respective pillars.

Not unexpectedly, advanced economies are better than developing ones at leveraging ICTs. High-income economies dominate, taking the first 31 places in the overall NRI rankings. The performance of countries largely mirrors their position on the development ladder: a higher level of income is typically associated with a higher NRI score. Forty-four of the 50 high-income economies covered rank in the top 50, which otherwise features six upper-middle-income countries, the highest-ranked being Malaysia at 32nd place. At the bottom of the rankings, 26 of the 30 worst-performing countries are low-income or lower-middle-income countries.

Singapore tops the rankings this year, and even though this bumps Finland to 2nd place, seven of the **top 10** this year are European. That is one more than in 2014, thanks to Luxembourg (9th), which—along with Japan (10th)—enters the top 10 at the expense of the Republic of Korea (12th, down two spots) and Hong Kong SAR (14th). As a result, only Singapore represents the Asian Tigers in the top 10. Besides Singapore and Japan, the United States (stable at 7th) is the only other non-European country in this group.

Europe is home to some of the best connected and most innovation-driven economies in the world. In particular, the **Nordics**—Finland (2nd), Sweden (3rd), Norway (5th), Denmark (15th), and Iceland (19th)—continue to perform well. Indeed, these five countries have featured in the top 20 of every edition since 2012.

The group performance of **Western European** countries is also strong. The Netherlands (4th), Switzerland (6th), the United Kingdom (8th), and Luxembourg (9th) all appear in the top 10. Ireland (25th) has been stable since 2012, and France (26th)—which has lost three places since 2012—closes the group in the subregion. In Southern Europe, Portugal (28th, up five), Italy (55th, up three), and Greece (66th, up eight) improve significantly from last year on the back of major improvements in government usage, whereas Malta (29th), Spain (34th), and Cyprus (36th, up one) remain quite stable. These largely positive trends contribute to narrowing Southern Europe's gap with the rest of the region, which had been widening since 2012.

Thanks to the strong performance of Estonia (22nd) and the steady rise of Latvia (33rd, up six), which is catching up to Lithuania (31st), the **Baltic countries** are slowly but surely bridging the gap with the Nordics—a remarkable achievement for the three former Soviet Republics. These countries are breaking away from what was once a fairly homogenous group of **Eastern European countries** that have joined the European Union (EU) since 2004: Slovenia (37th, down one), the Czech Republic (43rd, down one), Hungary (53rd, down six), Croatia (54th, down eight), and the Slovak Republic (59th, no change) are either stable or losing ground. Meanwhile Poland has jumped four places to enter the top 50, and Romania—once the worst performer in the European Union—has leapfrogged 12 positions to reach 63rd place, ahead of Bulgaria (73rd).

The divide within the **Middle East, North Africa, and Pakistan** region is the largest among all regions. The United Arab Emirates (23rd, up one) and Qatar (27th, down four) continue to lead, ahead of Bahrain (30th), Saudi Arabia (35th), and Oman (42nd), which are all members of the Gulf Cooperation Council (GCC). All owe their success to a very strong commitment to ICT development by their respective governments. Kuwait's performance (72nd) stands at odds with that of its GCC peers. In the rest of the region, only Jordan (52nd) features in the top half of the rankings. Morocco follows at a middling 78th, but is the country that has improved the most (up 21 places) over the past year. Mauritania (138th) remains the region's worst-performing country.

Emerging and developing Asia offers strong contrasts, too. Over 100 places separate the region's best- and worst-performing economies. Malaysia (32nd) is the only country featured in the top 60 of the NRI; two-thirds of the countries from the region appear in the bottom half of the rankings. Mongolia (61st), Sri Lanka (65th), and Thailand (67th) lag some 30 places behind Malaysia. China is stable in 62nd position, while India continues its fall, dropping a further six to 89th place.

Chile (38th) leads in **Latin America and the Caribbean,** almost 100 places ahead of Haiti (137th), the region's worst performer. Overall, though, trends are encouraging: 14 of the 23 countries in the region have increased their score since last year; 19 of them have done so since 2012. In particular, Costa Rica (49th, up nine since 2012), Panama (51st, up six), El Salvador (80th, up 23), Peru (90th, up 16), and Bolivia (111th, up 16) have posted some of the largest score gains worldwide since 2012.

The performance of **sub-Saharan Africa** is particularly disappointing: 30 of the 31 countries included in the sample appear in the bottom half of the

NRI rankings. The only exception is Mauritius, at 45th. This country has progressed three places since last year and eight since 2012. Among the large economies of the region, Nigeria drops seven places to 119th. South Africa drops five to 75th—it is now third in the region behind Mauritius and Seychelles (74th). In contrast, Kenya (86th, up six) has been slowly improving since 2012.

Chapter 1.1 provides a short overview of the performance of the 10 best-performing countries in the NRI 2015 and the members of the G-20 outside the top 10.

Key messages

Among the many insights that emerge from the NRI results, five stand out because of their important policy implications.

- **The transformative power of ICTs.** As a general-purpose technology, the impact of ICTs extends well beyond productivity gains. ICTs are vectors of economic and social transformation. By improving access to services, enhancing connectivity, creating business and employment opportunities, and changing the ways people communicate, interact, and engage among themselves and with their governments, ICTs can transform our world.

  Yet only widespread and systematic use of ICTs by all stakeholders—individuals, businesses, and government—can trigger such transformation. The NRI reveals the almost perfect correlation between a country's level of ICT uptake and the economic and social impacts ICTs have on its economy and society.

- **The myth of ubiquitous ICTs.** ICTs are neither as ubiquitous nor spreading as fast as many believe. This explains in part the persistence of the digital divide across and within countries. Indeed, a stubbornly high correlation between income level and performance in the NRI exists.

  There are as many mobile subscriptions as human beings on the planet. But half of the world's population do not have mobile phones and 450 million people still live out of reach of a mobile signal. In developing countries, a huge divide exists between well-connected urban centers and off-the-grid rural areas. Some 90 percent of population in low-income countries and over 60 percent globally are not online yet. Finally, most mobile phones are of an older generation. The ICT revolution will not be carried over voice and SMS but will require universal and high-speed Internet.

- **The low-hanging fruit of policymaking.** To achieve the ICT revolution and bridge digital divides, countries need to develop their ICT ecosystems. This implies long-term, costly investments in infrastructure and education. But low-hanging fruits do exist. Governments can create an enabling environment by promoting competition through sound regulation and liberalization.

  In sub-Saharan Africa, many countries have fully liberalized their ICT markets. Indeed, in terms of liberalization the region is doing better on average than several others. This strategy bodes well for the future. Some countries—including Kenya and Tanzania—are starting to reap the benefits of liberalization in the form of increased private investments and the introduction of new business models and services.

- **ICTs' contributions to shared prosperity.** If harnessed properly, ICTs can create economic opportunities and foster social and political inclusion, ultimately contributing to shared prosperity. From an economic point of view, ICTs boost productivity and reduce transaction and information costs. They allow new models of collaboration that increase workers' efficiency and flexibility. ICTs foster entrepreneurship and create new business models. Through crowdfunding and equity-crowdfunding platforms, ICTs also provide alternative sources of financing.

  Furthermore ICTs offer significant social benefits, notably by enabling access to basic services, including financial services and education. They also allow for a more direct interaction between populations and governments. Improved government online presence can significantly increase the efficiency of public administration. The Internet provides new ways for citizens to participate in policy- and decision-making processes. Open-data initiatives and stronger commitments by governments to making information available online improve transparency, governance, and accountability.

  Widespread ICT use by businesses, government, and the population at large is a pre-condition for all these benefits and opportunities to materialize, as confirmed by the nearly perfect correlation between the NRI's Usage and Impact subindexes.

- **Better data for better policies.** The lack of good data on some of the most basic indicators of socioeconomic performances, let alone ICT-related concepts, is truly alarming, as it can lead to misguided policies and misallocation of resources. The NRI suffers from such data paucity. Like any benchmarking exercise, it is only as good as its underlying data. The World Economic Forum is fully aware of the limitations of the data and acknowledges the gaps, particularly when it comes to measuring the impacts of ICTs. We therefore renew our plea for more and better data.

  Governments around the world need to strengthen the capacity of national statistical offices

to collect data and preserve their independence, and to support the United Nations' agencies and other international institutions in their hugely important efforts to collect more reliable, more granular, more timely, more complete, and more harmonized data.

ICTs, Income Inequality, and Ensuring Inclusive Growth

Chapter 1.2, contributed by Robert Pepper and John Garrity from Cisco Systems, explores the differential impacts of information and communications technologies (ICTs) on income, economic growth, and poverty alleviation. The chapter begins by looking back at a global target for ICT penetration 30 years ago and reviews ICTs' impact on income inequality. The authors present the paradox between ICTs' impact on global income inequality and their impact on within-country inequality.

A review of the macroeconomic and microeconomic literature on ICT impact on the effects of income growth posits explanations for the mixed relationship and highlights the role of these technologies as income multipliers. The chapter concludes with a vision of greater ICT-driven inclusive growth in the future. It also highlights specific policies and programs intended to enhance the income effects of ICT on lower-income and marginalized populations.

Understanding Digital Content and Services Ecosystems: The Role of Content and Services in Boosting Internet Adoption

Chapter 1.3, contributed by Bahjat El-Darwiche, Mathias Herzog, Milind Singh, and Rami Maalouf at Strategy& (formerly Booz & Company), analyzes a key reason that Internet penetration rates in some developing countries are lagging behind others, despite the fact that online connectivity is both available and affordable. The authors focus on the role of digital content and services in the evolution and development of the increase in Internet adoption and usage. To establish a foundation for the research and to understand the way digital content ecosystems evolve, they identify the major content categories that serve as building blocks: entertainment, information, utilities (including government services), business services, sharing platforms, and communications. They then review the evolution of digital ecosystems in developed nations, considering the United States, Germany, and the Republic of Korea. The authors find broad similarities in the way Internet content has evolved in these countries, but also key differences in areas such as the degree of government involvement in content generation.

The authors devise a method of measuring the maturity of digital content ecosystems, capturing both the depth and variability of content. They use the resulting index to show the relationship between ecosystem maturity and Internet penetration for each of 75 countries. They find that the evolution of digital content ecosystems is supply-driven, suggesting the need to overbuild content and services in the early stages. Entertainment and information content are the primary drivers of user growth, with utilities playing an important secondary role. Content ecosystems begin to reach a point of critical mass because of the network effect of sharing platforms. As sharing platforms and online advertising proliferate, e-commerce and other business services assume a larger role, and the ecosystem becomes economically self-sustaining.

The authors conclude that key stakeholders (the government, local content providers, telecommunication operators, and global platform providers) can play an important role in jumpstarting digital content ecosystems at the early stages of evolution by investing in relevant, local content. This helps to build a user base large enough to reach the critical mass point, which in turn will create the conditions for self-sustainability.

ICTs for Inclusive Growth: E-Entrepreneurship on the Open Internet

In Chapter 1.4, Michael Kende from the Internet Society points out the exciting new possibilities for entrepreneurs worldwide that are created by access to the open Internet. Those formerly excluded from economic opportunity can now use the Internet for education, research, fundraising, and collaboration to start their own companies—opportunities that would be unimaginable without access to the open Internet.

Traditionally, high-tech startups have gathered in clusters such as California's Silicon Valley, home to many of the early large Internet startups—including Netscape, eBay, Yahoo!, and Google. These companies benefited from the conditions that led to the development of the largest and best-known high-tech cluster—conditions that include access to Stanford University, to venture capital, and to a large pool of skilled employees.

Many regions and countries have tried to duplicate the conditions of Silicon Valley to benefit from the resulting startups. These efforts have met with varying success, and have clearly created new opportunities for entrepreneurs. However, not everyone is able to benefit from access to such a cluster, particularly in developing countries.

Kende demonstrates that many of the important inputs for startups are migrating online. These include tangible inputs, such as venture capital and computing capacity, along with less tangible ones, such as mentorship and collaboration. As a result, the possibilities for entrepreneurship are expanding beyond the traditional boundaries of high-tech clusters to include all people in all regions with access to the open Internet.

As the activity of innovation becomes more inclusive because more people—across countries and income levels, education and gender—are able

to create new enterprises, so too are the results of innovation becoming more inclusive, because many new entrepreneurs focus their efforts on filling market gaps close to home. To foster this new source of startups, the author argues that policymakers can focus on ensuring that Internet access is widely available, affordable, and open.

Creating the Next Wave of Economic Growth with Inclusive Internet

Despite great progress in Internet uptake and enormous growth potential of Internet services, a large portion of the world's population still have no access to the Internet, or their ICT skills are insufficient for them to take the full advantage of the opportunities and economic growth the Internet can provide.

Countries where this is the situation must take decisive action to improve it, not to further increase the digital divide gap. To identify potential actions, Chapter 1.5 leverages a recent McKinsey Global Institute study of the offline population in 20 countries accounting for 74 percent of the worldwide offline population. The authors outline a selection of key drivers of past Internet development along with a number of barriers still hindering Internet uptake among the unconnected.

The chapter provides examples, from different countries and regions in the world, of initiatives that have been taken to improve Internet connectivity among the unconnected, and to stimulate Internet usage. These examples fall into two distinct categories. The first group comprises initiatives that facilitate investments and the deployment of networks in existing and new areas. The second group is aimed at increasing the unconnected population's demand for Internet services.

The authors believe that coordinated action based on specific country circumstances, along with a combination of initiatives such as those outlined in the chapter, can help include those who are still unconnected among the beneficiaries of future ICT growth and help bridge the digital divide.

Developing the Network for Growth and Equality of Opportunity

In Chapter 1.6, Luis Alvarez of BT Global Services discusses the importance of international networks and connectedness, and how they are key not just to growth, but to equitable and inclusive growth. The chapter examines some specific examples of this "information superhighway" vison in detail, including the Katha Information Technology and E-Commerce School (KITES) in India, SOS Children's Villages in Africa, Message Stick in Australia, and UK initiatives such as Citizens Online and The Age UK Digital Inclusion Network.

The chapter also considers the relationship between networks and the public sector from two different angles. First, it discusses the ability for network infrastructure and IT services to improve the function and output of government and the public sector, looking at developments in big data, social media, and the cloud, and at efficiencies in cost, administration, and planning. On the other side of the coin, it argues that governments have a responsibility to support networks by ensuring a robust and modern regulatory environment, consistent across geographies and technologies, and by promoting supplier access and driving healthy market competition.

The chapter highlights how the benefits of investment in and access to networks are notable for just how widely they are shared among employees, suppliers, distributors, and consumers, with additional positives, including increased social and financial inclusion. The author concludes that to maximize these benefits, the private sector, governments, and nongovernmental organizations must recognize the need for selective and directed investment, to ensure those areas most lacking in digital inclusion are targeted first. Models are changing across the globe—for example, E-commerce, entertainment, mobile micro payments, telehealth—and consistently these new models contain digital input and delivery channels. A commitment to ensuring that sections of society are not excluded from these developments will ultimately drive long-term benefit across all sectors, by promoting lasting economic and social wealth.

ICTs in Schools: Why Focusing Policy and Resources on Educators, not Children, Will Improve Educational Outcomes

Although much has been made of the potential to use technology to improve educational outcomes in schools, particularly in developing countries, there is no evidence that such initiatives have delivered on that promise. In Chapter 1.7, Anurag Behar of Wipro and Punya Mishra of Michigan State University argue that the most effective use of technology to help improve educational outcomes lies not in pushing for getting technology into the hands of the learners in the classroom, but rather in emphasizing using the strengths of ICTs as integral elements in the development process of teachers. For this reason, the resources currently focused on classroom technology should be switched to projects that facilitate enhanced teacher education and teacher professional development. Building teacher capacity will have a longer-term and sustainable impact on the education of all children.

Big Data Analytics for Inclusive Growth: How Technology Can Help Elevate the Human Condition

In Chapter 1.8, Mikael Hagstroem from SAS argues that resolving the world's current challenges requires moving beyond economic vigor to embrace technology. Elevating the human condition will require *inclusive growth,* where everyone can make contributions toward

growth and all sectors of society can benefit from the dividends and sense of purpose that result.

The chapter identifies the three essential components of inclusive growth as education, jobs, and well-being. It explains how technology is an enabler, a catalyst, and a propelling force for all three. Now that we can process huge volumes of data, and now that we have enough affordable processing capacity, we can build the holistic models that allow us to ask previously unimaginable questions, and we can answer those that were not previously answerable. This development makes truly inclusive growth a genuine possibility for the first time in history.

In other words, big data analytics has created a tipping point, shifting us from a world in which we *think* we know how to elevate the human condition into a world in which we *know* how to do this and we can *prove* it.

In a series of case studies that demonstrate how technology can improve the human condition, we see that big data analytics can:

- transform from within by providing faster, fact-based foundations on which to make decisions;
- answer questions and uncover solutions that governments and nongovernmental organizations have not yet envisioned; and
- create much-needed jobs and GDP growth.

The examples show that big data analytics can create more developed economies, give voice to the unheard, and improve public welfare. Given this power for good, governments should ensure that their citizens have the skills needed to participate and succeed in a data-driven economy because data-driven decisions are what will move society forward.

Connected Healthcare: Extending the Benefits of Growth

Over the last century, economic and technological developments have improved people's lives and extended global life expectancies. Yet this growth is not truly inclusive: as Chapter 1.9 by Dale Wiggins of Philips points out, billions are excluded because they lack of healthcare and the means to lead a healthy life. Inclusive growth occurs when economies and healthcare expand together. Good health improves productivity and educational attainment. It allows people to enjoy the fruits of growth and contribute to further development. In an inclusive world, everyone would have access to the best possible care, for themselves and their loved ones. But this vision is increasingly hard to attain. Worldwide, healthcare provision is struggling with unsustainable pressure from rising demand and costs.

The expanding global middle class, a massive rise in chronic diseases, and a lack of resources and skilled medical professionals are driving this pressure. Escalations, interventions, and costs for care providers are soaring. Because healthcare is increasingly out-of-pocket, many patients also face rising costs, while lack of access to primary care exacerbates the situation in emerging economies.

At the same time, the cost of digital technology is decreasing so quickly that it becomes ubiquitous, leading to an even greater transformation: connected healthcare. Intervention models previously considered impractical—such as point-of-care diagnostics and telemedicine to remote sites—are now very possible. Connecting people, devices, and data in entirely new ways will lead to better outcomes for patients, reduce costs, and increase inclusivity of care worldwide.

Connected, integrated ICTs will empower individuals to live healthier lives and to actively participate in any treatment they require. Professionals throughout the care continuum will be enabled to work with patients and each other more efficiently. Mobile and connected technologies will also expand access to specialist care to millions more people—from expectant mothers in developing economies to people living in remote rural areas, all over the world, thus bringing better health and inclusive growth to entire populations.

Designing Technology for Inclusive Growth

There are still 4.5 billion people without access to the Internet, but the potential benefits of being connected go far beyond commercial opportunity. There is now widespread agreement—along with emerging evidence—that access to technology can help improve quality of life and accelerate development efforts at all levels. Nearly every aspect of development—including the meeting of basic needs—can be improved by applying technologies. In other words, technologies hold tremendous potential to solve development challenges. The difficulty is how to design technologies to meet these needs, and how to ensure that their deployment does not have other, unintended, effects.

Co-authored by Dominic Vergine of ARM and Laura Hosman of California Polytechnic State University, supported by USAID, and with contributions from UNICEF Innovation, Literacy Bridge, The Oxford Centre for Affordable Health Technologies, and SimPrints, Chapter 1.10 attempts to answer the question "What are the main challenges related to the design and deployment of technology hardware across the developing world?" By understanding these challenges, technology companies can learn how to develop better products for this emerging market. The chapter also serves to encourage the private sector to help tackle international development issues and develop "disruptive" technologies for all markets.

Digital Inclusion and Economic Development: A Regional Analysis from Brazil

In Chapter 1.11, Juan Jung of the Iberoamerican Association of Telecom Enterprises (AHCIET – CET.LA) analyzes the impact of broadband on regional productivity in Brazil, intending to find out if the economic impact is uniform across all territories of the country. The possibility of taking a regional approach, instead of the usual country-level analysis, provides an opportunity to disentangle the economic impact of broadband in territories that share a common institutional and regulatory framework as do the regions inside a single country.

The results of the analysis suggest that the impact of broadband on productivity is not uniform across regions. In the case of Brazil, broadband seems to be yielding higher productivity gains for less-developed regions. Results further verify that broadband connectivity yields higher economic impact in regions that specialize in specific sectors, such as commerce or information services. The fact that most underdeveloped regions in Brazil seem to be benefiting more than the rest of the country from the presence of broadband may suggest that broadband favors regional cohesion. The chapter discusses possible policy implications that may be derived from these results. It emphasizes frameworks suitable for promoting broadband deployments and the importance of promoting ICTs in lagging regions with the aim of favoring their attractiveness as a location for business.

PART 2: DATA PRESENTATION

Part 2 of the *Report* contains individual scorecards detailing the performance in the Networked Readiness Index of all 143 economies (Section 2.1) and tables reporting the global rankings for each of the 53 individual indicators composing the NRI (Section 2.2). It also contains a detailed list of sources and additional information for each individual indicator (Section 2.3).

Visit www.weforum.org/gitr for additional material, interactive scorecards and rankings, and downloading data.

Part 1

Leveraging ICTs for Shared Prosperity

CHAPTER 1.1

The Networked Readiness Index 2015: Taking the Pulse of the ICT Revolution

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When *The Global Information Technology Report,* was created in 2001, it was based on two key premises, which still apply today. First, information and communication technologies (ICTs) were becoming more powerful, more accessible, and more widespread. Second, they were playing a key role in enhancing competitiveness, enabling development, and bringing progress to all levels of society.

The past 15 years have provided ample evidence of these advances. Countries such as the Republic of Korea, Israel, and Estonia have based their national competitiveness on ICT products and services. The spread of ICTs have also had wide societal impact, especially on less-privileged segments of society. For example, farmers in developing countries have benefited from new ICT services such as real-time information about commodity prices and weather, and from the ease of money transfers. The effectiveness of governments has increased as a result of their ability to provide citizen-centric online services and to involve citizens in governance. ICTs have become key enablers of business and employment creation, and of productivity growth. For these reasons, ICTs have significant potential for supporting inclusive growth.

The results of the Networked Readiness Index (NRI), presented in this chapter, along with Chapter 1.2, which reviews the empirical literature on the impact of ICTs, provide additional evidence of this progress. But these same results reveal that, so far, it is mostly the rich countries that have been benefiting from the ICT revolution. Paradoxically, ICTs have opened up new digital divides. Although Internet access is expanding, 61 percent of the world's population are not connected yet. The distribution of high-speed broadband and the use of mobile applications and advanced data services varies widely across and within economies. And although schools and firms increasingly have access to the Internet, the skills required to leverage ICTs remain woefully inadequate in many organizations.

The question of whether opportunities offered by ICTs are inclusive by nature or whether they are likely to increase the distance between the haves and the have-nots is a pertinent one. Some segments of the population may be exposed differently than others to labor market shifts induced by technological innovation, which can aggravate inequalities across groups with different levels of skills. Progress made in improving national competitiveness may create or deepen domestic inequalities if the unconnected become second-class citizens. In the absence of corrective mechanisms (e.g., specific policies to connect all citizens and give them access to relevant skills), ICTs could indeed contribute to a non-inclusive type of growth, thus exacerbating the problem rather than mitigating it.

Under the theme "ICTs for inclusive growth," this year's *Report* showcases compelling solutions and makes policy recommendations for avoiding the pitfalls,

bridging the divides, and allowing everyone to benefit from, and participate in, the ICT revolution.

THE NETWORKED READINESS FRAMEWORK

It is widely acknowledged that productivity is a critical determinant of economic growth. In fact, a number of empirical studies show that differences in productivity growth account for cross-country growth variations even more than capital or labor accumulation.[1] As the World Economic Forum's research on competitiveness has shown, the determinants of productivity are many and complex.[2] Empirical evidence shows that, among these determinants, ICT use is a key driver of innovation, especially in advanced economies where other sources of productivity gains have dried up or produce lower returns.[3]

As a general-purpose technology, ICTs have an impact that extends well beyond productivity gains. ICTs act as a vector of social development and transformation by improving access to basic services, enhancing connectivity, and creating employment opportunities. In these ways ICTs affect how people live, communicate, interact, and engage among themselves and with their governments.

For these reasons, measuring the extent to which ICTs are used and understanding the determinants of ICT adoption have been the object of much research since the early 2000s. In 2001, the World Economic Forum launched the *Global Information Technology Report* series and the Networked Readiness Index (NRI). This represented one of the first attempts to make conceptual sense of the complex ICT reality, identifying the common factors that enable countries to use technology effectively. The networked readiness framework that underpins the NRI was intended to provide guidance to policymakers on the factors that they need to take into account to fully leverage ICTs in their growth strategies.

In recent years, the debate has moved from the issue of ensuring access to the question of how to make the best use of ICTs in order to improve business innovation, governance, citizens' political participation, and social cohesion. In light of this shift in emphasis, and after two years of research and consultations with experts, the Impact subindex was added to the NRI framework in 2012.[4] Yet measuring the actual impact of ICTs remains a very arduous task, as data remain scarce. In addition, the complex relationships between ICTs and socioeconomic performance are not fully understood and their causality not fully established. However, our hope is to highlight the opportunities offered by ICTs and provide an indication of how they are transforming economies and societies around the world.

The networked readiness framework, presented in Figure 1, rests on six principles:

1. A high-quality regulatory and business environment is critical in order to fully leverage ICTs and generate impact.
2. Similarly, ICT readiness—as measured by ICT affordability, skills, and infrastructure—is a pre-condition to generating impact.
3. Fully leveraging ICTs requires a society-wide effort. All stakeholders—the government, the business sector, and the population at large—have a role to play.
4. ICT use should not be an end in itself. The impact that ICTs actually have on the economy and society is what ultimately matters.
5. The set of drivers—the environment, readiness, and use—interact, co-evolve, and reinforce each other to create greater impact. In turn, greater impact creates more incentives for countries to further improve their framework conditions, their readiness for ICTs, and their use of ICTs, thus creating a virtuous cycle. Conversely, weaknesses in any particular dimension are likely to hinder progress in others.
6. Finally, the networked readiness framework should provide clear policy guidance.

THE NETWORKED READINESS INDEX: STRUCTURE AND METHODOLOGY

The networked readiness framework translates into the Networked Readiness Index (NRI), a composite indicator made up of four main categories (*subindexes*), 10 subcategories (*pillars*), and 53 individual indicators distributed across the different pillars:

A. Environment subindex
1. Political and regulatory environment (9 indicators)
2. Business and innovation environment (9 indicators)

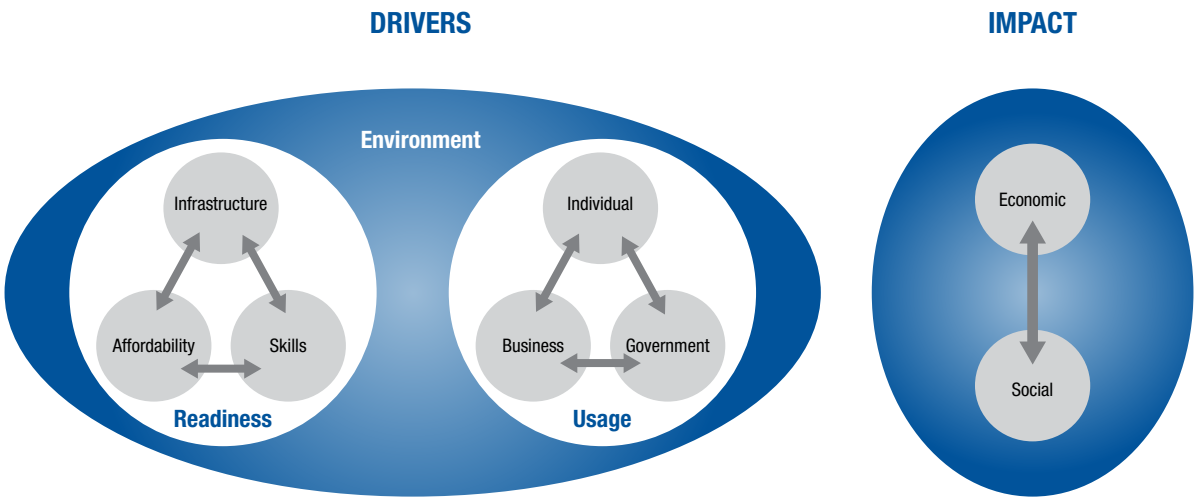
B. Readiness subindex
3. Infrastructure (4 indicators)
4. Affordability (3 indicators)
5. Skills (4 indicators)

C. Usage subindex
6. Individual usage (7 indicators)
7. Business usage (6 indicators)
8. Government usage (3 indicators)

D. Impact subindex
9. Economic impacts (4 indicators)
10. Social impacts (4 indicators)

A description of each subindex and pillar is provided below, along with the rationale for their inclusion. The appendix presents detailed information on the composition and computation of the NRI.[5]

Figure 1: The Networked Readiness framework



Environment subindex

The success of a country in leveraging ICTs depends in part on the quality of the overall operating environment. The *Environment* subindex therefore assesses the extent to which a country's market conditions and regulatory framework support entrepreneurship, innovation, and ICT development.

The *Political and regulatory environment* pillar assesses the extent to which a country's political and regulatory environments facilitate ICT penetration and the development of business activities. It does so by measuring the extent of intellectual property rights protection, prevalence of software piracy, the efficiency and independence of the judiciary, the efficiency of the law-making process, and the overall quality of regulations pertaining to ICTs.

The *Business and innovation environment* pillar gauges the extent to which the business environment supports entrepreneurship by taking into account measures of red tape, the ease of starting a business, and taxation. It also measures the conditions that allow innovation to flourish by including indicators on the overall availability of technology, the intensity of competition, the demand conditions for innovative products (as proxied by the development of government procurement of advanced technology products), and the availability of venture capital for funding innovation-related projects.

Readiness subindex

The *Readiness* subindex measures the extent to which a country has in place the infrastructure and other factors supporting the uptake of ICTs.

The *Infrastructure* pillar captures the state of a country's ICT infrastructure as well as infrastructure that matters for ICT development: mobile network coverage, international Internet bandwidth, secure Internet servers, and electricity production.

The *Affordability* pillar assesses the affordability of ICTs in a country through measures of mobile telephony usage costs and broadband Internet subscription costs, as well as an indicator that assesses the state of liberalization in 17 categories of ICT services, because more intense competition tends to reduce retail prices in the long run.

The *Skills* pillar measures the capacity of the population to make effective use of ICTs by taking into account the enrollment rate in secondary education, the overall quality of the education system, and of mathematics and science education in particular, and adult literacy.

Usage subindex

The *Usage* subindex assesses the extent of ICT adoption by a society's main stakeholders: government, businesses, and individuals.

The *Individual usage* pillar measures the level of diffusion among a country's population, using mobile telephony penetration, Internet usage, personal computer ownership, and the use of social networks.

The *Business usage* pillar captures the extent to which businesses in a country use the Internet for business-to-business and business-to-consumer operations, as well as their efforts to integrate ICTs in their operations. It also measures the capacity of firms to come up with new technologies by taking into account the number of patent applications under the Patent Cooperation Treaty (PCT). Finally, it measures the extent of staff training as a proxy for the capacity of management and staff to innovate.

The *Government usage* pillar assesses the leadership and success of the government in developing and implementing strategies for ICT development, as

Box 1: Measuring e-government and e-participation: The UN E-Government Survey

The United Nations E-Government Survey has been conducted since 2003 by the United Nations Division of Public Administration and Development Management in order to assess the development of e-government across three main dimensions: telecommunication infrastructure; human capacity; and availability of online services. The results of the E-Government Survey feed into the calculation of a number of indicators, including the Government Online Service Index and the E-Participation Index, both of which are included in the Networked Readiness Index (NRI). Although the conceptual framework of the E-Government Survey has remained the same since 2003, it has been adapted to the evolving nature of e-government through some methodological changes.

The Government Online Service Index captures a government's performance in delivering online services to its citizens. The 2014 edition measures the provision of basic e-services, governments' attention to e-participation, multichannel service delivery, usage expansion, adoption of open data initiatives, whole-of-government approach, and digital divides. It focuses more than previous editions on e-participation in particular, and on the presence of open data initiatives on government websites. The basket of basic services provided by public administration has also been expanded to include environmental e-information.

The E-Participation Index assesses the extent to which governments leverage digital technologies to improve civic participation through the provision of e-information, the launch of e-consultation initiatives, and use of e-decision making. The 2014 version of the E-Government Survey expanded the assessment of e-participation so as to include also the use of e-government programs to engage citizens in public policymaking and implementation. The survey was updated to improve the accuracy of the information collected on e-consultation and e-decision-making initiatives. New questions and updates were also made to better assess data publishing and sharing by government agencies; the availability of information on the citizens' rights to access government information; the provision of outcome on feedback received from citizens concerning the improvement of its online services; and the provision of tools in order to obtain public opinion for public policy deliberation through social media, online polls, petition tools, voting tools, online-bulletin boards, and online discussion forums.

The Government Online Service Index and the E-Participation Index provide useful information for the NRI's government usage and social impacts pillars. Further information about these indicators is available in the Technical Notes and Sources.

well as in using ICTs, as measured by the availability and quality of government online services.

Impact subindex

The *Impact* subindex gauges the broad economic and social impacts accruing from ICTs.

The *Economic impacts* pillar aims to measure the effect of ICTs on the economy through technological and non-technological innovations in a country—as measured by the number of patent applications as well as by the role of ICTs in the development of new products, processes, and organizational models. It also measures the overall shift of an economy toward more knowledge-intensive activities.

The *Social impacts* pillar aims to assess a country's societal progress brought about or enhanced by the use of ICTs. Such progress includes—but is not limited to—access to education and healthcare, energy savings, and more-active civil participation. Currently, because of data limitations, this pillar focuses on assessing the extent to which ICTs allow access to basic services (education, financial services, and healthcare); the use of the Internet at school, as a proxy for the potential benefits that are associated with the use of ICTs in education; the impact of ICTs on government efficiency; and the quality and usefulness of information and services provided by a country for the purpose of engaging its citizens in public policymaking through the use of e-government programs.

Measuring the impacts of ICTs remains a complex task, and the development of rigorous, international comparable statistics is still in its infancy. As a result, many of the areas where ICTs have a significant impact—especially those where the impact does not translate directly into commercial activities, as is the case in environment, healthcare, and education—are not captured in the NRI. Therefore the Impact subindex should be regarded as work in progress.

Methodology and data

The overall structure of the NRI remains unchanged from the previous edition. The only minor adjustment is the exclusion of the indicator Accessibility of digital content, which used to be included in the Infrastructure pillar. The NRI is now composed of 53 individual indicators. This adjustment, however, does not affect the ability to compare the 2015 results with earlier results, back to 2012.

About half of the individual indicators used in the NRI are sourced from international organizations. The main providers are the International Telecommunication Union (ITU); the United Nations Educational, Scientific and Cultural Organization (UNESCO); other UN agencies; and the World Bank. Carefully chosen alternative data sources, including national sources, are used to fill data gaps in certain cases. The other half of the NRI indicators are derived from the World Economic Forum's Executive Opinion Survey (the Survey). The Survey is used to measure concepts that are qualitative in nature or for which internationally comparable statistics are not available for enough countries.[6]

The Survey is completed annually by over 13,000 business executives in all the economies included in the NRI (see Browne et al. 2014 for more details). The Survey

represents a unique source of insight into many critical aspects related to a country's operating environment. These include the extent of red tape and the degree of intellectual property protection; aspects related to the population's capacity to leverage ICTs; its use of technology and its capacity to innovate; the importance of its government's vision for ICTs; and the contribution of ICTs to the development of new products and services and to improving access to basic services.

The computation of the overall NRI score is based on successive aggregations of scores: individual indicators are aggregated to obtain pillar scores, which are then combined to obtain subindex scores. Subindex scores are in turn combined to produce a country's overall NRI score. In order to aggregate the individual indicators, scores of each indicator are normalized onto a common scale ranging from 1 to 7. Scores for indicators derived from the Survey are always measured on a 1-to-7 scale and therefore do not require transformation prior to aggregation. At each aggregation level, a simple average (i.e., an arithmetic mean) is used to combine components, with a few exceptions, which are flagged in the appendix.

The revision of the computation methodology for certain individual indicators has caused significant shifts in the results for several countries. The methodologies underpinning indicators 8.02 Government Online Service Index and 10.04 E-Participation Index, both computed by the United Nations, have been revised (see Box 1). Similarly, the International Comparison Programme has revised the methodology used to compute the purchasing power parity (PPP) conversion factor. This factor is used to compute the PPP estimates of telephony and Internet tariffs (indicators 4.01 and 4.02, respectively).[7] As a result, PPP estimates are not comparable with those published in previous editions and, in some countries, differ significantly, even if tariffs in local currency have not changed.

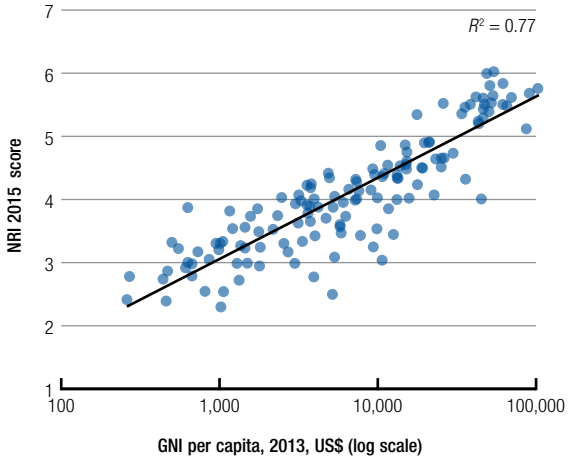
For two indicators, the number of missing data points remains very high. Indicators 1.07 *Software piracy rate* and 9.04 *Knowledge-intensive jobs* are missing data for 38 and 25 economies, respectively. For each of the other 51 indicators of the NRI, the number of missing data points does not exceed four. In addition, in the absence of data on adult literacy (indicator 5.04) for as many as 22 OECD member countries and for Hong Kong SAR, a rate of 99 percent was assumed for the purpose of calculating the Skills pillar score.

Country coverage

When it comes to country coverage, the objective is to include as many economies as possible. The inclusion of an economy depends on the availability and quality of indicators. To be included in the NRI, the number of missing (or outdated) data points for an economy cannot exceed five, or 10 percent of all indicators. Because almost half of the indicators entering the NRI are derived from the Executive Opinion Survey, the capacity to conduct the Survey in a country is therefore a necessary—but not sufficient—condition for its inclusion.

The NRI 2015 covers 143 economies, which together account for 98.4 percent of world GDP. Benin, Bosnia and Herzegovina, Brunei Darussalam, Ecuador, and Liberia—all covered in the 2014 edition—have not been included this year because the Survey data for these countries are not available. Sierra Leone was also excluded, although Survey data do exist for that country, because too many data points were missing for other indicators. Tajikistan has been reinstated.

Figure 2: Networked readiness and income



Sources: World Economic Forum; World Bank 2015.
Note: N = 138 economies.

THE NETWORKED READINESS INDEX 2015: ANALYSIS AND KEY FINDINGS

This section begins with an overview of the NRI 2015 results, including a brief analysis of regional patterns and trends. It then presents some of the key findings and messages from this year's edition and concludes with a short assessment of the performance of selected countries.

Results overview

Tables 1–5 report the results (ranks and values) for the overall NRI 2015, its four subindexes, and their respective pillars. Table 1 also contains the country classifications used throughout the analysis. Scores are reported with a precision of one decimal, but rankings were derived from the exact figures.

Not unexpectedly, advanced economies are better than developing ones at leveraging ICTs. High-income economies dominate the NRI, taking the first 31 places in the overall NRI rankings (see Table 1). The performance of countries in the NRI largely mirrors their position on the development ladder: a higher level of income is typically associated with a higher NRI score (see Figure 2). Forty-four of the 50 high-income economies covered in the NRI rank in the top 50, which

Table 1: The Networked Readiness Index 2015

Rank	Country/Economy	Value	2014 rank (out of 148)	Income level*	Group†
1	Singapore	6.0	2	HI	ADV
2	Finland	6.0	1	HI-OECD	ADV
3	Sweden	5.8	3	HI-OECD	ADV
4	Netherlands	5.8	4	HI-OECD	ADV
5	Norway	5.8	5	HI-OECD	ADV
6	Switzerland	5.7	6	HI-OECD	ADV
7	United States	5.6	7	HI-OECD	ADV
8	United Kingdom	5.6	9	HI-OECD	ADV
9	Luxembourg	5.6	11	HI-OECD	ADV
10	Japan	5.6	16	HI-OECD	ADV
11	Canada	5.5	17	HI-OECD	ADV
12	Korea, Rep.	5.5	10	HI-OECD	ADV
13	Germany	5.5	12	HI-OECD	ADV
14	Hong Kong SAR	5.5	8	HI	ADV
15	Denmark	5.5	13	HI-OECD	ADV
16	Australia	5.5	18	HI-OECD	ADV
17	New Zealand	5.5	20	HI-OECD	ADV
18	Taiwan, China	5.5	14	HI	ADV
19	Iceland	5.4	19	HI-OECD	ADV
20	Austria	5.4	22	HI-OECD	ADV
21	Israel	5.4	15	HI-OECD	ADV
22	Estonia	5.3	21	HI-OECD	ADV
23	United Arab Emirates	5.3	24	HI	MENAP
24	Belgium	5.3	27	HI-OECD	ADV
25	Ireland	5.2	26	HI-OECD	ADV
26	France	5.2	25	HI-OECD	ADV
27	Qatar	5.1	23	HI	MENAP
28	Portugal	4.9	33	HI-OECD	ADV
29	Malta	4.9	28	HI	ADV
30	Bahrain	4.9	29	HI	MENAP
31	Lithuania	4.9	31	HI	EDE
32	Malaysia	4.9	30	UM	EDA
33	Latvia	4.7	39	HI	ADV
34	Spain	4.7	34	HI-OECD	ADV
35	Saudi Arabia	4.7	32	HI	MENAP
36	Cyprus	4.7	37	HI	ADV
37	Slovenia	4.6	36	HI-OECD	ADV
38	Chile	4.6	35	HI-OECD	LATAM
39	Barbados	4.6	55	HI	LATAM
40	Kazakhstan	4.5	38	UM	CIS
41	Russian Federation	4.5	50	HI	CIS
42	Oman	4.5	40	HI	MENAP
43	Czech Republic	4.5	42	HI-OECD	ADV
44	Puerto Rico	4.5	41	HI	—
45	Mauritius	4.5	48	UM	SSA
46	Uruguay	4.5	56	HI	LATAM
47	Macedonia, FYR	4.4	57	UM	EDE
48	Turkey	4.4	51	UM	EDE
49	Costa Rica	4.4	53	UM	LATAM
50	Poland	4.4	54	HI-OECD	EDE
51	Panama	4.4	43	UM	LATAM
52	Jordan	4.3	44	UM	MENAP
53	Hungary	4.3	47	UM	EDE
54	Croatia	4.3	46	HI	EDE
55	Italy	4.3	58	HI-OECD	ADV
56	Montenegro	4.3	52	UM	EDE
57	Azerbaijan	4.3	49	UM	CIS
58	Armenia	4.2	65	LM	CIS
59	Slovak Republic	4.2	59	HI-OECD	ADV
60	Georgia	4.2	60	LM	CIS
61	Mongolia	4.2	61	LM	EDA
62	China	4.2	62	UM	EDA
63	Romania	4.2	75	UM	EDE
64	Colombia	4.1	63	UM	LATAM
65	Sri Lanka	4.1	76	LM	EDA
66	Greece	4.1	74	HI-OECD	ADV
67	Thailand	4.0	67	UM	EDA
68	Moldova	4.0	77	LM	CIS
69	Mexico	4.0	79	UM	LATAM
70	Trinidad and Tobago	4.0	71	HI	LATAM
71	Ukraine	4.0	81	LM	CIS
72	Kuwait	4.0	72	HI	MENAP
73	Bulgaria	4.0	73	UM	EDE
74	Seychelles	4.0	66	UM	SSA
75	South Africa	4.0	70	UM	SSA
76	Philippines	4.0	78	LM	EDA
77	Serbia	4.0	80	UM	EDE
78	Morocco	3.9	99	LM	MENAP
79	Indonesia	3.9	64	LM	EDA
80	El Salvador	3.9	98	LM	LATAM
81	Tunisia	3.9	87	UM	MENAP
82	Jamaica	3.9	86	UM	LATAM
83	Rwanda	3.9	85	LI	SSA
84	Brazil	3.9	69	UM	LATAM
85	Vietnam	3.9	84	LM	EDA
86	Kenya	3.8	92	LI	SSA
87	Cape Verde	3.8	89	LM	SSA
88	Bhutan	3.7	94	LM	EDA
89	India	3.7	83	LM	EDA
90	Peru	3.7	90	UM	LATAM
91	Argentina	3.7	100	UM	LATAM
92	Albania	3.7	95	UM	EDE
93	Guyana	3.7	88	LM	LATAM
94	Egypt	3.6	91	LM	MENAP
95	Dominican Republic	3.6	93	UM	LATAM
96	Iran, Islamic Rep.	3.6	104	UM	MENAP
97	Lao PDR	3.6	109	LM	EDA
98	Kyrgyz Republic	3.5	118	LM	CIS
99	Lebanon	3.5	97	UM	MENAP
100	Honduras	3.5	116	LM	LATAM
101	Ghana	3.5	96	LM	SSA
102	Namibia	3.5	105	UM	SSA
103	Venezuela	3.4	106	UM	LATAM
104	Botswana	3.4	103	UM	SSA
105	Paraguay	3.4	102	LM	LATAM
106	Senegal	3.3	114	LM	SSA
107	Guatemala	3.3	101	LM	LATAM
108	Gambia, The	3.3	107	LI	SSA
109	Bangladesh	3.3	119	LI	EDA
110	Cambodia	3.3	108	LI	EDA
111	Bolivia	3.3	120	LM	LATAM
112	Pakistan	3.3	111	LM	MENAP
113	Suriname	3.2	113	UM	LATAM
114	Zambia	3.2	110	LM	SSA
115	Côte d'Ivoire	3.2	122	LM	SSA
116	Uganda	3.2	115	LI	SSA
117	Tajikistan	3.2	—	LI	CIS
118	Nepal	3.2	123	LI	EDA
119	Nigeria	3.2	112	LM	SSA
120	Algeria	3.1	129	UM	MENAP
121	Zimbabwe	3.1	117	LI	SSA
122	Gabon	3.0	128	UM	SSA
123	Tanzania	3.0	125	LI	SSA
124	Lesotho	3.0	133	LM	SSA
125	Swaziland	3.0	126	LM	SSA
126	Cameroon	3.0	131	LM	SSA
127	Mali	3.0	127	LI	SSA
128	Nicaragua	2.9	124	LM	LATAM
129	Mozambique	2.9	137	LI	SSA
130	Ethiopia	2.9	130	LI	SSA
131	Libya	2.9	138	UM	MENAP
132	Burkina Faso	2.8	136	LI	SSA
133	Malawi	2.8	132	LI	SSA
134	Timor-Leste	2.8	141	LM	EDA
135	Madagascar	2.7	139	LI	SSA
136	Yemen	2.7	140	LM	MENAP
137	Haiti	2.5	143	LI	LATAM
138	Mauritania	2.5	142	LM	MENAP
139	Myanmar	2.5	146	LI	EDA
140	Angola	2.5	144	UM	SSA
141	Burundi	2.4	147	LI	SSA
142	Guinea	2.4	145	LI	SSA
143	Chad	2.3	148	LI	SSA

Note: Income level classification follows the World Bank classification by income (situation as of July 2014). Group classification follows the International Monetary Fund's classification (situation as of October 2014).

* Income groups: HI = high-income economies that are not members of the OECD; HI-OECD = high-income OECD members; UM = upper-middle-income economies; LM = lower-middle-income economies; LI = low-income economies.

† Groups: ADV = Advanced economies; CIS = Commonwealth of Independent States; EDA = Emerging and developing Asia; LATAM = Latin America and the Caribbean; MENAP = Middle East, North Africa, and Pakistan; SSA = Sub-Saharan Africa.

Table 2: Environment subindex and pillars

ENVIRONMENT SUBINDEX			Political and regulatory environment		Business and innovation environment	
Rank	Country/Economy	Value	Rank	Value	Rank	Value
1	Singapore	5.9	2	5.9	1	6.0
2	New Zealand	5.7	1	5.9	6	5.4
3	Finland	5.6	4	5.8	11	5.4
4	United Kingdom	5.5	5	5.7	9	5.4
5	Hong Kong SAR	5.5	12	5.4	3	5.6
6	Norway	5.5	6	5.6	7	5.4
7	Netherlands	5.5	7	5.5	8	5.4
8	Canada	5.4	11	5.4	4	5.5
9	Switzerland	5.4	9	5.5	10	5.4
10	Luxembourg	5.4	3	5.8	27	5.0
11	United Arab Emirates	5.4	20	5.1	2	5.7
12	Ireland	5.3	14	5.3	13	5.3
13	Sweden	5.3	10	5.4	19	5.2
14	United States	5.3	21	5.0	5	5.5
15	Qatar	5.3	17	5.3	16	5.3
16	Denmark	5.2	16	5.3	18	5.2
17	Australia	5.2	15	5.3	23	5.1
18	Japan	5.2	8	5.5	35	4.9
19	Germany	5.1	13	5.4	31	4.9
20	Malaysia	5.1	23	5.0	21	5.1
21	Belgium	5.1	22	5.0	24	5.1
22	Iceland	5.0	27	4.9	17	5.2
23	Estonia	5.0	26	4.9	25	5.0
24	Austria	5.0	18	5.2	43	4.7
25	Israel	5.0	28	4.6	15	5.3
26	France	4.8	25	5.0	45	4.7
27	Chile	4.8	35	4.3	14	5.3
28	Taiwan, China	4.8	38	4.3	12	5.3
29	Saudi Arabia	4.8	32	4.5	26	5.0
30	Portugal	4.8	33	4.4	20	5.2
31	South Africa	4.8	24	5.0	55	4.5
32	Rwanda	4.7	19	5.2	71	4.3
33	Mauritius	4.7	31	4.5	38	4.8
34	Korea, Rep.	4.6	42	4.1	22	5.1
35	Puerto Rico	4.6	29	4.6	49	4.6
36	Malta	4.6	30	4.5	51	4.6
37	Barbados	4.5	37	4.3	40	4.8
38	Jordan	4.5	39	4.2	36	4.9
39	Cyprus	4.5	41	4.1	30	4.9
40	Bahrain	4.5	45	4.1	29	5.0
41	Latvia	4.5	48	4.1	28	5.0
42	Lithuania	4.5	49	4.1	33	4.9
43	Oman	4.5	36	4.3	46	4.7
44	Turkey	4.4	54	3.9	37	4.9
45	Zambia	4.4	64	3.8	32	4.9
46	Macedonia, FYR	4.4	59	3.9	39	4.8
47	Czech Republic	4.3	44	4.1	58	4.5
48	Hungary	4.3	46	4.1	57	4.5
49	Uruguay	4.3	51	4.0	56	4.5
50	Spain	4.3	60	3.9	47	4.7
51	Slovenia	4.2	81	3.6	34	4.9
52	Panama	4.2	73	3.6	41	4.8
53	Poland	4.2	65	3.8	54	4.6
54	Indonesia	4.2	62	3.8	59	4.5
55	Kazakhstan	4.2	61	3.9	61	4.5
56	Montenegro	4.1	90	3.5	42	4.8
57	Jamaica	4.1	58	3.9	65	4.4
58	Croatia	4.1	87	3.5	44	4.7
59	Namibia	4.1	34	4.4	103	3.8
60	Thailand	4.1	89	3.5	48	4.7
61	Ghana	4.1	50	4.0	88	4.1
62	Georgia	4.0	76	3.6	62	4.4
63	Russian Federation	4.0	79	3.6	63	4.4
64	Romania	4.0	72	3.7	66	4.3
65	Cape Verde	4.0	55	3.9	90	4.0
66	Costa Rica	4.0	63	3.8	78	4.1
67	Slovak Republic	4.0	78	3.6	64	4.4
68	Mongolia	4.0	94	3.4	60	4.5
69	Kuwait	3.9	74	3.6	70	4.3
70	Guyana	3.9	68	3.7	73	4.2
71	Botswana	3.9	47	4.1	106	3.8
72	Kenya	3.9	66	3.8	89	4.1
73	Lao PDR	3.9	53	3.9	96	3.9
74	Azerbaijan	3.9	69	3.7	79	4.1
75	Bhutan	3.9	43	4.1	114	3.7
76	Bulgaria	3.9	108	3.2	50	4.6
77	China	3.9	52	4.0	104	3.8
78	Armenia	3.9	107	3.2	53	4.6
79	Seychelles	3.9	56	3.9	101	3.8
80	Morocco	3.9	71	3.7	83	4.1
81	Mexico	3.9	70	3.7	87	4.1
82	Gambia, The	3.8	40	4.2	126	3.5
83	El Salvador	3.8	85	3.5	75	4.2
84	Philippines	3.8	75	3.6	85	4.1
85	Lesotho	3.8	67	3.7	93	3.9
86	Sri Lanka	3.8	77	3.6	92	4.0
87	Senegal	3.8	92	3.5	82	4.1
88	Greece	3.8	106	3.2	68	4.3
89	Trinidad and Tobago	3.8	99	3.4	76	4.2
90	Italy	3.8	102	3.3	72	4.2
91	Dominican Republic	3.7	101	3.4	80	4.1
92	Tajikistan	3.7	57	3.9	123	3.5
93	Iran, Islamic Rep.	3.7	100	3.4	86	4.1
94	Albania	3.7	113	3.1	69	4.3
95	Côte d'Ivoire	3.7	84	3.5	99	3.9
96	Peru	3.7	117	3.0	67	4.3
97	Colombia	3.7	98	3.4	94	3.9
98	Vietnam	3.6	93	3.5	105	3.8
99	Guatemala	3.6	118	3.0	74	4.2
100	Serbia	3.6	110	3.1	84	4.1
101	India	3.6	82	3.6	115	3.7
102	Kyrgyz Republic	3.6	114	3.1	81	4.1
103	Tunisia	3.6	96	3.4	108	3.8
104	Ukraine	3.6	122	3.0	77	4.2
105	Mali	3.6	91	3.5	116	3.7
106	Uganda	3.6	86	3.5	117	3.6
107	Lebanon	3.5	139	2.5	52	4.6
108	Malawi	3.5	80	3.6	128	3.4
109	Honduras	3.5	109	3.2	102	3.8
110	Swaziland	3.5	88	3.5	125	3.5
111	Brazil	3.5	95	3.4	121	3.6
112	Moldova	3.5	124	3.0	91	4.0
113	Ethiopia	3.5	105	3.2	110	3.8
114	Tanzania	3.5	83	3.6	130	3.4
115	Cameroon	3.5	112	3.1	107	3.8
116	Nepal	3.4	120	3.0	100	3.9
117	Pakistan	3.4	121	3.0	97	3.9
118	Burkina Faso	3.4	103	3.3	122	3.5
119	Mozambique	3.4	104	3.3	120	3.6
120	Nigeria	3.4	116	3.1	111	3.8
121	Madagascar	3.4	126	2.9	95	3.9
122	Cambodia	3.4	119	3.0	113	3.7
123	Egypt	3.3	115	3.1	124	3.5
124	Gabon	3.3	111	3.1	129	3.4
125	Bolivia	3.3	97	3.4	135	3.2
126	Paraguay	3.3	133	2.6	98	3.9
127	Timor-Leste	3.2	129	2.7	109	3.8
128	Argentina	3.2	128	2.8	118	3.6
129	Nicaragua	3.2	123	3.0	131	3.4
130	Bangladesh	3.2	135	2.6	112	3.7
131	Zimbabwe	3.1	125	2.9	132	3.3
132	Suriname	3.1	130	2.7	127	3.5
133	Libya	3.0	142	2.4	119	3.6
134	Algeria	3.0	127	2.9	136	3.1
135	Yemen	2.9	140	2.5	133	3.2
136	Burundi	2.9	136	2.5	134	3.2
137	Haiti	2.9	134	2.6	137	3.1
138	Mauritania	2.8	131	2.7	139	3.0
139	Myanmar	2.7	132	2.7	141	2.8
140	Guinea	2.7	137	2.5	140	2.9
141	Venezuela	2.6	143	2.2	138	3.0
142	Chad	2.5	138	2.5	143	2.5
143	Angola	2.5	141	2.4	142	2.6

Table 3: Readiness subindex and pillars

READINESS SUBINDEX			Infrastructure		Affordability		Skills	
Rank	Country/Economy	Value	Rank	Value	Rank	Value	Rank	Value
1	Finland	6.7	5	7.0	9	6.6	1	6.5
2	Taiwan, China	6.4	1	7.0	13	6.5	23	5.8
3	Iceland	6.4	6	7.0	25	6.3	13	5.9
4	Sweden	6.4	3	7.0	18	6.4	28	5.7
5	Norway	6.4	1	7.0	27	6.2	12	5.9
6	Austria	6.3	12	6.6	5	6.7	27	5.7
7	Australia	6.3	6	7.0	28	6.2	17	5.9
8	Singapore	6.3	19	6.2	30	6.1	2	6.5
9	Germany	6.2	13	6.6	41	5.9	10	6.1
10	Switzerland	6.2	10	6.8	65	5.4	3	6.4
11	Canada	6.2	6	7.0	60	5.5	9	6.1
12	United States	6.1	4	7.0	53	5.6	33	5.6
13	Denmark	6.0	20	6.2	33	6.1	19	5.8
14	Belgium	6.0	21	6.1	56	5.6	4	6.3
15	Japan	6.0	17	6.3	43	5.8	15	5.9
16	Korea, Rep.	6.0	11	6.6	45	5.8	39	5.5
17	Hong Kong SAR	6.0	28	5.8	20	6.4	22	5.8
18	Netherlands	6.0	14	6.4	72	5.3	6	6.2
19	Luxembourg	5.9	18	6.3	50	5.7	18	5.8
20	Cyprus	5.9	30	5.6	34	6.1	11	6.0
21	United Kingdom	5.9	15	6.3	51	5.7	31	5.6
22	Estonia	5.8	23	6.1	62	5.5	16	5.9
23	Slovenia	5.8	25	5.9	58	5.6	24	5.8
24	New Zealand	5.8	9	6.9	101	4.2	7	6.2
25	Malta	5.7	16	6.3	76	5.1	29	5.7
26	France	5.7	24	6.0	73	5.2	14	5.9
27	Russian Federation	5.6	39	5.0	15	6.5	52	5.3
28	Ukraine	5.6	46	4.7	10	6.6	36	5.6
29	Ireland	5.6	26	5.9	87	4.7	8	6.1
30	Poland	5.6	36	5.1	26	6.2	43	5.4
31	Lithuania	5.6	50	4.6	22	6.3	25	5.7
32	Italy	5.5	37	5.0	36	6.0	37	5.6
33	Portugal	5.5	41	4.9	35	6.0	34	5.6
34	Spain	5.5	33	5.3	40	5.9	56	5.3
35	Kazakhstan	5.5	49	4.6	11	6.6	49	5.4
36	Czech Republic	5.5	22	6.1	80	5.0	53	5.3
37	Israel	5.4	31	5.6	68	5.3	48	5.4
38	Latvia	5.4	43	4.8	47	5.8	32	5.6
39	Croatia	5.4	47	4.7	42	5.9	40	5.5
40	Bahrain	5.3	35	5.2	66	5.4	41	5.5
41	Turkey	5.3	53	4.6	8	6.6	80	4.8
42	Mongolia	5.3	75	4.0	6	6.7	55	5.3
43	Mauritius	5.3	77	3.9	3	6.7	50	5.4
44	Armenia	5.3	57	4.4	31	6.1	54	5.3
45	Georgia	5.3	59	4.3	7	6.6	78	4.9
46	Macedonia, FYR	5.3	58	4.4	29	6.1	64	5.2
47	Romania	5.2	52	4.6	59	5.5	38	5.5
48	Serbia	5.2	42	4.8	61	5.5	66	5.1
49	Montenegro	5.2	45	4.7	75	5.2	35	5.6
50	Panama	5.2	63	4.3	19	6.4	82	4.8
51	Costa Rica	5.2	91	3.3	16	6.4	26	5.7
52	Trinidad and Tobago	5.1	67	4.3	52	5.7	46	5.4
53	Moldova	5.1	69	4.2	37	6.0	71	5.0
54	United Arab Emirates	5.1	27	5.8	114	3.6	21	5.8
55	Barbados	5.0	38	5.0	100	4.3	20	5.8
56	Qatar	5.0	29	5.7	126	3.1	5	6.3
57	Puerto Rico	5.0	80	3.8	14	6.5	87	4.7
58	Mexico	5.0	81	3.7	4	6.7	92	4.5
59	Colombia	4.9	68	4.2	55	5.6	77	4.9
60	Greece	4.9	40	5.0	96	4.4	58	5.3
61	Seychelles	4.9	44	4.7	93	4.5	42	5.4
62	Oman	4.9	61	4.3	67	5.4	75	4.9
63	Malaysia	4.9	70	4.2	79	5.1	57	5.3
64	Azerbaijan	4.9	60	4.3	77	5.1	68	5.1
65	Slovak Republic	4.8	71	4.1	69	5.3	69	5.1
66	Kuwait	4.8	48	4.6	85	4.8	70	5.0
67	Uruguay	4.8	51	4.6	74	5.2	84	4.7
68	Hungary	4.8	65	4.3	86	4.8	47	5.4
69	Tunisia	4.8	86	3.4	32	6.1	76	4.9
70	Sri Lanka	4.8	110	2.7	38	6.0	30	5.6
71	Bulgaria	4.8	34	5.2	110	3.8	60	5.3
72	Venezuela	4.7	93	3.2	12	6.5	90	4.5

READINESS SUBINDEX			Infrastructure		Affordability		Skills	
Rank	Country/Economy	Value	Rank	Value	Rank	Value	Rank	Value
73	Thailand	4.7	66	4.3	84	4.9	73	5.0
74	Chile	4.7	54	4.5	91	4.5	72	5.0
75	Saudi Arabia	4.7	32	5.4	122	3.2	45	5.4
76	China	4.7	92	3.2	57	5.6	59	5.3
77	Jamaica	4.6	78	3.9	71	5.3	83	4.7
78	Bhutan	4.6	72	4.1	44	5.8	106	3.9
79	Argentina	4.6	62	4.3	n/a	n/a	79	4.9
80	El Salvador	4.6	74	4.0	63	5.4	97	4.3
81	Jordan	4.6	96	3.0	70	5.3	44	5.4
82	Kyrgyz Republic	4.6	100	3.0	39	6.0	86	4.7
83	India	4.6	115	2.6	1	7.0	102	4.1
84	Vietnam	4.5	127	2.1	2	6.8	88	4.6
85	Philippines	4.5	73	4.1	103	4.2	61	5.3
86	Iran, Islamic Rep.	4.5	97	3.0	46	5.8	85	4.7
87	Morocco	4.5	87	3.4	24	6.3	110	3.8
88	Albania	4.4	84	3.5	92	4.5	65	5.2
89	Paraguay	4.4	64	4.3	81	5.0	105	3.9
90	Egypt	4.3	99	3.0	17	6.4	118	3.6
91	Brazil	4.3	56	4.5	89	4.6	108	3.9
92	Cape Verde	4.3	104	2.9	83	5.0	74	4.9
93	Peru	4.3	90	3.3	78	5.1	96	4.3
94	Libya	4.2	76	3.9	98	4.3	93	4.4
95	Suriname	4.2	55	4.5	119	3.4	81	4.8
96	Indonesia	4.2	98	3.0	99	4.3	63	5.2
97	Algeria	4.2	83	3.7	94	4.5	94	4.4
98	Lebanon	4.1	82	3.7	117	3.4	51	5.3
99	Guyana	4.1	103	2.9	102	4.2	62	5.2
100	Bangladesh	4.0	109	2.8	21	6.3	125	3.0
101	Lao PDR	4.0	107	2.8	64	5.4	112	3.7
102	South Africa	4.0	85	3.5	107	4.1	95	4.4
103	Cambodia	3.9	108	2.8	48	5.7	120	3.3
104	Nepal	3.9	133	1.9	23	6.3	117	3.6
105	Honduras	3.9	113	2.6	82	5.0	101	4.1
106	Dominican Republic	3.9	88	3.3	97	4.4	104	4.0
107	Kenya	3.8	94	3.1	106	4.1	100	4.1
108	Uganda	3.8	112	2.7	54	5.6	126	3.0
109	Pakistan	3.6	119	2.5	49	5.7	133	2.6
110	Bolivia	3.6	102	2.9	120	3.3	91	4.5
111	Ghana	3.5	124	2.3	105	4.1	103	4.0
112	Gabon	3.3	118	2.6	108	3.9	116	3.6
113	Nicaragua	3.3	79	3.8	134	2.4	114	3.7
114	Namibia	3.3	101	3.0	123	3.2	113	3.7
115	Rwanda	3.3	106	2.8	111	3.7	121	3.2
116	Botswana	3.3	114	2.6	131	2.6	89	4.6
117	Guatemala	3.2	95	3.0	124	3.1	119	3.5
118	Côte d'Ivoire	3.2	89	3.3	127	3.0	123	3.2
119	Zimbabwe	3.2	128	2.1	n/a	n/a	99	4.2
120	Yemen	3.1	129	2.0	88	4.7	134	2.5
121	Lesotho	3.1	130	2.0	121	3.3	107	3.9
122	Swaziland	3.0	116	2.6	136	2.2	98	4.2
123	Nigeria	3.0	121	2.3	104	4.1	135	2.5
124	Tajikistan	3.0	136	1.6	137	2.1	67	5.1
125	Tanzania	3.0	117	2.6	112	3.7	132	2.6
126	Timor-Leste	2.8	105	2.9	129	2.8	130	2.8
127	Gambia, The	2.8	125	2.2	128	3.0	122	3.2
128	Myanmar	2.8	131	2.0	n/a	n/a	115	3.6
129	Senegal	2.7	120	2.5	130	2.6	128	2.9
130	Mozambique	2.6	137	1.3	90	4.6	140	2.1
131	Angola	2.6	122	2.3	118	3.4	138	2.2
132	Burundi	2.6	123	2.3	133	2.4	124	3.1
133	Ethiopia	2.6	135	1.7	113	3.6	137	2.3
134	Guinea	2.5	134	1.8	115	3.6	141	2.1
135	Haiti	2.5	142	1.0	116	3.5	127	3.0
136	Cameroon	2.4	141	1.2	132	2.4	111	3.7
137	Zambia	2.4	132	2.0	138	1.6	109	3.8
138	Chad	2.4	143	1.0	95	4.4	143	1.8
139	Mauritania	2.3	139	1.2	109	3.8	142	2.0
140	Malawi	2.3	111	2.7	139	1.5	131	2.6
141	Burkina Faso	2.2	140	1.2	125	3.1	139	2.2
142	Madagascar	2.1	126	2.2	140	1.3	129	2.8
143	Mali	1.9	138	1.2	135	2.3	136	2.4

Table 4: Usage subindex and pillars

USAGE SUBINDEX			Individual usage		Business usage		Government usage	
Rank	Country/Economy	Value	Rank	Value	Rank	Value	Rank	Value
1	Sweden	5.9	2	6.7	3	5.9	20	5.1
2	Singapore	5.9	11	6.2	14	5.3	1	6.2
3	Finland	5.9	5	6.6	4	5.9	17	5.2
4	Japan	5.9	13	6.2	2	6.0	7	5.4
5	Netherlands	5.9	7	6.5	6	5.8	13	5.3
6	Korea, Rep.	5.9	9	6.4	12	5.4	3	5.7
7	Luxembourg	5.8	6	6.5	11	5.4	11	5.4
8	Norway	5.7	3	6.7	10	5.5	24	5.1
9	Denmark	5.7	1	6.8	8	5.7	40	4.6
10	United States	5.7	18	6.0	7	5.7	14	5.3
11	Switzerland	5.6	10	6.4	1	6.1	48	4.4
12	United Kingdom	5.6	4	6.6	16	5.1	16	5.2
13	United Arab Emirates	5.6	20	5.9	27	4.5	2	6.2
14	Germany	5.5	17	6.0	5	5.8	31	4.8
15	Israel	5.5	28	5.6	9	5.7	15	5.2
16	New Zealand	5.4	22	5.9	19	5.0	10	5.4
17	Qatar	5.4	19	6.0	25	4.6	5	5.5
18	Austria	5.3	21	5.9	13	5.4	32	4.7
19	Hong Kong SAR	5.3	12	6.2	18	5.1	36	4.7
20	Australia	5.3	15	6.1	24	4.7	23	5.1
21	Iceland	5.3	8	6.5	21	4.9	42	4.5
22	Taiwan, China	5.3	26	5.7	17	5.1	21	5.1
23	Estonia	5.3	16	6.0	28	4.4	6	5.5
24	France	5.3	24	5.8	20	4.9	18	5.1
25	Bahrain	5.2	14	6.2	49	3.9	4	5.7
26	Canada	5.2	29	5.6	23	4.8	22	5.1
27	Belgium	5.1	25	5.8	15	5.1	43	4.5
28	Ireland	5.1	27	5.7	22	4.8	33	4.7
29	Saudi Arabia	4.9	36	5.3	42	4.0	8	5.4
30	Malaysia	4.9	57	4.6	26	4.6	9	5.4
31	Malta	4.8	23	5.8	37	4.0	38	4.7
32	Lithuania	4.7	37	5.3	31	4.3	35	4.7
33	Spain	4.7	31	5.4	45	3.9	37	4.7
34	Portugal	4.7	46	4.9	33	4.2	26	4.9
35	Oman	4.6	41	5.1	73	3.5	19	5.1
36	Latvia	4.6	30	5.6	41	4.0	51	4.3
37	Chile	4.5	52	4.7	47	3.9	29	4.8
38	Uruguay	4.4	45	5.0	89	3.4	27	4.8
39	Russian Federation	4.4	43	5.1	66	3.6	47	4.4
40	Kazakhstan	4.4	51	4.7	67	3.6	28	4.8
41	Azerbaijan	4.3	59	4.5	58	3.7	34	4.7
42	Slovenia	4.3	34	5.3	36	4.1	84	3.6
43	Barbados	4.3	40	5.2	30	4.3	101	3.5
44	Costa Rica	4.3	56	4.6	39	4.0	54	4.3
45	Czech Republic	4.3	32	5.3	32	4.2	113	3.3
46	Italy	4.2	33	5.3	60	3.7	76	3.7
47	Puerto Rico	4.2	63	4.4	29	4.4	68	3.9
48	Slovak Republic	4.2	35	5.3	55	3.8	88	3.6
49	Hungary	4.2	42	5.1	64	3.7	69	3.9
50	Cyprus	4.2	50	4.7	51	3.9	66	4.0
51	Jordan	4.1	69	4.0	50	3.9	44	4.5
52	Macedonia, FYR	4.1	49	4.8	85	3.5	59	4.1
53	Mauritius	4.1	66	4.1	57	3.8	46	4.4
54	Poland	4.1	44	5.1	71	3.6	86	3.6
55	Montenegro	4.1	60	4.5	83	3.5	52	4.3
56	Croatia	4.1	39	5.2	92	3.4	83	3.6
57	China	4.1	80	3.6	46	3.9	39	4.7
58	Kuwait	4.1	38	5.2	93	3.4	91	3.6
59	Colombia	4.0	77	3.8	81	3.5	30	4.8
60	Brazil	4.0	62	4.4	52	3.8	71	3.9
61	Panama	4.0	72	3.9	40	4.0	57	4.2
62	Turkey	4.0	67	4.0	53	3.8	55	4.2
63	Greece	3.9	48	4.8	96	3.4	82	3.6
64	Morocco	3.9	70	3.9	105	3.3	41	4.6
65	Armenia	3.9	74	3.8	100	3.3	45	4.5
66	Romania	3.9	61	4.5	76	3.5	85	3.6
67	South Africa	3.9	68	4.0	34	4.2	105	3.4
68	Trinidad and Tobago	3.8	58	4.5	86	3.5	96	3.5
69	Sri Lanka	3.8	106	2.6	48	3.9	25	5.0
70	Seychelles	3.8	65	4.2	68	3.6	79	3.7
71	Moldova	3.8	64	4.2	114	3.2	65	4.0
72	Georgia	3.8	76	3.8	104	3.3	50	4.3
73	Bulgaria	3.8	47	4.9	91	3.4	118	3.1
74	Philippines	3.8	89	3.2	38	4.0	61	4.1
75	Thailand	3.7	75	3.8	54	3.8	80	3.7
76	Argentina	3.7	54	4.6	101	3.3	115	3.3
77	Indonesia	3.7	97	3.0	35	4.1	63	4.1
78	Mongolia	3.7	88	3.3	69	3.6	53	4.3
79	Mexico	3.7	87	3.3	72	3.6	56	4.2
80	Serbia	3.7	55	4.6	126	3.0	111	3.3
81	Tunisia	3.6	81	3.5	106	3.3	58	4.2
82	Vietnam	3.6	86	3.3	87	3.5	60	4.1
83	Kenya	3.6	110	2.5	43	3.9	49	4.4
84	El Salvador	3.6	96	3.0	59	3.7	64	4.0
85	Rwanda	3.6	132	1.8	70	3.6	12	5.4
86	Lebanon	3.6	53	4.6	108	3.2	130	2.8
87	Albania	3.5	79	3.6	103	3.3	78	3.7
88	Jamaica	3.5	84	3.4	63	3.7	94	3.5
89	Cape Verde	3.5	82	3.4	97	3.4	77	3.7
90	Egypt	3.5	73	3.9	125	3.1	102	3.5
91	Peru	3.4	94	3.0	90	3.4	70	3.9
92	Botswana	3.4	85	3.3	102	3.3	81	3.7
93	Dominican Republic	3.4	90	3.1	77	3.5	93	3.6
94	Ukraine	3.4	78	3.7	78	3.5	124	2.9
95	Namibia	3.4	95	3.0	61	3.7	97	3.5
96	Ghana	3.4	91	3.1	84	3.5	92	3.6
97	Venezuela	3.3	71	3.9	128	3.0	117	3.1
98	Senegal	3.3	111	2.5	62	3.7	73	3.8
99	Honduras	3.3	103	2.7	56	3.8	106	3.4
100	Gambia, The	3.3	115	2.3	74	3.5	67	4.0
101	Guatemala	3.3	99	2.9	44	3.9	123	2.9
102	Guyana	3.2	107	2.6	82	3.5	89	3.6
103	India	3.2	121	2.0	88	3.5	62	4.1
104	Nigeria	3.2	114	2.4	79	3.5	95	3.5
105	Bhutan	3.1	108	2.6	120	3.1	74	3.8
106	Bolivia	3.1	101	2.7	123	3.1	98	3.5
107	Zambia	3.1	122	2.0	65	3.7	87	3.6
108	Iran, Islamic Rep.	3.1	100	2.9	129	3.0	109	3.4
109	Paraguay	3.1	93	3.1	111	3.2	125	2.9
110	Suriname	3.0	83	3.4	122	3.1	133	2.7
111	Zimbabwe	3.0	104	2.6	112	3.2	112	3.3
112	Mali	3.0	113	2.4	117	3.1	99	3.5
113	Lao PDR	3.0	128	1.9	75	3.5	90	3.6
114	Cambodia	3.0	105	2.6	99	3.4	120	3.1
115	Kyrgyz Republic	3.0	98	2.9	113	3.2	126	2.9
116	Cameroon	3.0	130	1.9	80	3.5	103	3.5
117	Côte d'Ivoire	2.9	119	2.1	95	3.4	114	3.3
118	Pakistan	2.9	123	2.0	94	3.4	110	3.3
119	Gabon	2.9	109	2.5	118	3.1	119	3.1
120	Bangladesh	2.9	129	1.9	124	3.1	75	3.7
121	Tajikistan	2.9	116	2.3	107	3.3	116	3.1
122	Uganda	2.7	135	1.7	110	3.2	107	3.4
123	Swaziland	2.7	118	2.2	109	3.2	127	2.9
124	Tanzania	2.7	137	1.6	121	3.1	100	3.5
125	Burkina Faso	2.7	133	1.8	131	2.9	104	3.5
126	Ethiopia	2.7	140	1.5	135	2.8	72	3.8
127	Mozambique	2.7	136	1.6	116	3.1	108	3.4
128	Nicaragua	2.7	112	2.5	119	3.1	137	2.5
129	Algeria	2.7	102	2.7	137	2.7	134	2.7
130	Madagascar	2.7	138	1.6	98	3.4	122	3.1
131	Nepal	2.6	120	2.1	127	3.0	129	2.8
132	Malawi	2.6	141	1.5	115	3.2	121	3.1
133	Mauritania	2.6	117	2.2	132	2.9	138	2.5
134	Lesotho	2.5	124	2.0	130	3.0	135	2.7
135	Yemen	2.5	127	2.0	133	2.9	132	2.7
136	Libya	2.5	92	3.1	141	2.5	143	1.8
137	Timor-Leste	2.4	125	2.0	138	2.6	131	2.7
138	Angola	2.4	126	2.0	143	2.4	128	2.8
139	Haiti	2.4	131	1.9	134	2.8	140	2.5
140	Guinea	2.3	134	1.7	136	2.8	141	2.5
141	Myanmar	2.2	139	1.6	139	2.6	139	2.5
142	Chad	2.1	142	1.3	142	2.5	136	2.6
143	Burundi	2.1	143	1.3	140	2.5	142	2.4

Table 5: Impact subindex and pillars

IMPACT SUBINDEX			Economic impacts		Social impacts	
Rank	Country/Economy	Value	Rank	Value	Rank	Value
1	Singapore	6.0	4	5.8	1	6.2
2	Netherlands	5.9	5	5.8	3	6.1
3	Finland	5.8	1	6.1	12	5.6
4	Sweden	5.7	2	6.0	16	5.5
5	Korea, Rep.	5.6	10	5.2	4	6.0
6	United States	5.6	7	5.6	11	5.6
7	Israel	5.5	6	5.7	19	5.4
8	Switzerland	5.5	3	5.9	34	5.0
9	United Kingdom	5.5	13	5.1	6	5.8
10	Norway	5.4	11	5.2	7	5.7
11	Japan	5.4	12	5.1	13	5.6
12	Luxembourg	5.3	8	5.3	20	5.4
13	Canada	5.3	14	5.1	9	5.6
14	Estonia	5.3	25	4.6	5	6.0
15	Taiwan, China	5.3	17	4.9	8	5.7
16	Hong Kong SAR	5.2	16	5.0	18	5.4
17	Germany	5.2	9	5.3	31	5.1
18	United Arab Emirates	5.2	27	4.3	2	6.1
19	Australia	5.1	24	4.6	14	5.6
20	New Zealand	5.0	26	4.5	15	5.5
21	Denmark	5.0	18	4.9	30	5.1
22	Iceland	5.0	21	4.7	24	5.3
23	France	5.0	22	4.7	25	5.3
24	Ireland	5.0	15	5.0	38	4.9
25	Belgium	4.9	20	4.8	29	5.1
26	Austria	4.9	23	4.7	26	5.2
27	Qatar	4.8	32	4.0	10	5.6
28	Portugal	4.7	30	4.0	22	5.4
29	Lithuania	4.7	28	4.2	27	5.2
30	Malaysia	4.6	31	4.0	28	5.2
31	Malta	4.5	33	4.0	33	5.0
32	Latvia	4.5	35	3.9	32	5.1
33	Bahrain	4.5	48	3.5	17	5.5
34	Spain	4.5	34	4.0	36	4.9
35	Chile	4.4	44	3.5	23	5.3
36	Uruguay	4.4	56	3.4	21	5.4
37	Barbados	4.3	19	4.9	86	3.7
38	Saudi Arabia	4.3	41	3.7	37	4.9
39	Slovenia	4.3	29	4.0	53	4.5
40	Puerto Rico	4.2	37	3.8	51	4.5
41	Costa Rica	4.1	47	3.5	41	4.8
42	Russian Federation	4.1	39	3.7	48	4.6
43	Jordan	4.1	42	3.6	44	4.6
44	Kazakhstan	4.1	52	3.5	42	4.8
45	Oman	4.1	62	3.3	35	4.9
46	Panama	4.1	45	3.5	46	4.6
47	China	4.0	71	3.2	40	4.9
48	Azerbaijan	4.0	49	3.5	49	4.5
49	Hungary	4.0	38	3.8	63	4.3
50	Cyprus	4.0	43	3.6	59	4.4
51	Kenya	4.0	59	3.4	52	4.5
52	Colombia	3.9	69	3.2	43	4.7
53	Czech Republic	3.9	36	3.9	74	4.0
54	Armenia	3.9	50	3.5	58	4.4
55	Macedonia, FYR	3.9	53	3.4	55	4.4
56	Rwanda	3.9	98	3.0	39	4.9
57	Montenegro	3.9	46	3.5	61	4.3
58	Slovak Republic	3.9	57	3.4	57	4.4
59	Turkey	3.9	63	3.3	50	4.5
60	Sri Lanka	3.9	75	3.1	47	4.6
61	Mauritius	3.8	65	3.3	56	4.4
62	Philippines	3.8	55	3.4	67	4.2
63	Croatia	3.8	40	3.7	80	3.9
64	Georgia	3.8	97	3.0	45	4.6
65	Mongolia	3.8	83	3.1	54	4.4
66	Italy	3.7	51	3.5	75	4.0
67	Moldova	3.7	79	3.1	60	4.3
68	Greece	3.7	74	3.1	65	4.3
69	Poland	3.7	54	3.4	78	4.0
70	Thailand	3.6	86	3.1	66	4.2
71	Vietnam	3.6	101	2.9	62	4.3
72	Mexico	3.6	72	3.2	76	4.0
73	India	3.6	92	3.0	68	4.2
74	Indonesia	3.6	78	3.1	72	4.1
75	Brazil	3.6	76	3.1	73	4.0
76	El Salvador	3.6	94	3.0	69	4.2
77	Bulgaria	3.6	61	3.3	84	3.8
78	Senegal	3.6	66	3.3	81	3.8
79	Peru	3.5	96	3.0	70	4.1
80	Romania	3.5	85	3.1	77	4.0
81	Tunisia	3.5	103	2.9	71	4.1
82	Ukraine	3.5	67	3.3	89	3.7
83	Morocco	3.4	120	2.6	64	4.3
84	Egypt	3.4	60	3.3	100	3.5
85	Seychelles	3.4	90	3.0	85	3.8
86	Honduras	3.4	64	3.3	99	3.5
87	Mali	3.4	68	3.2	98	3.5
88	Dominican Republic	3.4	70	3.2	96	3.6
89	Serbia	3.4	80	3.1	90	3.7
90	Cape Verde	3.4	77	3.1	94	3.6
91	Gambia, The	3.4	89	3.0	88	3.7
92	South Africa	3.4	58	3.4	110	3.3
93	Trinidad and Tobago	3.4	84	3.1	92	3.6
94	Argentina	3.3	91	3.0	91	3.7
95	Bhutan	3.3	111	2.7	79	4.0
96	Lao PDR	3.3	88	3.0	95	3.6
97	Guyana	3.3	107	2.8	83	3.8
98	Guatemala	3.2	73	3.2	109	3.3
99	Tajikistan	3.2	93	3.0	103	3.5
100	Bolivia	3.2	108	2.8	93	3.6
101	Jamaica	3.2	82	3.1	106	3.4
102	Kuwait	3.2	119	2.7	87	3.7
103	Albania	3.2	125	2.5	82	3.8
104	Nigeria	3.1	81	3.1	116	3.2
105	Pakistan	3.1	102	2.9	108	3.4
106	Bangladesh	3.1	106	2.8	105	3.4
107	Côte d'Ivoire	3.1	99	3.0	114	3.3
108	Venezuela	3.1	116	2.7	97	3.5
109	Namibia	3.1	105	2.8	107	3.4
110	Cameroon	3.1	87	3.0	118	3.1
111	Botswana	3.1	113	2.7	101	3.5
112	Zambia	3.1	109	2.7	104	3.4
113	Ghana	3.0	121	2.6	102	3.5
114	Kyrgyz Republic	3.0	114	2.7	112	3.3
115	Paraguay	3.0	95	3.0	124	3.0
116	Iran, Islamic Rep.	3.0	110	2.7	115	3.2
117	Lebanon	2.9	104	2.9	125	2.9
118	Cambodia	2.9	112	2.7	123	3.1
119	Mozambique	2.9	117	2.7	120	3.1
120	Zimbabwe	2.9	128	2.5	113	3.3
121	Burkina Faso	2.9	100	2.9	131	2.8
122	Tanzania	2.9	132	2.4	111	3.3
123	Uganda	2.8	122	2.5	122	3.1
124	Madagascar	2.8	129	2.5	121	3.1
125	Malawi	2.8	115	2.7	127	2.8
126	Swaziland	2.7	123	2.5	126	2.9
127	Nepal	2.7	137	2.3	119	3.1
128	Ethiopia	2.7	139	2.2	117	3.2
129	Suriname	2.6	118	2.7	133	2.6
130	Gabon	2.6	130	2.5	129	2.8
131	Nicaragua	2.6	126	2.5	132	2.7
132	Timor-Leste	2.6	131	2.4	130	2.8
133	Lesotho	2.5	138	2.2	128	2.8
134	Algeria	2.5	127	2.5	136	2.6
135	Haiti	2.4	135	2.3	134	2.6
136	Angola	2.4	134	2.3	135	2.6
137	Mauritania	2.4	124	2.5	139	2.3
138	Yemen	2.4	133	2.3	137	2.5
139	Myanmar	2.4	136	2.3	138	2.4
140	Chad	2.1	140	2.1	140	2.2
141	Burundi	2.1	141	2.1	142	2.2
142	Guinea	2.1	142	2.0	141	2.2
143	Libya	1.8	143	1.8	143	1.7

otherwise features six upper-middle-income countries, the highest-ranked being Malaysia at 32nd place. At the bottom of the rankings, 26 of the 30 worst-performing countries are low-income or lower-middle-income countries. The only exceptions are Algeria (120th), Gabon (122nd), Libya (131st), and Angola (140th). These oil-rich countries belong to the upper-middle-income category, and they all face major challenges across all components of the Index.

The composition of the top 10 would seem to suggest that "smaller" nations are at an advantage when it comes to networked readiness: seven of the 10 best performers have a population of less than 20 million. Yet, when considering the full sample of economies, Figure 3 reveals that this relationship does not hold and that size is not a key determinant of networked readiness.

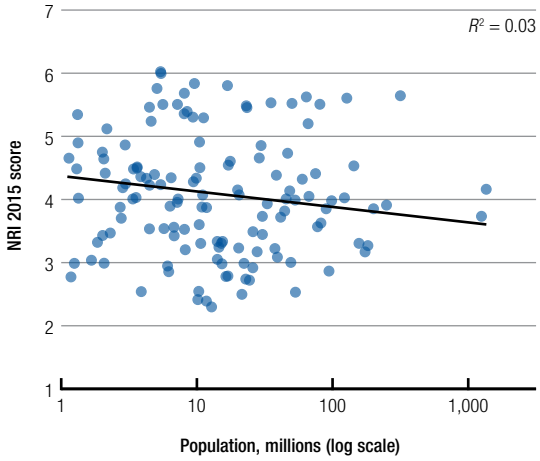
Singapore tops the rankings this year, and even though Finland drops to 2nd place, seven of the **top 10 economies** this year are European. That is one more than in 2014, thanks to Luxembourg (9th), which—along with Japan—enters the top 10 at the expense of the Republic of Korea (12th, down two spots) and Hong Kong SAR (14th, down six). As a result, Singapore is now the only representative of the **Asian Tigers** in the top 10. Taiwan (China) (18th, down four) also loses significant ground.[8] Meanwhile, Japan (10th, up six) continues its progression and enters the top 10. Besides Singapore and Japan, the United States (stable at 7th) is the only other non-European country in the top 10.

In **Europe,** Northern and Western Europe are home to some of the best connected and most innovation-driven economies in the world. In particular, the **Nordics**—Finland (2nd), Sweden (3rd), Norway (5th), Denmark (15th), and Iceland (19th)—continue to perform well in the NRI. Indeed, these five countries have featured in the top 20 of every edition since 2012.

The group performance of **Western European** countries is also strong. The Netherlands (4th), Switzerland (6th), the United Kingdom (8th), and Luxembourg (9th) all appear in the top 10. Ireland (25th) has been stable since 2012, and France (26th)—which has lost three places since 2012—closes the group in the subregion. In **Southern Europe,** Portugal (28th, up five), Italy (55th, up three), and Greece (66th, up eight) improve significantly from last year on the back of major improvements in government usage, whereas Malta (29th, down one), Spain (34th), and Cyprus (36th, up one) remain quite stable. These largely positive trends contribute to narrowing Southern Europe's gap with the rest of the region, which had been widening since 2012.

Farther east, thanks to the strong performance of Estonia (22nd) and the steady rise of Latvia (33rd, up six), which is catching up with Lithuania (31st), the **Baltic countries** are slowly but surely bridging the gap with the Nordics—a remarkable achievement for the three former Soviet Republics. While Estonia has always been in the vanguard, Lithuania and Latvia are breaking away from

Figure 3: Networked readiness and population size



Sources: World Economic Forum; World Bank 2015.
Note: N = 143 economies.

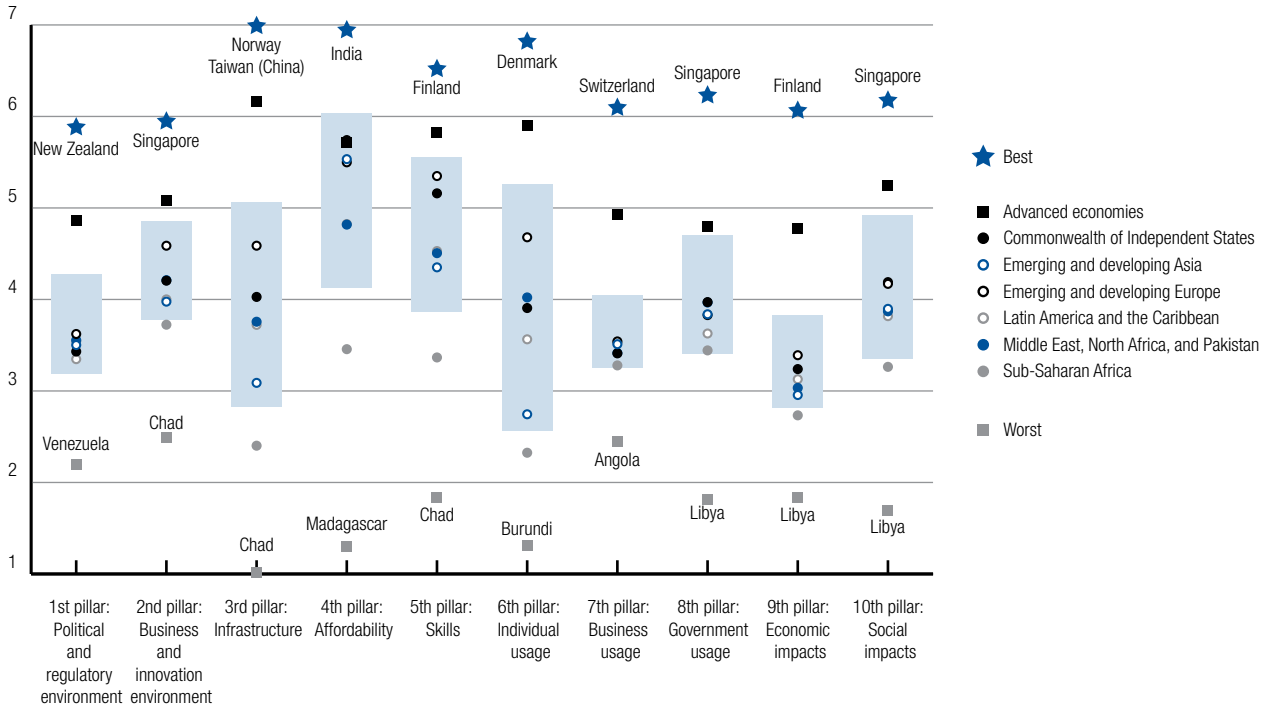
what was once a fairly homogenous group of Eastern European countries that have joined the European Union (EU) since 2004: Slovenia (37th, down one), the Czech Republic (43rd, down one), Hungary (53rd, down six), Croatia (54th, down eight), and the Slovak Republic (59th, no change) are either stable or losing ground. Meanwhile, Poland has jumped four places to enter the top 50, and Romania—once the worst performer in the European Union—has leapfrogged 12 positions to reach 63rd place, ahead of Bulgaria (73rd, no change).

The divide within the **Middle East, North Africa, and Pakistan** (MENAP) is the largest among all regions. The United Arab Emirates (UAE; 23rd, up one) and Qatar (27th, down four) continue to lead, ahead of Bahrain (30th), Saudi Arabia (35th), and Oman (42nd), which are all members of the Gulf Cooperation Council (GCC). All owe their success to a very strong commitment to ICT development by their respective governments. Kuwait's performance (72nd) stands at odds with that of its GCC peers. In the rest of the region, only Jordan (52nd) features in the top half of the rankings. Morocco follows at a middling 78th, but it is the country that has improved the most (21 places) over the past year. Mauritania (138th) remains the region's worst-performing country, 115 places behind the UAE.

Emerging and developing Asia also presents contrasting pictures. Over 100 places separate the region's best- and worst-performing economies. Second, with only Malaysia (32nd) featured in the top 60, two-thirds of the countries from the region appear in the bottom half of the rankings; Mongolia (61st), Sri Lanka (65th), and Thailand (67th) all lag some 30 places behind. China is stable in 62nd position, while India continues its decline, dropping a further six to 89th place, both contributing to the disappointing group performance of the BRICS.

Chile (38th, down three) leads in **Latin America and the Caribbean,** almost 100 places ahead of Haiti (137th), the region's worst performer. Overall, though, trends in

Figure 4: Best and worst performers and regional performance by NRI pillar
Score



Note: The light blue boxes identify the interquartile range—from the 75th to the 25th percentile—for each distribution.

the region are encouraging: 14 of the 23 countries in the region have increased their score since last year; 19 of them have done so since 2012. In particular, Costa Rica (49th, up nine since 2012), Panama (51st, up six), El Salvador (80th, up 23), Peru (90th, up 16), and Bolivia (111th, up 16) have posted some of the largest score gains since 2012.

The performance of **sub-Saharan Africa** is particularly poor: 30 of the 31 countries included in the sample appear in the bottom half of the NRI rankings. The only exception is Mauritius, at 45th. The country has progressed three places since last year and eight since 2012. Among the large economies of the region, Nigeria drops seven places to 119th. South Africa drops five to 75th—it is now third in the region behind Mauritius and Seychelles (74th). In contrast, Kenya (86th, up six) has been slowly improving since 2012.

When considering the results of the different pillars of the NRI, the relationship with income is very strong for eight of the ten pillars, the two exceptions being the Affordability and the Government usage pillars. Advanced economies outperform the rest of the world in every pillar (see Figure 4) except Affordability. Sub-Saharan Africa is the worst-performing region in all pillars except for the Political and regulatory environment, in which Latin America and the Caribbean obtains the lowest average score.

The divide among the best- and worst-performing countries runs the deepest in terms of Infrastructure, Affordability, and Individual usage. Not unexpectedly, the results in the Infrastructure and Individual usage pillars are similar, because a well-developed infrastructure is a pre-condition to ICT adoption. In addition, although ICTs are becoming increasingly affordable in many developing countries, most sub-Saharan Africa countries lag behind. The difficulty faced by this region in mastering the infrastructure-affordability-usage nexus is particularly worrisome.

Finally, looking at the trends since 2012 reveals that all regions have improved their overall performance to some extent (see Figure 5).[9] With an average NRI score up 0.5 points since 2012, the Commonwealth of Independent States (CIS) has seen the most progress as a whole. Five of the 10 countries that have improved their NRI score the most are from the CIS, including Armenia and Georgia (see Table 6). Emerging and developing Europe improves by 0.2 points, as does Latin America and the Caribbean. The other regions posts small gains of about 0.1 points, with the exception of sub-Saharan Africa, whose performance has remained stable since 2012.

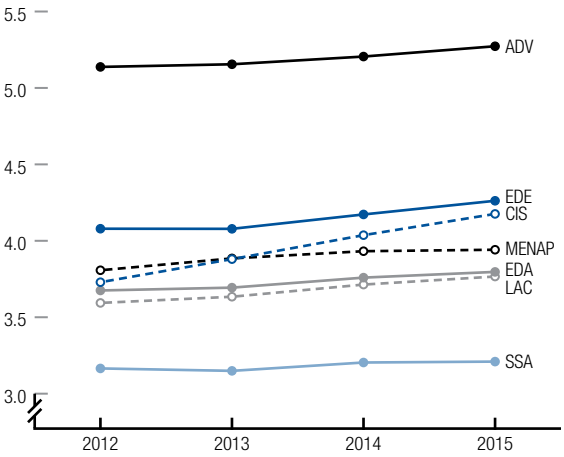
Key findings

Among the many insights that emerge from the NRI results, five key findings stand out because of their important policy implications: (1) the persistence of digital divides, (2) the need for an Internet revolution, (3) the policymakers' low-hanging fruit to boost ICT use, (4) ICTs' contributions to shared prosperity, and (5) a call for better data.

Table 6: Ten most improved countries since 2012
In order of score differences

Country	NRI 2012 Rank (Out of 142)	NRI 2012 Score (1–7)	NRI 2015 Rank (Out of 143)	NRI 2015 Score (1–7)	Score difference
Armenia	94	3.49	58	4.25	0.76
Georgia	88	3.60	60	4.23	0.63
United Arab Emirates	30	4.77	23	5.30	0.54
Kazakhstan	55	4.03	40	4.54	0.52
Russian Federation	56	4.02	41	4.53	0.51
El Salvador	103	3.38	80	3.89	0.51
Macedonia, FYR	66	3.91	47	4.42	0.51
Mauritius	53	4.06	45	4.49	0.42
Kyrgyz Republic	115	3.13	98	3.54	0.41
Latvia	41	4.35	33	4.75	0.40

Figure 5: Regional trends
Region's average NRI score, 1–7



Sources: World Economic Forum; World Bank 2015.
Note: ADV = Advanced economies; CIS = Commonwealth of Independent States; EDA = Emerging and developing Asia; EDE = Emerging and developing Europe; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa and Pakistan; SSA = Sub-Saharan Africa.

The limits of the mobile revolution and the persistence of digital divides

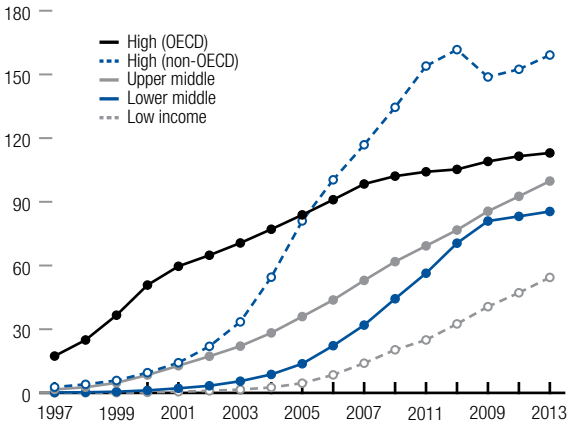
In the span of just two decades, the number of mobile telephone subscriptions exploded from essentially zero to 6.9 billion.[10] The mobile revolution originated in the rich world, and by the year 2000, high-income OECD countries already boasted 50 subscriptions per 100 population. In low-income countries, however, the rate was still less than 1 subscription per 100 population (see Figure 6).[11] Thanks to fast-paced growth, the developing world started to bridge this "mobile divide." Whereas high-income countries still boasted 18 times more subscriptions per 100 population than low-income countries in 2005, this ratio had dropped to 2 times by 2013.

Arguably, the mobile revolution's influence has been greatest in the developing world, where it has helped address the critical lack of telecommunication infrastructure and improve access and productivity in sectors such as agriculture, health, education, and finance. While this is truly remarkable, one must acknowledge the limits of this mobile revolution.

First, even though there are almost as many mobile telephone subscriptions as people on the planet, this does not imply that everyone owns or is using a mobile phone. The number of mobile subscriptions far exceeds the number of mobile phone users.[12] Based on the GSM Association's estimates that unique mobile subscribers account for about half of mobile cellular subscriptions, ITU reckons that mobile telephony penetration has reached approximately 48 percent globally and 30 percent in least-developed countries.

Second, even in countries where penetration rates exceed 50 percent, vast disparities exist between urban and rural areas. Indeed, parts of the developing world are not yet covered by a mobile network signal. ITU calculates that, at the end of 2012, around 450 million people worldwide still lived out of reach of a mobile signal.[13]

Figure 6: Bridging the mobile telephony divide
Mobile telephone subscriptions per 100 population, by income group

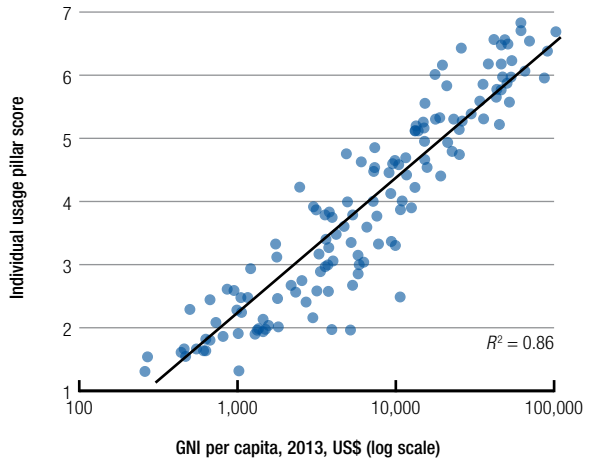


Source: Authors' calculations, based on ITU 2015 and World Bank 2015.
Note: Population-weighted rates. See text for details.

Third, only so much can be done through 2G mobile telephony, which can carry only voice and text messages. The most compelling and promising solutions for development require more sophisticated technologies: first and foremost is fast and reliable access to the Internet, be it mobile, wireless, or wired access. But the Internet is neither as ubiquitous nor is it spreading as fast as many believe. Beyond mobile telephony, the digital divide still runs deep.

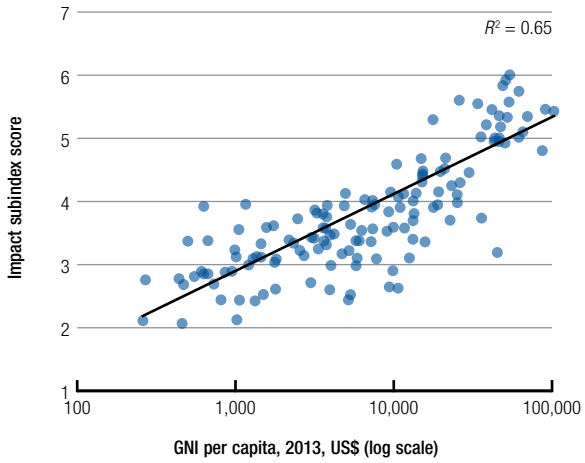
Figure 7 reveals the stubbornly high correlation between income and performance in the ICT usage pillar. In this category, the score gap between high-income economies and the rest of the world is large and has actually been widening since 2012: lower-middle-income and low-income countries are now farther behind than they were in 2012 (see Figure 9). Figure 8 shows that the relationship between income and ICT

Figure 7: Conventional digital divide



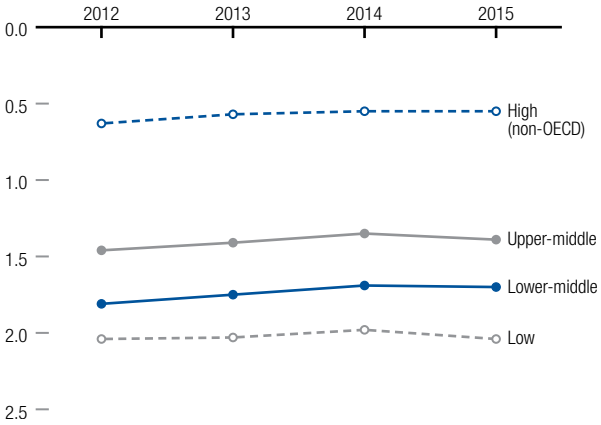
Sources: World Economic Forum; World Bank 2015.
Note: N = 138 economies.

Figure 8: New digital divide



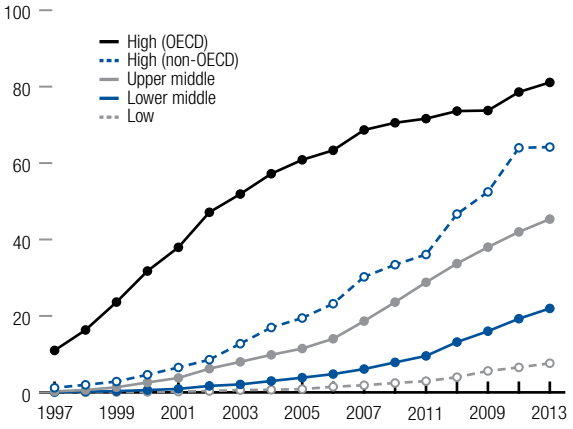
Sources: World Economic Forum; World Bank 2015.
Note: N = 138 economies.

Figure 9: Evolution of the digital divide
Individual usage pillar: Score differentials with high-income OECD average (inverted scale)



Note: Constant sample of 131 economies.

Figure 10: Internet penetration
Percent of individuals using the Internet, by income group



Source: Authors' calculations based on ITU 2015 and World Bank 2015.
Note: Population-weighted rates. See text for details.

impacts is almost as strong, providing an illustration of the *new* digital divide as we termed it in 2013.[14]

The need for an Internet revolution

The United Nations' Open Working Group (OWG) on Sustainable Development Goals recommends that the international community "... strive to provide universal and affordable access to internet in least-developed economies by 2020."[15] In light of the current levels and growth trends described below, this milestone appears highly optimistic and will most likely be missed.

Indeed, the Internet remains nonexistent, scarce, unaffordable, or too slow in vast swaths of the developing world. Figure 10 shows the Internet penetration rate by income group and by year since 1997, when data coverage became sufficiently large.[16] At the end of 2013, 81 percent of the population of high-income OECD countries used the Internet. The rate among low-income countries was 10 times less—a mere 7.6 percent, which is lower than the penetration rate among OECD countries was in 1997.

In 2013, among the 25 low-income countries studied, five had a penetration rate above 10 percent and only one—Kenya—had a rate exceeding 20 percent. Kenya liberalized its telecommunications sector in the late 1990s and created the Kenya Internet Exchange Point in 2002, which led to a dramatic fall in providers' operating costs and retail prices and an increase in local content.[17] As a result, Internet penetration in Kenya increased from 1 percent in 2002 to 39 percent today—five times the low-income group's average.

As in the case of mobile telephony, the rural-urban gap in terms of Internet penetration is large. According to ITU, it is even widening in parts of the world.[18] Data are extremely scant, but the few data points that do exist are telling. In Guatemala, for instance, an urban household is 12 times more likely to be connected to the Internet than a rural one. And ITU reckons that this ratio could be much higher in low-income countries.

The difference in the speed of Internet adoption across countries is striking, too (see Table 7). It took only six years on average for high-income OECD countries

Table 7: Speed of diffusion of mobile telephony and the Internet by income group
Median time (years) to reach selected thresholds

	Mobile telephone subscriptions per 100 inhabitants (threshold)						Individuals using the Internet (%) (threshold)					
	40		80		120		20		40		60	
	Share (%)*	Time (yrs)†	Share (%)*	Time (yrs)†	Share (%)*	Time (yrs)†	Share (%)*	Time (yrs)†	Share (%)*	Time (yrs)†	Share (%)*	Time (yrs)†
High income: OECD	100	7.0	100	10.5	56	17.0	100	6.0	100	9.0	94	12.0
High income: non-OECD	100	9.0	97	12.0	65	15.0	97	7.0	97	11.5	87	15.0
Upper-middle income	98	7.0	92	11.0	45	13.0	88	10.0	63	13.5	15	14.0
Lower-middle income	93	8.0	59	10.5	25	11.0	51	11.0	19	13.0	0	—
Low income	72	8.0	19	10.0	6	11.0	4	10.0	0	—	0	—

Source: Authors' calculations based on ITU 2015.
Note: See text for details.
* Share of economies in that income group having reached this threshold; † Median number of years it took to reach this threshold.

to attain 20 percent penetration.[19] In contrast, only half of lower-middle-income countries have reached this mark and it took those almost twice as much time. Furthermore, while 90 percent of high-income countries have exceeded the 60 percent threshold, only 15 percent of upper-middle-income countries—and not a single lower-middle-income or low-income country—have reached this mark yet.

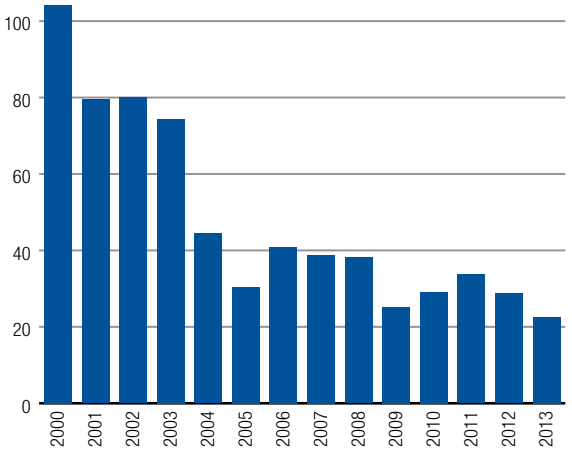
In low-income countries, Internet penetration has been growing at double-digit rates, but from a very low base and growth has been slowing lately (see Figure 11). If penetration continued to grow at the same rate as it did from 2011 to 2013—an optimistic supposition given the trajectory usually assumed by technology diffusion—it will take at least another 12 years for the Internet to reach 75 percent of the world's population. This is very far from the objective set out by the OWG to achieve universal penetration by 2020.

Finally, beyond affordability and infrastructure, the lack of availability of digital content and services represents another significant obstacle to more widespread adoption. Many individuals do not get online simply because there is little content relevant to them. Chapter 1.3 points to solutions for jumpstarting digital content and services ecosystems.

As developing countries leapfrog to 4G technology, thus enabling owners of smartphones to access the Internet, Internet diffusion may accelerate in coming years. Prices of 4G smartphones remain high, but—thanks to innovation and competition—prices are expected to keep falling. Already one-sixth of smartphones sold in 2013 cost less than US$100.[20] Leapfrogging and falling prices could usher in the mobile revolution 2.0, a rapid expansion of mobile broadband throughout the world.

At the same time that prices fall, innovative projects could address the lack and cost of infrastructure that hampers the use of smartphones. For instance, Google's Loon project plans a network of balloons placed in the stratosphere to broadcast a 4G wireless signal in rural and remote areas. This project, still in a pilot phase, is not expected to provide a solution in the short term, but it does indicate the role that breakthrough innovations could play in alleviating the obstacle represented by poor or lacking infrastructure.

Figure 11: Internet penetration in low-income economies
Growth, 3-year moving average, %



Source: Authors' calculations based on ITU 2015.
Note: Based on population-weighted penetration rates. See text for details.

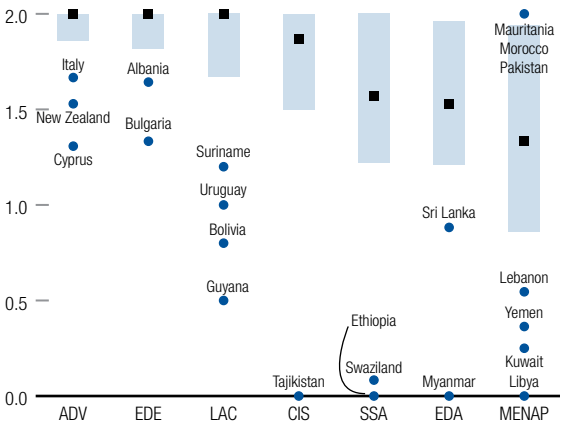
Yet it would be ill-advised to assume that the Internet will become ubiquitous soon without further policy action. Policymakers must accelerate liberalization, boost public investment, and work closely with international and domestic businesses to attract private investment and encourage innovation. In this effort, connecting rural areas of developing countries to broadband networks must be a priority. Since those areas lack other infrastructure and access to public services, the benefits brought about by ICTs will have especially momentous impact. Improving the framework conditions and the readiness of the population will also increase the potential of this impact.

Policymakers' low-hanging fruit to boost ICT use

To achieve this Internet revolution and bridge the digital divides, countries need to build their ICT readiness. This

Figure 12: ICT services competition

NRI indicator 4.03: Internet and telephony competition, 0–2 (best)



Notes: The light blue boxes and the black marks identify, respectively, the interquartile range (from the 75th to the 25th percentile) and the median value for each of the distributions. ADV = Advanced economies; CIS = Commonwealth of Independent States; EDA = Emerging and developing Asia; EDE = Emerging and developing Europe; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa and Pakistan; SSA = Sub-Saharan Africa

implies long-term, costly investments in infrastructure and in education. But a low-hanging fruit exists in the policymaker toolkit. Governments can accelerate the process through sound regulation and more intense competition. By displaying leadership, they can create an enabling environment and orient private operators toward the best solutions for the system's long-term cost-effectiveness, quality, and sustainability.

Of course, liberalization bears political costs because it implies breaking the dominant position of well-connected or government-owned firms. However, countries can and must overcome these costs to reap the benefits, which are significant. Liberalization attracts more players and creates competition, which in turn tends to increase the quality of products and services and reduce retail prices. This better system lures more customers and encourages investment, both domestic and foreign, which is used to improve infrastructure and the availability of services. Larger markets also generate economies of scale for operators, thus reducing retail prices further and attracting even more customers. In short, liberalization creates a virtuous circle with lasting and far-reaching effects across the economy.

Figure 12 shows the state of liberalization in 17 categories of ICT services on a scale from 0 (monopoly in all services) to 2 (all services fully liberalized). The blue bars delineate the interquartile range within each region, while the black squares and the blue dots identify the median value and outliers, respectively. Although advanced economies perform better on average than any other group of economies, countries from all regions and at different development stages have liberalized their ICT markets

The performance of sub-Saharan Africa is noteworthy: on average, the region performs better in terms of liberalization than Emerging and developing Asia or the MENAP regions. Many sub-Saharan African countries have fully liberalized their ICT markets, including several Least Developed Countries (LDCs) and fragile economies: Burkina Faso, Cape Verde, Kenya, Lesotho, Madagascar, Mauritius, Nigeria, Tanzania, and Uganda. This strategy bodes well for the future, and some countries—such as Kenya and Tanzania—are already reaping the benefits of this liberalization in the form of increased investments and use and the introduction of new business models and services.

A byproduct of market liberalization is the creation of Internet exchange points (IXPs). IXPs are physical infrastructures for the exchange of traffic between Internet service providers (ISPs) and other content providers. As countries develop their digital infrastructure, IXPs are used to route domestic traffic exclusively within the country without needing to exchange data through international carriers. This significantly improves the network performance in terms of latency and stability, and it also decreases costs for domestic ISPs.

IXPs can be established with the direct support of the government (as in Nigeria) or by a group of private ISPs (as in Kenya). In both cases, governments provide an essential element, either by playing an active, leadership role in spurring the adoption of this type of technology, or by creating an enabling, competitive environment and properly regulating the existence and provision of this type of services. Governments also play a strategic role in developing IXPs through the construction of Internet backbone networks to connect IXPs to potential users both domestically and abroad.[21]

ICTs' contributions to shared prosperity

If harnessed properly, ICTs can create economic opportunities and foster social and political inclusion, ultimately contributing to shared prosperity. The socioeconomic benefits brought about by ICTs are precisely what the Impact subindex of the NRI aims to measure.

ICTs hold the potential for transforming our economies through multiple channels. They boost productivity and reduce transaction and information costs. They allow new models of collaboration that increase workers' efficiency and flexibility for better work-life balance.

ICTs foster entrepreneurship and create new business models. The past two decades have witnessed the emergence of startups that have disrupted entire industries or created entirely new ones. Some of these startups have since become corporate giants that are transforming our world. Startup incubators now exist in most major cities and provide affordable training, mentorship, and resources to those who wish to start a business. Associated with 3D printing and other

Box 2: Fab Labs and digital makers: How information technology is fostering youth entrepreneurship

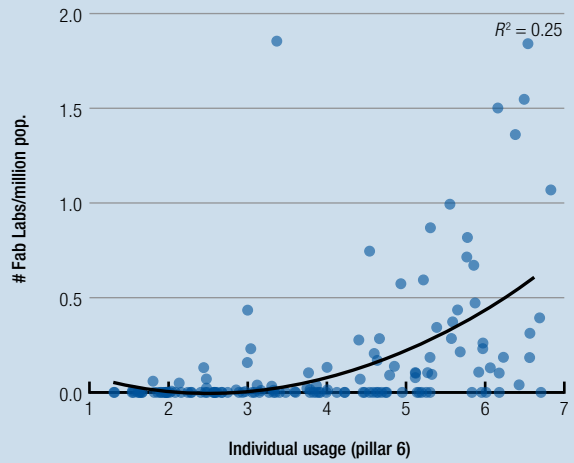
With the advent of digital manufacturing, "fabrication laboratories" are spreading around the world. These centers provide access to hardware, machines, and open-source software, along with affordable training and mentoring. They encourage collaboration among stakeholders and across disciplines, and are increasingly seen as a powerful way to spur entrepreneurship, address the skills gap, and alleviate youth unemployment while revolutionizing production processes.

In June 2013, the French Ministry for the Economy and Finance (Ministère de l'Économie, de l'Industrie et du Numérique) called for projects to finance 14 new fabrication laboratories. In doing so, the government recognized the key role of such structures in spreading a culture of innovation and creating bridges between civil society, the private sector, and the education system. The projects were presented by firms, universities, and private associations. All of these projects were based on partnerships among different stakeholders. Moreover, in the context of the Initiative French Tech—a program launched by the French government to support the creation of startups—the presence of a fabrication lab is one of the requirements for a city (or any geographic entity) to be officially recognized as a "Métropole French Tech."[1]

In Italy, the North East Foundation (Fondazione Nord Est), a public-private foundation partnered by local business associations and public institutions, is leading an effort to create a fabrication lab in every high school of the northeast of the country. An online crowdfunding platform was launched in January 2015 to finance labs in 10 schools and a professional training center.[2] Within the current context of reforming the school system, in 2015 the Italian government also plans to launch introductory courses on digital manufacturing in some secondary schools, teaching pupils how to code and use digital technologies to make objects on their own or connecting existing ones to the Internet.[3]

The largest network of labs is one supported by the Fab Foundation, born as an educational outreach component of MIT's Center for Bits and Atoms. Today, this community is composed of 472 "Fab Labs" in 71 countries (see Figure A).[4] It engages schools, academia, entrepreneurs, and research institutions. To be certified as a Fab Lab by the Fab Foundation, a fabrication laboratory must provide a common set of tools and services and share the objectives and the principles of the "Fab Charter."

Figure A: Individual usage: ICTs and Fab Labs



Sources: The Fab Foundation (www.fablabs.io, accessed February 20, 2015); World Economic Forum.
Notes: N = 142 economies. Iceland has been excluded from the graph and calculation because it represents an outlier in terms of the number of Fab Labs per million people.

Table A: Fab Labs per million people (top 10 countries)

	Country/Economy	Fab Labs	Fab Labs (per million pop.)	Youth unemployment (2013), %
1	Iceland	5	15.5	11.1
2	Suriname	1	1.9	22.5
3	Luxembourg	1	1.8	19.2
4	Netherlands	26	1.5	11.0
5	Bahrain	2	1.5	27.9
6	Switzerland	11	1.4	8.8
7	Denmark	6	1.1	13.0
8	Latvia	2	1.0	20.3
9	Italy	52	0.9	39.7
10	France	54	0.8	23.7

Source: The Fab Foundation (www.fablabs.io, accessed on February 20th 2015); World Bank 2015.
Note: Outlier Iceland, included here, shows far more Fab Labs per million population than any other country.

Notes

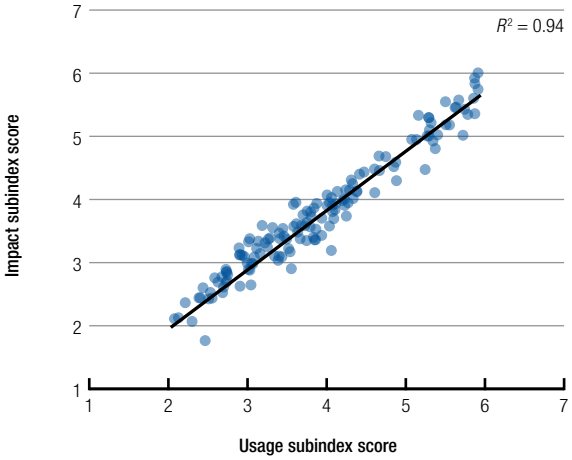
1 http://www.labuonascuola.gov.it.
2 http://www.fablabs.io (accessed on February 20th, 2015).
3 http://www.lafrenchtech.com.
4 http://www.fablabascuola.it.

technologies, user-friendly, open-source software and inexpensive hardware are contributing to the spread of digital manufacturing among aspiring entrepreneurs, especially among the youth (see Box 2).

Through crowdfunding and equity-crowdfunding platforms, ICTs also provide alternative sources of credit for individuals and entrepreneurs who do not have access to traditional sources of funding, or even for more established businesses that need to finance their operations. Online marketplaces, such as Lending Club, allow borrowers and lenders to connect directly online, while big data makes it possible to compute a credit score for virtually every human being.

ICTs offer significant social benefits, notably by enabling access to basic services, including financial services and education. Perhaps one of the best examples of how the mobile revolution is changing financial services is M-PESA, the mobile-based money transfer system that was launched in Kenya and Tanzania and is now spreading to the rest of

Figure 13: Usage and impact



Sources: World Economic Forum; World Bank 2015.
Note: $N = 138$ economies.

the developing world. In the education arena, the proliferation of massive online open courses (MOOCS) allows people around the world to upgrade their skills, train, or re-train more frequently, more flexibly, and more cheaply than through traditional channels.

Technology is also allowing for a more direct interaction between populations and governments. Improved government online presence can significantly increase the efficiency of public administration. The Internet provides new ways for citizens to participate in the policy- and decision-making processes, especially for those whose voice is usually further from the boardrooms. Open-data initiatives and stronger commitments by governments to making information available online improve transparency, governance, and accountability, because citizens and civil society can now monitor more closely the conduct of civil servants.

Most governments have responded—more or less promptly—to demand for e-participation and have enhanced the provision of e-information, the launch of e-consultation initiatives, and the use of e-decision-making. As a result, we observe significant improvement by most countries in the latest edition of the *E-participation Index* (indicator 10.04) compiled by UNPAN.

Widespread ICT use by businesses, government, and the population at large is a pre-condition for all these benefits and opportunities to materialize, as confirmed by the NRI results. Figure 13 reveals the nearly perfect relationship between the Usage and Impact subindexes—a linear regression of the latter on the former yields a coefficient of determination (R^2) of 0.94.

Better data for better policies

The lack of good data on some of the most basic indicators of socioeconomic performances, let alone ICT-related concepts, is truly alarming, as it can lead to misguided policies and misallocation of resources. In August 2014, UN Secretary-General Ban Ki-moon appointed an Independent Expert Advisory Group (IEAG) on a Data Revolution for Sustainable Development. In its report *Mobilising for the Data Revolution,* the IEAG referred to data as "the lifeblood of decision-making and the raw material for accountability."[22]

To a certain extent, the NRI also suffers from data paucity. Like any benchmarking exercise, it is only as good as its underlying data. The World Economic Forum is fully aware of the limitations of the data and acknowledges the gaps, particularly when it comes to measuring the impacts of ICTs. A handful of data points composing the NRI pre-date 2006, a lag of 10 years, which by ICT standards is appallingly long.

Echoing the UN Secretary-General, the plea for more and better data is reiterated. Governments around the world need to strengthen the capacity of national statistical offices to collect data and preserve their independence, and to support the United Nations' agencies and other international institutions in their hugely important efforts to collect more reliable, more granular, more timely, more complete, and more harmonized data.

ICTs will both contribute to ushering in the data revolution and benefit from it. ICTs—in all their forms, such as mobile phones, the Internet of things, satellite imagery, and sensors—are revolutionizing the way data are being collected. The new data thus collected will in turn further our understanding of how ICTs are impacting our society.

COUNTRY HIGHLIGHTS

In this section the performance of selected countries is briefly described. We look at the 10 best-performing countries in the NRI 2015 and the members of the G-20 that do not belong to the top 10 (Table 8). The Country/Economy Profiles section of this *Report* is a useful complement to the reading.

A runner-up behind Sweden in 2012 and behind Finland in the past two editions, **Singapore** overtakes the latter to earn the NRI's top spot this year. The city-state's performance is one of the most consistent across the 10 categories of the Index: it tops three pillars (Business and innovation environment, Government usage, and Social impacts), features in the top 3 of another two, and ranks no lower than 30th (in the Affordability pillar) in the remaining five. The government is leading the ICT revolution with a clear digital strategy and one of the world's best offerings in terms of online services and e-participation tools. It notably ranks 2nd, behind only the United Arab Emirates, in the indicator measuring the impact ICTs are having on government efficiency. Singapore offers the most conducive business and innovation environment worldwide and ranks 2nd for the quality of its regulatory framework. ICT readiness is outstanding thanks to Singapore's highly skilled workforce (2nd, behind Finland) and infrastructure (19th). With such fertile ground, it is not surprising that ICTs are so widespread: Singapore boasts the highest penetration

of mobile broadband subscriptions per capita in the world. Yet Internet uptake is surprisingly low: only three-quarters of the population use it on a regular basis—20 percentage points lower than leaders Iceland, Norway, and Sweden. This relatively low uptake does not prevent Singapore from generating substantial economic and social impacts through ICTs, however: it comes in 1st in the Impact subindex. In particular, some 53 percent of the population is employed in knowledge-intensive jobs, the second highest ratio after Luxembourg.

After two years at the top of the NRI rankings, **Finland** slips to 2nd place but remains a top performer in many aspects of networked readiness. The country boasts an excellent political and business environment and top-level infrastructure (5th). Finland ranks 1st in the Skills pillar: its education system is outstanding and its workforce highly skilled. This, coupled with affordable ICT access (9th) allows widespread use among the population (5th) and businesses (4th). Although it has not yet found ways to fully restructure its large ICT industry, Finland overtakes Japan as the country with the highest number of ICT PCT patents per capita. The government is also re-thinking a way to promote the ICT industry. In 2013, the ICT 2015 Working Group published its final report recommending new financing programs for startups and growing companies, a 10-year research and development program, and better and more systematic use of ICTs within public administration. These efforts are expected to stem the deterioration of Finland's performance in government online service delivery (18th, down from 7th) and citizens' e-participation (24th, down from 11th).

Contributing to the strong performance of the Nordics, **Sweden** maintains its 3rd position for the third edition in a row. The country presents a strong performance across the board. Its political and business environment remains one of the best in the world (13th) despite a slight decline. Sweden's readiness is outstanding (4th) with excellent infrastructure (3rd), affordable ICT access (18th, and 3rd in the European Union), and a highly skilled population (28th). ICT usage is widespread among businesses (3rd) and the population at large (2nd). As of 2013, some 95 percent of individuals used the Internet. This allows ICTs to have a large impact on both the economy (2nd) and society (16th). Swedish companies are highly innovative in creating new products and services (6th) and are leaders in patenting ICT-related technology (2nd). Almost half of the Swedish workforce is employed in knowledge-intensive jobs (5th). ICTs also improve access to basic services (8th) and government efficiency (14th), although there is room for improvement in enhancing e-participation in decision-making processes (45th).

The **Netherlands** retains its 4th place in this edition. The country can rely on one of the soundest political and regulatory frameworks (7th) and one of the most conducive business and innovation environments (8th) in the world. Its well-developed infrastructure (14th) and highly skilled workforce (6th) allow for very high levels of ICT uptake. Affordability remains a weak spot (72nd), especially for mobile telephony (101st), with mobile and mobile broadband subscriptions remaining relatively low (69th and 28th, respectively). Individual usage of ICTs is otherwise widespread (7th): almost the entire population has access to a personal computer and a large proportion has access to a fixed broadband connection (3rd highest penetration rate in both indicators). ICTs are also fully leveraged by businesses: the Netherlands has some of the highest levels of business-to-business and business-to-consumer Internet usage (9th and 4th, respectively). The government remains a leader in granting access to government services online (8th) and allowing the population to e-participate (1st). Overall, ICTs have a significant impact on the Dutch economy: companies fully leverage them to create new products and services (5th), and the country has one the highest percentages of workers employed in knowledge-intensive jobs (9th).

Third among the Nordics, **Norway** retains its 5th position on the back of a remarkable and slightly improving performance: the country ranks in the top 10

Table 8: Countries covered in this section

	NRI rank	Page of description
Top 10		
Singapore	1	20
Finland	2	21
Sweden	3	21
Netherlands	4	21
Norway	5	21
Switzerland	6	22
United States	7	22
United Kingdom	8	22
Luxembourg	9	22
Japan	10	23
Other G-20 Members		
Canada	11	23
Korea, Rep.	12	23
Germany	13	23
Australia	16	23
France	26	24
Saudi Arabia	35	24
Russian Federation	41	24
Turkey	48	24
Italy	55	24
China	62	25
Mexico	69	25
South Africa	75	25
Indonesia	79	25
Brazil	84	25
India	89	26
Argentina	92	26

of six NRI pillars and no lower than 27th in the other four. It notably boasts one of the best political and regulatory frameworks (6th) and an extremely conducive innovation and business environment (7th). Its infrastructure ranks best in the world (1st). Norwegians are avid users of ICTs (3rd in the Individual usage pillar): 95 percent of the population uses the Internet (2nd only to Iceland) and some 93 percent of households are equipped with a computer (5th). Fixed and mobile broadband access to the Internet is widespread (5th and 13th, respectively). The government has been quite successful in promoting ICTs (18th) and providing online services to companies and citizens (21st). Norway's economy and society as a whole are positively affected by information technology: businesses are able to adopt new organizational models, thus increasing the adaptability of the work environment (3rd), and employ almost half of their workers in knowledge-intensive jobs (7th); ICTs also contribute to improving access to basic services (6th) and are widely used in the country's education system to improve learning outcomes (3rd).

Switzerland ranks 6th overall, unchanged from last year despite a small improvement in its score. The country features in the top 10 of seven pillars—a record it shares with Finland and the Netherlands. Excellent institutions (9th), business-friendly regulations (10th), world-class infrastructure (10th), and highly educated labor force (3rd) provide fertile ground for widespread ICT adoption and impact. Switzerland ranks 1st in the business usage pillar of the NRI. Swiss companies—including in flagship industries such as machinery equipment, electronics, pharmaceuticals, watch manufacturing, and banking—are using ICTs to improve production processes, productivity, and quality, and to preserve their innovation edge and maintain their position at the top of the value chain. ICTs are also widespread among the population at large (10th). Notably, Switzerland possesses the highest number of fixed broadband Internet subscriptions per capita in the world. All these factors combine to create a virtuous cycle that makes Switzerland one of the world's most prolific innovation powerhouses and a true knowledge-based economy. More than 50 percent of its population is employed in knowledge-intensive jobs (3rd, behind Luxembourg and Singapore). In stark contrast with these results, the government does not seem to be adopting ICTs as fervently (48th) as other actors. The mediocre quality of the government online services offering (64th) contributes to this unflattering performance, which places Switzerland in the bottom quarter among advanced economies.

The **United States** remains in 7th position, with a strong performance in most dimensions of the NRI. It ranks in the top 10 of four pillars, but room for improvement remains in many areas. It ranks a low 53rd in the Affordability pillar, particularly following the increase in the cost of fixed broadband Internet (71st). The United States must invest in its human capital and improve the general skillset of the population (33rd), especially in the area of math and science (51st). In contrast, ICT-related infrastructure remains among the best in the world (4th). ICT usage is high among all stakeholders: individuals (18th), businesses (7th), and government (14th). This translates into high impacts on both the economy (7th) and society (11th). Across industries and sectors, American companies leverage ICTs to create new businesses and opportunities. The United States remains one the best examples of a large, advanced economy making the right investments to fully leverage ICTs.

The **United Kingdom** (8th, up one) consolidates its position in the top 10, to which it has belonged since 2012. The country boasts one of the most conducive environments in the world for ICT development (4th). Top-level infrastructure (15th), good affordability (51st, up from 79th last year), and a high degree of preparedness among the population (31st) further contribute to this ecosystem. Individual usage has improved in recent years, and is now one of the most extensive in the world (4th). The United Kingdom displays some of the world's highest penetration rates of fixed and mobile broadband Internet access (7th and 12th, respectively). UK companies also remain top users of ICTs, showing the way in both business-to-business and business-to-consumer use (3rd and 1st, respectively), and they exhibit an excellent capacity to innovate (10th). ICTs have a significant impact on the UK economy (13th), contributing to the creation of new organizational models, products, and services. Being at the forefront of networked readiness is particularly important for a service-based economy such as the United Kingdom's, where almost half of the workforce is employed in knowledge-intensive jobs (6th). ICTs also have a large impact on the society at large, notably in terms of e-participation (4th).

Ranked 21st in 2012, **Luxembourg** continues on its impressive upward trend and enters the top 10 for the first time, at 9th place. The country benefits from a stable and efficient political and regulatory environment (3rd) with a well-developed ICT legislative framework (2nd). Venture capital availability (10th) and low tax rates (13th), among other factors, foster business development and innovation (27th). Luxembourg also possesses excellent infrastructure (18th). ICT usage is widespread among the population, business, and government alike, even though the country comes up short in terms of affordability (50th). A service-based economy, Luxembourg is greatly influenced by information technology. Almost 60 percent of the workforce is employed in knowledge-intensive jobs (1st), and ICTs largely foster the development of new services and products (7th) and new organizational models (17th). In recent years, the government has done a good job of developing a vision for ICTs (5th) and promoting its deployment (4th), helped by the

public-private partnerships formed in the context of the Luxembourg ICT Cluster Initiative. However, there is room to improve government online services (42nd) and to facilitate citizens' e-participation (54th).

Up eight places since 2012 and six in the past year alone, **Japan** takes the last spot in the top 10 of the NRI, owing to improvements—sometimes significant—in all pillars. The country now features in the top 10 of three pillars. Notably, Japan ranks 2nd, behind only Switzerland, in the Business usage pillar, thanks to the omnipresence of technology, which contributes to the formidable innovation capacity of Japanese businesses. Japan's population is among the most avid users of ICTs in the world (13th). Almost nine in ten individuals use the Internet on a regular basis (12th). Nearly every mobile phone in Japan is a smartphone, and the number of mobile broadband subscriptions per capita is the third highest in the world. The government, too, is prompt at adopting ICTs for the benefits of its citizens (7th). Yet ICTs do not have the same disruptive effect on the economy as they do, for instance, in the Nordics, the United States, Israel, or the Republic of Korea. This might be partially the consequence of the hierarchical and patriarchal corporate culture that still prevails in large companies, the society's relatively high aversion for risk, and an unfavorable regulatory regime, all of which hinder the generation of ideas, initiative-taking, and business creation. As a result, innovation in Japan's largest companies is mostly incremental rather than disruptive, while the startup community remains largely underdeveloped.

Canada further improves its performance, climbing up six positions to 11th place this year. The country confirms its very strong political and business environment, notwithstanding its judicial system's relatively slow pace in enforcing contracts (79th). The country also performs well in terms of readiness, with top-level infrastructure (6th) and a highly skilled workforce (9th). Usage remains a relatively weak spot, with mobile broadband penetration (45th) well below that of most advanced economies. Economic and social impacts further increased this year, with a surge of patent applications in ICT industries (13th) and larger overall impact of information technologies on new services and products (21st) and organizational models (12th). Canada also boasts one of the highest percentages of workers employed in knowledge-intensive jobs: 44 percent (ranked 14th worldwide). Finally, ICTs are increasingly used to improve access to basic services (14th) and enhance citizens' participation in government decision-making (14th).

The performance of the **Republic of Korea** (12th) is virtually unchanged from last year, and the loss of two places should not be overstated. In fact, the country's overall ranking has barely budged since 2012. The assessment of Korea's networked readiness landscape is overwhelmingly positive. The country features in the top 10 of four pillars. The Korean population is among the most digitally connected (9th), and nearly 98 percent of households are equipped with Internet access (1st). Ultra-fast Internet is ubiquitous in Korea. The transformative effect of ICTs on society is significant (4th), notably thanks to the government's leadership in adopting ICTs (3rd) and promoting e-participation (1st). In this context, the mediocre performance of Korea in the Political and regulatory environment pillar (42nd) stands out all the more. Another area of relative weakness is the middling quality of the education system (73rd), which is perceived as not fully meeting the needs of Korea's economy.

Germany slides down one position to 13th but maintains its score. Its performance remains very strong, with an excellent Political and regulatory environment (13th) and top-level Infrastructure (13th). The country also boasts one of the highest levels of ICT uptake among businesses (5th) whose capacity for innovation is outstanding (4th). Usage among the population is widespread, too (17th), and the number of fixed broadband Internet subscriptions per capita is among the world's highest (9th). In contrast, the uptake of 3G (or above) mobile telephony is surprisingly low (45 per 100 population, 50th)—almost three times less than in countries such as Japan and Finland. Nevertheless, ICTs generate significant economic impacts (9th), with a large share of workers employed in knowledge-intensive jobs (43 percent, 18th worldwide). The country has lost ground in terms of government usage and social impacts (31st), with government online services availability and citizens' e-participation both decreasing significantly. The renewed government effort in mainstreaming ICTs outlined in the Digital Agenda 2014-2017 bill passed last year, the first-ever in Germany, could reverse the trend. The strategy exposes a number of measures to increase ICT penetration, growth and security, including investment in digital infrastructure, especially in rural areas.

Australia advances two places to reach 16th overall—its best rank so far. Even though it features in the top 10 of only one pillar (Infrastructure), the country ranks no lower than 28th in each of the ten pillars of the NRI. It obtains excellent marks in most of the readiness-related indicators, which translates into very high levels of ICT usage. Australia boasts the 4th highest penetration rate of mobile telephone subscriptions of the third generation or above, although ICT uptake by businesses is more limited (25th). Despite excellent grades in terms of online services offerings and e-participation tools, the government could do more to encourage the use of ICTs. The economy is largely dependent on commodity exports and is not particularly innovative. In order to develop this capacity for innovation, diversify the economy, and build resilience, the government and businesses should embrace ICTs even more enthusiastically.

France drops one spot to 26th, despite improving its score. Its performance is remarkably consistent and strong, but not outstanding: the country ranks between 14th (in the Skills pillar) and 25th in eight of the ten pillars. It places much lower when it comes to the quality of the business and innovation environment (45th). Because of market rigidities and some resistance, France has not yet become an innovation-based economy the way Switzerland, Germany, and the Nordics have, despite widespread use of ICTs and a strong push by the government, which has recently put in place incentives to accelerate this transition. France's government is one of the most e-ready in the world: the United Nations ranks it 1st for the quality of its online services offerings and 4th in the E-Participation Index, which assesses the availability of online information and participatory tools and services to citizens.

Saudi Arabia (35th, down three spots) drops for the second consecutive edition, but the country remains one of the leaders in the MENAP region, not too far from the other Gulf Cooperation Council members: the UAE (23rd), Qatar (27th), and Bahrain (30th). The drop has been driven mostly by increasing ICT costs (122nd), although recent improvements in Internet and telephony market competition in the country could reverse this trend. Tariffs are particularly high for fixed broadband (124th), helping to explain the low subscription rate (7.4 per 100 people, 74th), which is partly offset by the very high penetration of newer-generation mobile telephony (14th). Business usage has stalled over the last year, leading Saudi Arabia to slide eight positions in this pillar (42nd) while other economies have improved their performance. Similarly, the impact of ICTs on the economy increased in Saudi Arabia, but this increase was less than occurred in other countries, pushing down Saudi Arabia by four notches to arrive at 41st place. The share of knowledge-intensive jobs in the country's total workforce remains low (27 percent, 54th). ICTs should be leveraged more to accelerate the transition of the economy toward high-value-added activities. The Saudi government shows the way when it comes to promoting and adopting ICTs (8th in the Government usage pillar), earning excellent marks for its online services (18th). However, ICTs have not yet generated significant social impact, a lack that is especially notable in improving the education system (63rd) and facilitating e-participation (51st).

The **Russian Federation** climbs nine positions to 41st, as a result of an improvement in most of the pillars. The country further improved the skillset of its workforce, moving up 12 positions to achieve 52nd place. In general, ICTs are affordable (15th), even though ICT services have not been fully liberalized yet. Individual uptake is good and rapidly increasing: in the last year, Russia has significantly improved its performance across all dimensions of the Usage subindex (39, up 14). In particular, business usage has improved markedly but remains limited (66th, up 18). So is the capacity of business to innovate, as reflected in the low number of per capita patent applications (43rd, one of the lowest among high income economies). The country's capacity to leverage ICTs and its competitiveness in general continue to be seriously undermined by many institutional weaknesses, however. Russia ranks 79th in the Political and regulatory environment pillar of the NRI, owing to the lack of independence (109th) and inefficiency of its judicial system, and to the poor protection of intellectual property (106th), among other issues.

Up three positions, **Turkey** ranks 48th overall in this edition. The change is largely driven by increased government usage (55th) and social impacts (50th). In recent years, the government has improved its offering of online services (53rd) and facilitated people's e-participation in decision-making processes (64th), although significant room for improvement remains in both areas. The country performs very strongly in terms of affordability of ICTs (8th), also thanks to competitive and liberalized ICT service markets. However, ICTs have not yet fully entered the life of the population. Turkey ranks 67th in terms of Individual usage, the second-worst performance within the emerging and developing Europe region. For the economy and society to fully leverage the potential of ICTs, Turkey needs particularly to invest in improving the skillset of its population. It places 80th in this category, its worst showing among the 10 pillars of the NRI.

Italy climbs three spots to attain 55th position. The country's political and regulatory framework remains its weakest spot (102nd), with a very inefficient judicial system (142nd), which requires on average more than a thousand days to enforce a contract (131st). Italy's innovation environment is also hindered by low venture capital availability (127th), the result of the shortage of private capital for investment. Business lacks the support of public investment in advanced technologies (129th) and is penalized by a very high level of taxation (131st). Italy's performance in terms of skills (37th) and affordability (36th) is similar to that of other high-income countries. Business usage (60th) is below that of most advanced economies, and only 35 percent of the workforce is employed in knowledge-intensive jobs. The government has made huge improvements in delivering online services (23rd) and allowing citizens' e-participation (19th). However, it is still unable to adequately promote ICTs (139th). The government agency formed in 2012 to implement the national digital agenda has largely failed to deliver on its promises. The country's lag is considerable when it comes to ultra-broadband and next-generation access (NGA) technologies. The new government strategy, passed in March 2015, aims to bridge this gap through 6 billion euros worth of public investments and an equal amount of private funds.

Since 2012, despite improving its score, **China** (62nd) has dropped 11 places in the overall rankings because other countries have improved faster than it has. As China grows, the capacity of all stakeholders across the country to embrace technology will determine its ability to accelerate its transition from a middle-income country to a high-income country. China is becoming more innovative. Patent applications—an imperfect measure of innovation capacity—have shot up since 2000. Countless corporations have gone from being mere manufacturers to being inventors and commercializing their own product under their own name. Academic standing has also improved dramatically. But for ICTs to have a truly transformative impact on Chinese society and economy, they have to permeate the entire society, including rural areas. Tertiary education should become more widespread—not just reserved for the elite. And despite a handful of corporate success stories, the culture of entrepreneurship and startups has yet to take root in a country where state-owned enterprises still dominate many segments of the economy. A more conducive business environment would help a great deal—China currently ranks a mediocre 104th. At least the government recognizes the critical role of ICTs and innovation in sustaining the growth momentum. This commitment is reflected China's 39th rank in the Government usage pillar—its best pillar performance.

Mexico ranks 69th, up from 79th. This improvement is largely attributable to a revision of the mobile telephony tariff data, which causes the country to leapfrog 89 places in the Affordability pillar. Mexico ranks 4th on this pillar which includes mobile and broadband tariffs, both based on 2013 data. The challenges in the other areas remain considerable. Mexico ranks no better than 56th in the other nine pillars, and lies beyond the 50th mark in 43 of the 53 individual indicators composing the NRI. The poor quality of both the country's business and innovation environment (87th) and its overall regulatory framework (70th) is especially problematic. The level of taxation (117th) and the shortcomings of its legislative process and judiciary system contribute to this situation. The country's capacity to leverage ICTs is further limited by the level of education of the population, which translated to an unflattering 92nd rank in the Skills pillar, Mexico's worst showing among the 10 pillars. ICT uptake among businesses (72nd) and the population at large (87th) remains very low, not only in global comparison but even within the region, which is known for its low level of ICT adoption. There are few signs that ICTs are having any significant impacts on economy (72nd) or society (76th), as reflected in the weak innovation capacity of Mexican business (72nd) and the small share of the country's workforce employed in knowledge-intensive activities.

Despite a score unchanged from last year, **South Africa** loses five positions to settle at 75th place in this edition. The country's overall political and business environment remains one of its strengths (31st). In contrast, the general state of ICT readiness remains very low (102nd), the result of the poor quality of ICT-related infrastructure (85th), notably the limited international Internet bandwidth (128th).[23] The cost of ICTs in South Africa is also a drag (107th). Nonetheless, individual usage has further increased with a 10-place jump to reach 68th. However, government still lags behind (105th), earning very low marks in terms of online services provided to the population (82nd). Overall, the potential of ICTs has not been fully unlocked. Their social impacts have not yet materialized, and they have not significantly improved access to basic services (101st) or facilitated citizens' e-participation (88th).

Asia's third and the G-20's fourth most populous country, **Indonesia** ranks 79th in the NRI.[24] Although there is ample room for improvement in every section of the NRI, Indonesia's performance is relatively consistent and encouraging in many respects. The country ranks a remarkable 35th worldwide in the Business usage pillar, up 14 places since 2012—an indication that more and more Indonesian businesses are adopting ICTs to improve their operations and expand their activities. The government, in contrast, is not as quick at embracing ICTs and promoting e-government. Despite its commitment and a number of ICT initiatives, effects are long overdue. Among the population at large, mobile telephony has become ubiquitous. By ITU estimates, the entire population is within range of a mobile network of second generation or better. Indeed, Indonesia boasts one of the highest mobile subscription rates (125 per 100 population, 49th) among emerging and developing Asian nations, not far from leading Malaysia (145 per 100 population) and Thailand (140 per 100 population). And when it comes to mobile broadband subscriptions—the condition for accessing the Internet—Indonesia is second only to Thailand in the region. Yet Internet use remains scant: only 16 percent of the population are connected.

Down 15 places, **Brazil** (84th) posts one of the largest declines of this edition, dropping by 10 places or more in six of the ten NRI pillars. Since the 2012 edition, the country has slumped 19 places, and it does not appear in the top 50 of a single pillar. Its performance is particularly dismal in the Political and regulatory environment and Business and innovation environment pillars, where it ranks 95th and 121st, respectively (although it improves by 14 places in the latter category). The country's level of taxation (137th), the extent of its red tape—Brazil notably ranks 137th for the time required to start a business—and delays of its judicial system are among the many institutional weaknesses that explain this situation. The lack of preparedness (108th) of the population, measured by the general level of education, acts as another drag on the country's capacity to leverage ICTs more fully. The use of ICTs among the population has been improving, but not as quickly as in

other countries, causing Brazil to slip down the ranking to 62nd in this dimension. Furthermore, the government has failed to make ICTs a core driver of its development strategy (106th). Consequently, the economic and social benefits from ICTs remain very limited (76th and 73rd, respectively).

At 89th, **India** is the lowest-ranked of the BRICS. Since 2012, the country has failed to improve its score and lost almost 20 places. Despite many clusters of excellence and its knack for frugal innovation, India is not leveraging ICTs for the benefits of its entire population. The country places in the bottom half of the rankings of seven NRI pillars, and beyond the 100th mark in four. Uptake of ICTs in India is among the lowest in the world. When accounting for multiple SIM-card ownership, approximately one-third of the population owns a mobile phone. Smartphones are the privilege of the very few, with 3 mobile broadband subscriptions for every 100 population. Only 15 percent of the population uses the Internet. By international standards, technology adoption by businesses remains limited, as it does within the government. Despite its successes and international visibility and recognition, the vibrant IT and business process management industry accounts for only 0.6 percent of all jobs.[25] The need for India to embrace technology to power its economy is arguably less pressing than it is for the other, richer BRICS economies, given its stage of development. Yet ICTs could do wonders in improving productivity in agriculture and the services sector, while boosting access to some basic services among the rural population. Furthermore, ICTs could help fulfill India's ambition to become a global manufacturing hub. A most encouraging result amid India's mediocre performance is the country's 1st position in the Affordability pillar, as a result of the fierce competition within the vibrant telecommunications sector.

Argentina moves up nine positions to reach 91st place in this edition, its best performance since 2012. The assessment of the country's ICT-related infrastructure (79th) significantly benefits from its increase in international Internet bandwidth capacity, which doubled in 2013 thanks to a new submarine cable connecting Argentina with Uruguay and Brazil. Individual usage also improves (54th) and remains a relative strength of the country, in terms of mobile subscriptions (12th), Internet use (53rd), and fixed broadband subscriptions (49th). Yet the challenges Argentina faces are many and significant. The country's performance is considerably hampered by its dismal political and regulatory framework (128th) and its business and innovation environment (118th). In particular, Argentina's judicial system performs badly both in terms of independence (126th) and efficiency (142nd out of 143 when it comes to challenging government regulations). Intellectual property protection is poor (135th) and venture capital scarce (137th). The quality of its business environment is further hindered by the highest total tax rate in the world—equivalent to 137 percent of profits—weak local competition, and numerous barriers to business creation. The government's lack of leadership when it comes to ICTs is also particularly worrisome (115th).

CONCLUSIONS

As a general-purpose technology, ICTs hold the potential of transforming economies and societies. They can help address some of the most pressing issues of our time and support inclusive growth. With the Networked Readiness Index, the World Economic Forum, Cornell University, and INSEAD assess the ability of countries to leverage ICTs for increased competitiveness and well-being. In doing so, this *Report* aims to provide policy guidance to decision makers, as well as to inform multi-stakeholder dialogue.

The results of the NRI reveal that the ICT revolution has not yet spread around the world. The capacity of a country to benefit from ICTs is strongly influenced by its stage of development. Indeed, the drivers of networked readiness are often the same as the drivers of development in general. Northern and Western Europe and the Asian Tigers continue to dominate the NRI. Yet the results point to a wide-ranging number of success stories, from the Baltic countries to the Gulf countries, the Caucasus, and Central America.

Yet ICT potential is held up by limited uptake in many countries. ICTs are far from being ubiquitous, and they are not yet spreading as quickly as many believe. The mobile revolution that began in the mid-1990s remains unfinished. Approximately half of the world's population does not own a mobile phone, and many parts of the world are not yet covered by a cellular network. And even when universal penetration has been achieved, it is not a panacea because the most promising ICT applications require more than voice and SMS.

The developing world needs universal, reliable, and affordable Internet. Less than 10 percent of the population of low-income countries use the Internet. Current trends and technological developments suggest that the Internet revolution will be a mobile one. Given the lack of infrastructure and the cost of fixed broadband access, mobile broadband (i.e., 3G and above) is becoming the technology of choice, but it remains prohibitive in too many countries.

Furthermore, all countries—even the most advanced—must pay attention to the growing gap within their borders between the younger and the older generations, the urban and rural dwellers, the information-rich and the information-poor, the digitally literate and the those left behind. If ICTs are indeed an amplifier of potential and capabilities, then it is likely that this gap will increase in the coming years unless concerted action is taken to correct it.

Even though the NRI framework does not directly address these intra-country digital divides, one of its

premises is that the ICT revolution does not depend on access alone and cannot happen in a vacuum. The quality of the ecosystem and the preparedness of the population are paramount to ensuring that everybody benefits.

Policymakers and their partners must adopt a long-term, holistic vision to address those challenges. This requires smart long-term investments in infrastructure and education. But they can earn quicker, easier wins by adopting sound regulation aimed at promoting competition, innovation, and private investment. In the following chapters, leading experts and practitioners present solutions for a growth-supportive and inclusive ICT revolution.

NOTES

1 For example, Hall and Jones 1999; Caselli 2005; Gourinchas and Jeanne 2006.

2 World Economic Forum 2014.

3 Draca et al. 2006; Cardona et al. 2013.

4 Dutta et al. 2012.

5 See Dutta et al. 2012 for a more detailed description of each component.

6 For instance, the prevalence of Internet in schools would ideally be measured by computing the percentage of a country's schools that have Internet access. Similarly, the intensity of competition would ideally be measured by computing a business concentration index (Herfindahl–Hirschman Index). In both cases, however, such statistics are not available for enough countries.

7 See http://icp.worldbank.org/ for more information about PPP and the 2011 revision. For more information about indicators 4.01 and 4.02, refer to the Technical Notes and Sources at the end of this *Report*.

8 It must be noted that in the case of Hong Kong SAR and Taiwan (China), data remain unavailable for four key indicators: PCT patents (indicator 7.03), Government Online Service Index (8.02), ICT PCT patents (9.02), and E-Participation Index (10.04). Other evidence suggests that both economies tend to perform well in the areas of innovation and e-government. Therefore, the data gaps likely penalize these two economies and the overall results should be interpreted with caution.

9 Trend analyses are based on a constant sample of the economies that have been covered in every NRI edition since 2012. The 2014 IMF classification was used to compute the averages in every edition.

10 ITU 2014.

11 The analysis in this paragraph is based on a sample of 188 economies for which data on mobile telephony subscriptions and population existed for every year over the period 1997–2013. The country classification by income is from the World Bank (situation as of July 2014). The breakdown is as follows: 63 high-income countries, 49 upper-middle-income countries, 44 lower-middle-income countries, and 32 low-income countries. Penetration rates are weighted by population. Detailed calculations are available from the authors (gcp@weforum.org).

12 ITU 2014.

13 ITU 2014.

14 Bilbao-Osorio et al. 2013.

15 United Nations 2014, Goal 9, p. 17.

16 The analysis covers 165 countries for which data on Internet penetration and population is available for every year over the period 1997-2013. The country classification by income is from the World Bank (situation as of July 2014). The breakdown is as follows: 62 high-income countries, 41 upper-middle-income countries, 37 lower-middle income countries, and 25 low-income countries. Penetration rates are weighted by population. Detailed calculations are available from the authors.

17 Amega-Selorm et al. 2009. An *IXP* is a physical connection point that helps keep local Internet traffic local. This reduces costs associated with traffic exchange between Internet Service Providers (ISPs).

18 ITU 2014.

19 This is the median time in years necessary for countries of a given income group to increase Internet penetration and the number of mobile telephone subscriptions per 100 population to the specified threshold. Time is measured from the latest year at the end of which the Internet penetration rate and the number of subscriptions were less than, respectively, 1 percent and two subscriptions.

20 The Economist 2014.

21 See http://www.ixptoolkit.org/. For more information about IXPs, see also Amega-Selorm et al. 2009.

22 IEAG 2014, p. 2.

23 Note that the International Telecommunication Union (ITU) has revised indicator 4.03 time series for South Africa, which explains the country's large drop, from 73rd to 128th, on this indicator.

24 Indonesia's drop of 15 spots since last year is mostly attributable to its plunge of some 60 places in the Affordability pillar (99th). This, in turn, is largely the result of a major update by the World Bank and its partners of the data used to estimate costs of living throughout the world (see the Technical Notes and Sources at the end of the *Report* for more details). A comparison of Indonesia's overall rank over time, therefore, is largely spurious.

25 World Economic Forum 2014, Chapter 1.1, Box 2.

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Appendix:
Structure and computation of the Networked Readiness Index 2015

This appendix presents the structure of the Networked Readiness Index (NRI) 2015. As explained in the chapter, the NRI framework separates environmental factors from ICT readiness, usage, and impact. That distinction is reflected in the NRI structure, which comprises four subindexes. Each subindex is in turn divided into a number of pillars, for a total of 10. The 53 individual indicators used in the computation of the NRI are distributed among the 10 pillars.

In the list below, the number preceding the period indicates the pillar to which the variable belongs (e.g., indicator 2.05 belongs to the 2nd pillar; indicator 8.03 belongs to the 8th pillar). The numbering of the indicators matches the numbering of the data tables at the end of the *Report*.

The computation of the NRI is based on successive aggregations of scores, from the indicator level (i.e., the most disaggregated level) to the overall NRI score (i.e., the highest level). Unless noted otherwise, we use an arithmetic mean to aggregate individual indicators within each pillar and also for higher aggregation levels (i.e., pillars and subindexes).[a]

Throughout the *Report*, scores in the various dimensions of the NRI pillars are reported with a precision of one decimal point. However, exact figures are always used at every step of the computation of the NRI.

Indicators that are derived from the World Economic Forum's Executive Opinion Survey (the Survey) are identified here by an asterisk (*). All the other indicators come from external sources, as described in the Technical Notes and Sources section at the end of the *Report*. These are transformed into a 1-to-7 scale in order to align them with the Survey's results. We apply a min-max transformation, which preserves the order of, and the relative distance between, the scores.[b]

NETWORKED READINESS INDEX 2015

Networked Readiness Index = 1/4 Environment subindex
+ 1/4 Readiness subindex
+ 1/4 Usage subindex
+ 1/4 Impact subindex

ENVIRONMENT SUBINDEX

Environment subindex = 1/2 Political and regulatory environment
+ 1/2 Business and innovation environment

1st pillar: Political and regulatory environment

1.01 Effectiveness of law-making bodies*
1.02 Laws relating to ICTs*
1.03 Judicial independence*
1.04 Efficiency of legal system in settling disputes*[c]
1.05 Efficiency of legal system in challenging regulations*[c]
1.06 Intellectual property protection*
1.07 Software piracy rate, % software installed
1.08 Number of procedures to enforce a contract[d]
1.09 Number of days to enforce a contract[d]

2nd pillar: Business and innovation environment

2.01 Availability of latest technologies*
2.02 Venture capital availability*
2.03 Total tax rate, % profits
2.04 Number of days to start a business[e]
2.05 Number of procedures to start a business[e]
2.06 Intensity of local competition*
2.07 Tertiary education gross enrollment rate, %
2.08 Quality of management schools*
2.09 Government procurement of advanced technology products*

READINESS SUBINDEX

Readiness subindex = 1/3 Infrastructure
+ 1/3 Affordability
+ 1/3 Skills

3rd pillar: Infrastructure

3.01 Electricity production, kWh/capita
3.02 Mobile network coverage, % population
3.03 International Internet bandwidth, kb/s per user
3.04 Secure Internet servers per million population

4th pillar: Affordability[f]

4.01 Prepaid mobile cellular tariffs, PPP $/min.
4.02 Fixed broadband Internet tariffs, PPP $/month
4.03 Internet and telephony sectors competition index, 0–2 (best)

5th pillar: Skills

5.01 Quality of educational system*
5.02 Quality of math and science education*
5.03 Secondary education gross enrollment rate, %
5.04 Adult literacy rate, %

USAGE SUBINDEX

Usage subindex = 1/3 Individual usage
+ 1/3 Business usage
+ 1/3 Government usage

6th pillar: Individual usage

6.01 Mobile phone subscriptions per 100 population
6.02 Percentage of individuals using the Internet
6.03 Percentage of households with computer
6.04 Households with Internet access, %
6.05 Fixed broadband Internet subscriptions per 100 population
6.06 Mobile broadband Internet subscriptions per 100 population
6.07 Use of virtual social networks*

7th pillar: Business usage

7.01 Firm-level technology absorption*
7.02 Capacity for innovation*
7.03 PCT patent applications per million population
7.04 Business-to-business Internet use*[g]
7.05 Business-to-consumer Internet use*[g]
7.06 Extent of staff training*

8th pillar: Government usage

8.01 Importance of ICTs to government vision of the future*
8.02 Government Online Service Index, 0–1 (best)
8.03 Government success in ICT promotion*

IMPACT SUBINDEX

Impact subindex = 1/2 Economic impacts
+ 1/2 Social impacts

9th pillar: Economic impacts

9.01 Impact of ICTs on new services and products*
9.02 PCT ICT patent applications per million population
9.03 Impact of ICTs on new organizational models*
9.04 Employment in knowledge-intensive activities, % workforce

10th pillar: Social impacts

10.01 Impact of ICTs on access to basic services*
10.02 Internet access in schools*
10.03 ICT use and government efficiency*
10.04 E-Participation Index, 0–1 (best)

NOTES

a Formally, for a category *i* composed of *K* indicators, we have:

$$\text{category}_i = \frac{\sum_{k=1}^{K} \text{indicator}_k}{K}$$

When two individual indicators are averaged (e.g., indicators 1.04) and 1.05 in the 1st pillar), each receives half the weight of a normal indicator.

b Formally, we have:

$$6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 1$$

The *sample minimum* and *sample maximum* are, respectively, the lowest and highest country scores in the sample of economies covered by the GCI. In some instances, adjustments were made to account for extreme outliers. For those indicators for which a higher value indicates a worse outcome (i.e., indicators 1.07, 1.08, 1.09, 2.03, 2.04, 2.05, 4.01, and 4.02), the transformation formula takes the following form, thus ensuring that 1 and 7 still corresponds to the worst and best possible outcomes, respectively:

$$-6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 7$$

c For indicators 1.04 and 1.05, the average of the two scores is used in the computation of the NRI.

d For indicators 1.08 and 1.09, the average of the two normalized scores is used in the computation of the NRI.

e For indicators 2.04 and 2.05, the average of the two normalized scores is used in the computation of the NRI.

f The affordability pillar is computed as follows: the average of the normalized scores of indicators 4.01 Prepaid mobile cellular tariffs and 4.02 Fixed broadband Internet tariffs is multiplied by a *competition factor*, the value of which is derived from indicator 4.03 Internet and telephony sectors competition index. It corresponds to the score achieved by an economy on this indicator normalized on a scale from 0.75 (worst) to 1.00 (best), using the min-max transformation described above. A normalized score of 0.75 is assigned to an economy with a competition index score of 0, which means that a monopolistic situation prevails in the 17 categories of ICT services considered. A normalized score of 1.00 is assigned to an economy where all 17 categories are fully liberalized. Where data are missing for indicator 4.03 (i.e., Mongolia, Puerto Rico, Timor-Leste, and Venezuela), the score on the affordability pillar, which is simply the average of the normalized scores of indicators 4.01 and 4.02, is used. The competition index score for Taiwan, China, was derived from national sources.

g For indicators 7.04 and 7.05, the average of the two scores is used in the computation of the NRI.

CHAPTER 1.2

ICTs, Income Inequality, and Ensuring Inclusive Growth

ROBERT PEPPER
JOHN GARRITY
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> There is in our opinion no good reason why by the early part of the next century virtually the whole of mankind should not be within easy reach of a telephone and of all the benefits this can bring.
>
> *The Maitland Report, 1985*

In 1985, a special commission of the International Telecommunication Union (ITU) released what is commonly known as "The Maitland Report," expounding upon the impact of telecommunications as "an engine of growth and a major source of employment and prosperity," particularly in developed economies.[1] The commission's focus concerned the growing division in telecommunications access between advanced economies and developing nations, and the report presented detailed recommendations for closing this "digital divide" with the aim of accelerating the positive impact of telecommunications for all citizens of the world.

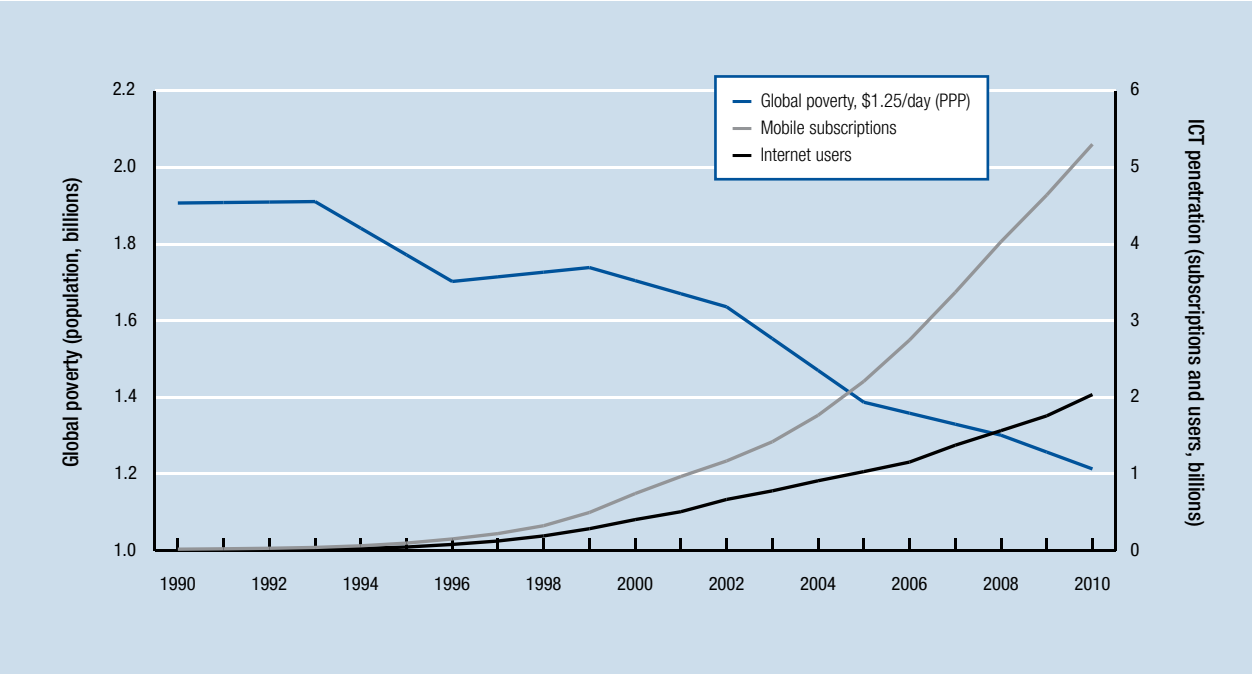
Thirty years later we can look back on the overall impact of telecommunications on economic growth, income gains, and poverty alleviation. Has the goal of bridging the digital divide been realized? And have information and communication technologies (ICTs) brought benefits and shared economic prosperity to both advanced and emerging countries?

This chapter reviews the impact of ICTs on income, economic growth, and poverty alleviation. It first reviews trends in income inequality and presents the paradox of the impact of ICTs on global income inequality and within-country inequality. It then reviews the macroeconomic and microeconomic literature on the income growth impacts of ICTs and posits explanations for the mixed relationship on income inequality. The chapter concludes with a vision of greater ICT-driven inclusive growth, highlighting specific policies and programs to enhance the income effects of ICTs on lower-income and marginalized populations.

THE ICT AND INCOME INEQUALITY PARADOX

Although global inequality trends and measurement techniques generate much debate, the latest available data from the World Bank show income inequality (the distribution of income across all people in the world) to be on the decline.[2] The most recent analysis measures global income inequality from 1988 through 2008, and illuminates shifting patterns in global income growth as it decomposes income shares within each of the 146 countries measured. The authors find that global income inequality has fallen steadily from a Gini coefficient of 72.2 in 1988 to 70.5 in 2008.[3] They attribute the decrease in inequality to the large overall income gains around the global median (50th percentile) of the population. The global top 1st percentile also

Figure 1: Falling global absolute poverty and rising ICT penetration



Sources: World Bank *PovCal* database (1990, 1993, 1996, 1999, 2002, 2005, 2008, 2010); authors' calculations and interpolation, ITU *World Telecommunication/ICT Indicators* database June 2013.

realized significant income gains over this period, but the former (gains around the median) outweigh the latter. In China, for example, the richest decile rose from the 68th global percentile in 1988 to reach the 83rd percentile worldwide in 2008. This rapid increase translates into a leapfrogging over approximately 15 percent of the world's population—almost a billion people.

However, the decrease in global income inequality masks the income inequality increases observed within individual countries. The same study notes that the "within-country component of global inequality has increased continuously over this twenty-year period," and an analysis by the International Monetary Fund in 2009 found that income inequality rose in most of the 51 countries analyzed.[4] The authors find that technological progress, measured as the share of ICT capital stock, has a statistically significant impact on inequality, and the effect of technological change was greater than that of financial globalization.[5] The study is limited in country coverage and the period tested ended in 2003, when Internet penetration was still nascent in many regions. But the results do present a paradox: are ICTs driving economic growth and leading to decreasing global inequality while at the same time contributing to rising within-country income inequality? We posit that, although this paradox appears to exist, the impact of ICTs on income growth and poverty alleviation are undeniable, and greater adoption of ICTs in lower-income groups will accelerate income gains at the base of the economic pyramid.

GLOBAL MACROECONOMIC GROWTH AND POVERTY ALLEVIATION

Macroeconomic evidence of the impacts of ICTs on growth at the national level is mounting. A number of meta-analyses review the wide body of economic literature demonstrating the causal impact of ICTs on growth.[6] A landmark study by the World Bank in 2009 demonstrated the increasing impact of different ICTs on economic growth.[7] The study measured the causal impact of fixed telephony, mobile telephony, Internet use, and broadband use on gross domestic product (GDP) growth over 26 years (from 1980 through 2006) across 120 developing and developed countries. A 2012 update, using data for 86 countries for 1980 through 2011, arrived at a similar result, demonstrating that a 10 percent increase in fixed broadband penetration results in a 1.35 percent increase in GDP growth in developing countries and a 1.19 percent increase in developed economies.[8]

More recent analysis links mobile broadband and intensity of use with economic growth, demonstrating that doubling mobile broadband data use leads to a 0.5 percent increase in GDP per capita growth rates.[9] This body of evidence highlights the fact that we are long past the days of the "Solow paradox," when, in 1987,

Nobel Prize–winning economist Robert Solow noted, "you can see the computer age everywhere but in the productivity statistics."[10]

Four main mechanisms dictate the process by which ICTs contribute to macroeconomic growth by affecting inputs to GDP growth:[11]

1. ICTs contribute to GDP directly through the production of ICT goods and services as well as well through continuous advances in ICT-producing sectors,
2. ICTs contribute to total factor productivity growth through the reorganization of the ways goods and services are created and distributed,[12]
3. ICT industries generate positive employment effects, and
4. increasing applications of ICTs (capital deepening) leads to rising labor productivity.

With ICTs contributing to global economic growth, developing regions have experienced a steady decline in absolute poverty. The global extreme poverty rate (those individuals surviving on less than $1.25/day) has dropped from 1.9 billion people in 1981 to 1.3 billion in 2010 according to the World Bank: a drop in extreme poverty rates from greater than 50 percent to 21 percent.[13] This decline in extreme poverty has been driven by long-run economic growth in China and India, recent growth across Africa, and the impact of social programs in Latin America.[14] Figure 1 depicts the growth in ICT penetration from 1990 through 2010, when global extreme poverty has been on the decline as a result of economic growth.

Similarly, at the country level, decreases in poverty are correlated with growth in ICT adoption. From 2000 through 2010, the change in the poverty headcount ratio (measured at $5/day at purchasing power parity) is inversely correlated with the growth in Internet usage penetration with a correlation coefficient of –0.42, which is a measure of the linear interdependence of two variables.[15]

MICROECONOMIC IMPACTS ON LOWER-INCOME GROUPS

Although significant attention has focused on the macroeconomic growth effects of ICTs at the economy level in developing countries, emerging microeconomic analysis highlights the impact and mechanisms by which ICTs can drive income growth at the bottom of the economic pyramid. This work is crucial to understanding how much lower-income groups benefit from ICTs—particularly because these groups spend a disproportionately larger share of their income on ICTs. For example, survey analysis of the lowest-earning 75 percent of mobile users in Africa found that low-income households spend large proportions of their income on communications—averaging from 27 percent for Kenyans to 11 percent for South Africans.[16] In Sri Lanka, communications costs range from 12 to 15 percent of household income; the average Chilean spends more for telecommunications than for water.[17]

Microeconomic analyses show the significant impact of ICTs, particularly mobile telephony and the Internet, among lower-income groups. In their survey of 1,600 East African households in 2007 and again in 2010, May et al. found that ICT access leads to rising income levels among the very poor: those with access to ICTs gained approximately $21 more a month than those without access. And the users of ICTs narrowed their income gap with others in higher-income brackets.[18]

Another study, conducted in two Tanzanian villages, links ICT investment with poverty alleviation. One village, in which a group received five months of mobile phone airtime and Internet access, experienced a reduction in all seven areas of poverty criteria measured in the study. In the second village, which received no ICTs, only two of the indicators changed.[19] A similar study in 2010 in Peru followed individuals who became Internet users between 2007 and 2009 and compared them with non-users. Over the time period, the nascent Internet users gained, on average, household incomes 19 percent higher than those of non-users.[20] Similarly, the introduction of broadband services in one Ecuadorean municipality led to individual labor income gains of 7.5 percent (or 3.7 percent annually over the 2009–11 study period).[21]

Although ICTs drive income growth at the microeconomic level with mechanisms similar to those of macroeconomic channels (the underlying gains relate to productivity growth), Aker and Blumenstock (forthcoming) highlight four primary channels whereby ICTs (predominantly mobile phones) drive economic growth in lower-income groups, particularly in Africa: "as a communication device to share (public and private) information; as a transfer device to exchange (public and private) transfers; as a savings device; and as an educational tool for school-aged children and adults."[22]

Mobile telephony especially has demonstrated how increased low-cost connectivity helps to expand markets. One study followed 300 fishing groups in the Indian state of Kerala through weekly surveys between 1996 and 2001. When mobile phone service was adopted by the groups in 1997, the study reported a 9 percent increase in weekly profits; 30 to 40 percent of the groups began to deliver their catch to buyers outside of their regular markets because they could identify better prices through market arbitrage.[23] Similarly, in Niger, the introduction of mobile phone service between 2001 and 2006 reduced the dispersion of grain prices across markets significantly and led to a 29 percent increase in average daily profits, demonstrating "that the introduction of cell phones was associated with net welfare gains for consumers and traders."[24]

ICTs also operate as a transfer device for money, which helps to reduce the cost of consumption. Mobile money systems, such as M-PESA in Kenya,

demonstrate the impact and popularity of using ICTs in private transfers and to pay for services. GSMA, an association of mobile operators and related companies, estimates that, at the end of 2013, over 61 million mobile money users were active across 84 countries through 219 providers.[25] Governments are also beginning to recognize the role of mobile payment systems in implementing public transfer programs. Over 30 countries have some form of conditional cash transfer program to support low-income households. Many of these programs are beginning to utilize mobile money payments to eliminate financial leakage and transaction costs. Similarly, ICTs provide a way to save and thus smooth consumption, particularly in the face of external economic shocks. In Latin America, for example, only 14.5 percent of poor households have a savings account; mobile money payments increase savings if those accounts are attached to a savings mechanism.[26] Mobile devices can also lead to better learning outcomes: in Niger, for instance, a mobile phone–based component in a standard adult education program led to writing and math test scores 0.19 to 0.25 standard deviations higher than those without mobile-based content.[27]

At the sector level, ICTs demonstrate significant impact. In agriculture, ICTs increase access to critical information such as prices, market demand, disease mitigation, meteorological information, and growing and marketing practices; they also improve the value chain for small shareholder farmers by allowing them to improve logistics and trace products from farm gate to market.[28] In healthcare, mobile health applications help to improve management and decision-making by healthcare professionals, increase real-time and location-based data gathering, provide healthcare to remote locations, increase learning and knowledge exchange among healthcare professionals, promote public health, and boost health self-care. And in energy and off-grid electricity production, innovative products help low-income families to access electricity through mobile-enabled small solar cells that are amortized and paid via mobile money mechanisms such as M-KOPA, Mobisol, and SharedSolar in Africa.[29]

TECHNOLOGY AND INCOME INEQUALITY

Although technological change has been attributed with the rise in intra-country income inequality, data on Internet penetration—particularly fixed and mobile broadband—is still nascent. Much like the time lag needed to resolve the Solow paradox, sufficient time and data are needed to be able to concretely measure the impact of ICTs on income distribution. We may not yet be able to adequately determine the full impact of ICTs—particularly high-speed Internet—on income growth. However, much of the rise of within-country inequality has clearly been driven by income growth in the top decile (and top percentile) of income distribution. To some extent, technology has led to increasing financial market sophistication and financial globalization, both of which are attributed with increasing the concentration of wealth in the top decile.[30] However, a myriad of factors lead to the concentration of wealth within countries. Acemoglu notes that "technology is far from the only reason why the preponderance of wealth created in recent decades has accrued to households at the top end of the economic spectrum,"[31] and identifies many interrelated factors such as the decline of unions, changes in tax structures, and globalization.

The network effects and externalities that multiply the impacts of ICTs require minimum adoption thresholds before those impacts begin to materialize. One analysis found a positive impact of 2.8 percent increase on GDP from a 10 percent increase in telecommunications infrastructure, but only once a minimum threshold density was reached.[32] In this case, the threshold was at 24 percent of the population: countries would experience the full growth impacts of ICTs only once penetration passed that point. Similarly, a 2009 analysis determined that increasing returns to broadband investment occurs when a critical mass of penetration—above 20 percent (20 subscriptions per 100 people)—is reached.[33]

Another limitation of income measures is that they do not reflect the full benefit that ICTs provide to users because they do not take into account consumer surplus. *Consumer surplus* is the benefit that accrues to consumers above and beyond the price they pay for a good or service. The fact that mobile telephones, broadband Internet, Internet services, and a wide array of Internet-connected devices have quickly spread throughout the world demonstrates that billions of people are receiving much benefit from their connected lives. Similarly, technology appears to be highly correlated with general measures of well-being across the world, including in sub-Saharan Africa, South and Southeast Asia, and Latin America.[34]

Greater connectivity has also led to increased political empowerment. Much anecdotal evidence demonstrates the power of technology to organize and disseminate political messaging. In 2001, for example, mass protests in the Philippines were organized via short message service (SMS) texts, and the ability for protesters to quickly gather support and demonstrate is credited with toppling then-president Joseph Estrada's government. The Arab Spring uprising, aided by ICTs, demonstrates the growing impact of ICTs on political action and activity.

ACCELERATING THE IMPACT OF ICTS ON INCOME GROWTH AT THE BASE OF THE PYRAMID

The limited impact of ICTs on income growth in lower-income populations can be partially attributed to their significantly lower ICT adoption. Several measures of ICT penetration are highly correlated with country GDP per capita. These include Internet penetration (correlation

coefficient of 0.75 with GDP per capita), fixed broadband subscription penetration (correlation coefficient of 0.74), and active mobile broadband subscription penetration (correlation coefficient of 0.69).[35]

This relationship, where lower income implies lower ICT adoption, is also observed within countries. In the United States, for example, households with an annual income below $30,000 in 2010 were less than half as likely to have broadband Internet at home as those earning more than $75,000 (40 percent versus 87 percent); similarly, individuals in those households were nearly half as likely to use the Internet in general (57 percent versus 95 percent).[36]

While affordability is one barrier to adoption, other factors include education and culture. To counter the possible disparity in the impact of ICTs between lower- and higher-income groups, the most immediate action should be to close the disparity in ICT penetration. Many of the benefits of ICTs are not accruing to lower-income populations because access and adoption are low. Five policy actions are recommended to close the access and adoption gap to increase the positive benefits of ICTs to groups at the base of the economic pyramid:

1. **Focus public resources and incentives for building broadband Internet access out to rural and underserved communities.** Well-managed universal service funds (USFs), for example, can provide the resources to connect regions and groups that are outside main urban centers. In India, a subsidy program that utilized funds from the USF began focusing on connecting regions with no previous connectivity, and by 2011 had already established more than 2.6 million broadband connections in rural and remote areas, including more than 2,500 Internet kiosks.[37] Rural service obligations are also an effective mechanism. In Chile, the regulator implemented rollout obligations for licensees of newly auctioned 700 MHz frequencies to include coverage to 1,281 rural towns and 503 educational institutions.[38]

2. **Connect schools and libraries to broadband Internet service and ensure widespread connectivity within schools.** USFs and other financing mechanisms can target connectivity in schools. In Turkey, USF funding connects over 620,000 classrooms, serving 15 million students.[39] In the United States, the Universal Service Program for Schools and Libraries (also known as the E-Rate Program) administered by the Federal Communications Commission has provided billions of dollars since 1998 to increase connectivity to over 100,000 schools and libraries.[40] In the developing world, over 230,000 public libraries serve as hubs for skills and employment development for lower-income individuals.[41]

3. **Remove excess taxation on devices and access, and consider targeted subsidies for certain populations.** In many countries, ICT products and services are taxed in a manner similar to luxury goods, but lower-income households spend a disproportionate amount of their household income on ICTs. High taxes and interconnection fees put many ICTs out of reach of the poorest citizens. However, some governments are recognizing the bigger benefit of decreasing taxes and spurring adoption. In 2007, the government of Colombia removed the valued-added tax on personal computers (PCs); over the following two years, the tax reduction lead to a 110 percent increase in PC sales in Colombia and an 83 percent rise in tax revenue benefits from PCs and related technologies.[42] And in 2012, the Ministry of ICT launched a program with the Ministry of Housing, Cities and Territory to subsidize Internet access to the country's poorest citizens. Public expenditure was utilized to purchase computers and subsidize Internet access for the lowest-income families, based on government measures. By the end of 2013, nearly 1 million families benefited from grants for access to broadband.[43]

4. **Develop robust ICT training curricula and programs.** Increasing digital literacy and training more individuals in how to utilize ICTs will help drive familiarity and adoption, even for basic ICTs such as feature phones. A recent analysis by McKinsey found the lack of user capability and digital illiteracy (in addition to language illiteracy) to be main barriers impeding many of the 60 percent of the global population who are not yet online. The study notes that most of those surveyed in Africa who are not yet online acknowledged they have yet to develop the skills to do so. In China, "approximately 60% of the offline population cited a lack of knowledge of how to use a computer as the primary reason for not accessing the Internet," and in India one-third of those surveyed indicated they too lacked the ability to use a computer.[44] Education policy can accelerate literacy and digital skills training in primary, secondary, and tertiary education. Targeted programs can equip students and adults with technical skills to participate in ICT employment. For example, Cisco's Networking Academy program has prepared over 5 million students—many of whom are low-income—for entry-level ICT jobs.[45]

5. **Focus on closing the gender gap in ICTs.** Gender gaps exist in ICT adoption: fewer women and girls than men and boys use mobile phones and the Internet. A wide range of economic and cultural influences drives these gaps, but increasing female participation in ICTs will help spread more benefits to lower-income households. For example, one

study in Latin America found that although women are much less likely to access the Internet than men, they were more likely to use it for education and training (and less likely to use it for banking, entertainment, and shopping).[46] One analysis of sex-disaggregated statistics on Internet use in Africa found that being a woman had a negative effect on general Internet access; this relationship was causal in Ethiopia, Ghana, and Nigeria. The gender disparity is heightened with regard to income and education, and also because women and men do not have equal access to and use of ICTs. The authors point to cultural issues related to education and income equity that impact ICT access beyond the notion of infrastructure access points.[47]

Importantly, programs to increase ICT adoption and the impact of technology on poverty alleviation and income growth at the base of the pyramid may have greater impact in concert with a broad range of social, economic, and political measures to empower lower-income individuals.

CONCLUSION

In 2008, one of the world's leading international development economists, Jeffrey Sachs, wrote that mobile phones and wireless Internet will "prove to be the most transformative technology of economic development of our time."[48] The macro and microeconomic data presented above clearly demonstrate the positive income and growth effects of ICTs on lower-income countries and populations. Although an apparent paradox between the impact of ICTs on income inequality at the global level and the country level exists, more research is needed to explore the interaction among ICTs, income, and wealth, and to investigate the variable effects of targeted interventions to increase the impact of ICTs on poverty alleviation. However, the challenge of accelerating ICT adoption, particularly in lower-income groups, remains. The impact of ICTs on economic growth, along with targeted interventions to increase their impact on poverty alleviation, will help to relieve the plight of those in absolute poverty and improve the well-being of citizens everywhere.

NOTES

1 Maitland 1985.

2 Lakner and Milanovic 2013.

3 The Gini coefficient is a statistical measure of income distribution across a population. The coefficient is on a scale of 0 to 100 (or 0 to 1), with 0 reflecting complete equality and 100 (or 1) indicating complete inequality (e.g., one individual, or observation, accounting for all the wealth or income observed).

4 Jaumotte et al. 2008.

5 The study also finds increasing returns to human capital from technological changes, highlighting the importance of education and training.

6 Katz 2012; Minges forthcoming.

7 Qiang et al. 2009.

8 Scott 2012.

9 Deloitte 2012.

10 Solow 1987.

11 Jalava and Pohjola 2002; OECD 2003.

12 Qiang et al. 2008.

13 World Bank 2013. All dollar amounts are in US dollars.

14 Fosu 2010; The Economist 2012.

15 Data drawn from the World Bank's *PovCal* database and the ITU's *World Telecommunication/ICT Indicators* database.

16 Elder et al. 2013.

17 Samarajiva and Zainudeen 2008; Smith et al. 2011.

18 May et al. 2014.

19 Diga 2013.

20 De Los Ríos 2010.

21 Katz and Callorda 2013.

22 Aker and Blumenstock forthcoming.

23 Jensen 2007.

24 Aker 2008.

25 GSMA 2014.

26 Mariscal 2009.

27 Aker et al. 2012.

28 World Bank 212.

29 Nique and Arab 2012.

30 Jaumotte et al. 2008.

31 Leonard 2013.

32 Röller and Waverman 1996.

33 Koutroumpis 2009.

34 Graham and Nikolova 2012.

35 The correlation coefficient measures the linear relationship between two variables. It is calculated here using 2013 GDP per capita data from the IMF's *World Economic Outlook* (October 2014 edition) and 2013 ICT penetration data from the ITU's *World Telecommunication/ICT Indicators* 2014, 18th edition.

36 Jansen 2010.

37 Intel 2011.

38 Telegeography 2014a.

39 Intel 2011.

40 FCC 2014.

41 Beyond Access 2013.

42 Intel 2012.

43 Telegeography 2014b.

44 McKinsey & Company 2014.

45 The students are trained in elements of networking technology; annually approximately 1 million students are studying in over 9,000 academies across 170 countries (Cisco 2014).

46 Vergara et al. 2011.

47 Gillwald and Deen-Swarray 2013.

48 Sachs 2008.

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CHAPTER 1.3

Understanding Digital Content and Services Ecosystems: The Role of Content and Services in Boosting Internet Adoption

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Internet adoption continues to vary widely across countries. The average Internet penetration rate in Africa is 14 percent—vastly lower than the 85 percent rate in North America, according to the World Bank. Given the well-recognized role that wider Internet adoption plays in accelerating economic growth, raising Internet adoption rates is an imperative, particularly for developing countries. Barriers to Internet adoption also vary across countries. Although the lack of affordable infrastructure is considered to be a major obstacle, a lack of local, relevant digital content and services is equally important. According to a Pew Research Center survey, 34 percent of offline individuals in the United States mentioned that the Internet was not relevant to them.[1] Eighty percent of the Wikipedia articles are written in just 28 languages, whereas 80 percent of the world's population speaks one of 80 languages. Even the quantum of content available per user continues to be widely uneven. Akamai data show that in the United States, page views in the media and entertainment category peak at 282 per Internet user, while in Africa this number dips to 32 per user—highlighting the dearth of content relevant to African users.[2]

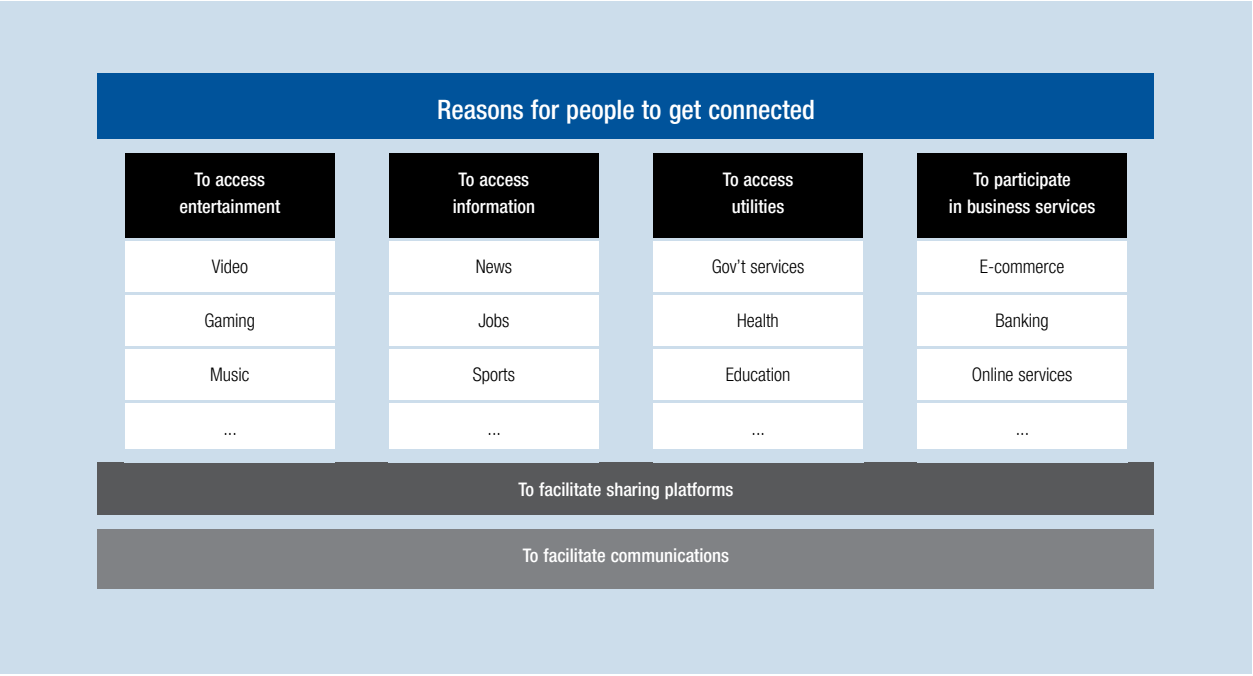
Ensuring a sustainable supply of local, relevant digital content creates incentives and reasons for subscribers to get online; such content is an imperative for driving Internet adoption for the 60 percent of the population not currently connected. Beyond the availability of such content, because creating and maintaining digital content continues to be an expensive proposition, it is important to understand how to ensure the sustainability of these ecosystems.

This chapter seeks to answer fundamental questions regarding the development of digital content and services ecosystems. It defines the building blocks of such systems, identifies the major players in providing those building blocks, and analyzes the lessons of the historical evolution of the ecosystems of different countries, focusing on the United States, Germany, and the Republic of Korea. A data-driven model for measuring the maturity and economic sustainability of digital content and services ecosystems is devised, and insights applicable to future paths for many developing countries are derived from the resulting data. Finally, the chapter discusses the pivotal role that public- and private-sector stakeholders can play in jumpstarting ecosystems in developing countries.

DEFINING THE DIGITAL CONTENT AND SERVICES ECOSYSTEM

In assessing the state of the digital content and services ecosystem, we recognize three major dependencies: supporting infrastructure, devices, and local-language support. A strong content ecosystem cannot be developed without the availability of strong fixed and mobile infrastructure. Additionally, the devices and hardware components that are available have a

Figure 1: Digital content and services



Source: Strategy&.

significant impact on the type and nature of the content being consumed, and even on how frequently it is consumed. Finally, support for local languages and character rendering by major operating systems and platform vendors plays a critical role in driving local content ecosystems. Although these factors are both interdependent and important, the content ecosystem is assessed separately from these variables, primarily in order to determine the differences and patterns that exist in the evolution of content and services ecosystems, given the steady improvement in other drivers such as format support.

From the perspective of a consumer, the digital content and services ecosystem is composed of six major categories: entertainment, information, utilities, business services, sharing platforms, and communications (see Figure 1). Four major players can have a significant role in the development of the ecosystem: governments, brands, operators, and content developers.

HOW DIGITAL CONTENT AND SERVICES ECOSYSTEMS EVOLVE

The evolution of the digital ecosystems in the United States, Germany, and Korea was examined to better understand how digital content and services can influence Internet adoption. The experience of these countries illustrates the similarity of the sequencing of content that generates reasons to get online, although the process of evolution differs among various countries and markets. In addition to the ways in which the content and services ecosystems evolved, the sustainability of these ecosystems was assessed to determine who funded both the initial development and then the subsequent monetization of these services. The cases show that the development of the ecosystem was generally in sync with the underlying economic structure of the country, thus ensuring sustainability.

The United States

In the United States, communication services such as email, chat, and messaging were the early motivators that drove consumer adoption. Part of this adoption was facilitated by the push by enterprises to move communications online—a push driven mainly by the associated productivity gains and cost savings yielded by efficient communications. As adoption of communication services and Internet increased, shareholders funded the development and expansion of several consumer-focused Internet services, such as AOL, whose Instant Messenger service reached more than 22 million unique users within three years of its launch in 1997. The rush at this stage was to gain access to viewers, which fueled the first dot-com boom and brought companies such as Yahoo to the fore—a monetization model was then less of a priority. As the proliferation of information services continued, platforms emerged to enable ad-subsidized models, which provided a monetization mechanism for content developers and further fueled the content boom. In addition, between 1995 and 2001, entertainment and commerce became key drivers of Internet adoption, providing more avenues for content monetization and sustainability. This resulted in the emergence of players such as Amazon, eBay, and Netflix. At the same time, search platforms such as Google were created to allow

people to seek relevant information rather than finding it pre-aggregated.

As the US digital content ecosystem matured after 2001, social network services such as Friendster, MySpace, and Facebook, along with the professional social network LinkedIn, became dominant reasons for Internet use. The development of video streaming platforms such as YouTube (set up in 2005) also fueled Internet growth and use—particularly by increasing the time spent online. In addition, as consumers started spending more time online, business services accelerated their adoption of Internet as a service channel, leading to growth in business-to-consumer services such as financial services, e-government services, and customer care.

The first phase of the US content and services ecosystem was therefore powered by enterprises moving online for productivity gains, followed by shareholders funding development and growth of services. This development phase was followed by monetization through e-commerce or ad-funded models. The subsequent phase involved enterprises moving more services online to enhance productivity and customer experience. The cycle of services moving online, followed by monetization and growth, continues to drive new content categories such as Uber and Airbnb, which take spending in the physical economy and monetize it in the digital economy.

Germany

Traditional media outlets provided an early motivator for consumers as Germany's digital content ecosystem began to evolve between 1995 and 2001. Spiegel Online was created in 1994, followed by Zeit Online, Netzeitung, and others. Unlike in the United States, however, in Germany the government stepped in very early to fund some of the country's content and services development. For example, ELSTER, the e-tax-return government service, launched in 1999. It filed more than 5.6 million applications for tax statements electronically that year.

As the German digital content ecosystem continued to evolve after 2001, social networks such as StayFriends.de (for graduates) and Xing.com (for professionals) proliferated, as did travel sites including HolidayCheck, gaming communities such as GameDeull, dating services such as ElitePartner, e-payment systems such as GiroPay and Sofort, and online shopping services such as bo.com. Along with the interest of media and retailers, the government's interest remained keen, as evidenced by the development of the Deutschland-Online e-government strategy. From 2007 onward, as the German digital ecosystem matured, networking, blogging, gaming, entertainment, and shopping services proliferated, and the digital economy was driven by subscriptions for online newspapers, games, streaming, and service, along with online advertising.

The Republic of Korea

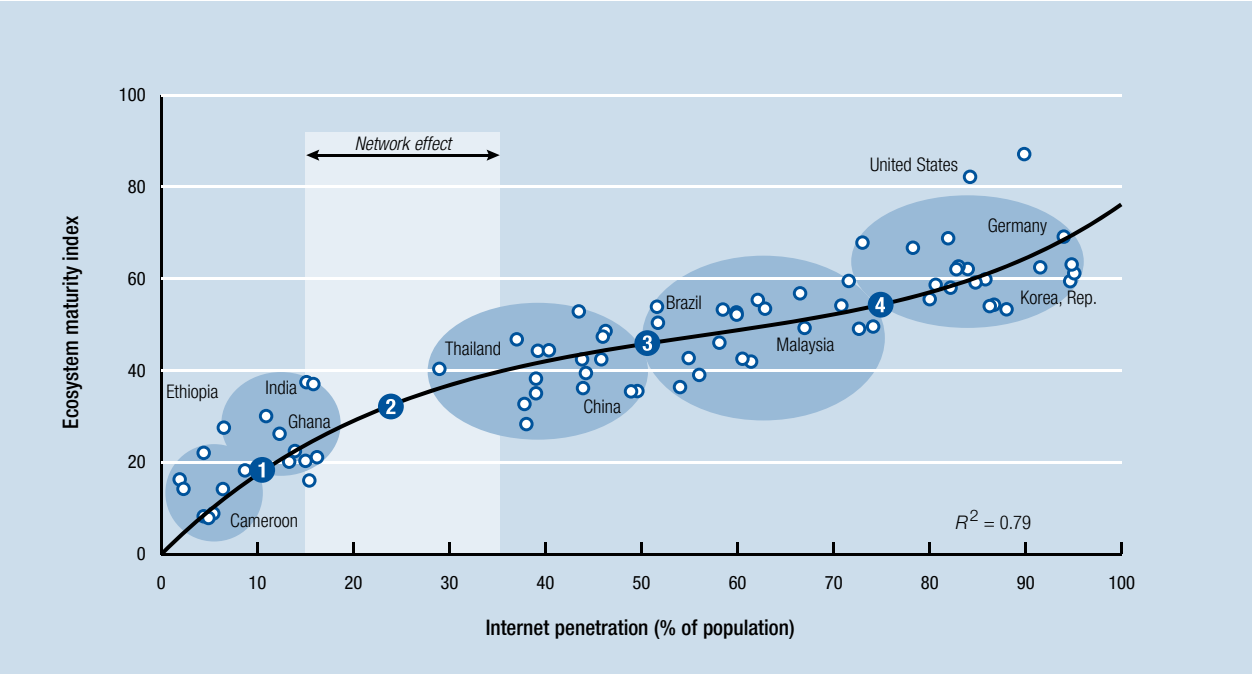
Unlike in the United States and Germany, gaming was one of the major motivators driving Internet adoption during Korea's early evolution—fueled in part by early government incentives and the country's emphasis on and support of broadband infrastructure. Multi-player online game providers Nexus, Lineage, and Hangame launched in 1996, 1998, and 1999, respectively. In just three years, Lineage was the leading worldwide subscription-based online game, with more than 3 million subscribers—mainly in Korea—and 250,000 concurrent users. Online gaming became so popular in Korea that multi-player gaming competitions were broadcast on national television, starting with the Starcraft competition in 2002. As Korea's digital ecosystem evolved further, from 1999 to 2006 the national government played a key role in improving digital literacy and driving adoption, involving 11 major e-government initiatives, including Cyber Korea 21, e-Korea Vision 2006, e-procurement, customs e-clearance, a Knowledge Portal, and the Ten Million People Internet Education Project.

Alongside gaming and government services, education emerged as a key driver of Internet adoption in the country, with online tutorial sites such as Megastudy growing rapidly. In addition, government education initiatives such as Education Broadcasting Services, launched in 2004, led to growth in the online learning market earlier than in most Western countries. In essence, the early Korean ecosystem was driven primarily by government funding and subscription services for education or gaming. Advertising and e-commerce models took longer to arrive on the scene and were mainly focused on mobile advertising.

Factors of success

A key contributing factor to the success of ecosystem development in the United States, Germany, and Korea was the rapid achievement of economic sustainability. The digital economy was in sync with the underlying economic structure in each country. The US economy is largely driven by household consumption, which has contributed around 70 percent of GDP over the past 10 years—compared with an average of 58 percent in member countries of the Organisation for Economic Co-operation and Development, including Germany. The desire to capture an early-mover advantage in the large consumer spending market encouraged initial shareholder investments in the US digital ecosystem, which was followed by the development of ad-subsidized models, resulting from the diversion of physical advertising spending to digital advertising spending early on in the evolution. In both Germany and Korea, by contrast, government support played a relatively larger role in driving Internet adoption and building reasons

Figure 2: Ecosystem maturity vs. Internet penetration



Source: Strategy&.
Note: **(1) The content foundation** transition phase shows entertainment increases 2.8-fold; information increases 2.2-fold, utilities increase 1.3-fold; **(2) the network effect** transition phase shows sharing platforms increase 3-fold and entertainment is still the largest reason for people to get connected; **(3) the monetization** transition phase shows sharing platforms increase 2-fold, utilities increase 1.3-fold, online ads expand to 15 percent of total ads, and e-retail expands to 2 percent of total retailing; **(4) the content diversification** transition phase sees business services increase 2-fold, the ecosystem is diverse and balanced, online ads expand to 23 percent of total ads, and e-retail expands to become 5 percent of total retailing.

to get connected, creating the momentum to bring their digital content ecosystems to the critical inflection point where the virtuous cycle of content and user engagement enabled commercial drivers to assume a larger role. Additionally, subscription-based models—either gaming or education—played a critical role in enabling content companies to sustain and fund early growth.

JUMPSTARTING DIGITAL CONTENT AND SERVICES ECOSYSTEMS

To understand how stakeholders can best jumpstart digital content and services ecosystems, it is necessary to define and measure the maturity of a country's ecosystem, to identify the models that can ensure economic sustainability, and to consider what steps public- and private-sector stakeholders can take to encourage content creation and drive Internet penetration rates higher.

Defining ecosystem maturity

Ecosystem maturity is defined as a function of both the depth and the diversity of the different content categories within a certain country. The greater the depth of available, relevant content, and the more diverse the types of available content, the higher the maturity ranking of the ecosystem. We calculated an ecosystem maturity index score for 75 countries to understand the different stages of ecosystem maturity (see Box 1). When we juxtapose the countries' maturity scores with their rates of Internet penetration, we can infer four transition phases (Figure 2).

1. **Content foundation.** This transition phase is about moving from an initial stage in a country's evolution to a stage where the right content foundations are in place. Evolution in the initial stages of development is supply driven, suggesting that if you build an ecosystem, users will start to go online in increasing numbers. On average, Internet penetration increases from 5 percent to 13 percent in this stage, and the ecosystem maturity index increases from 14 to 27. The primary forms of content that motivate people to get connected are information and entertainment, but the secondary motivators include utilities, such as e-government services. This transition is about building foundations for further content ecosystem development. Cameroon is an example of a country that has yet to undergo this transition. Average YouTube views of local channels in Cameroon are 2.6 per online user, compared with 6.6 in Ghana, which is post-transition. The case is similar in e-government services. Based on the Online Service component of the UN's e-government index, Cameroon scores 0.20, compared with 0.32 for Ghana.[3]
2. **Network effect.** This transition phase is about leveraging the network effect so that services

Box 1: Ecosystem maturity index methodology

For each of the six content categories we identified—entertainment, information, utilities, business services, sharing platforms, and communications—we constructed proxies for content maturity (see Table A for the data sources of the proxies). We applied a logarithmic filter on some nonlinear proxies—such as YouTube videos, Wikipedia pages, and online newspapers—to transform them into a more linear distribution and to ensure comparability across proxies and categories. Each proxy was indexed on a scale of 0 to 100. Weights were applied to each, based on their applicability and relevance, and we then calculated the weighted average to get one subindex per category. We used these data to create two metrics per country for each proxy: content depth (the average of all six subindexes) and content variability (the standard deviation of the six subindexes). We define the *ecosystem maturity index* of a country as a function of both content depth and content variability. The higher the content depth and the lower the content variability, the higher the ecosystem maturity index score. For countries with low content depth, content variability is not considered.

Table A: Data sources for proxies

Content category	Proxy	Source	Publisher	Year	Weight (%)
Entertainment	# of YouTube videos	www.socialbakers.com	Social Bakers	2014	67
	Online gaming market as % of GDP	Global Entertainment and Media Outlook 2014–2018	PwC	2013	33
Information	Web-based information about job opportunities	2013 Web Index Dataset	WEB Foundation	2013	20
	# of Wikipedia pages in local language	2013 Web Index Dataset	WEB Foundation	2013	40
	# of online newspapers	www.onlinenewspapers.com	Online Newspapers	2014	40
Utilities	Government Online Service Index	*E-Government Survey 2014*	United Nations	2014	60
	E-Participation Index	*E-Government Survey 2014*	United Nations	2014	20
	Web-based information on public health services	2013 Web Index Dataset	WEB Foundation	2013	10
	Impact of information and communication technologies (ICTs) on access to basic services	*The Global Information Technology Report 2014*	World Economic Forum	2014	5
	Internet access in schools	*The Global Information Technology Report 2014*	World Economic Forum	2014	5
Business services	Internet retail as % of total retail	Retailing: Euromonitor from Trade Sources/National Statistics	Euromonitor	2013	60
	Government e-commerce promotion initiatives	2013 Web Index Dataset	WEB Foundation	2013	15
	Information used for agricultural innovation	2013 Web Index Dataset	WEB Foundation	2013	5
	Business-to-consumer Internet use	*The Global Information Technology Report 2014*	World Economic Forum	2014	15
	Firm-level technology absorption	*The Global Information Technology Report 2014*	World Economic Forum	2014	5
Sharing platforms	Facebook penetration	www.internetworldstats.com	Internet World Stats	2012	100
Communications	Messaging application downloads per capita	www.appannie.com	App Annie	2014	100

become more valuable to users as more people use them. Internet penetration rates typically follow an S-curve path, suggesting that there is a point of critical mass after which consumers' Internet adoption accelerates significantly as the network effect takes hold. It takes, on average, four years for Internet penetration to increase from just below 5 percent to just above 15 percent. From that point, however, it takes only two years on average for penetration to increase from 25 to 35 percent—the point at which critical mass is reached.

In this transition, Internet penetration increases on average from 13 percent to 43 percent and the ecosystem maturity index increases from 27 to 40. Although entertainment is still the most popular content in this transition, sharing platforms also experience a significant jump (of 2.9 times), which inherently leverages the network effect. Facebook's share of the online user base in Ghana (which is at the beginning of the network effect phase, the second cluster in Figure 2) is 52 percent, for example, compared with more than 90 percent in Thailand (which is in the third cluster of Figure 2).[4]

3. **Monetization.** In this transition phase, a sizeable online user base is reached. Internet penetration increases on average from 43 percent to 62 percent, and the ecosystem maturity index increases from 40 to 50.[5] We witness a more or less consistent increase in content across all categories of reasons to get connected (the increase ranges from 1.1 times in entertainment to 1.5 times in sharing platforms). Business services still rank relatively lower than other reasons. (Business services score 36 in the ecosystem maturity index, compared with an average in the 60s for other reasons once this transition is complete.)

   Content developers look for ways to make their content profitable. The market for digital advertisements begins to grow during this phase (accounting for around 15 percent of the total advertising market on average), thus providing a model for achieving economic sustainability in the ecosystem (sustainability models are discussed further in next section).

4. **Content diversification.** This transition is about intensified content diversification through business services. In this phase, Internet penetration increases on average from 62 percent to 85 percent, and the ecosystem maturity index increases from 50 to 61. With a large base of online users, businesses now see value in offering Internet services—either as a way of enhancing the scale and productivity of existing business models or as a way of creating new Internet business models. Overall business services increase by 1.8 times in this transition. Internet retailing, which is used as a proxy for measuring the depth of the general online business services category, begins to approach 5 percent of retail spending in the economy—the point where the online business is large enough to take on a major, self-sustaining role in driving Internet usage and growth.

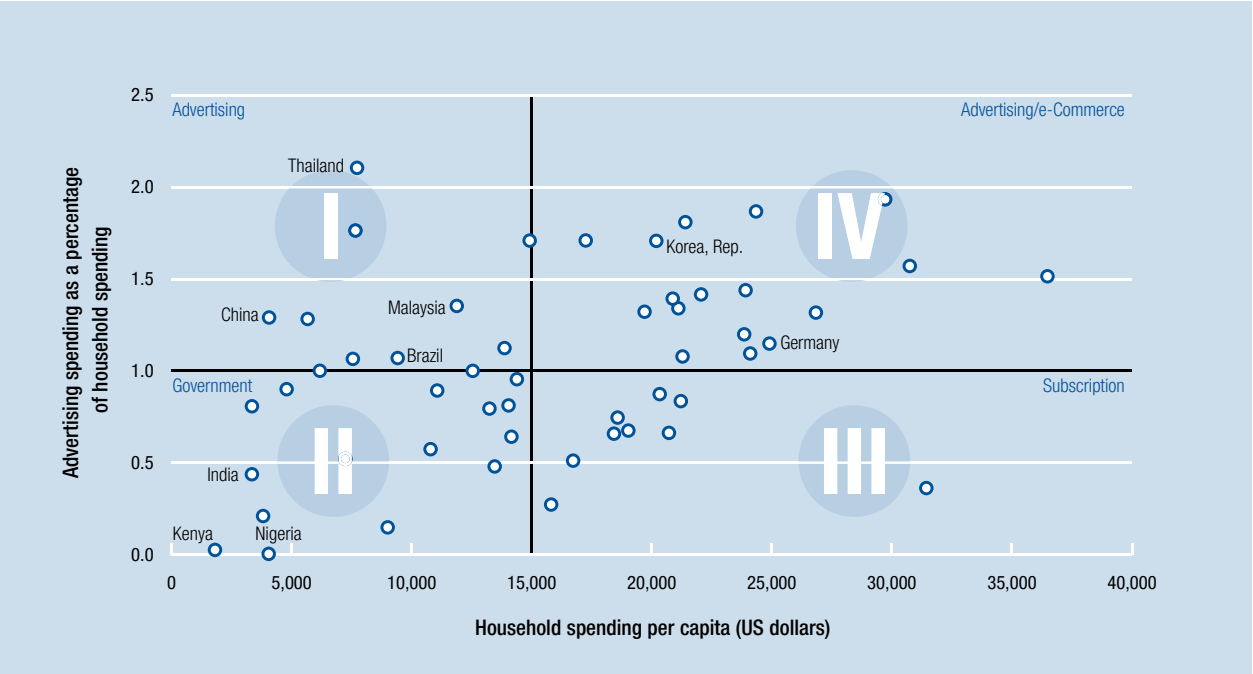
Economic sustainability models

Within each of the stages of ecosystem maturity, a different economic model should sustain development. Sustainability is closely linked to the country's underlying economic structure, in addition to the availability (or lack thereof) of a sizeable advertising market. We identify four sustainability models (Figure 3).

The principle here is that the more households spend on consumables, the more brands are willing to spend on advertising to capture the household spending. The quadrants of Figure 3 consider the relationship of household to advertising spending:

- **Quadrant I: Advertising.** Although markets in this quadrant have low household spending per capita, the advertising market is relatively large. It is mainly driven by TV advertising (which constitutes an average of 40 percent of total advertising spending in these countries). To sustain the ecosystem, content providers can channel advertising spending into digital channels, providing a more efficient, engaging, and relevant way for advertisers to target their audiences. In such conditions, an advertiser-subsidized model could potentially work.
- **Quadrant II: Government.** In these markets, household spending and the advertising market are both small. Sustainability could be achieved through government spending, providing basic digital services (such as e-government, health, education). Governments can play an important role in creating momentum for widespread Internet adoption by providing compelling services. These would attract users by reducing the impediments to using government services, and they would also improve the services' efficiency. However, such a model cannot be sustained in the longer term. It is also difficult to apply to other content categories (entertainment, information, business services, and sharing platforms). Governments can be a trigger, but eventually other sustainability models need to take over.
- **Quadrant III: Subscription.** Typically, when household spending per capita is high, advertising spending is similarly elevated because brands are competing to maximize their share of household expenditures. However, there are a few exceptions. In the United Arab Emirates, for example, household spending per capita is around US$32,000 per year but advertising spending is only 0.4 percent of that amount. In such markets, households are

Figure 3: Economic sustainability models



Sources: Household spending per capita: World Bank *World Development Indicators 2013;* advertising spending: PwC 2014.
Note: Black lines indicate averages.

willing to pay for the content they consume, and thus subscriptions-based models can sustain the ecosystem.

- **Quadrant IV: Advertising/e-Commerce.** In markets with high household spending per capita and a relatively large advertising market, sustaining ecosystem development is usually achieved by advertising-based models, coupled with vibrant e-commerce services.

Jumpstarting content ecosystems

Three key groups of stakeholders are involved in creating a vibrant and sustainable content ecosystem: (1) the government—both in its role as a policymaker and as a provider of essential services online; (2) the content developers, which range from the small startups in the country to large global companies; and (3) the enablers—the operators and brands that provide either the distribution or, in some cases, the monetization models to sustain the content ecosystem.

Any emerging-market country seeking to jumpstart its digital content ecosystem not only has to ensure coordinated action among the three sets of stakeholders but also has to align these actions both with the state of development of the ecosystem and the sustainability model supported by the local economy.

The role of the government

The government has a dual role to play in boosting the content ecosystem in a country—first as a policymaker, whose function is to create an optimal environment in which content ecosystems can flourish, and second as a provider of essential services within the country. In the role of policymaker, two things matter: the state of the factor markets—the skilled labor, capital, and technology—for local content development and the protection of digital copyright.

If the markets are in a nascent stage of development, it is highly likely that they lack the functioning factor markets that are needed to create digital content. In such cases, the role of policymaker is to facilitate the creation of such markets.

Creating efficient capital factor markets could involve providing seed capital for local content development. An example of such an initiative is the Tandaa grants program, run by the Kenyan government. The program provides a small grant to local content developers to create digital content and, by 2014, it had funded more than 30 initiatives.[6]

Equally important is the presence of efficient labor factor markets, ensuring enough high-quality talent and skills to jumpstart the local content ecosystem. An example of an initiative that addresses the labor factor is twofour54 Abu Dhabi, which incubates the development of Arabic-language media and entertainment through a training academy, production facilities, and creative support.[7] In addition, countries can leverage their expatriates' talent pool, based in more-developed technology markets. An example of such an initiative is The Indus Entrepreneurs (TiE), which started as a networking forum for entrepreneurs in Silicon Valley with

roots in the Indian subcontinent, and has played a key role in driving the digital ecosystem in India through its local chapters and forums.[8]

Finally, efficient technology markets can best be achieved by working with global platform companies to increase assistance for local-language support and character rendering—a key factor in driving the adoption of local-language content. An example of an initiative that addresses local-language issues is the attempt by technology companies to support the Burmese language as Myanmar begins to connect with the global Internet economy.[9]

Another key challenge for content developers in moving online has been the lack of suitable copyright protection and the state of disarray of digital rights management within the country. In many emerging markets, digital piracy is rampant. Consumers are not disposed to pay for content because it is available for free through pirated side-load channels or downloads. As countries improve their overall copyright regimes, updating them to increase digital property protection is critical to enabling more and more content developers to shift their content online. An example of this is the Indian Copyright Act update that occurred in 2012 to support digital copyright protection.[10]

Beyond creating a favorable environment, governments play a key role in building essential services content. In many emerging markets, governments go beyond delivering traditional public services because they continue to be the primary providers of basic health and education services. Developing online content in these categories, similar to that undertaken by the Korean and German governments, will be a good starting point.

In addition, several of the low-frequency but necessary and unpleasant activities that require spending significant time in government offices (e.g., filing taxes and accessing administrative records) can be put online. In markets such as India, the government is attempting to use online services to reduce costs, remove bureaucratic hurdles, and minimize the leakage of resources and opportunities for corruption.[11]

Developing a coherent vision, however, remains a major challenge for many governments. Where capabilities are limited, governments typically partner with intergovernmental organizations to create the required vision and ensure its successful implementation. The World Bank, for example, is leading a project in Moldova to deliver selected e-government services and shared applications through multiple channels. Significant results have been achieved: citizen uptake of e-government services grew from 7 percent in 2010 to 22 percent in 2014. Public support for e-government grew from 53 percent in 2010 to 65 percent in 2014, about 1,000 people were trained in the e-government center, and some 700 government datasets were made available.[12]

The role of content developers

A key lesson from the analysis above is that it is necessary to overbuild content, especially in early stages of developing the ecosystem. In certain content categories—such as sharing platforms, which are subject to large network effects—global web companies will provide a surplus of content despite uncertain monetization prospects.

Global platform companies are willing to invest in local market development because they are seeking to capture early-mover advantages—again, despite unclear monetization prospects. Players such as Google, Facebook, Twitter, WhatsApp, and Line are rapidly expanding in emerging markets through such investments, with platforms tweaked for local usage. These global companies can also accelerate the growth of the ecosystem by developing support for local languages and character rendering.

However, beyond such categories in which global players can deploy, local content developers in entertainment, business services, and even information need to balance the need to overbuild with the need to find monetization platforms. Any local content developer seeking to build in an emerging market needs a favorable sustainability model—whether advertising spending in the country is significant or not.

If the advertising market is relatively large, content companies can leverage it to support initial expansion and investments. An example is Thailand, where advertising spending is more than 2 percent of household spending but digital advertising constitutes less than 1 percent of total advertising (compared with 60 percent for TV advertising). In such a market, traditional local content players can take a large part in shifting advertising money into more efficient online channels by deploying personalization, customer analytics, and insights—thereby offering a better return on investment for advertisers' dollars.

If, however, the advertising market is small, content players will have to incur the upfront investment of overbuilding in the expectation that monetization through advertisements will eventually occur. In such scenarios, shareholders of these companies can invest in the expansion—hoping to capture the first-mover advantage as the industry evolves. Another alternative is to rely on government subsidies and grants, if they exist, to build an initial revenue stream.

Several of these markets will have strong non-digital media players—print, radio, or television. Going digital will provide an opportunity for these players to expand the reach and monetization potential of their content, which—given the limited platforms available to re-purpose or re-use the content—in most cases does not get re-used.

In all scenarios, the development of a local content ecosystem will be difficult without a path to monetization. The exception will be a few categories in which global

network scale matters or in which the government can fund essential services.

The role of enablers

Two key categories of enablers are critical to the evolution and sustainability of the content ecosystem: operators (which, in most markets, are the distribution channels) and brands (which support the ecosystem through advertisements).

Telecommunications operators in emerging markets are crucial to enabling the monetization of content in the early stages of evolution. Most content companies and subscribers do not have access to payment platforms or advertising dollars during the early stages. They may need to rely on operator-subscriber relationships to monetize the content that they create. Operators can support the monetization of such content by improving the aggregation, curation, and discoverability of the content. In return, they are able to capture a new revenue stream by having end-subscribers pay for this content.

An example of this support is seen in promotional campaigns such as the one launched by Malaysia's Maxis, called the #Hotlink plan, which offers subscribers unlimited usage on all social applications to stimulate user engagement. Another example is the launch of Facebook Zero promotions by operators such as Globe Philippines, which enables people to experience Internet content at no charge.

A similar initiative is the Airtel 1 rupee video portal in India, which bundles content and access, enabling people to discover content that has a predictable cost while creating a new content revenue stream for the operator.

Brands can also support Internet adoption by developing custom content beyond allocating advertising spending in support of local content efforts. An example of a brand that encourages Internet adoption is Hindustan Unilever (HUL), which created a free radio-on-demand service for villages in India that are "media dark" (where traditional media have no coverage). Any cell phone user can dial a specific number and immediately get a return call that plays 15 minutes of free radio, containing entertainment content interspersed with HUL brand advertisements. Within six months of its launch, HUL had served 8 million subscribers and played 17 million advertisements at a cost of US$0.04 per contact. As a result, brand awareness of key products grew significantly. Within the first six months of the launch, the radio channel registered an increase of 3.2 million (5.6 percent) net advertisements compared with a decline of 2 million (3 percent) in the six months before the campaign.[13]

CONCLUSION

Both private and public stakeholders need to take part in developing and sustaining the digital content and services ecosystem that drives digital inclusion in a country. Governments should be proactive in creating strong public-benefit content and services, especially in the early stages of a country's evolution of its digital ecosystem, when monetization models are absent. Both global and local content and service providers require upfront investments to build before they monetize. The search for viewers matters at the early stages, as does allowing stakeholders to draw in the required investments.

The key is to create a large base of online users, generate deep and varied content, support mechanisms for online advertising and payments, and build a solid case for businesses to invest in online commerce and capabilities. Once these elements are in place, all the conditions are set for the digital content and services ecosystem to become self-sustaining.

NOTES

1 Zickuhr 2013.

2 Akamai Technologies 2015.

3 UN DESA 2014.

4 Internet World Stats 2012.

5 Internet World Stats 2012.

6 ICT Authority 2014.

7 twofour54, no date.

8 TiE Global, no date.

9 Wagstaff 2013.

10 Pandey 2013.

11 Government of India 2014.

12 World Bank 2012.

13 Malviya 2014.

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CHAPTER 1.4

ICTs for Inclusive Growth: E-Entrepreneurship on the Open Internet

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Access to the open Internet has created exciting new possibilities for entrepreneurs worldwide. The Internet increasingly crosses the digital divide to reach those previously excluded from economic opportunity. Not only can these new users consume what is already online, but they can also create, using the Internet to improve their education, research new ideas, raise money, collaborate, and start their own companies—opportunities that would be unimaginable for them without access to the open Internet.

The most obvious impact of the Internet for entrepreneurs is the creation of a whole new segment of online startups, which are able to target a global market of nearly 3 billion Internet users while incurring low distribution costs. The largest of these startups, including Google and Facebook, are now taking their place among the most valuable companies in the world.

It is no surprise that many of the early large Internet startups—including Netscape, eBay, Yahoo!, and Google—are located in California's Silicon Valley. These companies all benefited from the same conditions that led to the development of Silicon Valley as the largest and best-known cluster for high-tech startups—conditions that include access to Stanford University, to venture capital, and to a large pool of skilled employees.

Not everyone is able to benefit from access to a cluster, but everyone *can* benefit from the new opportunities now available, as many of the important inputs for startups are migrating online. These include tangible inputs, such as venture capital and computing capacity, along with less tangible ones, such as mentorship and collaboration. All of these foster innovation. As a result, the possibilities for entrepreneurship are expanding beyond the traditional boundaries of high-tech clusters to include all people in all regions that have access to the open Internet.

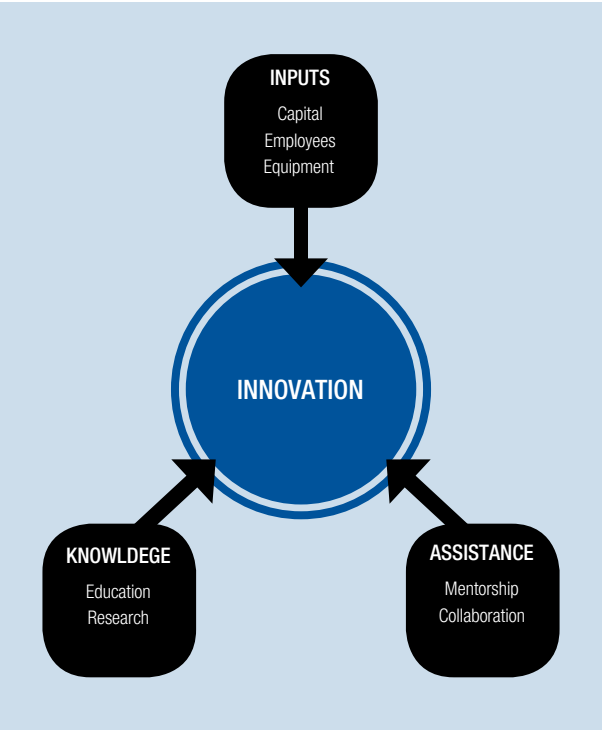
As the activity of innovation becomes more inclusive because more people—across countries and income levels, education, and gender—are able to create novel enterprises, so too are the results of innovation becoming more inclusive, because many new entrepreneurs focus their efforts on filling market gaps close to home. To foster this new source of startups, policymakers can focus on ensuring that Internet access is widely available, affordable, and open.

STARTUPS AND CLUSTERS

Innovation is one of the key means to achieve faster economic growth, and entrepreneurial startup companies are a significant source of innovation, particularly in the information and communication technologies (ICT) sector. Although anyone can innovate in theory, in practice many of the ingredients for successful startups are historically concentrated in

The author extends many thanks to Daniela Pokorna and Mario Huber for research and analysis and to Sally Wentworth and Karen Rose for input and feedback.

Figure 1: Ingredients for an innovation startup



clusters such as Silicon Valley, access to which can be a barrier for many would-be entrepreneurs.

For the purposes of this chapter, we divide the ingredients for successful startups into three categories:

- *Knowledge:* Education is a critical component of innovative startups because it provides a general background in fields of interest; research then helps to identify current market gaps and identifies the specific knowledge required to help fill the gaps.
- *Inputs:* Venture capital, skilled employees, and ICT equipment are usually critical inputs needed to turn an innovation into a startup company.
- *Assistance:* Finally, to enhance the value of the innovation, mentorship and collaboration are important to provide business acumen throughout the startup phase and beyond.

Traditionally, these ingredients are collected in a high-tech cluster—a geographic concentration of companies, in one or more related industries, that includes suppliers and related service providers and that covers the entire range of the innovation cycle from startup to established company. As a result, having a presence in a cluster has been virtually essential for high-tech startups.

Silicon Valley is not just the first, but also the most successful, example of such a cluster, highlighting the benefit of close proximity to the ingredients listed in Figure 1. It is home to Stanford University, which has a top electrical engineering program, and which provided early input to the creation of Silicon Valley.[1] However, not only formal knowledge is important: there is a web of inputs that are critical to the success of a high-tech cluster such as Silicon Valley.

Shockley Semiconductor Laboratory, established in 1956 in Mountain View, California, to work on silicon semiconductor devices, arguably pioneered the growth path and eventual nickname of Silicon Valley. At that time, the region was so rural that it did not yet have long-distance telephone service, and it proved difficult to lure engineers from the better-established East Coast industrial base. However, those who did join Shockley made their mark. Among them were eight who famously left to form Fairchild Semiconductor, and from there a cascading series of dozens of companies (known as the "Fairchildren") were established—including Intel and the leading venture capital company Kleiner Perkins Caufield & Byers.

Google provides a classic example of the benefits of Silicon Valley as an innovation-fostering cluster. Founders Larry Page and Sergey Brin met as students at Stanford University in 1995, where they started Google two years later. They developed a new type of search engine during their academic research and ran it on the Stanford servers until it overwhelmed the campus network. Google then moved to a nearby garage, raised money, hired a CEO, and established its headquarters, all within the Silicon Valley cluster. These humble beginnings resulted in a company that is now worth close to US$400 billion.

Given the success of Silicon Valley in encouraging high-tech startups and enhancing economic growth, it is not surprising that many attempts have been made to duplicate its success in other countries, often with government backing. Examples of clusters established elsewhere include Silicon Alley in New York City, Cambridge Science Park and Tech City London in the United Kingdom, Silicon Wadi in Israel, Paris Saclay, Skolkovo Innovation City in Russia, Bangalore in India, Zhongguancun in China, and Hsinchu Science Park in Taiwan, China.

The French government has promised to invest €5 billion into their Paris Saclay complex,[2] Mayor Bloomberg invested in endeavors such as the We Are Made in New York initiative to make New York more attractive as a technology hub,[3] and the Russian government is planning to invest about US$4 billion in the Skolkovo Innovation City from now until 2020.[4]

Many of the crucial elements contributing to the success of Silicon Valley create powerful network effects that have made it difficult for other clusters to approach the same level of success, however. For a government, creating a cluster requires political capital, investment capital, and patience—assets that not all governments enjoy in abundance.

Regardless of their ability to provide opportunities equivalent to those of Silicon Valley, these new clusters

Box 1: Examples of the results of access to the open Internet

Access to online education can be a life-changing experience for an individual. One such person is Battushig Myanganbayar, a Mongolian student who achieved a perfect score on MIT's Circuits and Electronics MOOC lecture at the age of 15. As a result, he was admitted as an undergraduate to MIT, where he also provides input to MITx, part of the edX initiative, to help others in his situation. As he explained, the online course provided him with valuable information and knowledge, which he demonstrated by inventing a Garage Siren to signal his younger sister and other children to move away from an approaching car.[1]

The open Internet also allowed Kodjo Afate Gnikou from Togo to design the W.Afate 3D printer at a cost of US$100 each, using money he raised online.[2] He developed his plan based on the Mendel design, which was available online as a result of a collaborative open source network. The result is a good example of a social innovation that makes 3D printing available to lower-income groups. At the same time, the printer is designed largely using the electronic waste—discarded electronic devices—accumulating in parts of Africa, thereby addressing a social and environmental problem at the same time.

Notes

1 Pappano 2013.

2 Ungerleider 2013.

have clearly created opportunities in other countries for entrepreneurs. Nonetheless, clusters are formed around a physical presence, which excludes many would-be entrepreneurs. Not every country has a cluster, and not everyone can relocate to an existing cluster.

Many of the ingredients required to launch a successful startup can now be found online, however. This shift significantly alters the landscape for entrepreneurs around the world, enabling them to overcome not just lack of proximity to a cluster, but also low income, gender bias, educational background, and physical disabilities.

ONLINE STARTUP INGREDIENTS

Access to the open Internet not only can enable entrepreneurial activity to shift online, but also can open opportunities for more inclusive growth from both a demographic and a geographic perspective. This section looks at key ingredients of the startup process to highlight how entrepreneurs can succeed with access to the open Internet.

Knowledge

Education, particularly technical education, was an early and natural adopter of online technology. In 2001, the Massachusetts Institute of Technology (MIT) introduced its OpenCourseWare project to make its course materials available for free online, and thereby launched the Open Educational Resources movement. More recently, Massive Open Online Courses (MOOCs) have been created to broadcast classroom lectures online. Coursera, edX (jointly created by MIT and Harvard), and Udacity are platforms through which universities may provide their open online courses.

The result of these efforts has been to lower the cost and increase the reach of educational resources, thereby removing significant roadblocks to education. Coursera, for instance, had 22,232,448 enrollments from 190 countries as of January 2014.[5] Furthermore, about 33 percent of subscribers to edX have previously obtained no more than a high school education.[6] This is evidence that open online courses can help educate anyone—without the restrictions of little prior education, affordability, or physical distance—who has an Internet connection and who is both willing to study and motivated enough.

Research is another integral part of the background needed for innovation. Access to the open Internet can provide critical background knowledge not just in developing an innovation, but also in providing the business knowledge for commercialization. Furthermore, the results of innovation are often themselves available online via open source in order to lower the cost of further innovations, as in the example of the 3D printer developed in Togo (Box 1).[7]

Inputs

Capital is perhaps one of the most difficult inputs to obtain, and it is one of the most crucial. Normally, one goes through the channels of venture capital or angel investment in order to fund a startup. However, the Internet has provided a novel way to raise capital: crowdfunding, whereby entrepreneurs make available their plans and raise money from other Internet users, often in exchange for an early and discounted result of the innovation. It is estimated that the total amount raised through crowdfunding in 2012 was US$3 billion; this was expected to exceed $5 billion in 2013,[8] challenging the US$8.91 billion expected to be invested in Silicon Valley in 2013.[9]

Kickstarter, one of the most prominent crowdfunding platforms, has a cumulative total of US$1,261,742,200 in pledges since its founding in 2009 through August 2014, funding 67,402 projects.[10] Pebble, the first notable smartphone, is to date the most successful Kickstarter project. It raised $10,266,845 (more than its original goal of only $100,000),[11] before the founders halted the appeal. Eric Migicovsky, one of the inventors of Pebble, noted, "had it not been for Kickstarter ... Pebble may not have been funded at all."[12]

Box 2: Opportunities for inclusion resulting from freelance sites

Freelance sites such as Elance allow workers to overcome obstacles and improve their economic standing. One Indian programmer faced discrimination as someone differently abled, which also made it difficult to commute to work, but was able to become self-employed and work at home for clients around the world using Elance.[1]

In another example of increased opportunities, an online platform in the Middle East—Nabbesh—provides flexible employment opportunities that are particularly important for women who are required to work from home.

Note

1 Elance 2013.

Crowdfunding is novel because it disrupts the traditional constraints of obtaining venture capital and eliminates one or more middlemen by appealing directly to the eventual customers to back the startup. Significant indications of gender and geographic bias are apparent in startup investing, and early evidence suggests that, in the United States at least, crowdfunding is helping to overcome this bias by enabling more women to act as funders while also increasing the average distance between the funders and the founders.[13] As a result, crowdfunding can result in more inclusive access to capital.

Although Kickstarter funds startups based in only five countries today, other platforms—such as Indiegogo and Ulule—are available in many countries. Indeed, the inventor of the W.Afate 3D printer in Togo (see Box 1) raised over €4,000 online using the crowdfunding platform Ulele.[14] Many other successful projects and inventions might have gone unrealized without online crowdfunding.

Another critical input for startups is **employees.** One reason that companies are attracted to high-tech clusters is their concentrated availability of large pools of skilled labor. At the same time, research shows that diversity of employees drives innovation.[15] Online recruitment does not just facilitate hiring, but can also increase diversity by facilitating access to a global pool of workers. LinkedIn alone has more than 313,000,000 registered users around the world,[16] which significantly expands both the labor pool for startups and the opportunities for employees, further reducing reliance on a cluster for hiring.

Furthermore, online platforms can allow employers to efficiently fulfill specific tasks without full-time employees by creating a market for freelance workers. Such online platforms include oDesk, Elance, and Freelancer. As of 2014, Elance had 3,626,017 freelancers registered, with total earnings of US$1,291,508,388 between its founding in 2008 and the end of 2013.[17] Freelance sites not only provide inclusive employment opportunities (Box 2), but some freelancers even go on to start companies themselves and begin hiring their own freelancers to fulfill their jobs.[18]

In sum, these online platforms provide job opportunities for those otherwise excluded through geographic borders, gender, or ability, while at the same time increasing the diversity of companies, which can stimulate further innovation.

Another significant input that startups may require is the information technology (IT) **equipment** needed to operate the business—clearly a critical component in particular for companies offering online services. Purchasing necessary equipment such as servers entails a capital expense whose scale may be difficult to justify up front, but infrastructure can now be accessed as a scalable operating expense thanks to cloud computing. As a result, cloud computing reduces entry barriers;[19] it also makes access to advanced computing platforms more inclusive globally—for instance, Amazon's cloud service is available in 190 countries.

Assistance

Entrepreneurs may obtain advice and help establishing a business through **mentorship,** which is a significant benefit of clusters but is perhaps more important in regions where entrepreneurship is less established. An example of online mentorship comes from the Mara Foundation, a part of the Mara Group whose founder, Ashish Thakker, is himself a role model whose family was displaced first from Uganda and then Rwanda before he founded the company at age 15. The Mara Foundation released the online Mara Mentor application, which is followed by 140,000 young entrepreneurs in Africa.[20] The Mara Foundation and UN Women have also started a partnership to help empower female entrepreneurs around the world.[21]

Collaboration is another indispensable feature of clusters, aspects of which are migrating online where, as with employment, opportunities for diversity are increased (Box 3). Various facets of collaboration—ranging from informal discussions, achievable through a large variety of communications applications such as Cisco's WebEx, to more formal efforts to work together on a common problem—are facilitated online.

GitHub is a promising example of how collaboration can be achieved online. This platform provides tools for developers to work together on projects,[22] enabling programmers around the world to collaborate from their respective locations without having to be present in one specific place. This ability has a particular impact on talented programmers in developing countries who may find the assistance needed to develop their innovative ideas into real products/services. Today, GitHub has roughly 6.8 million people collaborating across its 15.2 million project repositories.[23]

CASE STUDIES

There are many examples of ways in which access to the open Internet enables inclusive growth of startups. Although startups such as Pebble may have occurred without access to online ingredients such as Kickstarter, many others owe their existence to their online origins. For instance, the 3D printer from Togo described in Box 1 could not conceivably have been developed without open access to the Internet.

In addition to their online origins, many entrepreneurial efforts in developing countries are targeted toward filling important gaps in the markets in which they were created. These gaps are well understood by developers in their home markets; they are also likely overlooked by entrepreneurs in more-established clusters. For instance:

- Esoko is an online startup from Ghana that sends texts messages to its users about price and stock information,[24] which is widely used in Africa for agricultural purposes.
- Watch Over Me (formerly SecQ.me) is a personal safety application from Malaysia that makes it easy to summon help. It was developed in response to alarming accidents or crimes involving the founders and their family. After launching the application, an alert will be triggered if the user does not indicate that he or she has arrived safely.
- Ushahidi is a nonprofit organization based in Kenya whose goal is the development of free and open-source software for crowdsourced mapping. The organization was started in order to track post-election violence in Kenya in 2008.

Another group of startups not only benefit from the inclusive online opportunities, but are also themselves platforms that support further inclusive innovation. Their founders used online ingredients to create local tools to further enable other entrepreneurs to succeed. Examples include:

- Roya Mahboob is the founder of Afghan Citadel, which encourages "entrepreneurship on the Digital Silk Road by bringing Internet access, IT hardware, and social-media education to tens of thousands of Afghan students … [thus] giving women and youth the tools they need to launch successful online businesses."[25]
- Nabbesh, mentioned above, was set up by Loulou Khazen Baz in the United Arab Emirates to help local youth find employment and provide an opportunity for Emirati women to work from home. In order to launch Nabbesh, a crowdfunding project was launched on Eureeca; within 12 days, Nabbesh managed to raise its goal of US$100,000.[26]
- The Women's Digital League, founded in Pakistan by Maria Umar, is an organization that provides IT centers in rural areas and helps to train the women in these areas for jobs using this technology. Women's Digital League then employs the trained women for jobs such as simple data entry tasks or more advanced jobs like word press, wiring, and graphic tasks.[27]

These new platforms help to make entrepreneurial opportunities more inclusive, and allow others to follow in the footsteps of their founders.

Box 3: Online collaboration: A tool and a resource

GitHub is also becoming a valuable online recruitment tool, as it allows prospective employers to review a candidate's portfolio of work on collaborative projects of their own or belonging to others. This allows self-taught developers to demonstrate their skills directly without having a traditional education or work background on their CV. GitHub thus allows employers to find talented engineers in regions where education and direct work experience may still be in short supply.[1]

Note

1 Stucchio 2013; Terdiman 2012.

INNOVATION HUBS

Although online ingredients enable entrepreneurship outside a traditional high-tech cluster, the role of the cluster may not be completely supplanted. Recent years have seen the rise of a new model for supporting entrepreneurs in developing countries: the innovation hub.[28] Such a hub is typically a community of entrepreneurs who share an open office space and who develop the hub as a bottom-up effort to help enable innovation.[29] Innovation hubs play many roles, not the least of which is providing reliable Internet access to enable access to the online ingredients described above.[30]

These innovation hubs may also serve to fill another key gap in the needs of online entrepreneurs. Although it is true that most, if not all, of the ingredients necessary to develop an innovation into a startup are available online, the need to initiate personal relationships face-to-face—even if they are then maintained online—is one feature of high-tech clusters that may still be crucial. Filling this need is a critical role of innovation hubs. As described in an interview with Erik Hersman, the founder of iHub in Nairobi, they serve the function of bringing people together to create trust among investors, entrepreneurs, and employees, and—in his words—to "increase serendipity."[31]

Although many are in their early stages, the innovation hubs have already created notable successes. For instance, iHub in Kenya fostered the recently launched BRCK, an Internet connectivity

device that provides power and access in challenging environments.[32] In Ghana, a notable success is Dropifi, a customer engagement tool that helps businesses to communicate with customers in a faster and more efficient way. This application was developed in the Meltwater Entrepreneurial School of Technology (MEST) incubator in Ghana and has since won several awards for startups.[33]

At innovation hubs, startups access the Internet for many of their essential ingredients while also benefiting from face-to-face opportunities for entrepreneurs to meet. This concept is relatively new, and it is not yet clear how these hubs may evolve as their members succeed and exit them. For instance, Dropifi, noted above, was incubated in Ghana but has since joined a Silicon Valley accelerator program.[34] A topic for future research would be to track how successful companies such as Dropifi evolve over time and how they retain or modify their relationship to their innovation hub, and how the surrounding innovation ecosystem adapts.

CONCLUSION

The Internet is not merely creating a new segment of online companies that entrepreneurs can target, but is also providing ingredients that can help foster entrepreneurs in their efforts. Although there appears to be no risk on the horizon to Silicon Valley's ability to attract and foster significant startups, geographic and demographic constraints mean that not everyone who could be a successful entrepreneur has access to Silicon Valley.

Numerous public initiatives have attempted to duplicate the success of Silicon Valley, with limited success. However, as this chapter shows, fully duplicating such a cluster may no longer be necessary: many of the ingredients of success required by entrepreneurs can now be accessed online, by anyone, anywhere, with open Internet access.

Consequently, instead of focusing on fully duplicating a high-tech cluster, governments could focus on creating an enabling environment. Such an environment would notably include Internet access that is widely available, affordable, and open. Access to the open Internet will then allow for more inclusive innovation—not just within developed regions but also extending to emerging countries.

This new online entrepreneurship can enable entrepreneurs to surmount barriers not only of their physical location, but also barriers of education, gender, and physical disability. In addition, the innovations that result from access to the open Internet may themselves be inclusive, addressing needs in their home markets.

NOTES

1 Saxenian 1985, p. 22.

2 EPPS 2014.

3 Bloomberg 2013.

4 Grant 2013.

5 Coursera 2014.

6 O'Connor 2014.

7 Mueller 2014.

8 Crowdfund Capital Advisors and Fajr Capital Advisors 2013; Best and Rehman 2014; Crowdsoursing.org and Massolution.com 2013.

9 Silicon Valley Bank et al. 2013.

10 Kickstarter 2014c (data from November 8, 2014, 18:35).

11 Kickstarter 2014b.

12 Newton 2012.

13 See, respectively, Greenberg and Mollick 2014; Agrawal et al. 2011.

14 Ulule 2014.

15 See Hewlett et al. 2013; Walter 2014.

16 LinkedIn 2014.

17 Elance-oDesk 2014.

18 Elance 2013.

19 Etro 2009, p. 191.

20 Thakkar 2014.

21 UN Women 2014.

22 Wu et al. 2014.

23 GitHub 2014.

24 Nottebohm et al. 2012.

25 Mahboob 2014.

26 Best and Rehman 2014.

27 Ashoka Changemakers 2014.

28 Gathege and Moraa 2013.

29 Friederici 2014.

30 de Bastion 2013.

31 Internet Society 2014.

32 See www.BRCK.com.

33 Heilbron 2013. For more information on MEST, see meltwater.org.

34 Nabong 2013.

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CHAPTER 1.5

Creating the Next Wave of Economic Growth with Inclusive Internet

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The economic impact made by the Internet over the past several decades, with its significant contributions to nations' gross domestic product (GDP) and its fueling of innovative industries, has been massive.[1] The Internet has also generated societal change by connecting individuals and communities, providing access to information and services, and promoting transparency.

This growth has so far benefited mainly developed nations, although to some extent it has also advanced urban areas in developing nations. Further growth of the online population is expected, especially in emerging markets. However, because of structural barriers, more than 4.2 billion people worldwide are likely to be still unconnected in 2017. These people, who are mostly in developing countries, will be missing out on the benefits of the Internet society.[2]

The longer it takes to connect this group of people, the larger the development gap—also known as the digital divide—will become. Countries with large offline populations should seek to understand the barriers to getting connected faced by these individuals, and should act decisively to lower or eliminate those barriers.

This chapter first outlines the benefits provided by the Internet and the factors driving its growth. It then discusses the barriers that prevent many people from becoming connected. It concludes by outlining a range of potential actions and examples of initiatives countries could consider in their efforts to overcome those barriers.

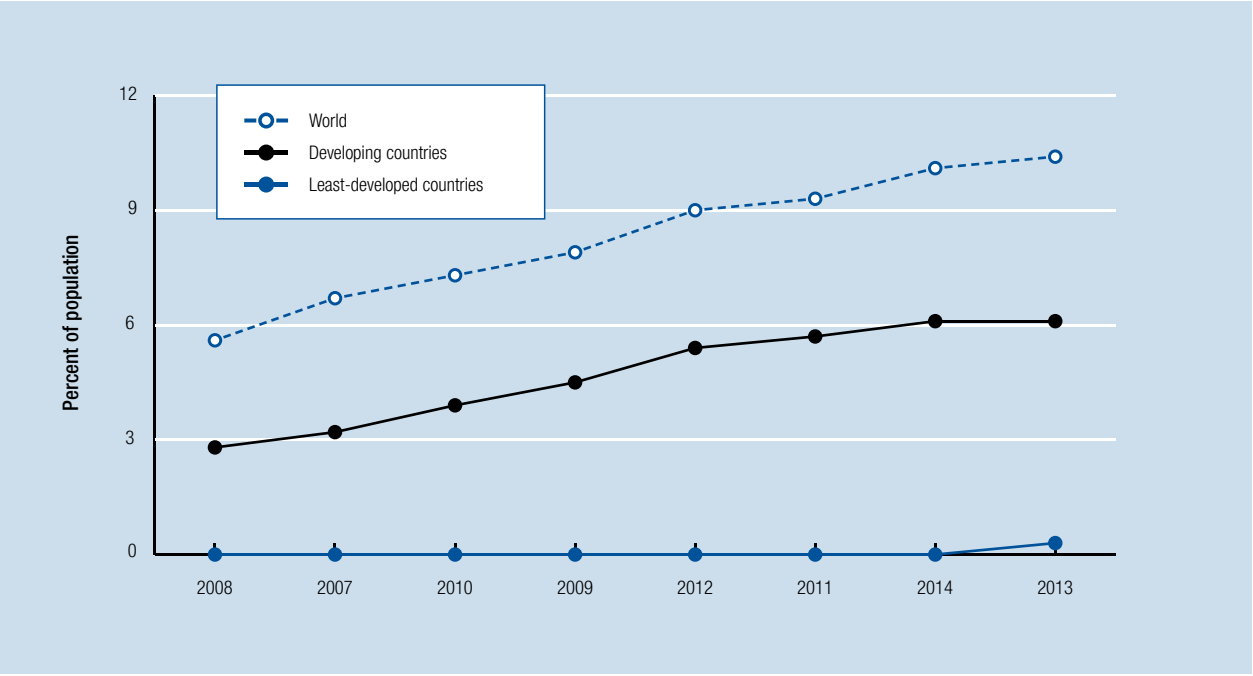
THE INTERNET HAS BROUGHT SIGNIFICANT ECONOMIC GROWTH

Since its emergence, the Internet has developed from a small collection of user communities to an integral element in the lives of 2.7 billion people around the world. In nearly every country and sector it has evolved into a powerful economic engine that has improved quality of life and transformed the way governments, businesses, and individuals connect and engage, and the ways in which they access critical information and services.

The potential of the Internet to accelerate a country's economic growth is widely recognized. It is estimated that in 2010, the Internet accounted for US$1,672 billion of the global economy, or an average of 2.9 percent of total GDP. The contribution from developing or aspiring countries was small—only US$366 billion.[3] Of this amount, the BRIC countries (Brazil, Russia, India, and China) were responsible for US$243 billion, almost two-thirds of the total, while the African continent's share was only US$18 billion. The economic value generated annually by the Internet in aspiring countries is US$119 per capita, compared with US$1,488 per capita in developed countries.[4]

The views expressed in this chapter are those of the authors and not necessarily those of McKinsey & Company.

Figure 1: The widening digital gap: Fixed-line broadband penetration



Source: ITU, 2014.

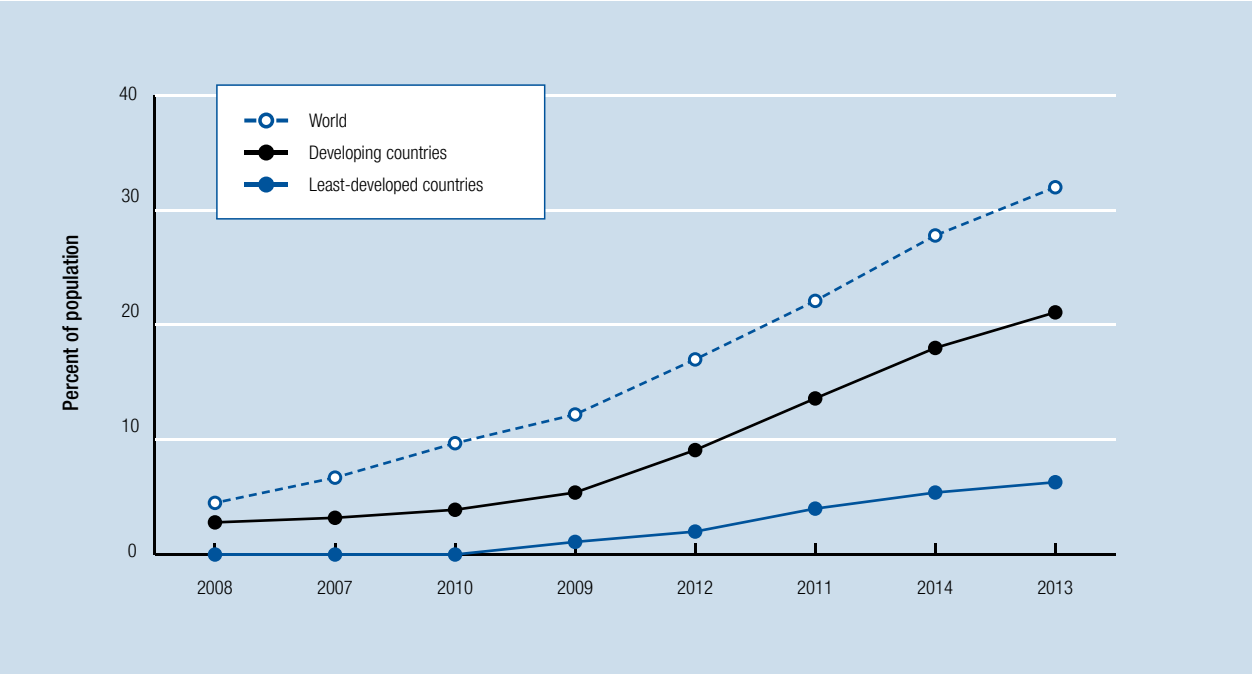
The Internet clearly has great potential to foster further economic growth in many developing countries. Research by the World Bank in 2009 found that for every 10 percentage-point increase in the number of high-speed Internet connections in developing countries, there was an increase of 1.3 percentage points in economic growth.[5] From 2004 to 2009, for example, it is estimated that the Internet contributed 10 percent or more to total GDP growth in Brazil, China, and India—and its impact in those countries has accelerated.[6] The study believes that the Internet could transform agriculture, retail, healthcare, and other sectors in Africa and estimates that these transformed sectors will contribute up to US$300 billion of the continent's annual GDP by 2025 (an enormous leap up from the US$18 billion generated in 2010).[7]

To enable this growth, Internet penetration in developing markets must continue to expand. Of the approximately 7.1 billion people worldwide, there are still 4.2 billion non-Internet users, mainly in developing markets. Various forecasts estimate that at the current trajectory, 500 million to 900 million more individuals will gain access to the Internet by 2017.

A recent McKinsey report identifies five factors that have been key to Internet growth:[8]

1. **Expanding mobile network coverage and increasing mobile Internet adoption.** In the early days of the Internet, access was established over fixed-line networks. It was the mobile network—often the only means of accessing the Internet in developing countries—that facilitated the explosion in the number of subscribers worldwide. Mobile Internet connections rose from around 200 million in 2008 to 2.2 billion by 2013.[9] Looking ahead, mobile networks are expected to continue to be prevalent, but fixed-line networks will also be extended. Many countries plan to build nationwide fiber networks to enable higher-speed Internet access. Both technologies will be complemented by public and private Wi-Fi networks. In addition, developing markets will—because they do not have to upgrade or dismantle old, expensive legacy networks such as fixed copper networks—be able to leapfrog into and benefit from new, cheaper, and more efficient transformational technologies such as mobile Internet, the Internet of Things, and the cloud, and will be able to power them with renewable energy.[10]
2. **Shrinking device and data plan prices.** Internet services tend to become more affordable over time. Their cost has fallen at the same time as incomes have increased in many locations. Take mobile phones. When introduced, only the privileged could afford them, but prices have fallen sharply in the course of three decades. Between 2012 and 2013 alone, the average price of a smartphone fell by nearly 13 percent worldwide, to US$337. The price for mobile data plans has dropped at a similar pace. Fixed-line broadband service prices are also shrinking, but the drop is slower and they

Figure 2: The widening digital gap: Mobile broadband penetration



Source: ITU, 2014.

remain higher than mobile data plan prices in most countries.

3. **Urbanization.** From 1950 to 2011 the world's urban population increased fivefold, from approximately 750 million to 3.6 billion. More than half of the total population worldwide now lives in urban areas. Proportions vary between regions: Africa and Asia are on the lower end of the spectrum, with urban dwellers representing, respectively, 40 percent and 45 percent of their total populations.[11] Not surprisingly, there is a high correlation between urbanization and Internet penetration, since both basic infrastructure (electricity, water, transportation) and Internet network coverage are often better in urban areas. Disposable incomes and education levels also tend to be higher in cities, factors that correlate with higher Internet penetration.

4. **Growing middle class.** The middle class, with its rising disposable income, has grown globally—but especially in developing markets, where it expanded to encompass 25 percent of the total population in 2009 from 5 percent in 2005. Spending by the middle class worldwide reached more than US$21 trillion in 2009. As affordability of the Internet has increased, it has promoted further Internet uptake.[12]

5. **Increasing utility of the Internet.** Although Internet uptake is slower in developing markets than in developed ones, it is nonetheless beginning to transform society there. An increasing number of services with content specific to local circumstances are emerging, and in some respects these markets are ahead of their developed counterparts, particularly when the Internet is accessed through mobile devices. In financial services, for example, Internet remittances were pioneered in Africa. Some green technologies, m-learning, and m-health services have also been tried for the first time in developing markets. The more affordable Internet access becomes and the more ICT-literate the population is, the greater the incentive for companies to offer services to these new target groups.

All five of these trends are expected—in themselves, and in correlation with one another—to continue to expand the reach and uptake of the Internet. But there is reason to believe they will not extend it far enough.

THE BARRIERS TO WIDER ADOPTION

The worldwide rate of growth in the number of Internet users is already slowing. Between 2005 and 2008, the three-year compound annual growth rate was 15.1 percent. Between 2010 and 2013 it fell to 10.4 percent. The fear is that, without corrective action, significant numbers of people—often the world's poorest—will remain unconnected, falling yet further behind the rest of the world as it moves ahead in the digital age.[13] Figures 1 and 2 show that the digital gap is already widening between those living in the world's least-developed countries and citizens elsewhere.

McKinsey studied the offline population in 20 countries (selected for the size of their offline population) that together account for approximately 74 percent of the worldwide offline population.[14] Four categories of barriers to Internet adoption emerged:

- **Infrastructure coverage.** Research shows that 64 percent of the offline population lives in rural areas. The business case for building networks in remote areas is a challenging one for telecommunications operators, because the cost of infrastructure is significantly higher where population density is low. Long distances, difficult terrain, and a lack of adjacent infrastructure such as electricity grids and roads are further considerations.[15]

  The high cost of building the network means that Internet coverage in such areas is more likely to be achieved through mobile and satellite technologies than through fixed-line networks.

- **Low incomes and affordability.** Although globally incomes are rising and Internet access prices are falling, the costs of services remain insurmountable for individuals with very low incomes. McKinsey estimates that, in the 20 countries with the greatest number of offline people, low-income individuals account for 50 percent of the offline population—a total of approximately 1.6 billion people.[16] Spending on Internet access, where it is available, takes second place to food, shelter, clean water, and energy. According to the International Telecommunication Union (ITU), broadband penetration grows rapidly only when the retail price falls below 3 to 5 percent of the average monthly income. For example, in the poorest countries of the Middle East and North Africa, the current price of mobile broadband is around 9 percent of the average monthly income. In several of these countries, for the poorest segments of the population, mobile broadband costs more than 40 percent of disposable income.[17]

- **User capability.** Another difficulty in connecting the unconnected is that language and digital literacy levels in many developing markets remain very low, despite gains made over recent decades. Indeed, based on an analysis of 2013 World Bank data, nearly 30 percent of offline individuals in the countries examined are illiterate.[18] Although over 90 percent of the offline populations in China and Mexico are literate, in Ethiopia, Bangladesh, and Pakistan that figure is less than 50 percent. And even if people *are* literate in the conventional sense, poor ICT literacy prevents more of them going online. Today's devices may be much easier to operate than early personal computers, but research shows that non-Internet users in Africa,[19] India,[20] and China,[21] for example, cite their lack of skills as a major reason for not using the Internet.

- **Incentives.** The situation is not improved by the fact that developing nations often lack digital content—news stories, entertainment, e-commerce sites—that reflects local information and is available in local languages. One reason for this shortage of relevant content is the lack of local digital content developers. In addition, search, social media, and content sites often depend on advertising-funded business models, and these work less well if those using the services have little disposable income or if there are not enough subscribers to make a business case for the developers. Companies therefore have little immediate incentive to engage with these populations.

  As a result, available content is inaccessible or can seem irrelevant or culturally inadequate to certain users, discouraging them from using the Internet. A recent survey shows that although respondents believed global providers offer the highest-quality content, they still favored local providers because the information was in their local language and they could understand it better.[22]

Overcoming such barriers requires specific targeted efforts.

INITIATIVES TO CREATE AN INCLUSIVE DIGITAL SOCIETY

Countries have considered a range of initiatives to address the digital divide and bring the Internet to a broader population. These fall into two distinct categories. The first group comprises initiatives that facilitate investment and the deployment of networks in existing and new areas. The second group is aimed at increasing the unconnected population's demand for Internet services. A number of countries have launched initiatives from one or both categories, some of which we describe below. There is no single "best set" of initiatives, as market conditions vary across countries, but considering an integrated perspective across all categories could help bring about an inclusive Internet.

Initiatives that foster investment and the build-out of networks

Initiatives that facilitate investment and networks fall into three types, depending on their goal. They can aim to provide a stable regulatory environment, to lower the cost of inputs, or to leverage universal service funds. Each of these types is described below.

Providing a stable regulatory environment

Attracting private investors to build Internet infrastructure in remote places where the business case is challenging requires the presence of favorable conditions. According to the ITU, a stable, predictable regulatory environment that protects existing investments while creating room for new ones is among the most important.[23]

Europe, for example, has fallen behind the leading countries in other regions of the world in terms of next-generation fixed and mobile infrastructure. The European Union has recognized that one of the reasons for this lag is a level of uncertainty around the regulatory framework that has limited the level of investment. Neelie Kroes, the former Vice-President of the European Commission responsible for the Digital Agenda for Europe, remarked that "Regulatory policy should clearly be an enabler, not an obstacle [for investments]. Regulation that is stable over time and consistent throughout Europe can underpin sustainable competition and efficient investment."[24]

Lowering the cost of inputs

Because the business case is harder to make in rural areas than it is in urban areas, initiatives that lower the cost of inputs and encourage operators are often needed. A few examples are outlined below:

- **Spectrum.** The way spectrum is assigned matters for network deployment costs. Both the selection of frequency bands and coverage obligations can affect telecommunications operators' costs and investments.

  Enabling the use of low-frequency bands is one way to lower the cost of a network. Lower-spectrum frequency bands have better propagation characteristics—that is, they enable better coverage—than higher-frequency bands. Operators thus need fewer base stations to cover large rural areas. Spectrum in the 700 and 800 MHz band range meets these requirements and is identified by the ITU as suitable for mobile broadband. Ongoing efforts to coordinate the allocation of this spectrum across the world will foster a larger market for equipment and devices, further lowering prices for operators and consumers. Emerging markets such as Brazil, Chile, Colombia, India, and Mexico have realized these benefits and have allocated, or plan to allocate, spectrum in these bands.[25]

  Another way to reduce costs through spectrum assignment is to include rural coverage requirements in new spectrum licenses, which might justify lower license fees. In Sweden, for example, one 800 MHz license required the connection of specific rural areas in return for a lower fee.

- **Rights of way.** One way to minimize the cost of network deployment is to give access to land and buildings in order to build fixed and mobile telecommunications networks in an expeditious, transparent, and coordinated manner. At the same time, operators should minimize the negative impact of the infrastructure on the environment and ownership rights. One option is to deploy telecommunications cables at the same time as building highways, railroads, and energy distribution grids. This splits the costs of deployment, which can be high: around 40 to 60 percent of the total cost of the network. This is the approach taken in Morocco, where one telecommunications operator and the national railway company are cooperating on fiber build-out,[26] and in Bahrain, where telecommunications operators and construction companies are required to cooperate by publishing information relating to new projects, space for telecommunications equipment, and technical requirements, and by coordinating deployment activities and network sharing.[27]

  Coordinating the necessary approval processes and costs to municipalities is also important to avoid delays to network build-out and to keep costs down. For one recent project, acquiring the necessary permissions to lay a fiber cable from South Africa to Zimbabwe took more than two years.[28] To prevent such delays, telecommunications operators in Lagos State in Nigeria have signed a memorandum of understanding with the Ministry of Communication Technology promising to cooperate on network build-out and to address, among other matters, right-of-way issues.[29]

- **Network sharing.** Enabling the sharing of active and passive networks between operators can help to lower capital expenditure. Tower construction, for example, can account for as much as half of a network operator's capital expenses, while network maintenance represents up to 60 percent of operating expenses.[30] The sharing of masts and sites (passive network elements) is common in both developed and developing markets. More far-reaching, active network-sharing agreements, including sharing radio elements, are found largely in developed markets such as the United Kingdom and Spain, although a few examples have been seen recently in emerging markets such as Kenya and Malaysia.

Leveraging universal service funds

In some countries, universal service funds are being used to help pay for the build-out of rural networks. For example, in 2010, Saudi Arabia launched a Universal Service Fund Program with the aim of offering universal service access to all inhabitants. *Universal service* is defined as voice and Internet access, based on specified quality measures. The estimated cost of the program is US$1.3 billion over seven years. Two districts are licensed at a time through competitive bidding. In the first two years the projects covered close to 230,000 inhabitants in nine districts.[31]

In Chile, the government provided public funding for a mobile broadband network through its Fondo de Desarrollo de las Telecomunicaciones (Telecommunications Development Fund), by means of a reverse or minimum subsidy auction. The government

identified 1,500 municipalities in rural areas and a maximum subsidy per area as the basis for bids. The operator with the lowest subsidy requirement won. Broadband penetration in Chile has subsequently increased from 10 to 47 percent of households.[32]

Initiatives that foster demand for Internet services

Initiatives that foster demand for Internet services also fall into three types: those that reduce ownership costs, those that improve user capabilities, and those that generate incentives to go online. Each of these types is described below.

Reducing the cost of ownership

Even in areas where Internet infrastructure already exists, the cost of accessing it can be a barrier for those with low incomes. Initiatives adopted around the world to overcome this problem include enabling shared access, targeting efforts at specific segments, and providing favorable financing options. These initiatives can be managed by governments or private-sector players, or through public-private partnerships. Some examples are outlined below.

- **Shared access.** In Bangladesh and Ghana, Internet access has been established at community centers and libraries so that citizens do not have to pay for individual subscriptions.[33]
- **Support for targeted segments of the population.** In Colombia, government institutions as well as municipalities and schools are brought online through the Vive-Digital program launched in 2010. Its aim is to establish a basic Internet infrastructure across the country. The program also includes targeted efforts to get small and medium-sized companies connected online. As a result, broadband connections grew by 180 percent two and a half years after the program was launched.[34] Argentina ran a similar project, Argentina Connected, whereby 1.9 million students were provided with Netbooks, enabling them to improve their ICT skills and get Internet access.[35]
- **Financing options.** In Egypt, the Egypt PC 2010 Nation Online program, a public-private partnership between the government and telecommunications operators, was aimed at increasing the number of online individuals in the poorest population segments. It did so partly by offering favorable loans for end-user equipment.[36] Since its launch, the penetration of household fixed broadband has more than doubled, to 16 percent, and mobile penetration has risen fivefold, to 118 percent.[37]

The key challenge of these initiatives is to ensure long-term viability. This can be done by thoroughly assessing the potential for Internet use and ensuring that the local population both have the financial means and the physical access for continued Internet usage, and that they have gained the necessary knowledge and skills to participate online and use the Internet for their own benefit and the benefit of their country.

Improving user capabilities

A lack of ICT skills, in varying degrees and forms, is a challenge for developed and developing countries alike. In some markets, traditional illiteracy is the key barrier, whereas in others ICT illiteracy is a larger problem.

Traditional illiteracy is often the result of underdeveloped education systems, but where schools exist, they can also help build ICT literacy. Internet access can in turn be used to accelerate the development and reach of the traditional education network and improve literacy (although this of course requires ICT skills).

In many countries telecommunications operators and governments have the scope to contribute more to enhance ICT literacy. In India, for example, a program was launched in rural areas by a telecommunications operator using interactive voice response (IVR) after realizing that the reason the use of data services was low was that people did not know how to use them.[38] In Qatar, the government has ICT programs for different population segments (women, young people, those with special needs, small communities, low-skilled migrant workers, and the elderly) to ensure digital inclusion.[39]

For digital inclusion to be sustained, however, it is essential to advance from basic connectivity to the establishment of local knowledge hubs or clusters formed around universities and companies. Silicon Valley in the United States, Bangalore in India, Zhongguancun in China, and the more recently established Konza Techno City in Kenya are examples of knowledge clusters.

Creating incentives to use the Internet

Even where literacy is high and networks exist, many people do not use the Internet because services are not in their local language, the content is not relevant to them, or they are not aware of the services' existence (although the fact that 57 percent of the urban African population accesses social networking sites proves that the demand does exist). To foster uptake in countries where large parts of the population remain unconnected, it is vital to develop new local services and increase awareness of existing ones. A few examples of relevant content that might help drive adoption are listed below.

- **Local entertainment.** The Internet content most used worldwide is social networking and entertainment.[40] To attract new users, this material should be easily accessible, based on local conditions, provided in local languages, and developed in formats consistent with the types of devices and applications being used—whether these take the form of radio, TV, IVR, local written

language, or intuitive applications. Prices for access need to be adapted to local circumstances.

- **E-financial services.** In rural areas, Internet access is often essential for access to financial services, and mobile banking is one of the most used mobile Internet services in the world, giving craftsmen, fishermen, and farmers new business opportunities. M-PESA in Kenya and EcoCash in Zimbabwe are examples of successful m-banking services.[41] Several challenges remain to be addressed, however, before the international, large-scale adoption of such services can become a reality. Among these challenges are security, regulation, and interoperability.[42]
- **E-government services.** Governments can help develop services that will enable citizens and businesses to interact with them in easier and more efficient ways. Examples are information portals, contact forms, tax filing, and social security services, as well as chats, tweets, and newsletters. Many governments in the Middle East, South America, and Africa—including Bahrain, Colombia, Côte d'Ivoire, Nigeria, Qatar, and Uruguay—have launched e-government services. In Colombia in 2012, 50 percent of residents and 78 percent of businesses engaged with the government through online channels.[43]
- **E-health services.** The reach of medical services can be extended via the Internet. In Bangladesh, a private-public partnership program called Aponjon was launched in December 2012 to advise pregnant women in poor rural areas, with the aim of lowering maternal death. Following the success of the program, it has been extended to India. On Mfangano Island in Kenya, a nongovernmental organization called Organic Health Response, which is focused on the prevention of HIV and AIDS, gives citizens access to the Internet in exchange for enrolling in an HIV/AIDS testing program. As a result, 10 percent of the community has signed up for the program, and local HIV diagnostics has improved.[44]
- **Cyber security.** As part of all of the above, it is vital to continue to work on improving the security of the Internet, not only to enable trust for both new and existing user segments, but also to enable the continued future growth of the Internet society.

A number of options are available for countries wishing to overcome the barriers to Internet inclusiveness. Taking advantage of those options will enable populations that have so far not been connected to get online so that they can benefit from the advantages the Internet can bring.

CONCLUSION

Despite great progress in Internet uptake and the enormous growth potential of Internet services, especially in developing markets, a large portion of the world's population still have no access to the Internet and their ICT skills are insufficient for them to take full advantage of the opportunities the Internet can provide. Governments may consider how to support this group so that they become part of the Internet society and benefit from projected growth. A number of possibilities for such support are outlined here. We believe coordinated actions based on these options and adapted to specific country circumstances can help to include the still unconnected among the beneficiaries of future ICT growth and bridge the digital divide.

NOTES

1 For the purposes of this article, we use the term *Internet* to describe Internet access and services enabled through this access such as email, VoIP, cloud, big data, and so on. The notion of *ICTs* is used to describe the Internet and the information and communication technologies industry as a whole.

2 McKinsey & Company 2014.

3 These countries included Algeria, Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Egypt, Hungary, India, Indonesia, the Islamic Republic of Iran, Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, Pakistan, the Philippines, Poland, Romania, the Russian Federation, Saudi Arabia, South Africa, Taiwan (China), Thailand, Turkey, Ukraine, Venezuela, and Vietnam.

4 Nottebohm et al. 2012.

5 World Bank 2009.

6 McKinsey Global Institute 2011.

7 McKinsey Global Institute, McKinsey & Company in Africa, and the McKinsey TMT Practice 2013.

8 McKinsey & Company 2014.

9 ITU 2013.

10 Manyika et al. 2013.

11 UNDESA 2012.

12 Kharas 2010.

13 McKinsey analysis based on World Bank longitudinal data, available at http://data.worldbank.org/.

14 McKinsey & Company 2014; the 20 countries in the study are Bangladesh, Brazil, China, the Democratic Republic of Congo, Egypt, Ethiopia, India, Indonesia, the Islamic Republic of Iran, Mexico, Myanmar, Nigeria, Pakistan, the Philippines, the Russian Federation, Tanzania, Thailand, Turkey, the United States, and Vietnam.

15 GSMA (GSM Association) Intelligence, 2012 estimates.

16 *Low income* is defined here as incomes below the average of the national median and national poverty line.

17 Gelvanovska et al. 2014.

18 Calculations for this figure are based on McKinsey's analysis that characterizes the demographic profile and context of the offline population and 2013 data from World Bank (available at http://data.worldbank.org/).

19 McKinsey & Company 2013.

20 IAMAI and IMRB International 2013.

21 CNNIC 2014.

22 Upstream 2014.

23 ITU 2009.

24 Kroes 2012.

25 Guisti 2014.

26 Gelvanovska et al. 2014.

27 TRA, no date.

28 The Economist 2014.

29 Opara 2014.

30 Capgemini 2009.

31 Intelecon Research and Consultancy Ltd. 2012.

32 Telegeography 2014a.

33 PIWA and UNDP, no date.

34 Vega 2013.

35 ITU 2012.

36 Arab Republic of Egypt, Ministry of Communications and Information Technology. 2007.

37 Telegeography 2014b.

38 GSMA 2014.

39 ictQatar, no date.

40 Cisco 2014.

41 Cisco 2014.

42 Bate 2014.

43 World Economic Forum 2013.

44 OHR, accessed 2015.

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CHAPTER 1.6

Developing the Network for Growth and Equality of Opportunity

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Billions of the world's citizens, their governments, and the organizations that employ them would not be able to work without networks. The half-imaginary "information superhighway" of the 1980s has actually become a critical element of national and global infrastructure.[1] As noted by the US Department of Homeland Security in its Communications Sector overview, "Over the last 25 years, the sector has evolved from predominantly a provider of voice services into a diverse, competitive, and interconnected industry using terrestrial, satellite, and wireless transmission systems."[2]

The importance of this infrastructure is widely acknowledged.[3] There is a correlation between network uptake and national economic performance, measured by annual GDP. The World Economic Forum has developed the highly respected Networked Readiness Index (NRI)[4]—and it is no coincidence that economies that score high in the NRI regularly achieve excellent results in terms of GDP.[5]

BRINGING THE EXTRAORDINARY TO EVERYONE, EVERYWHERE

Access to global networks is undoubtedly a catalyst for growth and opportunity.[6] One of the great challenges we now face is how to make sure growth is fair, even, and inclusive. It should not favor any single economic block, social group, or profile of enterprise. The World Summit on the Information Society's Declaration of Principles put it this way:

> A well-developed information and communication network infrastructure and applications, adapted to regional, national and local conditions, easily-accessible and affordable, and making greater use of broadband and other innovative technologies where possible, can accelerate the social and economic progress of countries, and the well-being of all individuals, communities and peoples.[7]

The information superhighway vision was egalitarian—a two-way street where everybody could access opportunity.[8] Can that vision of inclusiveness survive? We believe it can.

This chapter looks at some specific examples of ways network infrastructure and information technology (IT) services stimulate inclusive economic activity. It presents a case for selective investment in information and communication technologies (ICTs) to produce inclusive growth, pointing to numerous examples of ways in which network access can be selectively applied to provide economic, social, and humanitarian benefit where it is most needed.

The target for this selective investment varies. It may be a town lagging behind in economic development,

a small local community where a surgical injection of support can help social leveling, an ethnic minority wanting its fair share of a prosperous nation's wealth, an impoverished slum, the aged, the orphaned. The list includes all communities and stakeholders who are in a situation of inequity and who would benefit from a level playing field. Selective, targeted distribution of digital access can help promote economic and social inclusion precisely where it is needed most.

This chapter considers some of the regulatory issues involved in developing an effective market for network infrastructure and concludes by describing a vision for leveraging networks to boost economic activity and social benefit selectively throughout the world.

STIMULATING SELECTIVE ECONOMIC ACTIVITY IN THE DEVELOPING WORLD

In India, people who know their way around a computer and the Internet might have a bright future. But for those living in a Delhi slum, even school looks out of reach and IT skills must seem like mission impossible. The Katha Information Technology and E-Commerce School (KITES) in the heart of the capital has set out to change that.

India has a thriving software and services industry. But, with a third of the population below the poverty line, computer literacy and a career in IT are beyond the reach of many. Of Delhi's 5 million school-aged children, 40 percent never complete their education. Others drop out to work in low-income jobs with no hope of a better future.

But Katha, a not-for-profit publishing and teaching organization based in Delhi, is out to break down those barriers through a three-pronged approach. It wants to empower people through education in interactive, technology-based classrooms. It wants to open up the world to individuals via the internet. And it wants IT to be an essential part of everyday life for everyone through online chats, email exchanges, blogs, and online stories and essays.

Schools are at the heart of the Katha transformation program. It launched its first in 1990 with just five pupils. Today, it provides education in 39 schools and 41 reading programs across 72 slums and in 50 government-run schools. In 2001, it opened the Katha Information Technology and E-Commerce School (KITES) in Govindpuri, the most deprived area of Delhi.

KITES has already transformed the lives of thousands.[9] Children as young as three years old can try out the computer, mouse, and keyboard. Once they are 14 or older, they can study for an IT certificate; KITES has already awarded more than 19,000 of these certificates. In 2012–13, 1,350 students attended KITES courses. More than half were girls and women. There were also people from non-literate families, shopkeepers, and community teachers. There is solid proof that those classroom studies translate well into the world of work: an astonishing 80 percent of certificate holders find jobs.[10]

It can be easy to say "we must give poor people in the developing world Internet access." But when most of the population does not have a landline in their home, how can you actually reach them?

One creative answer is to make the drinks dispenser in their community an Internet access point. Modern vending machines are Internet-connected so they can report on stock levels and automatically send replenishment orders. They can therefore easily be adapted as Wi-Fi hotspots. A pilot partnership between a soft drinks manufacturer and a telecommunications company is doing this in Umtata and Nelspruit in South Africa.[11] At present it is only a small-scale pilot in its early stages, but the organizations involved expect there to be a commercial return from hotspot users buying soft drinks.

Commercial organizations have a vital role to play, but they are not charities. There usually *is* a payback of some sort, though it might come from an unexpected direction.

A second possibility for commercial benefit (and thus providing incentive to private enterprise) is that providing Internet access may come as a by-product of achieving greater operational efficiency for the organization. In Africa, for example, a global telecommunications company has partnered with the aid group SOS Children's Villages to install broadband satellite connectivity in 20 villages across 12 countries.[12] This has helped the vulnerable children and families living in these villages to access online services, including the group's own e-learning and online mentoring service. Broadband connectivity helps it maintain better operational communications into the villages, allowing video conferences and web-training sessions, as well as providing a lifeline in emergencies. Donors can also see online photos and videos uploaded by the families they sponsor.

GLOBAL BUSINESSES CAN MAKE A DIFFERENCE AT THE MICRO LEVEL

Global businesses use networked IT services to create new wealth. Of course, they do this as part of their commercial agenda. But they also engage and energize at the local, micro level. Local businesses, their customers, their partners, and their communities all benefit. Providing this benefit is often central to the corporate mission.

For the benefits of global growth to be transformed into equitable outcomes for the most-needy sectors of society, barriers to entering spheres of business influence have to be removed. For many physically remote businesses, "building networks" has a double meaning. It is both informational *and* social. Through the Internet, they can access information and socialize

virtually as global business networkers, even from the most isolated locations.

Message Stick is an Australian initiative that enables indigenous peoples—some of their prosperous country's most marginalized citizens—to access economic success through entrepreneurship and business community networking.[13] It is still highly unusual for indigenous Australian suppliers to compete for corporate business. Niche technology service provider Message Stick has broken this mold, building a customer base that includes some of the country's top organizations. Message Stick now sells audio conferencing and web services to leading corporations and government agencies, and has rapidly become a multimillion dollar business.[14]

Instant and secure exchange of financial information enables even the most remote communities to take part in 21st-century economic models, contributing to the progressive fall in the numbers of the unbanked and the unwaged.[15] Access to financial infrastructure is becoming secure, easy, prolific, and culturally accepted. In any rapidly developing economy, however, some delay exists between macroeconomic progress and individual involvement with the financial infrastructure. This involvement can be stimulated by network-based services in situations where conventional branch banking access is physically difficult.

In Brazil, for example, the famous CAIXA lottery is more than a game—it is a national financial institution. Lottery outlets also provide banking in remote locations. The role of network technology is key to its smooth operation. A combination of satellite, broadband, and radio unites the country in a network that, in one year, securely and swiftly processed around 3.8 billion transactions. One-third of these transactions are pure financial services rather than lottery wagers. The network provides the physical means for millions of rural Brazilians to plug in to their country's progress toward financial inclusion.

Network access quickly becomes central to business innovation and ambitious growth. A South American meat producer and distributor, with processing plants spread across five remote rural areas, is gaining new access to global markets. Using a cloud solution, the company can securely store and distribute data and match stringent compliance requirements. From Colombia it now exports to Bolivia, Chile, Ecuador, Peru, Russia, and Venezuela, among others.[16] It may be a global business, but its use of IT is delivering selective inclusive benefit to its employees in the poor rural communities where they live.

SELECTIVE DIGITAL ACCESS HELPS SMALL, LOCAL, COMMUNITY-BASED PROJECTS IN DEVELOPED NATIONS TOO

In an economically depressed region of South Wales in the United Kingdom, Citizens Online is orchestrating a community development approach to digital inclusion called Get IT Together.[17] Unemployed people volunteer to give basic IT classes to others who lack the skills to benefit from online curriculum vitae (CV) or resume-writing and job-hunting services. The volunteers get work experience that can add to their CVs and the trainees learn skills that can help them advance.

Another small community of just 138 residents in a deprived Glasgow housing association block is benefitting in the form of affordable Wi-Fi.[18] Their previous lack of Internet access cut them off from many services that could help them improve the quality of their lives. Telehealth services, welfare services, education, training, and job-seeking services are all now as accessible to these disenfranchised people as to their more affluent neighbors down the road.

The rollout of modern Internet access has the potential to erode the margin between wealth and poverty where they exist side by side. In the holiday region of southwest England there is a sharp economic divide between the coastal and inland areas. The coast has more employment, much of it related to the leisure and tourism industry, and includes many second homes and holiday cottages. By contrast, the inland regions have fallen into decline since the demise of traditional industries such as mining for copper, tin, granite, and slate. So imagine what fast Internet access is doing for a small, family-run toy shop in Bodmin, whose main competition is the global online giants.[19] They can upgrade their e-commerce site with pictures, videos, and faster response times to help bring a little more prosperity to their struggling inland community.

Age can be another barrier to the economic and social benefits of digital inclusion—and one that disregards all geographical boundaries. Some 60 percent of people in developed nations over the age of 65 have never been online, compared with 18 percent of all adults. The Age UK Digital Inclusion Network has 178 member organizations throughout the United Kingdom delivering computer skills training to older people.[20] The program has repeatedly shown that imaginative partnerships between government, industry, and the voluntary sector are key to bringing about digital equality. That equality allows the older generation to be included in the economic and social benefits of the online world.

Even apparently lucrative sectors in developed economies need selective help from IT. Financial services providers are not all multinational—many are small and local. Independent financial advisors (IFAs) are an important part of a diverse financial services ecosystem. They are the preferred contact point for many consumers who want a human face to help them make key financial decisions. Yet the increasing regulatory and cost burdens confronted by IFAs mean that many have been unable to continue trading, or are struggling. Networked IT services provide secure, accredited access to the portals of the larger financial

services providers they represent. [21] For many IFAs, this has proven vital to survival.

IMAGINATIVE USE OF NETWORKING CAN HELP GOVERNMENTS TRANSFORM CITIZEN SERVICES

Governments need to drive scarce resources into frontline service delivery and avoid having those resources consumed by back office processes. They need to deliver better public-sector value through more, and more selective, use of digital channels to deliver more effective and efficient services. They need to be digital by default.

Pressure on public funds creates corresponding pressures to reduce the scale of the public sector. But there are many regions where the public sector accounts for a substantial proportion of the total economy. Here, the ideal is to continue to deliver as much—or preferably more—with less.

In one post-industrial area of the United Kingdom, networked IT services in the public sector are enabling process efficiencies and delivering cost reductions.[22] This is happening even though *more people* are being employed: the public sector is measurably stimulating the local economy. And in a heavily public sector–dependent environment, a regional administration has shown that the machinery of government can continue to function while associated costs are reduced through process transparency and efficiency.[23]

Government is also able to leverage networked IT to promote selective growth on a town-by-town basis. In one UK economic development area, government is actively contributing to the knowledge and planning required to create sustainable economic growth.[24] This growth is in the context of improved quality of life for residents and workers in a particular town.

The heart of the project is a data hub. The hub, using cloud and big data technology, will collate a variety of information from a range of sources. This will include energy, transport, and water usage data; satellite-based weather and pollution data; societal and economic datasets; and data crowd-sourced from social media. The hub will make it possible to design and implement radical new solutions that provide for projected 64 percent economic growth in the region by 2026. The project will help the planning of a sustainable way forward that includes improved built environment management, 50 percent reduction in traffic congestion, and major savings in water and other key resources consumption.

A REGULATORY LEVEL PLAYING FIELD IS NECESSARY FOR HIGH-QUALITY, LOW-COST GLOBAL NETWORK ACCESS

Equitable growth through equality of opportunity is one of the many positive outputs of global network access.[25] For such equal opportunity to be delivered consistently, the right input—equality of access to highest possible quality, lowest possible cost network services—is essential. This is not just a question of overcoming technical issues and physical environments. It also requires a regulatory environment that encourages constructive competition, one that is consistent in its rules across geographies and technologies (e.g., that applies equally to both fixed and mobile technologies).

The ideal situation is one with no marked regulatory differences between fixed line and mobile communications networks. Customer expectations for best-quality service would be met at the lowest price through the most cost-effective route to the user's device. In an age of ever-increasing network convergence (between fixed and mobile), neither mode should be at a regulatory disadvantage. And customer expectations of convenient, consistent service provision would be met. These are the preconditions for healthy network expansion, technology innovation, and continuing spread of digital access to those who need it most.

Achieving this ideal does not involve removing regulation and encouraging a market free-for-all. Instead, it requires *alignment* of regulatory strategies across the world. Regulation also needs to focus on the bottlenecks at points of access and across all networks. These bottlenecks typically occur at the final connection point of the customer to the network. Ideally, this should be a single, simple point. Under a positive regulatory regime, access to that point should be possible for many competing suppliers, thus driving healthy market competition.

Emphatically, the following two scenarios must both be avoided. We must prevent fragmenting competition that leads to the creation of multiple "last mile" access points—this is hugely inefficient and leads inevitably to rising service costs. We must also prevent a scenario of lack of competition, where just one service provider or a limited number of providers establish a monopoly of access. As far as network access points are concerned, "built by one, shared by many" needs to be the approach fostered by consistent and constructive regulation.

The most beneficial outcome will be providing equivalent access for all customers to the full range of networks and service options in the market. This will create a consistent environment—the necessary foundation of an effective market. It will encourage a stronger pan-European (and global) communications sector, yielding greater benefits for consumers, industry, and the economy.

This is not an inward-looking, industry-specific wish list. Its beneficial impacts can result in selective, targeted advantages for individuals, business, and economies. A regulatory level playing field is a necessary prerequisite for low cost—and therefore low price—network access. This benefits everyone, including the target groups, communities, and regions that need differential benefit to lift their economic and social engagement. Without

equality of network access, equality of digital opportunity will remain limited.

BRINGING IT ALL TOGETHER: SUSTAINING DIGITAL, ECONOMIC, AND SOCIAL INCLUSION

Global network access has been shown to be able to deliver significant increases in productivity, growth, revenue, and profit. The resulting economic stimulus is being shared among a growing network of employees, suppliers, distributors, and consumers. This economic benefit translates into a greater ability among communities and societies to plan and develop. Dependencies are reduced. Independence and self-reliance increase.

Through network access, in key aspects of individual and national life, positive transformation is occurring. Distance and time zones are overcome. Social inclusion is growing as the instant exchange of information enables even very remote communities to take part in 21st-century economic models. Financial inclusion is growing as a range of services—including the ability to transfer funds remotely—becomes available reliably and securely. In every case, without network access, the transformation would be impossible.

The networked economy can shape a desirable, equitable future. How can we help ensure this future? BT Global Services' "art of connecting" describes how the imaginative use of global networks and network-enabled technology can deliver stunning business outcomes—and equitable personal outcomes—for all global citizens.

Of course, network availability and network technology will have a fundamental role to play. But progress will not be about technology alone. Technology needs to be developed and applied in the context of government policy (including regulation that stimulates high-quality, low-cost network access) and, of course, a sustainable approach to wealth creation.

CORPORATIONS MUST COMMIT TO SELECTIVE DIGITAL INCLUSION

What is the way forward? How can we target the social and economic benefit of digital inclusion where it is most needed?

A pattern is evolving. Many of the successful projects noted above have an impact at the local, grassroots level. But they are supported by governments, international nongovernmental organizations, and multinational corporations. Planned globally but delivered locally, these projects are all highly focused on delivering a particular benefit to a specific group. They provide selective benefit by including groups that were previously excluded from the digital world.

These targeted digital inclusion projects all feature a synergy between the desired outcomes of their stakeholders. Communities get online, governments and nongovernmental organizations receive operational benefits, and corporations achieve more sales. For anyone to win, everyone has to win.

Models are changing. E-commerce, entertainment, mobile micro payments, telehealth—everywhere you look, in all sectors, in developed as well as developing geographies, the ways we create and distribute economic wealth and social well-being are changing. But one thing is consistent: in every one of these models there is a digital delivery channel.

Corporations, the public sector, and third-sector organizations all have to take a long view, to work together, and to experiment. There will be short-term benefits for the target communities themselves and the charities. For corporations, the short-term benefits may be educational and reputational rather than purely commercial. But the longer-term benefit for us all will be greater inclusion in greater economic and social wealth.

NOTES

1 The Centre for the Protection of National Infrastructure in the United Kingdom categorizes national infrastructure into nine sectors: communications, emergency services, energy, financial services, food, government, health, transport, water. See www.cpni.gov.uk/about/cni/.

2 DHS 2014.

3 The US Department of Homeland Security views networks as part of their critical national infrastructure: "The Nation's critical infrastructure provides the essential services that underpin American society. Proactive and coordinated efforts are necessary to strengthen and maintain secure, functioning, and resilient critical infrastructure—including assets, networks, and systems—that are vital to public confidence and the Nation's safety, prosperity, and well-being" (White House 2013).

4 See Chapter 1.1 for details.

5 The NRI 2015 measures how successful 143 economies are at applying ICTs to boost competitiveness and well-being. In 2015, the top 10 most successful economies in the NRI were, in ranking order, Singapore, Finland, Sweden, the Netherlands, Norway, Switzerland, the United States, the United Kingdom, Luxembourg, and Japan.

6 The Boston Consulting Group estimates that by 2016 the Internet economy will reach $4.2 trillion in the G-20 economies alone (Dean et al. 2012).

7 WSIS 2003.

8 For example, the Clinton-Gore administration in the United States stressed the importance of "access for all" to emerging electronic communication networks.

9 Through its Connected Society program, BT runs a number of projects around the world to help people get online and develop the skills and confidence needed to use the Internet. BT supports KITES with funding, fundraising, and volunteering activities.

10 BT 2007.

11 BT is working in partnership with Coca-Cola South Africa and bottling partner Coca-Cola Fortune to bring Wi-Fi–connected Coca-Cola dispensing machines to two impoverished areas of South Africa (BT 2014a).

12 BT's Connecting Africa project is bringing broadband satellite technology to help young people fulfill their potential in 20 SOS Children's Villages across Africa by bringing the Internet to their fingertips (BT 2014b).

13 In one of the highest-value agreements BT has made in the Asia Pacific region, Message Stick signed a three-year contract to re-sell BT One Collaborate services in Australia (BT 2014c).

14 BT 2014c.

15 Center for Financial Inclusion 2013.

16 BT Cloud Compute helps Columbian meat processor and distributor Friogan—which has five processing plants located in rural areas across Colombia—minimize costs and adapt its IT infrastructure quickly and easily to rapidly changing operational needs (BT 2013a).

17 Get IT Together is a consortium of Rhondda Cynon Taf (RCT), BT, Nominet Trust, Communities 2.0, RCT Council, and Citizens Online working together to deliver a community development approach to digital inclusion in South Wales, United Kingdom (BT 2014d).

18 The Glasgow Housing Association Wi-Fi project is a collaboration between BT's Connected Society program and the Scottish government. See BT 2013b.

19 BT is working with Cornwall Council on a £132 million project to make superfast fiber optic broadband available to around 95 percent of homes and more than 10,000 businesses in Cornwall and the Isles of Scilly by the end of 2014 (See Superfast Cornwall at www.superfastcornwall.org/).

20 BT has been working with the Age UK charity (formerly Help the Aged and Age Concern) since 2005, supporting the Age UK Digital Inclusion Network, which trains older people in computer skills (see http://www.ageuk.org.uk/professional-resources-home/services-and-practice/computers-and-technology/).

21 Unipass, from the digital security services firm Origo, allows financial services providers to authenticate independent financial advisors (IFAs) who sell their products, and effectively acts as an IFA registration authority. During the development of Unipass, the company approached BT to provide a managed digital certification service. Rather than having to build and implement the platform, Origo simply plugged in to the existing shared BT Assure Public Key Infrastructure (BT 2013c).

22 BT's partnership with South Tyneside Metropolitan Council has helped to drive efficiencies in service provision, and has also safeguarded 400 existing jobs and created an additional 750 jobs (BT 2013d).

23 The Northern Ireland Civil Service Department of Finance and Personnel worked with BT to develop and implement a new financial processing center using a shared services model and ensuring the visibility of all purchasing and a transparent review of spending and improvements in procurement efficiency (BT 2010).

24 The Milton Keynes Smart City Programme, with BT as its major IT partner, collaborates with government agencies in order to use the latest technologies to resolve the constraints to growth for the city and improve quality of life for its citizens.

25 "Utilizing Information and Communications Technologies (ICT) as a catalyst for social and economic progress is an opportunity long held in high regard by the international development community. Impacting society at both the micro and macro levels, the tools of ICT equip us to help address our greatest social, economic and environmental challenges" (World Economic Forum 2010).

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CHAPTER 1.7

ICTs in Schools: Why Focusing Policy and Resources on Educators, Not Children, Will Improve Educational Outcomes

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Information and communication technologies (ICTs) have long been perceived as having the potential to transform education and student learning, especially in developing countries. The underlying belief of many initiatives has been that learning will happen if students and learners are provided direct access to ICTs. However, despite years of research, there is little evidence of the value of these approaches. Ideas such as the massive open online course (MOOC) and One Laptop Per Child (OLPC) project were initially hailed as the "next big thing" in education because they were seen as a way to offer access to education to all. But most studies show that these initiatives are failing to deliver: course completion rates on MOOCs are usually less than 7 percent, often because of a lack of personal contact.[1] A similar cycle of hype and then disappointment has been seen in the much-touted Hole-In-The-Wall project. Although a well-intentioned attempt to deal with the problems of access and other constraints in developing areas, it has not been successful in making any lasting or meaningful educational change.

The main reason for the lack of success of these highly promoted projects is that they have ignored the single most important person in the education and learning experience of the child: the teacher. Decades of research have shown us that the most important contributor to raising educational outcomes in schools is clear: we need better educators. The single most important determinant of the educational outcomes for a child within a school is the capacity of his or her teacher, so it is on the teacher that we need to focus our attention. Outside the school, other factors such as socioeconomic opportunities also have significant impact, but that is beyond the scope of this chapter.

TEACHER CAPACITY DEVELOPMENT

Teacher education and teacher professional development should be the overriding priority for education policymakers—rather than the current fashion of investing in technology that appears to offer a shortcut to higher school standards. This lack of emphasis on the teacher (sometimes to the point of ignoring the teacher's role altogether) is the main reason that the much-hyped investments in educational technology that seek to go directly to the learner have not paid off.

Given the scant empirical evidence supporting any improved educational outcomes based on technology alone (and the sound theoretical explanation for the lack of better outcomes), we argue that the most productive way to use ICTs to help deliver better and more equitable education at the primary and secondary levels is to concentrate resources on educating teachers. This should encompass both those who have yet to qualify and those already in service, helping to develop their capacities and knowledge base. In making this argument, the chapter will focus in particular on the example of India, looking at how investment and

policymaking attention could be redirected to deliver improved educational outcomes.

The idea that ICTs provide easy answers to the challenges of providing all children with better educational opportunities is an attractive one. ICT equipment is increasingly affordable and accessible to education systems, even in low-income countries. It is quicker and easier to deploy this equipment than to recruit high-quality people or develop such qualities across large numbers of people where they are needed. And it appears to solve the problem of how to provide education in remote areas spread across diverse geographies.

Unfortunately, there is little evidence to suggest that investment in classroom ICTs delivers substantive returns. The World Bank published the first definitive study of the efficacy of classroom ICTs in 2005, concluding that "the positive impact of ICT use in education has not been proven."[2] In the years since then, no major study has conclusively delivered that proof. For example, a comprehensive study published in 2013 by the Inter-American Development Bank (IADB) on the impact of laptop distribution programs in Peru found that, while children's competence in computer use had increased, there was no sign of better educational outcomes. "We found no evidence of effects on standardized tests in Math and Language or on enrolment," the IADB concluded.[3]

WHY ICTS HAVE NOT DELIVERED IN EDUCATION

So why has investment in ICTs failed to deliver? A wide range of reasons contribute to this failure.

The first is fundamental. The natural processes of child development and learning—especially for children at grade eight level or under (aged 14 or younger)—are such that ICTs have very limited use. Instead, effective education requires a sound anchoring in human relationships and engagement with the world of people, ideas, and things. This is most effectively achieved by a teacher, who both anchors the human relationship *and* mediates the learner's connection to the world of ideas and learning. It also demands that the child's social context, the nature of knowledge, and the aims of education are appropriately factored in. So, in the context of education—which by its very nature has specific curricular goals—greater use of ICTs may not in itself improve learning.

A second issue is that in most cases where ICTs have been put to work in schools, education policymakers and technology advocates have tended to focus on the technology itself to the exclusion of the educational reason for it. Their approach has been either to provide the technology and then to think about how it might be applied, or to assume that the natural curiosity of the child together with access to information would automatically lead to higher learning outcomes. However, this perspective unfortunately ignores years of educational research on teaching and learning that show different outcomes.

Although both these issues are present in classrooms and schools all around the world, their impact is greatest in developing economies. This is because these are the education systems where dependency on ICTs, to the exclusion of teaching capacity, is increasing most rapidly. There *are* ways for ICTs to help in education, but greater use of technology alone will not automatically deliver this result—and most evidence suggests it rarely does. Instead, what children urgently need are better teachers, not more gadgets in the classroom, particularly when funding and resources are limited. Giving every child a device or setting up open online classes makes for good headlines, but these interventions do little to deliver better educational outcomes. Moreover, de-emphasizing the role of the teacher further marginalizes the most important person in a learner's world.

Teacher quality and its effect on educational outcomes is difficult to evaluate or measure, mainly because most studies capture only a narrow slice of the richness of the education process, and thus underestimate the importance of the teacher. Despite this limitation, the evidence in favor of our argument is clear. Numerous studies have demonstrated the significant effect on educational outcomes of having high-quality teachers: for example, as one UK study highlights, during one year with a very effective math teacher, pupils gain 40 percent more in their learning than they would with a teacher who does not have the same capacity.[4]

MAXIMIZING THE POTENTIAL OF ICTS

It is not that ICTs do not have any role to play in the educational process: an emphasis on developing the capacity of the teacher, rather than the student, is what will yield the greatest dividends. This approach leverages another fundamental characteristic of human learning and development: adults learn differently from children, and adult learning is more suited to digital channels than children's learning is. Of course, even here, ICTs comprise one tool among many that can further the process of teacher education and capacity development, which has to be both broad and based on a sound vision of education and its processes.

Developing newly qualified teachers with an increased capacity, or improving the capacity of teachers already in service, will be no mean feat. Teaching is an extremely sophisticated and demanding activity that requires a complex, multi-modal approach to its development. Moreover, this is a problem of scale. In India, for example, 200,000 new teachers qualify each year, and 7.2 million existing teachers are in need of support and development. Of course, this is already an order of magnitude simpler than targeting the 210 million

children across 1.6 million schools currently within the Indian educational system.

To achieve this goal, though, educational policymakers must change course. This chapter considers three crucial challenges that must be addressed if we are to maximize the potential of ICTs in education:

- **Reforming telecommunications,** which must include a drive to ensure that teachers and student teachers accessing ICT support have stable and high-speed network connectivity, however remote their locations may be.
- **Delivering quality digital educational content,** which must provide in-depth focus on the quality and availability in multiple languages, especially targeted at educators.
- **Embracing collaboration,** which must take advantage of networked collaboration tools and social networking in order to develop mechanisms that bring educators of teachers together to pool expertise and share content.

Reforming telecommunications

Citizens in developed economies, including participants in the education system, take access to stable, high-speed communications networks for granted. In many of these countries today, broadband Internet connectivity is now seen as a basic utility on a par with energy or water. In developing countries, however, neither stability nor speed can be relied upon. If ICTs are to become a reliable support in the process of teacher education, this will need to change.

That said, the improvements required may be much more modest than might be assumed. In India and other developing economies, the mobile revolution—in which the rapid development of a mobile phone network did not wait for a landline rollout—is already having an impact on many social issues and endeavors. This development is providing access to communications technology for the great majority of Indians for the first time, with the networks now reaching even some of the most remote parts of the country. The impact of this should not be underestimated, despite the fact that in many areas networks support only voice calls. Without this connectivity, even some basic things used to be difficult to do. To take a very simple example, until teachers could be reached by phone, it was hard to simply call a meeting of all the teachers in a particular area.

The challenge now is to build on the mobile revolution with a network that is fast enough to cope with data and, just as importantly, to deliver reliable stability. Basic smartphones will be the devices through which teachers receive and access training and development material—rather than laptops or personal computers—but they will depend on networks that are sufficiently robust to cope.

It is possible to envisage an approach where individual teachers routinely and regularly receive material on their handheld devices. In addition, clusters of Indian schools might link up to operate a shared facility capable of hosting, say, basic video-conferencing, so that all the teachers in a given area could come together on occasion to participate in a training seminar delivered through such a channel. The network would need to be sufficiently robust for a group of teachers gathering in a single place to hear such a seminar to be confident that they will not be frustrated by an outage. But it needs to be only sophisticated enough to deliver basic audio or video connectivity.

This network would not require public-sector investment. The installation of mobile phone network infrastructure across India was completed without any government intervention because there was a compelling commercial case for private companies. The case for telecommunications companies to provide a network capable of supporting data is just as compelling, particularly as ICT costs continue to fall and large-scale rollout plans deliver economies of scale.

India is at an early stage in testing some initiatives that are enabled by ICTs in the teacher education sphere. Some small-scale projects provide some encouraging signals for what might be possible. In Uttarakhand state, for example, those District Institutes of Education and Training (DIETs) that have sufficient confidence in network connectivity have used web resources online for professional development efforts. The Government of the State of Bihar is investing in better connectivity for its DIETs and other teacher education institutions.

The experience of other countries testing similar initiatives is also encouraging. A project in Bangladesh, for example, saw the Asian Development Bank fund a project in which teachers in 10 schools in the Barisal region of the country were given smartphones and enrolled in a six-week distance learning program designed specifically for delivery via this technology. The phones utilized video, speakerphone, and conference call facilities rather than more sophisticated data services, but this was sufficient to deliver a wide range of material, as well as to facilitate both one-to-one and group learning. The trial, though limited, prompted positive feedback from trainers and teachers alike, with non-participating teachers and schools eager to take part in future initiatives.[5]

These are tiny examples of what might be possible if India's telecommunications networks can be upgraded to support delivery, but they are nonetheless important. They provide a glimpse of how better connectivity—even at a far more basic level than what is taken for granted

in wealthier countries—is the first step for ICT initiatives aimed at helping develop more and better teachers.

Delivering digital content

If the network connectivity is of sufficient speed and stability to be relied upon for the delivery of teacher education materials, of what might those materials consist? Herein lies the next major ICT challenge: for while there is now an opportunity to use digital channels to distribute content, the availability of content is patchy at best, even in physical form. In India in particular, better teacher education and professional development requires the development of a great deal of contemporary material. And given India's vast linguistic diversity, this material will need to be available in more than 20 different languages in order to reach all trainees and teachers.

Some content will be universal. Teachers learning about advances in neuroscience, for example, will receive the same material wherever they are in the world. In other cases, however, content will need to be contextual—education policies, for instance, vary from country to country, or even at the local level. But what is crucial is that these materials are developed in a digital format. There are many reasons for this.

First, and most obviously, the spread and development of telecommunications networks across the country provide a means to distribute this material for the first time, and one that is far less daunting or costly than the logistics of distributing physical books throughout the country. Second, there is greater scope to provide a richer learning experience using digital channels. As well as the basic texts required, there will be the option of providing more accessible and visual materials: more pictures, voiceovers covering the key points of a given topic, even video or animated content. Related to this, it is easier to convert digital materials into a range of formats (including print), depending on what might be most suitable in a local context. Finally, it is far easier to convert digital content into many languages once the core materials are in place.

For developing economies in general, however, the first step is to actually develop this content. This will require significant public investment, as well as a collaborative effort among schools of education, other academic institutions, and policymakers. However, the opportunity is enormous. Take the example of neuroscience, a field where there is little if any content for trainee teachers. This is not an isolated example: the same point applies in almost every area of the curriculum for teachers, where the material on offer today is often generalized and superficial. Furthermore, any content, if available, is often provided just in English rather than in the more accessible local languages.

A related part of the content challenge will be to develop better materials to help teachers make better use of the ICT equipment that is already in place. Although adding more new gadgets to the classroom is not the most productive route toward improved educational outcomes, the reality is that many schools in developing countries, including India, have implemented a lot of this equipment. However, teachers have rarely been given sufficient training on how to use it effectively.

This must now change. There is no point in teachers having access to ICT equipment unless they understand how to incorporate it in their pedagogy. Moreover, the focus needs to be on integration of ICTs as enablers across the curriculum, where relevant, rather than purely on technology as a standalone discipline. Of course, the ability of the teacher to integrate ICTs (or any other tools) is entirely dependent on his or her capacity as an educator.

There are various examples that highlight potential ways forward in this area, and a number of developing countries have recognized the need to train their teachers to make good use of the equipment with which they have been provided. In Africa, for example, the International Institute for Capacity Building in Africa has run a series of initiatives aimed at doing exactly that, with encouraging results so far.[6] Other initiatives have focused on teacher education. In Bhutan, for instance, the Singapore International Foundation has funded the development of a new ICT module in teacher training courses at the country's two teacher training facilities.[7] Importantly, this module covers both basic ICT use and the concept of computer technology as a medium for teaching and learning. Separately, Microsoft's Partners in Learning (PiL) program has run initiatives in five members of the Association of Southeast Asian Nations aimed at helping teachers better integrate ICTs into the wider curriculum. This has had a significant impact on the quality of teaching and learning.

Educational policymakers can learn a great deal from these initiatives. As they seek to develop content for digital delivery, their focus needs to be broad and wide-ranging. And given the investments already made on classroom ICT equipment, it is important that part of this new content covers the effective use of such tools.

Embracing collaboration

In preparing for creative and complex roles, peer dialogue and peer experience is very often the most important and productive type of learning. Teaching is no exception: where trainee teachers or established professionals are able to meet and interact with one another in order to share experiences, approaches, and best practice, learning can be a very rich experience. The development of these peer learning networks is therefore crucial as we seek to improve training and continuing professional development.

The vibrancy and value of these networks, however, depends on the level of engagement of their members. In a country such as India, where trainees (or established teachers) may be located far from their peers or isolated

in remote locations, getting these networks to operate effectively, particularly at scale, is challenging.

Over time, though, ICTs can help to tackle this problem in ever-more sophisticated ways. As connectivity improves, new mechanisms emerge that enable educators of teachers to deliver group learning experiences, share richer content with many people simultaneously, and encourage trainees and established teachers to work more closely together, especially those in remote locations.

In short, technology—for those who have access to reliable networks of sufficient speed—offers a constant opportunity for communal experience and peer dialogue. Social networks provide one good illustration of what is possible. A Facebook group of trainee teachers, for example, is a perfect forum for individuals to share experiences and offer solutions to individuals' problems.

This is not to say that peer learning networks will be effective *without* physical, face-to-face meetings between their members. These meetings are actually vital, and no meaningful network can be developed without them. But building on a platform of such meetings, technology now offers an opportunity to connect far more frequently than ever before. These peer groups provide important social support as well as intellectual or cognitive stimulation. Teachers or trainees who have previously had to cope with difficult and unsettling issues on their own now have the option of seeking support from peer groups that have been connected by ICTs, even if this takes the form of just a simple Facebook user group.

Where teachers and trainees have access to social media, these collaborations may develop independently, but it will also be possible for educationalists to encourage such interactions. The Azim Premji Foundation has worked with multiple networks of teachers across six Indian states, which together involve a few thousand teachers, some of which use technology in a relevant and useful manner. Another project launched in Kerala, for example, facilitated the participation of around 100 trainee teachers in a study of the benefits of the use of social networks. The project was built on the TakingITGlobal community and rapidly became popular with trainee teachers, who were able to build regular contact with online peers as part of their learning process.[8]

CONCLUSIONS

Let us end where we began. Our best hope of improving the educational outcomes our children achieve—wherever in the world they may live—lies in improving the capacity of their teachers. The priority for policymakers, therefore, should be to look for solutions that will develop higher capacity teachers. This is true for both those who are just starting out in the profession and those who already teaching.

The focus in recent years on installing ever more ICT tools in classrooms is understandable, but misguided. Policymakers hoped ICTs in schools would facilitate more effective delivery of education, but the results have been disappointing. Children may have learned more computer skills, but the positive impact on more fundamental educational needs and curricular goals has been minimal.

It may yet be possible to achieve more with ICTs in the classroom, particularly if we begin by focusing on the educational problems we hope to solve with these technologies rather than installing tools and then looking for ways to use them. But the fundamental issue here is that ICT-centered teaching practices are poorly suited to the way in which younger children in particular learn and develop.

The shift that is really needed, therefore, lies in accepting the limitations of ICTs in education and in realizing that they are tools useful for certain kinds of things and not a fundamental educational approach. Instead, ICT-related efforts should be focused on where they can have greatest impact: teacher education, harnessing the power of faster and more reliable network connectivity in order to deliver smarter and more comprehensive content to trainees and teachers, and facilitating greater collaboration between them.

It will take time for such a shift to produce tangible results at a systemic level—definitely more than a decade. That said, we may well be able to see the effects on some teaching groups more rapidly than that. The current approach—centered on ICTs in the classroom—has had even longer to begin paying dividends, yet has failed to do so. It is time for a change in focus.

NOTES

1 Parr 2013.

2 Trucano 2005.

3 Cristia 2013.

4 The Sutton Trust 2011.

5 UNESCO 2007.

6 IICBA, no date.

7 UNESCO 2007.

8 Nayar 2012.

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CHAPTER 1.8

Big Data Analytics for Inclusive Growth: How Technology Can Help Elevate the Human Condition

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We often hear that growth is the answer to all our problems. However, growth alone will not suffice. Resolving the current challenges society is facing is not just about economic vigor: *it is about elevating the human condition.* In a world increasingly driven by behavioral economics, we must leverage big data analytics for *inclusive* growth, so everyone can make contributions toward growth and all sectors of society can benefit from the dividends and sense of purpose that result.

Economic growth corresponds to an increase in GDP. However, to avoid leaving part of the population—indeed the entire population of the Global South (Africa, Central and Latin America, and large parts of Asia)—out of the growth equation, we must add a qualitative measure that we describe by using the term *inclusive.* In considering what inclusive growth looks like, we note that it encompasses three essential components:

- **Education** that allows people to participate in disruptive industries and expanding markets, particularly data-driven services, whereby entirely new skill sets will be the catalysts to redeploy traditional ones.
- **Jobs** created by the free movement of goods, services, capital, data, and people, with all sectors of society able to add value to the economy.
- **Well-being,** consisting of prosperity, good health, and longevity, in an environment of public health and safety, sound policymaking, and prudent allocation of taxpayer resources for the public good without fraud, waste, or abuse.

The three pillars of inclusion are highly interdependent: we need a higher proportion of the population contributing to society, and to achieve this we need to improve education and well-being while simultaneously creating more jobs. Fortunately, technology is an enabler, a catalyst, and a propelling force that makes it possible to take action. We can now process huge volumes of data, and we now have enough affordable processing capacity to build the complex models that allow us to ask previously unimaginable questions as well as to answer those that were not previously answerable. The combination of these abilities—*big data analytics*—makes truly inclusive growth a genuine possibility for the first time in history.

THE TIME IS NOW: EXTRACTING THE VALUE FROM BIG DATA

By definition, *big data* exceeds the processing capacity of conventional relational database management systems. The amount of information stored worldwide topped 2.8 zettabytes of data in 2012; by 2020, this is expected to be 50 times larger than it is today. Dealing with that onslaught requires high-performance analytics, also known as *big data analytics.* By some estimates,

Box 1: Big data analytics for expanding access to education: Digital learning in Thailand

Beginning in 2010, SAS united with the National Science and Technology Development Agency (NSTDA) and other public organizations in Thailand to deploy SAS® Curriculum Pathways® in secondary schools throughout the country. The initiative, sponsored by HRH Princess Maha Chakri Sirindhorn, offers online lessons for the enhancement of academic skills and creative thinking. Sirindhorn—often referred to as the "Princess of Technology" because of her interest in employing science to promote Thailand's development—initiated the project to enhance information-age skills in a country that lags in reading, math, and science.

Thailand is now the largest user of SAS Curriculum Pathways outside the United States. Initially 10 secondary schools served as pilot sites; the software is now being used in 282 schools and counting.

"The adoption of SAS Curriculum Pathways by schools in Thailand aims to allow teachers and students to gain more lessons and enhance their teaching and studying processes," said Thaweesak Koanantakool, President of the National Science and Technology Development Agency. "Teachers will get new teaching concepts that focus on analytical thinking and stimulate further studying, while students can enhance their systematic thinking on science, mathematics, social science and history as well as [their] improving English skills."[1]

The intent is to empower the country's students for jobs in the digital economy. Driving economic growth and addressing the complex challenges of our global society will require calling on all minds, and programs such as this are ensuring that we tap into the potential of young minds around the world.

Note

1 The Nation 2012.

only 0.5 percent of available data are analyzed. What benefits are global communities missing because those insights remain untapped and trapped in the relational database systems of the past?

The emerging technology of big data analytics brings us to a tipping point. The power to analyze huge amounts of data gives us an unprecedented ability to make better, more insightful decisions in each of the areas needed for inclusive growth. With big data analytics, we are shifting from a world in which we *think* we know how to elevate the human condition into a world in which we *know* how to do this and we can *prove* it.

The needs are certainly considerable:

- Unemployment is a global problem. Could we proactively address it by identifying patterns and countering them at their source, using methods such as "predict to prevent" and "predict to prepare"?
- The food and water supply is not secure in many areas of the world. By expanding on emerging approaches to data for development (D4Development) to include D4Water, D4Food, D4Energy, and so on, can big data analytics identify the areas of greatest need and optimize the flow of resources to the right places?
- Developing nations do not yet have access to first-rate education. Can our digital resources change that through virtual self-learning platforms combined with common certification standards?
- Disease and natural disasters provide further setbacks to already-challenged nations. Can analytics level the playing field and bring stricken economies to competitive strength faster?
- Huge sums of money that could be spent on bettering the world are currently lost through waste, leakage, and fraud. Can big data analytics stop the drain and divert the money back where it belongs?

The answer to all of those questions is now "yes," thanks to the modern ability to tap into vast data sources and use complex models. We can now find solutions to extremely complex problems when it matters the most and uncover new ways to address global issues and foster inclusive growth. Big data analytics breaks free of conventional limitations, helps us influence the impact of actions in advance, and makes it possible to do things never before conceived.

The sense of urgency is strong—all of the data that exist today will represent just 10 percent of the total in three years. That is a truly transformative force that can be addressed only by analyzing the meaning of all those data, and it is also the reason that big data analytics is the path forward to inclusive growth. Returning to our formula for driving inclusive growth, we note that education spurs job creation, and education together with jobs lead to societal well-being. In today's digital age, it is data that will drive all three forward to the desired outcome of inclusive growth. This chapter examines each of these components in turn.

OPPORTUNITY: EXPANDING ACCESS TO EDUCATION

Given the pace of change in the world today, a lack of progress is the equivalent to a decline. The "brain race" means that countries need to run simply to stand still. Technology is the equalizer, and knowledge is the way to outcompete.

During times of transformation, it is inevitable that society will experience a gap in the type of skills needed to remain competitive. For example, as the Industrial Revolution began, when more farmers than factory workers were available, it took time for the populace to

be retrained and catch up to the needs of the age. The same is true in our current digital revolution—over time, these new digital jobs will be the catalysts to redeploy the more traditional roles. But at the moment, we are experiencing a lag because a digital economy requires people versed in science, technology, engineering, and math—STEM skills, precisely the skills that are currently lacking.[1]

When it comes to education, the need is global but the greatest potential for transformative change is in the Global South. The populations and emerging markets of these countries offer immense untapped potential for economic growth and investment—but they are the same regions often lacking in educational and information infrastructure.[2]

One solution lies in using online curricula and other forms of distance learning, which can spread proven techniques across borders. For example, SAS® Curriculum Pathways® enhances student achievement and teacher effectiveness by providing web-based curriculum resources to educators and students in grades 6 through 12 (Box 1). Content can be accessed online from multiple platforms and mobile applications.

Since 2008, the Curriculum Pathways software has been available free around the globe. In 2013, 42,000 schools, nearly 120,000 teachers, and 10,000 home-school users have taken advantage of this software in the United States alone. Online learning can be the great equalizer, bringing formerly disenfranchised people into the technology ecosystem and equipping larger portions of the world population to play a part in the data-driven economy.

But online learning is not the only application of analytics in education. Big data analytics can also be employed to improve educational outcomes in brick-and-mortar schools. For example, educational value-added assessment systems (EVAAS) use multivariate, longitudinal modeling to go beyond mere classroom-level analyses: they assess the effectiveness of districts, schools, and teachers, and provide continually changing projections of future student performance and needs. EVAAS is flexible enough to account for factors such as student and teacher mobility, team teaching, and changes in educational policies and assessment standards. EVAAS also balances the role of school and home factors in educational success. The tool is based on the underlying belief that all students can learn and deserve to make appropriate academic progress each year, regardless of their prior achievement levels.[3]

With better education comes expanded access to jobs, the second component in the formula for inclusive growth.

OPPORTUNITY: EXPANDING ACCESS TO JOBS

In this time of economic transition, new jobs *are* being created. But are we ready to fill them? If data are the new oil—the fuel of the information economy—the new oil barons will be the data scientists and knowledge workers, and the world will need plenty of them. By 2018, the United States is projected to have 190,000 unfilled analytics positions and a shortage of 1.5 million managers and analysts skilled in big data.[4] According to the research firm Gartner, by 2015, more than 85 percent of Fortune 500 organizations will be unable to effectively exploit big data.

In measuring access to jobs, big data analytics can serve as an early warning system, analyzing social and economic indicators and alerting governments to looming problems (see Box 2). And big data analytics can also get economies back on track when things do go wrong. In France, job seekers who collect unemployment benefits are receiving assistance

Box 2: Big data analytics for expanding access to jobs: Using social media to add depth to unemployment statistics

A recent study from the United Nations' Global Pulse initiative uses linguistic analytics to demonstrate how government agencies can predict to prevent joblessness.

Analysts collected anonymized digital data from social media, blogs, forums, and news articles related to unemployment, and then performed sentiment analysis to categorize the mood of these online conversations. The topics and moods of the conversations were then correlated to official unemployment statistics.

The research revealed that a rise in chatter about postponing vacations, increasing the use of public transportation, and downgrading one's automobile could indeed predict an unemployment spike. In the United States, hostile moods increased four months before a spike in unemployment; in Ireland, confusion and anxiety increased three months prior to such a spike.

"Using a powerful new data source—global social media—SAS and UN Global Pulse demonstrated how advanced analytics can provide real-time insights for policymakers and improve the ability to manage disruptive events," said UN Strategic Communications and Partnership Officer Anoush Tatevossian. "The initiative examines how new types of data can strengthen official statistics on how global crises affect people."[1]

Social media analysis will not replace official statistics, but it can add rich insights. For example, official statistics may tell us that the number of children enrolled in school in a developing region is declining, and the public chatter may tell us *why* children are being pulled out of schools (to work in the local markets for food, to protect the village from civil unrest, etc.).

More information about this and other data for development projects is available on the UN Global Pulse site at http://www.unglobalpulse.org/.

Note

1 SAS 2013b.

Box 3: Big data analytics for well-being: Tracking infectious disease

After the SARS outbreak of 2003, the Department of Health in Hong Kong modernized its analytics to link many different systems for a better flow of information. In essence, the department took massive amounts of diverse data and linked them together in a social network that took into account how people interact and where.

Once these social networks are mapped, the department can identify hotspots to forecast where disease is likely to spread next. Where an outbreak originates determines how it will affect the population, so predicting infection paths shows where and how to deploy resources for maximum effectiveness.

The department is now better prepared to fight the next health emergencies, including a more recent outbreak of Dengue fever. Similar analytics approaches are now being used around the world.

Source: Hagström 2014.

customized to their unique situations. Pôle emploi, the social service agency for employment in France, must comply with national legislation while also taking regional and local needs and requirements—such as industrial, agricultural, or service industry zones, seasonal employment, and so on—into account. Managing risk and quality across this complex web of factors is a problem well suited to big data analytics. By permitting highly localized approaches to serving the unemployed, Pôle emploi is using its limited resources more effectively, offering greater flexibility and personalization along the pathway to employment and fast-tracking their clients' re-entry into the workforce.[5]

At every stage of the jobs cycle, big data analytics has the power to address unemployment—from creating new sources of jobs to predicting patches of joblessness and preventing job seekers from falling through the cracks as they seek to rejoin the working population.

OPPORTUNITY: ENHANCING WELL-BEING

When it comes to enhancing well-being, the opportunities before us are immense. The healthcare industry is only scratching the surface of the value that lies within all the available data. Even tiny improvements in terms of percentages can yield big numbers. Consider staggering statistics such as the US$1 trillion of waste in the US healthcare system, nearly 80,000 preventable deaths a year, and another 1.5 million people injured by medications. An analytics project that delivers even a 1 percent improvement can make a huge difference in costs, care, and peoples' lives.[6] And a healthier population frees more people to contribute to driving economic growth.

"One day we'll look back at this time and say, 'We were there when health care really began to change,' said Mark Pitts, Vice President of Enterprise Informatics, Data and Analytics at Highmark Health. 'We were there when we reached that tipping point of technology and our understanding of medicine, the human body and human psychology such that we really transformed the world.' I don't think I'm overstating the opportunity we have to make history and make all of our lives better."[7]

Big data analytics has much to offer in advancing the practice of healthcare toward the triple aim of better health, better care experience, and lower costs. The potential is mind-boggling. Masses of genomic data, clinical trial data, electronic health records, claims data, research study data, and more—terabytes and petabytes of data—can be brought together to reveal important discoveries and support better operational and medical decisions in both private and public healthcare.

For example:

- CBG Health Research, a public-sector research organization in New Zealand, created the HealthStat research tool, which enables primary health organizations to identify trends—such as flu or gastroenteritis outbreaks—in real time. In turn, individual practices can compare their cases with others around the country to improve treatment effectiveness. Gaps in healthcare can be identified and dealt with faster than ever before, keeping more people healthy, active, and contributing to the economy. In addition, the published data add to our collective knowledge and enable better policy decisions, which can benefit marginalized populations.[8] Another example of real-time tracking is shown in Box 3.
- Also in New Zealand, the Ministry of Social Development is using data to design targeted programs for at-risk populations. Two-thirds of the agency's total liability was attributable to those who entered the welfare system under the age of 20—plainly, empowering young people with confidence and life skills reduces the cycle of long-term benefit dependency. Without the insights uncovered by big data analytics, this population might continue to be underserved.[9]

Of course, well-being goes beyond personal health. Individuals may be healthy but belong to societies plagued by disease, corruption, or unrest. The developed nations of the Global North—North America, Europe, and East Asia—have one-quarter of the world's population but control four-fifths of the world's income. Conversely, the Global South—with three-quarters of the world's population—has access to only one-fifth of the world's income.[10] As a result, the nations of the Global South begin at a disadvantage and struggle to compete. Since

the people of the Global South suffer disproportionately from sickness and disease, social progress begins with boosting basic human health before any other ills can be addressed.

Armed with the knowledge produced by big data analytics, organizations can make changes and create programs to ensure that people are not sidelined by poor health. With predictive insights, public-sector programs can ultimately make the concerns of forgotten or underserved populations more visible and address concerns before they become even larger threats to public health. Two examples are presented here:

- After Typhoon Haiyan devastated the Philippines in 2013, analytics helped aid workers prioritize assistance levels and supply distribution. The International Organization for Migration incorporated social media data with geographic and real-time data to better understand the unique needs of each region hit by the typhoon. As a result, they could pinpoint what locations were hardest hit and what supplies were needed most, learning, for example, that hospitals in the badly damaged coastal city of Guiuan were running out of diesel for their backup generators. Big data analytics made relief efforts more accurate and responsive, which in turn made the country more resilient in recovering from the disaster, reduced suffering, and saved numerous lives.[11]
- More than 90 percent of the 33 million people living with HIV/AIDS reside in developing nations with limited access to treatment. The Clinton Health Access Initiative (CHAI) uses analytics to create updated forecasts of demand for medications for HIV/AIDS, malaria, and tuberculosis, which has led to greater availability and the ability to negotiate lower prices on the drugs. CHAI also analyzes global HIV treatment cost drivers, shares forecasts and models with the United Nations Programme on AIDS and the World Health Organization, and develops treatment models in partnership with health ministries around the globe to identify how best to spend limited resources. CHAI's analytical models also show countries how they can handle stepped-up treatment plans without overwhelming existing medical capacity, and simulate how changes in services in one hospital or region might impact others. Looking at these issues in the same way that a Fortune Global 500 company would—by using analytics—is a much more effective way to make health policy decisions, because the answers are rooted in math that is complex as well as objective.[12]

Fortunately, big data analytics can empower public-sector organizations to use their data to "predict to plan" and "predict to prevent" rather than "fail and fix." In other words, rather than patching holes and closing loopholes, big data analytics allows us to proactively identify the conditions that can give rise to fraud, risk, and security breaches—as well as to many other public welfare challenges. If social programs that promote well-being are to be adequately funded, stopping leakage caused by fraud and waste is essential. Box 4 presents an example of how a government is fighting fraud in order to direct money toward programs that will propel society forward.

In summary, big data analytics can transform public-sector services into the proactive and effective programs citizens deserve. Early and proactive interventions have proven to save substantial tax dollars while at the same time improving the quality of life. Ultimately, big data analytics will drive inclusive growth by enabling more people to join in adding value to the economy.

CONCLUSION

Big data analytics can be used in two powerful ways: to prevent and to create. One is about stopping the undesirable from happening—in this case, people falling through the cracks of society. The other is about fulfilling desires—by providing prosperity for all. Achieving inclusive growth will require both.

Big data analytics is leveling the playing field and creating the environment that allows the three prerequisites for inclusive growth—education, jobs, and well-being—to flourish. In addition to creating vast

Box 4: Big data analytics to stop leakage: Ensuring funding for social programs

Ensuring well-being encompasses fighting fraud and waste so that much-needed funds are available for social welfare. One very expensive problem is carousel fraud, which is the theft of value-added tax (VAT) by a network of criminals in which fraudsters import goods VAT-free and sell the goods to domestic buyers while charging them VAT. The sellers then disappear without paying VAT to the government.

Belgium is fighting this type of fraud through its Special Tax Inspectorate with an advanced analytics tool that identifies at-risk companies and extracts relevant data from the unwieldy cluster of data gleaned from community transactions, company data, social media data, and so on.

Hybrid detection has allowed Belgium to use multiple complex modeling techniques to practically eradicate this VAT fraud. Belgium's VAT losses came to €1.1 billion in 2002, but by 2012 the country had reduced that figure by 98 percent and continues to use hybrid detection techniques to save billions of euros.[1] This money can now be put to good use, such as driving inclusive growth, instead of being lost to fraud.

Note

1 SAS 2013a.

Box 5: Key takeaways

- The pillars of inclusive growth are *education, jobs,* and *well-being.*
- Big data analytics provides the ability to process huge volumes of data, and affordable processing capacity enables us to build complex models.
- This new generation of models allows us to ask previously unimaginable questions and answer previously unanswerable ones.
- Big data analytics can level the playing field by providing faster, fact-based foundations on which to make decisions.
- Big data analytics can answer questions and uncover solutions that governments and nongovernmental organizations have not yet envisioned.
- With its ability to reduce costs and improve outcomes, big data can create much-needed jobs and GDP growth.
- Governments should ensure that their citizens have the skills needed to succeed in a data-driven economy.
- Big data can create more developed economies, give voice to the unheard, and improve public welfare.

employment opportunities, big data analytics has the ability to prevent fraud and corruption, stop the spread of disease, reduce waste, collect and analyze the voices of citizens, spot emerging trends, uncover hidden relationships, and identify breakthrough insights to help open up new industries, to name but a few of its abilities.

Anticipating, mitigating, or preventing risks to public health, safety, and security will require new levels of connectivity among knowledge sources and across organizations. By combining traditional data sources with open-source intelligence captured from new sources such as social media and the Internet of Things, public-sector agencies can gain a powerful vantage point to see issues as they are emerging—and to shift the focus from investigating what happened to preventing what is about to happen. As UN Secretary-General Ban Ki-moon remarked at a General Assembly briefing in 2011:

> … at a time when our need for policy agility has never been greater, our traditional 20th century tools for tracking international development cannot keep up. Too often, by the time we have evidence of what is happening at the household level, the harm has already been done. … The irony is that we are actually swimming in an ocean of real-time information.

Inclusive growth is humane growth, in which success for one does not come at the expense of another, and does not require any trade-off with quality of life. By bringing analytics to the masses, we can help emerging economies better capitalize on the influx of new data resources to create insights that propel society forward for all. If we leverage our emerging technology to promote education, jobs, and well-being, we have the recipe for inclusive growth (Box 5).

All of these things are within our grasp. At the very least, there is certainly no longer a technology excuse to let any group go unknown or unheard. We can no longer say "we did not see" or "we did not know" that unfulfilled needs and inequality existed, and we can no longer say that we did not know what to do about it. The power to analyze huge amounts of data means everyone can be taken into account. Everyone can add value. Everyone can be included.

NOTES

1 Hagström 2012.

2 American University, Center for the Global South, http://www1.american.edu/academic.depts/acainst/cgs/about.html.

3 Wright 2010.

4 Manyika et al. 2011.

5 SAS 2014b.

6 Dulin et al. 2013.

7 SAS 2014a.

8 SAS 2014c.

9 SAS 2014e.

10 Steger 2009.

11 SAS 2014d.

12 SAS 2010.

13 Ban Ki-moon 2011.

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CHAPTER 1.9

Connected Healthcare: Extending the Benefits of Growth

DALE WIGGINS
Philips

It is well established that good health and economic growth go hand in hand.[1] But inclusive growth, with its emphasis on concepts such as equality of opportunity, goes much further. For true inclusivity, the benefits of growth must themselves be inclusive. This is why extending access to healthcare and the ability to lead a healthy life are fundamentally important for both developed and developing economies.

Seen another way, this kind of inclusive growth addresses the natural human desire—shared by people across the globe—to access the best possible care for themselves and their loved ones. The question is: How can this ambition be fulfilled at a time when healthcare systems everywhere are under unsustainable strain? Demand for healthcare is increasing worldwide, but limited healthcare budgets mean that expertise and specialist resources tend to be either centralized or spread thin over a wide geographical area. Access to good care is becoming harder, making inclusivity an increasingly challenging goal for all economies.

EXPANDING ACCESS, EMPOWERING PEOPLE, INCREASING EFFICIENCY

Although the pressure is enormous, connected information and communication technologies (ICTs) are now sufficiently mature to enable radical new solutions. The world is on the cusp of a transformation in which data, devices, and applications will connect patients and caregivers seamlessly and securely. This transformation will empower people to maintain their health and manage chronic illness through continuous, unobtrusive monitoring. It will increase efficiency across the care continuum and enable the collection and integration of health data in meaningful ways that go beyond episodic notes collected on occasional visits to the doctor for an urgent need. Most significantly for inclusive growth, it will allow healthcare providers to reach out to millions of people who are currently excluded from care because of their location or economic circumstances.

Drivers of change

The momentum behind this transformation is powerful and global. No economy—developed or developing—is immune from evolving patient needs and financial imperatives. In 2014, the United States is likely to spend more than US$3 trillion on healthcare (almost the equivalent of Germany's entire gross domestic product, or GDP); this figure could rise to around US$4.5 trillion by 2020.[2] In the Organisation for Economic Co-operation and Development (OECD) countries, combined public health and long-term care expenditure was around 6 percent of GDP on average in 2013. This is projected to reach 9.5 percent in 2060, assuming countries take cost containment measures. With no action on spending, the figure could reach 14 percent of GDP. For some of the BRIICS countries,[3] the OECD estimates that costs will increase, on average, from the current 2.5 percent to

between 5.3 percent and 9.8 percent of GDP, depending on the scenario.[4]

Many of these costs relate to the massive global rise of chronic disease as mortality from diseases falls and lifespans increase. Driven by changing lifestyles and aging populations, chronic disease currently accounts for around 75 percent of healthcare costs. And effective treatment requires patient support and engagement across the continuum of care: from prevention to diagnosis, treatment, and recovery.

By 2020, the World Health Organization projects that chronic diseases will account for almost three-quarters of all deaths worldwide. This problem does not affect the developed world alone. Sixty percent of the burden of chronic diseases and 70 to 75 percent of deaths caused by ischemic heart disease, stroke, and diabetes will occur in developing countries. Cardiovascular diseases are already more numerous in India and China than in all the economically developed economies in the world put together. The number of people in the developing world with diabetes will increase over 2.5-fold, from 84 million in 1995 to 228 million in 2025. In addition, overweight and obesity are at unprecedented levels and rising substantially.[5] The implications of these conditions for inclusive growth and access to care are huge.

Transformation has begun

Confronted with these soaring demands, care providers worldwide are seeking to optimize the use of costly infrastructure and technologies typically found in hospital environments, and to leverage the skills of highly trained professionals to deliver the best possible care to the largest number of patients. Meanwhile, in emerging economies, mobile and connected technologies are starting to extend inclusivity by filling critical gaps in primary care such as diagnostic and screening services.

Antenatal and obstetric care is one such gap. Women in semi-urban and rural areas in emerging economies often die from preventable complications during childbirth. Many of these deaths could be avoided with basic imaging technology, but such technology is frequently unavailable. In Nairobi, Kenya, for example, out of a total population of 3.7 million, an estimated 5 percent (185,000) are pregnant at any given time.[6] However, no ultrasound services (critical in routine pregnancy monitoring and clinical diagnosis) are offered in any public primary healthcare facilities in Nairobi.

Although conventional healthcare infrastructures may be lacking, many of the countries concerned have well-developed mobile phone networks. These networks are now providing a way to reach previously excluded populations. Initiatives such as Imaging the World and Mashavu in East Africa have built innovative mHealth services based on telecommunications networks.[7] In Indonesia, Philips is running a pilot project in Mobile Obstetrical Monitoring (MOM).[8] This is a prototype scalable telehealth solution for early high-risk pregnancy detection where maternal mortality is a concern. Using a mobile phone application, midwives can collect data from physical examinations and tests performed at local nursing clinics or even at the soon-to-be-mother's home. They then send these data to obstetricians or gynecologists in a different location, who can determine whether a pregnancy might be high risk. If so, women can be referred to appropriate medical services for immediate and adequate help.

In projects such as MOM, mobile networks connect patients and frontline health workers in rural areas to experts in urban locations. Technological developments are also enabling rural clinics and community medicine programs to perform sophisticated imaging in the field, such as a mobile ultrasound transducer that connects to a standard tablet through a USB connector.[9] This means that local care providers can provide imaging services and rapid diagnostics with readily available computing devices and easy-to-use software, even in poorly resourced semi-urban and rural areas.

Indeed, governments, nongovernmental organizations, and large "hub-and-spoke" hospital chains are increasingly recognizing the need to move primary healthcare into the communities where people live. Lack of primary healthcare facilities is particularly acute in many parts of Africa for reasons that range from the unavailability of qualified healthcare workers to the lack of electricity, water, and basic healthcare technology. Public-private partnerships, such as the recently established Community Life Center in Kenya,[10] demonstrate one approach to addressing these challenges. The center has its own purified water supply, is powered by solar energy, and uses LED lighting, which provides greater security for patients and staff and enables longer opening hours. Its healthcare equipment allows for monitoring, diagnosis, and triage. Mothers-to-be can have antenatal testing, and the availability of refrigeration prevents vaccines from spoiling. Importantly, this partnership was developed in consultation with the local community and continues to foster community involvement as well as offering additional services such as access to clean water and solar lighting products.

THE ROLE OF ICTS

Integrating ICTs is a key part of expanding primary healthcare through initiatives such as the Community Life Center. For instance, China has designated information sharing and electronic health records as part of its Healthy China 2020 strategy, which aims to provide healthcare access to every resident, rural and urban, by 2020. Regional healthcare information networks (RHINs) will enhance sharing and facilitate information technology (IT) operations among China's community health centers, primary care facilities, and top hospitals. And an RHIN IT platform will provide clinical decision support,

cloud-based imaging services, and tele–intensive care unit (ICU) monitoring.[11]

Worldwide, solutions such as tele-ICU monitoring offer an answer to another of the world's global health challenges—the shortage of skilled staff. By implementing sophisticated algorithms that alert clinicians to changes or trends in patients' conditions, tele-ICU monitoring allows a single specialist to monitor a large number of ICU patients, even over multiple physical locations. Hospitals benefit from a reduction in staffing requirements; patients benefit from more timely interventions and higher survival rates.

Remote diagnosis and screening are as applicable in the developed world as in emerging economies when it comes to extending access to care. They allow people living in any far-flung rural area to have access to specialist expertise that would otherwise be unavailable locally. Care providers can then offer treatment in dedicated urban centers that can handle large numbers of patients cost-effectively.

Of course, although technology can reduce the need for specialists it will never replace all medical professionals. Indeed, it can be a valuable tool in training them. World Economic Forum figures show that Africa is particularly hard hit by staff shortages. The continent faces 28 percent of the global disease burden but has only 3 percent of the world's healthcare workforce. With a challenge of this size, the vast reach of the Internet can make a major difference. For instance, in Kenya, e-learning has taught 12,000 nurses how to treat major diseases such as HIV and malaria, a far greater number than the 100 nurses a year who can be taught in a classroom.[12]

Connected care

The examples presented above are just the start. As payers (both public and private health insurers) and patients continue to push for better outcomes and more personalized care at lower cost, the connected healthcare transformation will widen and deepen.

Imagine a specialist doctor such as a cardiologist who has a software application on a phone that delivers notifications about critical patients. This process is similar to the way Facebook sends notifications of friends' updates, but with more serious intent.

The cardiologist might receive an ECG chart and patient parameters, so she can quickly issue instructions. Or a patient equipped with wearable sensors might send data on worrying symptoms—such as a racing heartbeat—as they actually occur. In an acute situation, cardiovascular imaging and informatics at the hospital might reveal that the patient needs a stent fitting. Once the patient leaves hospital, mobile monitoring devices and applications will continue to monitor vital signs and will provide support for a good recovery and coaching in maintaining a healthy lifestyle—from managing food, alcohol, and cholesterol intake to exercising and understanding early warnings of deterioration in the patient's condition.

Specially designed user interfaces will ensure a seamless patient experience, not just in the hospital but across everything patients touch in their daily lives. If they do need to come back to the hospital, patients will have collected more and more useful data about their health. They can also continue to track themselves as treatment progresses.

Similarly, technology built on the Internet of Things will improve the quality of life for the growing numbers of elderly people. Worldwide, older people are often excluded from active participation in society because they are not well or are no longer able to live in their own homes. By integrating a variety of ICT systems, millions of people will be enabled to stay independent for longer and to continue to contribute to economic activity.

For example, an application on a tablet could manage a treatment plan to make sure seniors take their medicines on time. It could help them perform simple tasks such as taking their weight and blood pressure, or checking their heartbeat and respiration via a wearable device. In the longer term, other devices around the home could be integrated. Home cookers might help manage the nutritional value of food, and digitally connected lamps could blink red or green to indicate when certain pills need to be taken.

Data from these telecare/telehealth services will be uploaded to a dedicated center where a single healthcare professional can manage hundreds of patients simultaneously. As in tele-ICU monitoring, advanced algorithms will evaluate and prioritize the data that should be presented, so there is no information overload. The system will identify any patient whose condition gives cause for concern and alert the healthcare professional to take action—whether this takes the form of simply requesting an additional measurement, notifying the doctor and the patient's family, or calling the emergency services.

Empowering people

One of the biggest transformations will go beyond the diagnosis, treatment, and support of people when they are sick. Connected healthcare holds the key to continuous personal healthcare—preventing disease by enabling everyone to looking after themselves and their loved ones better. The boom in smartphone applications, wearable electronics, and mobile devices that track activity, fitness, and performance reflects a growing interest in managing wellness. People want motivating ways to stay fit. And if the data produced are stored securely in the cloud, they can be integrated with medical records to provide a lifelong record of our health rather than the episodic snapshots of today.

With access to coaching and support around the clock, individuals are reassured and empowered to manage their own health. And when people do fall ill,

they are helped to keep to treatment regimens (such as taking medicine in the right doses and at the right times). Patients gain a sense of responsibility—and they and their caregivers can work as a team to prevent, improve, and reverse health challenges.

For care providers and payers (public and private health insurers), all this means a reduction in acute episodes and hospital re-admissions. Clinical trials demonstrate that more involved patients have better outcomes, are more satisfied, and cost healthcare systems less than patients who are less engaged in their healthcare experience. Research bears this out in cardiac patients with heart arrhythmia (who often also get strokes).[13] This research shows that such patients fare better when they are reminded to take their medicine routinely and their vital signs are observed. As predicted, monitoring reduces acute episodes and anxiety, and patients need to come back to hospital less often.

Ultimately, empowerment will lead to increasing "consumerization" in healthcare and greater inclusion for patients in decision-making. More and more people will have the freedom and responsibility that come with choice and will be able to make well-informed decisions on spending their discretionary income on health effectively.

Effective and efficient healthcare systems

Along with this empowerment, connected healthcare will enable all stakeholders in the care continuum to work together more effectively and efficiently. As data are shared seamlessly across systems, clinicians will be coordinated and informed about patients flowing through the system. Information will be integrated throughout the hospital environment, so that admissions, records, nursing, diagnostic imaging, transitional care, rehabilitation, and home care are all part of a whole. This information will be shared with patients and families through patient portals and websites, with clinical data presented in formats easily accessible to patients and families.

Within the decade, we expect barriers to pooling and sharing clinical information will be overcome as hospital administrators, clinicians, and researchers apply Big Data principles within and beyond the borders of their own institutions. Patients will be able to manage the confidentiality of their personal data, and aggregated data will be anonymized for use in population health management studies. This step will offer further opportunities to extend care for individuals and entire patient populations. Smart algorithms will trawl through integrated data from hospital records and personal data, providing new insights into the impact of lifestyles, treatments, and outcomes. This learning will enable improved clinical decision support and personalized medicine based on a complete picture of factors that includes a patient's past history, sensitivities to medications, activity levels, and nutritional intake. Genomic data will be applied to entire patient populations based on geography, ethnicity, and health status, or used to extend understanding of an individual's genomic profile to help develop unique prevention or treatment plans. In the long term, we may see web-based patient profiles that aggregate genomic data with other data pools to produce risk maps with mobile applications that people can download to a smartphone—with customized advice for maintaining good health.

MAKING IT HAPPEN

Bringing about this vision of connected healthcare calls for change in many areas. It requires integrated and interoperable IT systems, mobile and data analytics that can apply new care models with better coordination, stronger patient engagement, and end-to-end solutions. Health consumers of the future will demand new levels of experience and service in the care they receive. Giving people access to their personal data and to healthcare provider cost and quality data will be a vital part of this transformation, freeing them to move between care providers and to make informed decisions about their care.

Certainly few people have their health details at their fingertips today. The episodic nature of care means the patient journey across the continuum of care is comprised of fragmented experiences and incomplete data. Healthcare providers frequently operate without the right tools and without incentives to help them collaborate on proactive patient care management. This leads to waste and inefficiency, which costs US$750 billion per year in the United States alone. The lack of tools and incentives is often compounded by a lack of infrastructure, staff shortages, and the absence of insurers—particularly in emerging economies.

However, pressure from public and private insurers to cut costs and reengineer processes is having an impact. The rise of value-based healthcare models shows that even entrenched business models—such as reimbursement for individual interventions or bundled payments—can be replaced by models based on quality and desired outcomes for entire patient populations. And technologically, the building blocks for connected healthcare—from sensors and actuators to connectivity and wearable electronics—are readily available. Furthermore, as examples from Africa and Asia demonstrate, connectivity does not necessarily require Internet access. Emerging economies are leapfrogging ahead through innovative solutions based on wide-reaching mobile phone networks such as telemedicine, phone-based medication compliance programs, and health awareness campaigns. A single phone in a village is enough to provide a point of contact for a local nurse to send data to specialist doctors in an urban health

center, as has been clearly demonstrated in the MOM pilot project in Indonesia mentioned earlier.

The interoperability requirement

The fundamental requirement for change is the ability to share data from any source. This means more than software systems talking to each other, and more than data entered into a patient health record system and interacting with a tablet. The necessary change must include all data across the continuum of care, whether those data come from devices that patients carry in hospitals, from imaging systems and patient monitors, from connected technology in the home, or from wearable devices and applications that check vital signs.

This is a big task. Interoperability is a challenge. But, as experience from industries such as travel and banking and financial services demonstrates, the challenge is not insurmountable. We live in a world where we can get money out of automated teller machines wherever we go, make secure international payments online, and, in some countries, even scan paper checks with our smartphones as proof of deposit. With sufficient incentive, solutions will be found. And despite its fragmentary nature, foundations are being built for the exchange of health data. The Digital Imaging and Communications in Medicine (DICOM) standard has been enabling the free flow of imaging and related data since 1993. Today organizations such as the CommonWell Health Alliance (in the United States) and the international Continua Health Alliance are bringing together industry players to develop standards and interoperability for conventional and connected personal healthcare.

Privacy is naturally of paramount importance, and ways to ensure it must be implemented to meet an array of local regulatory requirements and cultural norms. Confidential patient records will be encrypted and stored in dedicated data clouds that fit the need of individual markets. Personal freedoms can be respected by giving people control over whether their data are stored in the cloud, and when and how healthcare applications collect such data. No one should risk exclusion from care because data stored in the cloud indicates a pre-existing condition or a pre-disposition to developing a particular illness.

Reliability, harmonization of the user experience (such as similar user interfaces for home and hospital applications), and openness of platforms also present challenges. Connected healthcare depends on making solutions that are scalable to a size that includes millions of users, as well as being secure and adaptable. With huge quantities of data coming from a multitude of devices, it will be vital to develop techniques to assess which data are truly meaningful and useful, and to identify from which patients those data come. Implementation will require a deep understanding of the regulatory environment, clinical workflows, healthcare informatics, and safety nets put in place to protect customer and patient data.

Compelling digital propositions

The key challenge is not technical, however. It is a matter of mindsets: how governments, insurers, medical professionals, patients, caregivers, and all of us think about healthcare. Although fragmented, the healthcare industry is highly conservative—often with good reason, because people's lives are at stake and so novel, untested systems and processes are not easily adopted. Nonetheless, the new generation of professionals consists of digital natives. They want and expect connected systems. And throughout the world, it is crystal clear: if a digital experience is compelling enough, people will integrate it into their daily lives and ways of working, which in turn will drive adoption and standards—just as it has with Facebook, Google, Sina Weibo, M-PESA, and many more applications.

The lesson for the healthcare industry is that digital propositions must be rewarding to use. Fulfilling the potential of connected healthcare starts with connecting devices and data, but its success lies in convincing people to use these devices and to stick to fitness plans and treatment regimens. Clinicians and patients interact with data very differently. Thus personal health applications need to be attractive and useable by everyone—from an 80-year-old person with multiple chronic diseases to a teenager with a sports injury; from a doctor, a nurse in a telehealth center, and a general practitioner to a health coach and a caregiver.

With relentless pressures on resources and finances, healthcare worldwide is approaching a tipping point at which radical change must come. Connected healthcare offers a way to improve outcomes, expand access, and give millions more people the opportunity to live healthy lives—all this based on sustainable business models. Just as the cloud and the Internet have disrupted other industries, they will transform healthcare. Digital solutions will connect all the elements of the care continuum, empower stakeholders, and facilitate collaboration. Responsibility and incentives will shift as people are enabled to manage their own health. And as good healthcare reaches ever more people through mobile and connected technologies, it will help bring inclusive growth and better health to entire populations at a lower cost of care.

NOTES

1 See, for example, Frenk (the Mexican Minister of Health and Chair of the 2004 meeting of OECD Health Ministers) who notes that "… economic evidence confirms that a 10% improvement in life expectancy at birth is associated with a rise in economic growth of some 0.3–0.4 percentage points a year" (Frenk 2004).

2 Munro 2014; CMS.gov 2012; Deloitte 2014.

3 The BRIICS countries are Brazil, Russia, India, Indonesia, China, and South Africa.

4 de la Maisonneuve and Olivereia Martins 2013.

5 WHO 2007.

6 Philips 2014a.

7 For details about these initiatives, see Imaging the World at http://imagingtheworld.org/ and Mashavu: Networked Health Solutions at http://mashavukenya.wordpress.com/.

8 Philips 2014b.

9 Philips 2014c.

10 Philips 2014d.

11 KGMP 2010; Frost & Sullivan 2014; Huawei 2014.

12 World Economic Forum 2014.

13 The webcast on strategic alliance Philips and Salesforce.com is available at http://www.media-server.com/m/p/vwkvvgb7.

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CHAPTER 1.10

Designing Technology for Inclusive Growth

DOMINIC VERGINE, ARM and the Humanitarian Centre
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A couple of years ago ARM approached Inveneo, a United States–based information and communication technologies for development (ICT4D) nonprofit, to answer the question "What are the main challenges related to the deployment of technology hardware across the developing world?" By understanding the challenges, we believe that ARM and its business ecosystem can learn how to develop better products for this emerging market. Surprisingly, given the market size and the global interest in ICT4D, this study was the first research of its kind. The US Agency for International Development (USAID) was naturally interested in the topic and joined ARM in supporting the research, but it also fitted a wider USAID goal—that of encouraging the private sector to help tackle international development issues. This chapter looks at how both social and commercial benefits might be achieved by helping to include the developing world in the ICT revolution.

There are still 4.5 billion people without access to the Internet. Bain & Company, the global management consulting firm, suggests that this represents by far the largest opportunity of the next decade.[1] But the potential benefits go beyond commercial opportunity. There is now widespread agreement—along with emerging evidence—that ICTs can help improve quality of life and accelerate development efforts at all levels. Increased communications capabilities and access to information may be the most obvious advantages provided by ICTs. But nearly every aspect of development—including the meeting of basic needs—can be improved by the application of technology. In other words, ICTs hold tremendous potential to solve development challenges.[2]

Human factors, software, services, social influences, and many other ICT4D considerations have been studied repeatedly, but the impact of hardware has been largely ignored. This chapter's principal contribution is to address an overlooked, under-discussed—and therefore ill-addressed—feature of ICT4D: *the technology itself.* The lack of attention paid to the actual technology and the role it plays (or can play) in fostering inclusive growth and innovation has been detrimental to development-related outcomes, particularly because not paying attention to these elements results in the promotion—as opposed to the easing or eradicating—of inequality. If the needs, requirements, and realities present in the developing world are taken into consideration, ICTs that promote more inclusive growth is the result.

THE TOP FIVE ICT4D HARDWARE CHALLENGES

Based on in-depth interviews and a macro-level survey of experts, practitioners, academics, and end-users of ICT4D, Inveneo has identified the top five technology hardware challenges faced by the developing world:

1. **Electricity/power/energy.** The presence of low-power hardware with long battery life is crucial in an erratic power supply environment rife with electrical spikes, swings, dips, blackouts, and brownouts.

Box 1: Designing technology for international development

PROFESSOR GARI CLIFFORD, Oxford Centre for Affordable Health Technologies

When designing technology for international development programs and resource-constrained environments, many factors need to be considered alongside the development of the technology (both hardware and software) itself. Among these are:

- the needs of the target population—both the users of the tool and the population for which it is intended;
- the behaviors and cultural sensitivities of the same populations. Questions such as whether the technology will lead to an unintended consequence, for example, must be addressed;
- the availability of supplies and support infrastructure for the new technology;
- the hidden costs and risks of using the technology. For example, new procedures can add new costs for the recipient (e.g., travel costs or lost earnings);
- the training needed for the technology to be used properly;
- the cost of the technology (both in terms of initial outlay and ongoing maintenance costs) relative to alternatives, and the difference in potential impacts between the new technology and the alternatives;
- the existence of downstream facilities to deal with the output of the new technology. For example, it is no use being able to diagnose cancer if the population cannot afford or even locate treatment;
- the power requirements of the technology;
- the networked capability of the technology and the ease with which it can be monitored remotely by the program when necessary;
- post-sales support and the ability to perform recalls or update the technology;
- local regulatory mechanisms, competing products, and vested interests in retaining the status quo; and
- the ability for the technology to be self-sustaining and enable a business model to allow competitive use, without creating a monopoly or a concentration of power.

The above considerations require a multidisciplinary team of anthropologists, engineers, economists, and specialists (such as doctors). In particular, it is important for anthropologists to work in the field with the engineers to observe how the technology is used, and for the engineers to use the results in an agile development approach. This implies having multiple iterations of the product so its development adjusts according to the needs assessment and field trials.

2. **Cost.** Striking a balance between lowest cost and solid, reliable, functional technology is essential.
3. **Environment.** Products need to be designed with durability in mind, including resistance to water, humidity, dust, dirt, and extreme heat. Some screens are difficult to read in direct sunlight, so particular kinds of screens are needed (e-ink screens are ideal).
4. **Connectivity.** The more connected the network is, the more valuable it is. The main method advocated for connection is Wi-Fi.
5. **Maintenance and support.** Technology that cannot be locally maintained, supported, and repaired is not sustainable. Transportation for repair, maintenance, and support is expensive.

These hardware priorities should be put into the context of a much longer list of social factors to be considered. Unlike the hardware, however, these social factors benefit from a very large body of academic research.

Gari Clifford combines academic credentials with years of practical experience rolling out affordable health technology in developing countries. He has some insights into the social needs that must be combined with appropriately designed hardware if real benefits are to be achieved and sustained (Box 1).

The first decade of this century witnessed explosive growth in mobile phone adoption and diffusion across the continent of Africa, which previously had the lowest ICT penetration rate on earth. The ITU reports that this remarkable growth rate was twice that of the rest of the world.[3] Regarding developing countries generally, a 2012 report by Deloitte et al. found that a 10 percent expansion in mobile penetration leads to a 4.2 percent increase in Total Factor Productivity—which reflects a country's long-term economic dynamism.[4] Moreover, the success and the wide adoption of mobile banking in sub-Saharan Africa demonstrates that innovation can indeed germinate in, and diffuse from, developing world locations. M-PESA, the Safaricom m-banking platform in Kenya, now moves the equivalent of 43 percent of GDP annually.[5]

The issue of inequality is an important one. In their seminal article "The Economics of ICTs and Global Inequality," Heeks and Kenny (2002) put forth the argument that technology has been a force promoting inequality and divergence rather than equality and convergence. It is true that technologies that exacerbate inequality far outnumber those that ameliorate it. This need not necessarily be the case, however. But it will take a concerted, committed effort to ensure that the positive potential of technology is achieved.

Opportunities exist throughout emerging economies to deliver positive social impact, as identified by the

Digital Opportunity Task Force in 2000—and echoed countless times since:

> ICTs offer enormous opportunities to narrow social and economic inequalities and support local wealth creation, and thus help to achieve the broader development goals that the international community has set.[6]

This promise helps explain why many governments, development organizations—for-profit and nonprofit—and even individuals are attempting to harness the power of these enabling tools for inclusive development.[7]

A gap may still exist between theory and practice, however—both practitioners and scholars bemoan the contrast between ICTs' potential and their relatively modest measurable impact. Part of the answer may be that technology is obviously not the sole driver of inclusiveness. Recent UN and Organisation for Economic Co-operation and Development (OECD) publications have identified the need for well-designed and well-implemented social and economic policies to work alongside technology to promote innovation and inclusive development.[8] A targeted focus on STEM (science, technology, engineering, and mathematics)-related education is one example. Both the UN and the OECD emphasize the need for public and private sectors to join forces to address the challenges presented by the gap between theory and practice.

This theme has been taken up by the major international donors. The program Grand Challenges—a family of initiatives with partners that include USAID, the Bill & Melinda Gates Foundation, and the UK Department for International Development, among others—started as an attempt to spur innovation and private-sector engagement; an additional $50 million was committed to this program in October 2014 by the various partners. Their most notable Grand Challenge to date is the initiative Saving Lives at Birth. This initiative seeks to promote innovative technological and operational approaches across three childbirth-related areas: new scientific and technological approaches to prevent, detect, or treat maternal and newborn problems at the time of birth; service delivery models to provide high-quality care at the time of birth; and ideas for empowering and engaging pregnant women and their families to practice healthy behaviors and be aware of and access healthcare.

More than 4,000 innovators have responded to the initiative and over 135 innovators are currently receiving financial support that totals US$220 million. Ideas have come from all over the world—from an Argentinian auto mechanic, world-class scientists, and entrepreneurs to in-country nongovernmental organizations and established multimillion-dollar research institutions.

In 2014 a student team applied for funding from Saving Lives at Birth for their new nonprofit health technology organization, SimPrints, which awarded them a grant to launch a major pilot in Bangladesh (Box 2). SimPrints is interesting because it emerged from an understanding of a need in global healthcare, took an iterative approach to hardware development that could address this need, and had to discard many preconceptions as a result.

In contrast to the approach taken by SimPrints, almost all devices and innovations are targeted toward established markets peopled by literate users who already understand how ICTs can improve work- and lifestyle-related efficiencies. These users take for granted advanced electrical and connectivity infrastructures and are able to afford expensive technologies and utilize them in safe environments. They have also had a lifetime of exposure to ICTs and their evolution. This is not the case for people in the developing world, however, where even an "ON" button will not have the same immediate recognition as it does for someone in the developing world. When technologies developed for advanced markets are employed in poor, resource-constrained locations—where environmental conditions are harsh, electricity and connectivity are not assured, and technological literacy and understanding are scant—they fail.

When Literacy Bridge explored the idea of designing a mobile device specifically for the learning needs of the world's most vulnerable people, it began an iterative process of listening to user needs, understanding their environment, and proposing technology designs and revisions to those designs.

Cliff Schmidt, the founder and CEO of Literacy Bridge, comments:

> From our earliest research, we gained an initial understanding of the problem space: the world's poorest people are not able to make the most of their resources due to lack of access to learning new skills and healthier behaviors.
>
> Since the vast majority of the people we want to serve are illiterate, and live without access to electricity or mobile data networks, our answer was a technology called the Talking Book: a low-cost audio mobile device that didn't require literacy skills to operate, grid power, or mobile network access. The next step was to propose the idea of this device to hundreds of potential users to generate feedback and discussion that would lead to a more specific design or possibly a completely different one.[9]

Box 2: SimPrints: From hackathon to Saving Lives at Birth

TOBY NORMAN and **DAN STORISTEANU**,
Co-Founders of SimPrints

Driven by poverty and the promise of opportunity, the massive rural migration to Bangladesh's urban slums has created daunting challenges for community health workers like Nisita. Nisita is responsible for visiting almost 300 households a month in Korail, a major Dhaka slum. Many of her patients have similar names or names with multiple spellings, they might not know their exact date of birth, and most have no formal address. They lack any official form of identification. This "identification challenge" is exacerbated by migration within the slum, as up to 40 percent of the population move from one health worker's area to another every year, leaving old health records in limbo and forcing migrants to start over without any health history.

In 2013 the Humanitarian Centre in Cambridge, United Kingdom, hosted a "health hackathon" that brought together health workers in international development with technologists and entrepreneurs. One of the needs they described was the need to overcome the fact that a third of all children under five have no birth certificate and no health records. The team at SimPrints took on this challenge and has since developed a possible solution. We are working on a pocket-sized fingerprint scanner that instantly links an individual's fingerprint to his or her health records. The Bluetooth-enabled scanner allows health workers in the field to make better decisions by providing immediate and reliable access to critical medical information. A fingerprint is all it takes to find out, for instance, which vaccines someone has received and which remain to be administered.

Initially, we planned to build the system using readily available fingerprint scanners, but no single scanner was sufficiently durable, portable, accurate, and low-cost. But although the solution was evident—to build it ourselves—we did not want SimPrints to become yet another "outsider" solution. So we decided to get close to the challenges, listen to users and experts, and immerse ourselves in the context in which our system would be used.

Working in Bangladesh, it soon became clear that we needed to overhaul our design. Our prototype was a "swipe scanner" that requires people to swipe their finger across a sensor rather than hold it down on a "touch sensor." Yet we noticed that many fingers had stiffened with age, after years of manual labor, and found the swiping motion too difficult. Also, the groove on our scanner that guided a person's finger was not sufficient, and some people would swipe the wrong part of the scanner. It became obvious that a swipe scanner was not intuitive enough, requiring too much instruction from health workers to each of their beneficiaries. Though more expensive, a touch scanner was clearly essential. Had we focused on merely reducing cost, as is often the approach, we would never have developed a successful product.

Our user-centered approach was singled out by the judges of the Saving Lives at Birth Challenge to reduce maternal and newborn deaths. SimPrints won a major grant for its field trials, and in 2014 we began work with Johns Hopkins University's Global mHealth Initiative and BRAC, the world's biggest development nongovernmental organization. We hope Nisita will soon be able to identify all her patients quickly and accurately.

Literacy Bridge also spent time in the communities to observe how daily routines related to ways in which it might use the Talking Book device both directly and indirectly.

This cycle of observing, proposing, and soliciting feedback repeated several times over the course the design and development stage continues today. It allows the developers at Literacy Bridge to learn which features were critical and which were detrimental to user needs. For instance:

- A powerful loud speaker would enhance the ability for group meetings to incorporate the playback of instructional messages for group discussion.
- Adding a built-in microphone to the device created significant value to users while also providing a means for collecting ongoing feedback about the program.

In addition to understanding user needs, developers also learned critical information about the users' environment. For instance:

- Heavy rain and dust storms were common. The Talking Book would have to be especially durable and provide a seal over any electronic ports.
- Only basic carbon-zinc dry cell batteries were readily available, not alkaline batteries or those that use newer chemistries, which resulted in much lower performance characteristics. Understanding this meant designing the electronics very differently so that they would work using the batteries that were actually available.

Literacy Bridge started with the assumption that the right solution would not be with the first version. By approaching product design in stages, it avoided overinvesting in a device that had not yet passed the test of large-scale user adoption.

In partnership with UNICEF and ARM, 50,000 users are now testing the latest Talking Book design and Literacy Bridge is ready to invest in larger manufacturing scales to make the device the most cost-effective way to reach the world's most vulnerable communities with life-changing knowledge.

The Oxford Centre for Affordable Health Care (OxCAHT), SimPrints, Literacy Bridge, Inveneo, and USAID have all, independently, realized that technology can be much better designed to function well in the difficult conditions present across much of the developing world. For business, as much as for development organizations, this is where challenge meets opportunity.

To give an oft-cited example, it was the perceived potential competition inspired by the One Laptop Per Child (OLPC) program that spurred the netbook revolution,[10] and—arguably—the rebirth of the tablet market, as technology companies raced to meet a

Box 3: Five world-changing technology growth areas

ERICA KOCHI, Director and Co-Founder, UNICEF Innovation

UNICEF needs innovative solutions to some of the key barriers it faces—such as geographical remoteness of constituents, the limited infrastructure available in these areas, the slowness of data collection, and the lack of access for the most vulnerable populations to critical information and services.

UNICEF believes that the technology sector's expansion into emerging markets can deliver expanded profit alongside social impact. However, the big corporate players and mainstream technology industries are not yet seeing this as a core business opportunity.

UNICEF's Innovation Unit and ARM have identified five technology growth areas that have the potential to benefit millions of people, especially children, around the world. Table A outlines these areas, as well as the need for further research and potential exploration of these opportunities.

Although all these areas are ripe for growth, challenges to adopting the technologies remain. These challenges may take the form of prohibitive cost, slow or lacking data usage and transmission, or maintaining consistent and reliable sources of power to keep devices charged. The private sector must play a key role in overcoming these obstacles. Investments must be made toward technology products and services designed specifically for the emerging markets they are trying to address.

Willingness to align the corporate agenda and social agenda in concert with unconventional partnerships in the space, such as the one developing between ARM and UNICEF, will generate the new conversations necessary to move the needle on both the business and the social sides.

Table A: Areas for technology growth

Emerging technology area	Growth opportunity
Mobile financial inclusion and services	The ability to send, save, and receive money easily is at the core of the global economy. However, 2.5 billion people—half the world's adult population—remain unbanked. Can existing and new financial institutions and technology companies bring the benefits of financial services to the most underserved? Can ubiquitous financial services solutions such as M-PESA also be applied to basic services such as healthcare and education?
Identity	The issue of identity—both formal and social—and a voice, access to essential services, authentication, privacy, security, and advertising are increasingly linked. But 230 million children (one in three) in the world have never had their births registered. Technology is already being used to help register and report on births. How can we give children an identity while avoiding the pitfalls of registration? How can we create solutions where identity can be verified and authenticated using a cell phone, smartphone, tablet, or any other device hooked to the Internet?
Transportation and delivery	Accessible and affordable public transport service and safe infrastructure for non-motorized transport such as cycling and walking are lacking in most developing countries in both urban and rural settings, especially for the critical "last mile." How can we improve informal transportation networks to make them safer and more efficient? How can we use big brands to help deliver essential services? How can we foster entrepreneurship so that it can leapfrog existing infrastructure barriers? What could these solutions look like if applied to a sharing economy model?
Wearable technologies	In simple terms, wearable electronics are used to make routine things easier to perform as well as to make life more sophisticated by offering several computing features in various day-to-day applications. These work mainly as a result of the integration of computing and communication devices. This is an industry ripe for disruption. Can we create wearable technology that addresses true social impact? Does wearable technology have the potential to save lives? Could we apply these technologies to real-time problems such as the 2014 Ebola outbreak?
Learning	The worldwide market for e-learning may reach US$51.5 billion by 2016. How might we create a business model that is profitable and sustainable, and that brings quality learning content to learners globally? How do we create access to these tools and ensure retention in school, especially of girls?

market demand they had previously failed to perceive. The low-end netbook and tablet have proven successful with both developed and developing world consumers and were, for many technology companies, rare profitability bright spots during otherwise challenging economic times.[11]

Technology with the potential to promote inclusive growth is more likely to be developed when designing specifically to meet the developing world's constraints. It is difficult to do more than "tinker at the edges" of innovation if the comfort of the advanced world is never left and technology is designed solely for developed world conditions.

Industry and private-sector technology companies thus have two distinct, important factors to consider. First, the creation of technology that meets the real

needs of the developing world represents opportunities both to expand potential markets and to increase the quality of life for a large number of people.[12] Second, a trickle-up, disruptive innovation effect can sometimes be seen whereby a focus on designing for the developing world leads to insights and ideas that change business in the developed world too (see Box 3). The impact of the OLPC on the wider tablet market (see above) is an example of this.

CONCLUSION

The field of ICT4D is evolving and expanding rapidly, and ICT4D projects are taking on broader scopes and scales, expanding into agriculture, governance, healthcare, and education. But we need at the same time to ensure that the critical analysis of best practices and lessons learned continues. The quality of people's lives and their ability to move out of poverty and live lives with increased levels of freedom and opportunity are at stake. It is a complex issue, and no aspect of it—hardware, software, or operational conditions—can be ignored.

Innovations in ICT4D not only become more widely adopted across the developing world, but may even become "disruptive" technologies for all markets. It is worth noting that the explosive uptake rates of mobile phones and mobile money services in sub-Saharan Africa were unanticipated in either scope or scale.[13] The commercial underestimation of these markets was astonishing. Only a few hundred thousand African mobile network subscribers were expected, and M-PESA began as a corporate responsibility experiment.

Matt Dalio, CEO of Endless, sees the commercial opportunity very clearly:

> Billions of people are about to have smartphones. But the people who build the apps that power those smartphones in Silicon Valley, in Venture firms and in engineering communities think of the next tier down and think "poverty." People still think of the world as an "economic pyramid." This is a tragic misconception. The world isn't a pyramid, it's a bell curve. One where "poor" and "poverty" are two very different things and lives at the middle of the pyramid look nothing like lives at the bottom of the pyramid. So who is focused on this (very large) middle of the pyramid? The answer is: almost nobody. We need to design the hardware and services needed by this market. It is the business opportunity of our era.[14]

Are we at risk of grossly underestimating these markets again and, of even greater concern, even completely missing opportunities altogether? Imagine the inclusive growth and development that could be achieved if more commercial ICTs were designed specifically for the needs and constraints found in the developing world, rather than discovered by luck or by accident.

NOTES

1 Harris et al. 2011.

2 Waugamon, 2014.

3 ITU 2009, p. 1.

4 Deloitte et al. 2012, p. 4.

5 For details about the M-PESA program, see Safaricom's website at http://www.safaricom.co.ke/personal/m-pesa/nchi-na-safaricom-m-pesa.

6 DOT Force 2001, Foreword.

7 Gerster and Zimmerman 2005.

8 United Nations System Task Team on the Post-2015 UN Development 2014; OECD 2014.

9 Schmidt 2014.

10 Kraemer et al. 2009.

11 Hosman and Baikie 2013.

12 London and Hart 2004.

13 van Rensburg 2012.

14 Dalio 2014.

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CHAPTER 1.11

Digital Inclusion and Economic Development: A Regional Analysis from Brazil

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Information and communication technologies (ICTs) in general, and broadband in particular, have been studied extensively in the economic literature as a potential source for raising employment and economic growth. However, some gaps in the literature remain unfilled, motivating the present research.

Although the bulk of the literature has focused on either country-aggregate or firm-level studies, subnational-regional analyses of the digital divide and the impact of broadband on local productivity are still scarce. An ongoing debate concerns whether or not broadband may enable better opportunities for businesses and individuals in isolated and underdeveloped regions, which are usually affected by regional digital divides. If the economic impact of broadband was found to be bigger in peripheral regions (in contrast to their impact in the center of the country), then a strategy of reducing regional digital divides might help to stimulate economic cohesion across the territories of a country. In contrast, if productivity growth driven by broadband is found to be greater in the center, then it might exacerbate regional disparities. As a result, understanding regional differences in the economic impact of broadband seems key to analyzing the effects of promoting the regional digital inclusion—that is, of extending connectivity to isolated and underdeveloped territories within a country.

Despite their recent economic growth, BRIC countries remain well above Organisation for Economic Co-operation and Development (OECD) averages in terms of inequalities.[1] Income per capita regional disparities have increased in India and China in recent years. In contrast, to some degree in Russia and especially in Brazil, urban-rural inequalities have recently decreased, but they remain high. Transverse and complementary policies will become crucial for BRIC countries to reduce those internal disparities. The present research constitutes an effort to disentangle the impact of broadband on regional productivity and to analyze the suitability of ICT policies in helping lagging regions overcome their disadvantages. The empirical analysis will focus on Brazil,[2] a country in which, despite its recent growth, high levels of inequality persist, and where the income per capita of a leading region is more than three times higher than the national average.

The results presented in this chapter provide evidence that broadband seems to be yielding the highest productivity gains for the less-developed regions in Brazil. This evidence highlights the importance of broadband for regional development, from which some policy implications can be derived. Cohesive policies should promote the development of ICTs in lagging

CET.LA is an initiative from AHCIET, the Ibero-American Association of Telecommunications Enterprises, which has the objective of promoting and supporting reflection and debate about public policy for the development of the Information Society in Latin America, contributing elements of economic and technical analysis to its design, achievement, and evaluation.

regions with the aim of favoring their attractiveness as a location for business, and, in turn, should promote the development of territorial equilibrium—in other words, these policies should help level the playing field among regions.

Apart from national plans, regional governments should promote local policies especially designed to consider their specific socioeconomic and geographic features in order to maximize the deployment of broadband and its economic impact. Deployment can be facilitated by promoting competition in a suitable framework, preventing overlapping regulation among different government levels, and avoiding public initiatives that can generate a crowding-out effect on private investments. In isolated or inaccessible areas, public-private cooperation is important for the development of the sector, and universalization policies might become crucial.[3] Regulatory flexibility will become important for promoting broadband commercial plans affordable to the base of the socioeconomic pyramid. Digital inclusion agendas should also promote ICT skills and the use of ICTs by small- and medium-sized enterprises. These policy derivations are especially important for BRIC countries because they may contribute to reducing their regional inequalities.

LITERATURE REVIEW

In the last few years, most ICT-derived contributions to productivity have come from the development of broadband Internet connections. According to Jordán and De León (2011) and Mack and Faggian (2013), broadband now constitutes a key part of the infrastructure necessary for development, in much the same way that previous advances such as railroads, roads, and electricity became fundamental requirements for development. Recent empirical analysis has concentrated on analyzing the impact of broadband on economic growth at a country level.[4] At a regional level, research has been much scarcer and refers mostly to the United States.[5]

An ongoing debate in the literature is related to the economic impact of broadband for regions in the process of closing their digital divides; determining this impact requires analyzing the link between the new technologies and underdeveloped regions. Some researchers believe that ICTs may open possibilities that will allow remote regions to overcome traditional disadvantages associated with their isolation. As a result, new technologies and Internet diffusion could reduce the role played by agglomerations. Some authors even talk about the "death of distance" as being one result of an eventual widespread deployment of ICTs.[6] According to this view, distance may be less important and peripheral regions may benefit from opportunities that were not previously available.[7] The presence of broadband itself may facilitate the development of poor regions, enhancing some degree of territorial equilibrium.[8] Isolated regions may present some advantages—such as lower wages and property costs—that can be fully exploited if good broadband infrastructure is available.

Other authors argue that the presence of network externalities suggests that regions or countries with higher penetration levels tend to exhibit a larger contribution of broadband to economic growth than regions with lower penetration. If high-income economies are those with higher penetration, disparities across regions might be increased. Katz (2012), however, suggests a nonlinear (or inverted U-shape) relationship between broadband penetration and output. Beyond the issues of network externalities and nonlinear impact, the degree of the impact of broadband on productivity may depend on a variety of local attributes, including sectorial structure, demography, human capital, and so on.

All the previous arguments may imply that broadband should have a positive impact on productivity, but this impact may differ across regions, even within the same country. Performing an analysis in a country as big as Brazil, which exhibits important regional inequalities, may provide a better understanding of the regional dimension of the impact of broadband on productivity, and may also contribute to evaluating its suitability as an instrument for regional cohesion.

THEORETICAL MODEL AND EMPIRICAL SPECIFICATION

The empirical specification presented here is based on a theoretical model where economies are supposed to produce according to a Cobb-Douglas production function with various input factors (physical capital stock, labor, and human capital). Total factor productivity (TFP) is stipulated to be related to some region-specific characteristics and is assumed to depend positively on the level of broadband infrastructure. The empirical specification can be expressed as:[9]

$$\ln\left(\frac{Y}{L}\right) = \Gamma_0 + \Gamma_1 \ln\Omega(X) + \Gamma_2 \ln(\text{broadband}) + \Gamma_3 h$$

where

Γ_i = parameters needed to estimate results,
Y = output,
$\Omega(X)$ = region-specific characteristics,
broadband = broadband subscriptions per 100 inhabitants,
L = labor, and
h = the efficiency of a unit of labor (as in Hall and Jones 1999).

The specification in the above equation may be useful for obtaining a common regional measure of the impact of broadband on productivity, but it is not able to account for differences in impact across regions. As stated in the literature review, the impact of broadband may differ, depending on the degree of development of the region. For the purposes of the empirical

Table 1: Descriptive statistics, five-year sample (2007–11)

Variable	Mean	Minimum value of sample (region, year)	Maximum value of sample (region, year)	Number of observations
Productivity: GVA per worker in Brazilian reais, 2000 constant prices	14,490.23 [7,371.61]	5,180.35 (Piauí, 2007)	46,762.56 (Distrito Federal, 2010)	135
Literacy rate, population over 15 years old	88.25 [6.29]	74.26 (Alagoas, 2008)	96.84 (Distrito Federal, 2009)	135
Fixed broadband penetration: no. of subscriptions > 512 kp/s per 100 inhabitants	2.97 [3.21]	0.04 (Amapá and Roraima, 2007)	15.47 (Distrito Federal, 2011)	135
Speed, weighted average in mb/s	4.41 [2.82]	1.32 (Rondônia, 2007)	13.83 (Rio de Janeiro, 2011)	135
Agriculture sector, % of regional GVA	0.09 [0.07]	0.00 (Distrito Federal and Rio de Janeiro, 2007, 2008, 2009, 2010, 2011)	0.29 (Mato Grosso, 2008–09)	135
Services sector, % of regional GVA	0.31 [0.05]	0.22 (Acre,2007; Amazonas and Pará, 2010)	0.47 (São Paulo, 2011)	135
Urban population, % total population	51.63 [6.70]	36.23 (Maranhão, 2011)	65.96 (Distrito Federal, 2007)	135
Youth workforce, % working age population (18–29 years old)	0.45 [0.04]	0.32 (Rio de Janeiro, 2011)	0.56 (Roraima, 2007)	135

Sources: Author's analysis based on data from the following sources: GVA per worker, Agriculture sector, Services sector, and Youth workforce: IBGE database; Fixed broadband, Speed: Telebrasil; Literacy rate, Urban population: IPEA database.
Note: The standard deviations appear within square brackets.

estimation, regions are classified according to their level of development. As a result, in further estimations TFP is expressed as depending on broadband penetration associated with the level of development of the region, plus further factors that may have an influence on the economic impact of broadband.

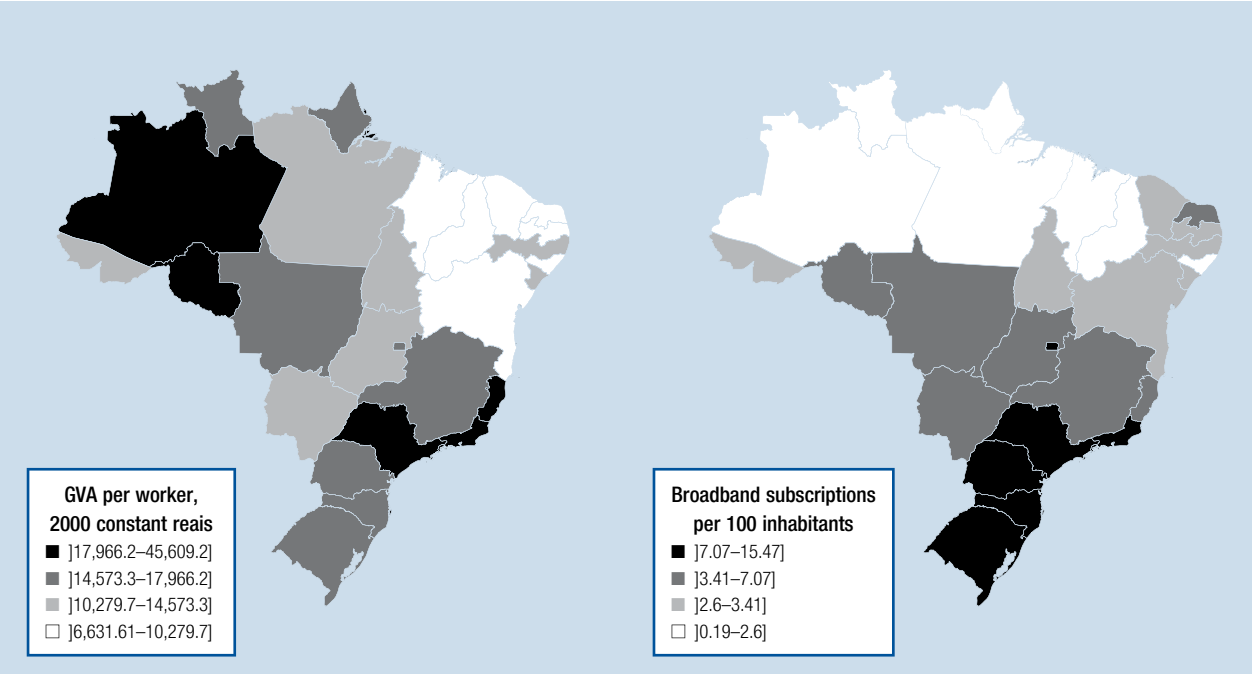
The empirical model to be estimated consists of a panel with regional fixed effects, which provides the advantage of accounting for all time-invariant heterogeneity across regions. A common critique of ICT and broadband estimations is that results may determine correlation rather than a causality effect on productivity. Some authors use instrumental variables to tackle these endogeneity issues. Following Czernich et al. (2011), the empirical specification builds on the idea that most common broadband rollouts—that is, asymmetric digital subscriber line (ADSL) or cable modem—rely on the copper wire of pre-existing voice-telephony networks. As noted by Czernich et al., the required access to an existing infrastructure built for other purposes, such as that of fixed telephony, make this a suitable instrument. The instrument in this case is the number of voice-telecommunication fixed-access lines per 100 inhabitants five years earlier than the year of the current data—the period considered is 2007–11. For each of those years, we have five-year lags of this variable (2002–06). In addition, because broadband deployment may depend on demographic factors, population density is added as an instrument, but to do this we use variables from the beginning of the last century (census data from 1920 to 1950) in order to avoid any possibility of endogeneity bias. The instruments were lagged considerably to avoid any possibility of being affected by contemporary shocks.

DATA AND EXPLORATORY ANALYSIS

This section summarizes the description of the variables used in the empirical analysis, which covers the period 2007–11.[10] Output is measured through gross value-added (GVA), deflated to 2000 constant Brazilian real prices. *Broadband* is defined as Internet access provided at a certain level of speed capacity. The International Telecommunication Union (ITU) and the OECD both define broadband as those connections with speeds above 256 kilobits per second (kb/s). Telebrasil (the Brazilian Association of Telecommunications) classifies Internet connections by speed, considering a threshold of 512 kb/s. As a result, for the purposes of this research, the analysis considers connections that reach speeds of 512 kb/s or more—this constitutes a more realistic approximation for broadband than that of 256 kb/s, which hardly serves for most applications nowadays. The quality of the connectivity may play an important role in regional inequalities. Available data from Telebrasil allow for considering differences in average bandwidth speeds across regions. Average fixed broadband download speed is constructed with data that classify subscriptions into different groups depending on their speed.[11]

Data on labor and on human capital were obtained from the Brazilian government's Instituto de Pesquisa Econômica Aplicada (the Institute of Applied Economic Research, or IPEA) and the Instituto Brasileiro Geografia e Estatística (the Brazilian Institute of Geography and

Figure 1: GVA per worker (left) and broadband penetration (right), 2011



Source: Author's analysis based on data on GVA per worker from the IBGE database; data on broadband from Telebrasil.

Statistics, or IBGE) databases. After considering a variety of alternatives, literacy rate is used as a measure of human capital. To control for TFP differences across regions, the percentage of urban residents over the total population and the sectoral composition of the economy, measured as the percentage of agriculture and services across the whole regional GVA, are used. To control for differences in demography structure, the percentage of the working-age population under 29 years old is used (termed "youth workforce" in the tables). For the empirical estimations, a dummy variable is added for the year 2009, in which the Brazilian economy experienced a one-off contraction as a result of the international crises. This variable will absorb external shocks related to the global recession.

Descriptive statistics are shown in Table 1. Important differences arise in productivity levels across regions, with Brasilia (Distrito Federal) appearing as the region with the highest productivity. Brasilia presents some peculiarities. It was founded in 1960 in order to move the capital to a central location. The difference in productivity between Brasilia and its closest followers is substantial, possibly partly because of differences in its sectoral composition (its main economic activities are public administration and services) and partly because Brasilia is a city in a small federal district, while the other regions constitute states. At the other extreme, the lowest productivity region is found in Piauí, which had a GVA per worker in 2011 that reached only 14 percent of that found at the capital level.

Broadband penetration averages three subscriptions per 100 inhabitants across the five-year sample, with Brasilia again being the region that reaches the highest penetration in 2011, with a penetration level of 15.47 subscriptions per 100 inhabitants (almost 50 percent of its households). There seems to be a considerable regional digital divide: poor states, such as Amapá, reached a broadband penetration of only 0.19 in 2011 (fewer than 1 percent of households).

Figure 1 summarizes territorial disparities across regional productivity and broadband penetration. Although there is not a clear center-periphery pattern of the regional distribution of productivity, most lagging regions appear to be concentrated in the northeast. On the other hand, most productive regions seem to be located at the southeast (Rio de Janeiro, São Paulo, Espirito Santo), while there are some centers of development in the south or in the northwest (especially Amazonas, an industrial state).

A more pronounced spatial pattern is evident for broadband penetration than for productivity, with Brasilia and the southern regions reaching the highest penetration levels while the northern regions appear to be lagging behind in terms of connectivity. Billón et al. (2009) report a similar pattern in European regions, as Internet adoption followed an uneven spatial pattern with arising agglomeration centers. In a similar fashion, Bonaccorsi et al. (2005) state that both developed and developing countries suffer from serious regional disparities in ICTs.

RESULTS

The empirical analysis consists of the econometric estimation of the proposed model for diverse

Table 2: Estimation results of the base model

	Estimation			
Variable	[1]	[2]	[3]	[4]
Literacy rate, population over 15 years old	0.0197† [0.0083]	0.0218‡ [0.0070]	0.0118* [0.0069]	0.0188‡ [0.0065]
ln(broadband)	0.0364‡ [0.0125]	0.0368‡ [0.0103]	0.0553‡ [0.0127]	0.0714‡ [0.0255]
Agriculture sector, % of regional GVA	—	0.1511 [0.2748]	—	0.0007 [0.4277]
Services sector, % of regional GVA	—	–1.0189† [0.4073]	—	–1.1862‡ [0.3359]
Urban population, % total population	—	–0.0133‡ [0.0023]	—	–0.0146‡
Youth workforce, % working age population (18–29 years old)	—	0.1316 [0.4562]	—	1.1027 [0.7561]
Dummy variable for year 2009	—	–0.0122* [0.0070]	—	–0.0133 [0.0092]
Implied ϕ	0.0200	0.0202	0.0304	0.0393
Implied γ	0.0108	0.0120	0.0065	0.0103
Fixed effects	Yes	Yes	Yes	Yes
Number of observations	135	135	132	132
R^2	0.50	0.66	0.46	0.61
Method	Ordinary least squares	Ordinary least squares	Instrumental variable	Instrumental variable

Sources: Author's elaboration based on data from the following sources: Agriculture sector, Services sector, GVA per worker, and Youth workforce: IBGE database; Fixed broadband, Speed: Telebrasil; Literacy rate, Urban population: IPEA database.
Notes: — = not applicable. Robust standard errors appear in square brackets.
Significance level: * = 10 percent, † = 5 percent, ‡ = 1 percent.

Table 3: Regional classification according to productivity

Low-productivity regions	Medium-productivity regions	High-productivity regions
Piauí	Tocantins	Mato Grosso
Maranhão	Goiás	Rondônia
Ceará	Pará	Santa Catarina
Paraíba	Mato Grosso do Sul	Espírito Santo
Alagoas	Minas Gerais	Rio Grande do Sul
Rio Grande do Norte	Acre	Amazonas
Bahia	Amapá	Rio de Janeiro
Pernambuco	Paraná	São Paulo
Sergipe	Roraima	Distrito Federal

Source: Author's elaboration based on productivity levels (GVA per worker); data from the IBGE database.

specifications.[12] Table 2 reports estimations assuming no regional differences. Results provide evidence of the positive impact of broadband on productivity that is robust to the addition of control variables and the use of instruments to take into account endogeneity. Instrumental variable estimates point out that, if anything, the incidence of broadband is even higher than in estimations that do not use this approach (i.e., that are ordinary least squares estimations). This outcome is in line of the results obtained by Bertschek et al. (2013) and Czernich et al. (2011), who both report that ordinary least squares estimates may be downward biased.

Once the impact of broadband on productivity is verified, it is interesting to determine whether that impact is uniform across states. To take into account differences in the impact of broadband, regions are classified into several groups according to their level of development: low-productivity (LP), medium-productivity (MP), and high-productivity (HP) regions. Brazil's 27 states can be easily divided into three groups of nine regions each, according to the average productivity levels in the sample. Regions' classifications are shown in Table 3.

The next estimations are performed using ordinary least squares methods because these provide a more conservative approach than instrumental variables do, and ordinary least squares can serve as a lower bound. Estimation [1] in Table 4 considers uniquely the level of development as a source for differences in the impact of broadband. Every region benefits from broadband (because Φ is significant and equals 0.014),

Table 4: Results allowing for variations in the region groups

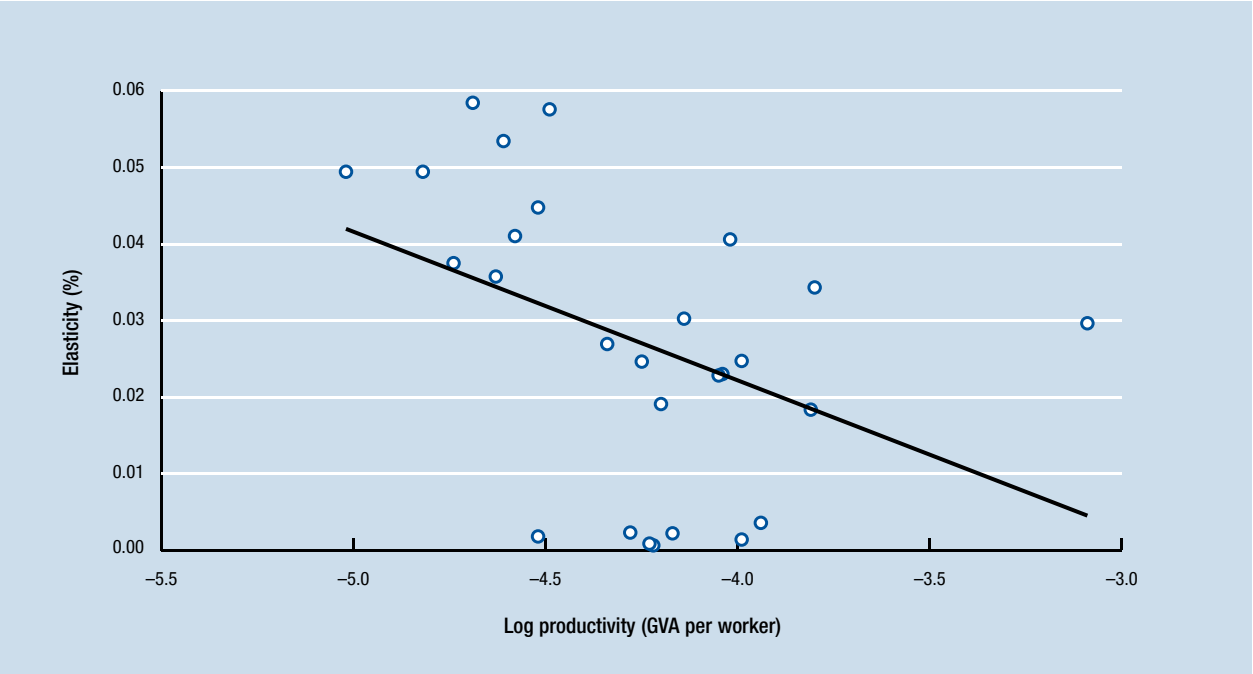
	Estimation			
Variable	[1]	[2]	[3]	[4]
Literacy rate, population over 15 years old	0.0111 [0.0079]	0.0114 [0.0076]	0.0129 [0.0076]	0.0131* [0.0072]
ln(broadband)	0.0258† [0.0120]	0.0161 [0.0123]	–0.0014 [0.0130]	–0.0055 [0.0130]
LP*ln(broadband)	0.0462† [0.0171]	0.0495‡ [0.0165]	0.0513‡ [0.0135]	0.0527‡ [0.0129]
MP*ln(broadband)	0.0076 [0.0191]	0.0117 [0.0178]	0.0197 [0.0157]	0.0209 [0.0157]
Quality*ln(broadband)	— —	0.0002† [0.0001]	— —	0.0001* [0.0001]
Commerce*ln(broadband)	— —	— —	0.0356‡ [0.0122]	0.0363‡ [0.0125]
Info services*ln(broadband)	— —	— —	0.0309† [0.0145]	0.0277* [0.0150]
Finance*ln(broadband)	— —	— —	0.0132 [0.0151]	0.0080 [0.0156]
Other services*ln(broadband)	— —	— —	–0.0089 [0.0156]	–0.0107 [0.0167]
Implied ϕ	0.0142	0.0089	–0.0008	–0.0030
Implied ϕ LP	0.0254	0.0272	0.0282	0.0290
Implied ϕ MP	0.0042	0.0064	0.0108	0.0115
Implied γ	0.0061	0.0063	0.0071	0.0072
Implied δ Quality	—	0.0001		0.0001
Implied δ Commerce	—	—	0.0196	0.0200
Implied δ Info services	—	—	0.0170	0.0152
Implied δ Finance	—	—	0.0073	0.0044
Implied δ Other services	—	—	–0.0049	–0.0059
Fixed effects	Yes	Yes	Yes	Yes
Number of observations	135	135	135	135
R^2 (within)	0.55	0.57	0.61	0.62
Method	Ordinary least squares	Ordinary least squares	Ordinary least squares	Ordinary least squares

Sources: Author's elaboration based on data from the following sources: Literacy rate: IPEA database; broadband data: Telebrasil; GVA per worker: IBGE database.
Notes: LP = low-productivity regions; MP = medium-productivity regions; Quality is approximated by the square of the average speed. Commerce, Info services, Finance, and Other services refer to the GVA data for specific sectors; these are dummy variables that take a value of 1 for those regions that appear at the top third of the sample in the percentage of GVA attributed to those sectors. — = not applicable. Robust standard errors appear in square brackets.
Significance level: * = 10 percent, † = 5 percent, ‡ = 1 percent.

but less-developed regions appear to obtain much larger productivity gains (because Φ_{LP} is significant and equals 0.025). This may suggest that the impact of broadband on productivity declines as regions become more developed.

Estimation [2] allows broadband quality differentials to have an influence on productivity. Quality is approximated by the square of average speed, following Rohman and Bohlin (2012). Results suggest that less-developed regions experience a higher economic impact from broadband. Speed seems to be important, since the associated parameter is significant at the 5 percent level. Estimation [3] considers the sectoral composition. As stated by the literature, services-related sectors are expected to benefit more from broadband than more traditional sectors such as agriculture, construction, and industry. The IBGE provides GVA data for specific services, such as commerce, information services, the financial sector, and others. To find out if regions with a relatively high concentration of these sectors achieve a greater economic impact from broadband, dummy variables are interacted with penetration levels. The respective dummies take a value of 1 for those regions that appear at the top third of the sample in the percentage of GVA attributed to those sectors. Results again confirm that the regions that are the most underdeveloped appear to obtain a higher impact from broadband, while some interesting results arise from the services activities in interaction with broadband. As expected, regions that are relatively intensive in commerce or in information services seem to yield higher productivity returns for broadband. In contrast, no

Figure 2: Productivity variation after a 10 percent increase in broadband penetration



Source: Author's elaboration based on data from the IBGE database, the IPEA database, and Telebrasil. Elasticities were estimated using the parameters estimated in Estimation [4] of Table 4 as described in the text. Variables for the analysis were from 2011.

significance was found for the interaction of broadband and intensiveness in the financial sector or other services sectors. These results seem to be verified when introducing all regional differences (Estimation [4]), after which productivity-broadband elasticity measures can be computed for each region (using 2011 data). The results, displayed in Figure 2, suggest important regional differences of productivity growth after an increase of 10 percent in broadband penetration.

As represented in the scatterplot of the figure, low-productivity regions appear to reach higher elasticities after considering other attributes such as sectoral composition and broadband speed. It is important to try to address why the least-developed regions get more economic impact from broadband than other regions. A possible explanation is that the technological change derived from broadband deployment in a poor region seems to represent a bigger difference (the change is greater) than the same change provides in highly developed regions, which already had good infrastructure and communications endowment. In contrast, for poor regions, the impact on the social and business environment may be more profound. Perhaps high-productivity regions in Brazil have already made a difference in their economies because of broadband, which may suggest some degree of diminishing returns.

This evidence suggests that broadband inclusion across all territories in Brazil will certainly enable better opportunities for business and individuals in underdeveloped regions, which may contribute to overcoming their traditional disadvantages. Broadband infrastructure, combined with lower wages and other costs, may help to increase the competitiveness in more underdeveloped regions, reducing agglomeration forces at the center of the country. Even if further research is required, this evidence may suggest that a strategy of reducing regional digital divides may help to stimulate economic cohesion across the territories of a country.

CONCLUSIONS

This chapter provides evidence that the highest productivity gains from broadband in Brazil appear to be found in the country's less-developed regions. Although a convergence analysis remains out of the scope of this chapter, these results suggest that broadband connectivity might constitute a factor that enhances regional cohesion in the country. In that sense, a digital inclusion strategy across territories may contribute to economic cohesion.

These results do not contradict those studies that argue about the relationship of network effects and the presence of a critical mass for broadband externalities, because, as seen in Figure 1, the poorest regions in Brazil are not those with the lowest connectivity levels.

Some policy implications can be derived from this work. The importance of broadband for regional

development makes it clear that all levels of government should follow policies that encourage network deployments. Barrios and Navajas (2008) assert the importance of adopting, together with country-level initiatives, regional policies, because the nature of technological change and innovation have a strong regional component that requires public policies to take this into account when they are designed. Barrios and Navajas (2008) highlight the importance that regional cohesion policies consider the relevance of ICT infrastructure, aiming to favor the attractiveness of less-developed regions. Regional policies should also promote ICT skills and the use of ICTs by small- and medium-sized enterprises.[13]

In this context, investment in broadband infrastructure is critical, in terms of both coverage and speed. As maintained by Crandall et al. (2007), it is essential that regulatory policies not reduce investment incentives for carriers. In particular, policymakers should adopt measures that promote, or at least do not inhibit, the growth of broadband. In densely populated areas, private competition will certainly provide the required incentives that will lead to higher investments and better connectivity. In contrast, in remote areas that have low levels of population density or are affected by adverse geographical conditions, public intervention will become vital for infrastructure deployment. In those cases, universalization policies might become crucial. As noted by Frieden (2005), broadband investment requires important levels of public-private cooperation. These policy derivations are especially important for BRIC economies, because broadband investment may contribute to promoting the development of territorial equilibrium within those countries, reducing regional inequalities.

NOTES

1 The BRIC countries are Brazil, Russia, India, and China. See the BRICS Policy Center website at http://bricspolicycenter.org/.

2 The Programa Nacional de Banda Larga, Brazil's National Broadband Plan, which was launched by the Government of Brazil, is out of the scope of this chapter because it did not begin implementation until mid-2011.

3 Universalization policies are those from Universal Fund Services, for instance. These are efforts promoted by governments to extend connectivity to regions where the market is not profitable for private companies. A Fund is established, and usually a private company executes those resources.

4 Koutroumpis 2009; Qiang et al. 2009; Czernich et al. 2011.

5 Lehr et al. 2005; Crandall et al. 2007; Mack and Faggian 2013.

6 Cairncross 2001.

7 Negroponte 1995; Kelly 1998; Quah 2000; Bonaccorsi et al. 2005.

8 Suriñach et al. 2007.

9 The production function is $Y_{it} = A_{it}K_{it}^{\alpha}L_{it}^{\beta}H_{it}^{\gamma}$, where TFP is expressed as $A_{it} = \Omega_{it}(X)BB_{it}^{\Phi}$. The lack of available data for state-level physical capital stocks in Brazil required some assumptions and rearrangements to derive the empirical specification. These are omitted to save space, but are available from the author at juan.jung@ahciet.net upon request.

10 For some cases of missing 2010 information, averages among data from 2009 and 2011 were used to fulfill the gaps.

11 Telebrasil offers data on fixed broadband across the following speed intervals: (1) 512 kb/s to 2 mb/s; (2) 2 mb/s to 34 mb/s; and (3) higher than 34 mb/s. The formula for computing average download speed for region *i* at time *t* is

$$SPEED_{it} = 1.25 \times \left[\frac{BB(1)_{it}}{BB_{it}}\right] + 18 \times \left[\frac{BB(2)_{it}}{BB_{it}}\right] + 50 \times \left[\frac{BB(3)_{it}}{BB_{it}}\right].$$

Assigned speed values for (1) and (2) correspond to the midpoint of the corresponding speed interval. Speed for the interval (3) is right-censored, and the selection of 50 mb/s is somewhat arbitrary, although results are not sensible to different approximations. The equivalence formula is 1 mb/s = 1,024 kb/s.

12 To recover the structural parameters, it will be assumed $\alpha = 0.45$, following Feenstra et al. (2013) estimations of labor share in the income and supposing constant returns to scale.

13 Barrios et al. 2008.

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Part 2

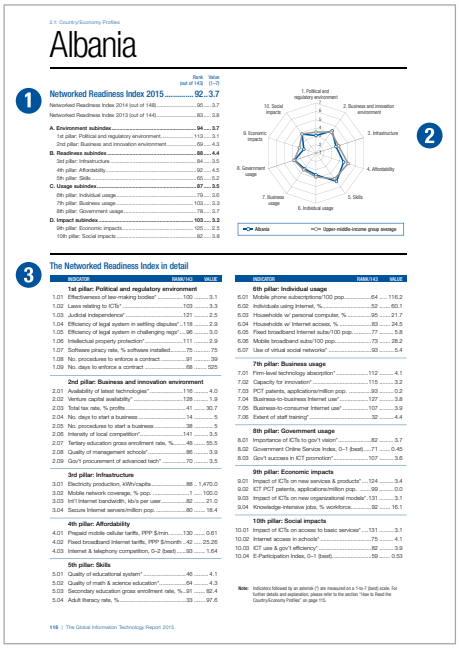
Data Presentation

2.1

Country/Economy Profiles

How to Read the Country/Economy Profiles

The Country/Economy Profiles section presents a profile for each of the 143 economies covered in *The Global Information Technology Report 2015.* Each profile summarizes an economy's performance in the various dimensions of the Networked Readiness Index (NRI).


2.1: Country/Economy Profiles

Albania

1 Networked Readiness Index 2015 — Rank (out of 143): 92; Value (1–7): 3.7

Networked Readiness Index 2014 (out of 148) ... 96 ... 3.7
Networked Readiness Index 2013 (out of 144) ... 83 ... 3.8

A. Environment subindex ... 94 ... 3.7
1st pillar: Political and regulatory environment ... 113 ... 3.1
2nd pillar: Business and innovation environment ... 69 ... 4.3
B. Readiness subindex ... 88 ... 4.4
3rd pillar: Infrastructure ... 84 ... 3.3
4th pillar: Affordability ... 92 ... 4.5
5th pillar: Skills ... 65 ... 5.2
C. Usage subindex ... 87 ... 3.5
6th pillar: Individual usage ... 79 ... 3.6
7th pillar: Business usage ... 103 ... 3.3
8th pillar: Government usage ... 78 ... 3.7
D. Impact subindex ... 103 ... 3.2
9th pillar: Economic impacts ... 125 ... 2.5
10th pillar: Social impacts ... 82 ... 3.8

2

3 The Networked Readiness Index in detail

INDICATOR	RANK/143	VALUE
1st pillar: Political and regulatory environment		
1.01 Effectiveness of law-making bodies*	100	3.1
1.02 Laws relating to ICTs*	103	3.3
1.03 Judicial independence*	121	2.5
1.04 Efficiency of legal system in settling disputes*	118	2.9
1.05 Efficiency of legal system in challenging regs*	96	3.0
1.06 Intellectual property protection*	111	2.9
1.07 Software piracy rate, % software installed	75	75
1.08 No. procedures to enforce a contract	97	39
1.09 No. days to enforce a contract	68	525
2nd pillar: Business and innovation environment		
2.01 Availability of latest technologies*	116	4.0
2.02 Venture capital availability*	128	1.9
2.03 Total tax rate, % profits	41	30.7
2.04 No. days to start a business	14	5
2.05 No. procedures to start a business	38	5
2.06 Intensity of local competition*	141	3.5
2.07 Tertiary education gross enrollment rate, %	46	55.5
2.08 Quality of management schools*	86	3.9
2.09 Gov't procurement of advanced tech*	70	3.5
3rd pillar: Infrastructure		
3.01 Electricity production, kWh/capita	88	1,470.0
3.02 Mobile network coverage, % pop.	1	100.0
3.03 Int'l Internet bandwidth, kb/s per user	82	21.0
3.04 Secure Internet servers/million pop.	82	18.4
4th pillar: Affordability		
4.01 Prepaid mobile cellular tariffs, PPP $/min	130	0.61
4.02 Fixed broadband Internet tariffs, PPP $/month	42	25.26
4.03 Internet & telephony competition, 0–2 (best)	99	1.64
5th pillar: Skills		
5.01 Quality of educational system*	46	4.1
5.02 Quality of math & science education*	64	4.3
5.03 Secondary education gross enrollment rate, %	91	82.4
5.04 Adult literacy rate, %	39	97.6

INDICATOR	RANK/143	VALUE
6th pillar: Individual usage		
6.01 Mobile phone subscriptions/100 pop.	64	116.2
6.02 Individuals using Internet, %	52	60.1
6.03 Households w/ personal computer, %	95	21.7
6.04 Households w/ Internet access, %	83	24.5
6.05 Fixed broadband Internet subs/100 pop.	77	5.8
6.06 Mobile broadband subs/100 pop.	73	28.2
6.07 Use of virtual social networks*	93	5.4
7th pillar: Business usage		
7.01 Firm-level technology absorption*	112	4.1
7.02 Capacity for innovation*	115	3.2
7.03 PCT patents, applications/million pop.	93	0.2
7.04 Business-to-business Internet use*	127	3.8
7.05 Business-to-consumer Internet use*	107	3.9
7.06 Extent of staff training*	92	4.4
8th pillar: Government usage		
8.01 Importance of ICTs to gov't vision*	82	3.7
8.02 Government Online Service Index, 0–1 (best)	71	0.45
8.03 Gov't success in ICT promotion*	107	3.6
9th pillar: Economic impacts		
9.01 Impact of ICTs on new services & products*	124	3.4
9.02 ICT PCT patents, applications/million pop.	59	0.0
9.03 Impact of ICTs on new organizational models*	131	3.1
9.04 Knowledge-intensive jobs, % workforce	92	16.1
10th pillar: Social impacts		
10.01 Impact of ICTs on access to basic services*	131	3.1
10.02 Internet access in schools*	75	4.1
10.03 ICT use & gov't efficiency*	82	3.9
10.04 E-Participation Index, 0–1 (best)	59	0.53

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

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1 PERFORMANCE HIGHLIGHTS

The first section of the profile presents the economy's performance in the overall NRI, the four main components, and the 10 pillars. For each of these dimensions, the economy's rank (out of 143 economies) and score (on a 1-to-7 scale) are reported.

2 On the radar chart to the right of the table, a blue line plots the economy's score on each of the 10 pillars. The gray line represents the average score of all economies in the income group to which the economy under review belongs. The country classification by income group is defined by the World Bank and reflects the situation as of July 2014. Note that the two high-income groups in this classification, High income: OECD and High income: non-OECD, were merged into a single group for the purpose of the analysis. Taiwan (China) has been included among high-income economies.

3 THE NETWORKED READINESS INDEX IN DETAIL

This section presents an economy's performance in each of the 53 indicators composing the NRI. The indicators are organized by pillar. The numbering matches that of the data tables in the next section of the *Report,* which provides descriptions, rankings, and scores for all the indicators. The indicators derived from the 2013 and 2014 editions of the World Economic Forum's Executive Opinion Survey are identified by an asterisk (*). These indicators are always measured on a 1-to-7 scale (where 1 or 7 correspond to the worst or best possible outcome, respectively). For more information on the Executive Opinion Survey and a detailed explanation of how scores are computed, refer to Chapter 1.3 of *The Global Competitiveness Report 2014–2015,* available for free on the World Economic Forum website at www.weforum.org/gcr.

For those indicators not derived from the Executive Opinion Survey, the scale is reported next to the title. The Technical Notes and Sources at the end of this *Report* provide further details on each indicator, including its definition, method of computation, and sources. Note that for the sake of readability, the years were omitted. However, the year of each data point is indicated in the corresponding data table. For more information on the framework and computation of the NRI, refer to Chapter 1.1.

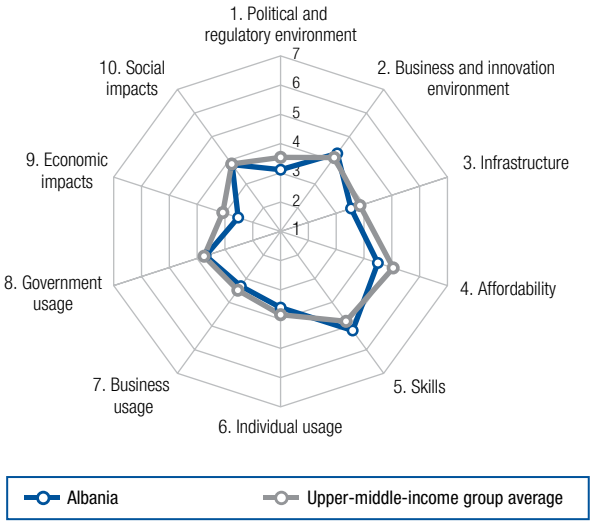
THE GITR ONLINE

To complement the analysis presented in this *Report,* the GITR's portal—available at www.weforum.org/gitr—offers additional analysis and a number of analytical tools and visualizations, including sortable rankings and maps. The portal also offers the option of downloading portions of the NRI dataset.

Index of Countries/Economies

Albania

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**92**	**3.7**
Networked Readiness Index 2014 (out of 148)	95	3.7
Networked Readiness Index 2013 (out of 144)	83	3.8
A. Environment subindex	**94**	**3.7**
1st pillar: Political and regulatory environment	113	3.1
2nd pillar: Business and innovation environment	69	4.3
B. Readiness subindex	**88**	**4.4**
3rd pillar: Infrastructure	84	3.5
4th pillar: Affordability	92	4.5
5th pillar: Skills	65	5.2
C. Usage subindex	**87**	**3.5**
6th pillar: Individual usage	79	3.6
7th pillar: Business usage	103	3.3
8th pillar: Government usage	78	3.7
D. Impact subindex	**103**	**3.2**
9th pillar: Economic impacts	125	2.5
10th pillar: Social impacts	82	3.8



The Networked Readiness Index in detail

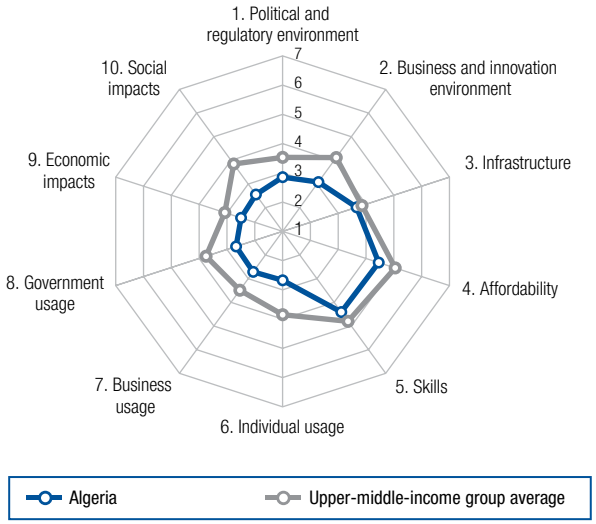
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	100	3.1
1.02	Laws relating to ICTs*	103	3.3
1.03	Judicial independence*	121	2.5
1.04	Efficiency of legal system in settling disputes*	118	2.9
1.05	Efficiency of legal system in challenging regs*	96	3.0
1.06	Intellectual property protection*	111	2.9
1.07	Software piracy rate, % software installed	75	75
1.08	No. procedures to enforce a contract	91	39
1.09	No. days to enforce a contract	68	525
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	116	4.0
2.02	Venture capital availability*	128	1.9
2.03	Total tax rate, % profits	41	30.7
2.04	No. days to start a business	14	5
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	141	3.5
2.07	Tertiary education gross enrollment rate, %	48	55.5
2.08	Quality of management schools*	86	3.9
2.09	Gov't procurement of advanced tech*	70	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	88	1,470.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	82	21.0
3.04	Secure Internet servers/million pop.	80	18.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	130	0.61
4.02	Fixed broadband Internet tariffs, PPP $/month	42	25.26
4.03	Internet & telephony competition, 0–2 (best)	93	1.64
	5th pillar: Skills		
5.01	Quality of educational system*	46	4.1
5.02	Quality of math & science education*	64	4.3
5.03	Secondary education gross enrollment rate, %	91	82.4
5.04	Adult literacy rate, %	33	97.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	64	116.2
6.02	Individuals using Internet, %	52	60.1
6.03	Households w/ personal computer, %	95	21.7
6.04	Households w/ Internet access, %	83	24.5
6.05	Fixed broadband Internet subs/100 pop.	77	5.8
6.06	Mobile broadband subs/100 pop.	73	28.2
6.07	Use of virtual social networks*	93	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	112	4.1
7.02	Capacity for innovation*	115	3.2
7.03	PCT patents, applications/million pop.	93	0.2
7.04	Business-to-business Internet use*	127	3.8
7.05	Business-to-consumer Internet use*	107	3.9
7.06	Extent of staff training*	32	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	82	3.7
8.02	Government Online Service Index, 0–1 (best)	71	0.45
8.03	Gov't success in ICT promotion*	107	3.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	124	3.4
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	131	3.1
9.04	Knowledge-intensive jobs, % workforce	92	16.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	131	3.1
10.02	Internet access in schools*	75	4.1
10.03	ICT use & gov't efficiency*	82	3.9
10.04	E-Participation Index, 0–1 (best)	59	0.53

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Algeria

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**120**	**3.1**
Networked Readiness Index 2014 (out of 148)	129	3.0
Networked Readiness Index 2013 (out of 144)	131	2.8
A. Environment subindex	**134**	**3.0**
1st pillar: Political and regulatory environment	127	2.9
2nd pillar: Business and innovation environment	136	3.1
B. Readiness subindex	**97**	**4.2**
3rd pillar: Infrastructure	83	3.7
4th pillar: Affordability	94	4.5
5th pillar: Skills	94	4.4
C. Usage subindex	**129**	**2.7**
6th pillar: Individual usage	102	2.7
7th pillar: Business usage	137	2.7
8th pillar: Government usage	134	2.7
D. Impact subindex	**134**	**2.5**
9th pillar: Economic impacts	127	2.5
10th pillar: Social impacts	136	2.6



The Networked Readiness Index in detail

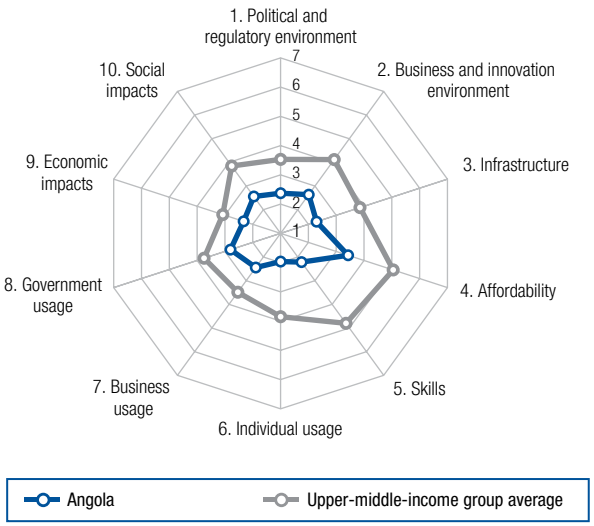
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	118	2.8
1.02	Laws relating to ICTs*	138	2.3
1.03	Judicial independence*	85	3.5
1.04	Efficiency of legal system in settling disputes*	107	3.2
1.05	Efficiency of legal system in challenging regs*	104	2.9
1.06	Intellectual property protection*	113	2.9
1.07	Software piracy rate, % software installed	95	85
1.08	No. procedures to enforce a contract	127	45
1.09	No. days to enforce a contract	97	630
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	135	3.4
2.02	Venture capital availability*	108	2.2
2.03	Total tax rate, % profits	139	72.7
2.04	No. days to start a business	103	22
2.05	No. procedures to start a business	137	13
2.06	Intensity of local competition*	135	3.8
2.07	Tertiary education gross enrollment rate, %	78	31.5
2.08	Quality of management schools*	115	3.5
2.09	Gov't procurement of advanced tech*	98	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	90	1,356.5
3.02	Mobile network coverage, % pop.	63	99.2
3.03	Int'l Internet bandwidth, kb/s per user	71	26.3
3.04	Secure Internet servers/million pop.	121	1.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	77	0.27
4.02	Fixed broadband Internet tariffs, PPP $/month	101	48.71
4.03	Internet & telephony competition, 0–2 (best)	104	1.33
	5th pillar: Skills		
5.01	Quality of educational system*	113	3.0
5.02	Quality of math & science education*	113	3.2
5.03	Secondary education gross enrollment rate, %	44	97.6
5.04	Adult literacy rate, %	85	80.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	93	100.8
6.02	Individuals using Internet, %	108	16.5
6.03	Households w/ personal computer, %	89	26.0
6.04	Households w/ Internet access, %	84	23.8
6.05	Fixed broadband Internet subs/100 pop.	88	3.3
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	115	4.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	137	3.4
7.02	Capacity for innovation*	142	2.7
7.03	PCT patents, applications/million pop.	94	0.2
7.04	Business-to-business Internet use*	137	3.4
7.05	Business-to-consumer Internet use*	137	2.9
7.06	Extent of staff training*	117	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	116	3.2
8.02	Government Online Service Index, 0–1 (best)	133	0.08
8.03	Gov't success in ICT promotion*	125	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	137	3.1
9.02	ICT PCT patents, applications/million pop.	87	0.1
9.03	Impact of ICTs on new organizational models*	130	3.1
9.04	Knowledge-intensive jobs, % workforce	86	17.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	125	3.2
10.02	Internet access in schools*	133	2.4
10.03	ICT use & gov't efficiency*	121	3.1
10.04	E-Participation Index, 0–1 (best)	134	0.08

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Angola

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**140**	**2.5**
Networked Readiness Index 2014 (out of 148)	144	2.5
Networked Readiness Index 2013 (out of 144)	n/a	n/a
A. Environment subindex	**143**	**2.5**
1st pillar: Political and regulatory environment	141	2.4
2nd pillar: Business and innovation environment	142	2.6
B. Readiness subindex	**131**	**2.6**
3rd pillar: Infrastructure	122	2.3
4th pillar: Affordability	118	3.4
5th pillar: Skills	138	2.2
C. Usage subindex	**138**	**2.4**
6th pillar: Individual usage	126	2.0
7th pillar: Business usage	143	2.4
8th pillar: Government usage	128	2.8
D. Impact subindex	**136**	**2.4**
9th pillar: Economic impacts	134	2.3
10th pillar: Social impacts	135	2.6



The Networked Readiness Index in detail

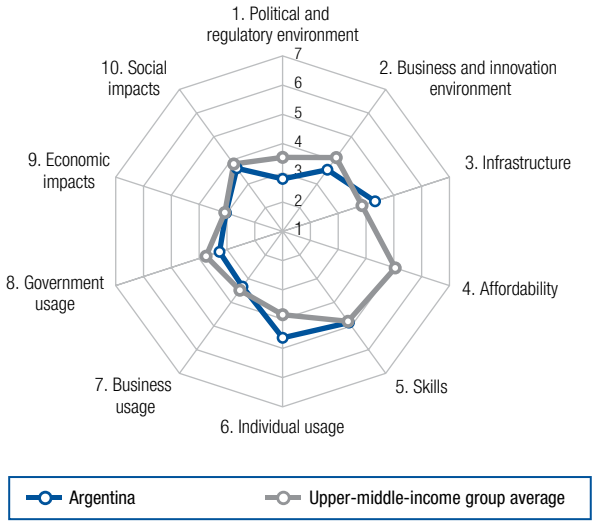
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	115	2.8
1.02	Laws relating to ICTs*	133	2.6
1.03	Judicial independence*	136	2.1
1.04	Efficiency of legal system in settling disputes*	139	2.3
1.05	Efficiency of legal system in challenging regs*	140	2.0
1.06	Intellectual property protection*	137	2.3
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	130	46
1.09	No. days to enforce a contract	135	1,296
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	138	3.2
2.02	Venture capital availability*	98	2.3
2.03	Total tax rate, % profits	119	52.0
2.04	No. days to start a business	134	66
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	143	2.6
2.07	Tertiary education gross enrollment rate, %	121	7.5
2.08	Quality of management schools*	139	2.3
2.09	Gov't procurement of advanced tech*	134	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	119	280.0
3.02	Mobile network coverage, % pop.	117	90.0
3.03	Int'l Internet bandwidth, kb/s per user	131	3.4
3.04	Secure Internet servers/million pop.	106	3.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	93	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	116	67.85
4.03	Internet & telephony competition, 0–2 (best)	104	1.33
	5th pillar: Skills		
5.01	Quality of educational system*	141	2.1
5.02	Quality of math & science education*	142	1.9
5.03	Secondary education gross enrollment rate, %	133	31.5
5.04	Adult literacy rate, %	95	71.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	132	61.9
6.02	Individuals using Internet, %	104	19.1
6.03	Households w/ personal computer, %	117	9.2
6.04	Households w/ Internet access, %	111	7.9
6.05	Fixed broadband Internet subs/100 pop.	128	0.1
6.06	Mobile broadband subs/100 pop.	95	12.2
6.07	Use of virtual social networks*	135	4.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	142	2.9
7.02	Capacity for innovation*	141	2.7
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	141	3.1
7.05	Business-to-consumer Internet use*	141	2.6
7.06	Extent of staff training*	140	2.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	133	2.8
8.02	Government Online Service Index, 0–1 (best)	102	0.30
8.03	Gov't success in ICT promotion*	141	2.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	129	3.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	140	2.7
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	142	2.6
10.02	Internet access in schools*	132	2.4
10.03	ICT use & gov't efficiency*	139	2.8
10.04	E-Participation Index, 0–1 (best)	111	0.24

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Argentina

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**91**	**3.7**
Networked Readiness Index 2014 (out of 148)	100	3.5
Networked Readiness Index 2013 (out of 144)	99	3.5
A. Environment subindex	**128**	**3.2**
1st pillar: Political and regulatory environment	128	2.8
2nd pillar: Business and innovation environment	118	3.6
B. Readiness subindex	**79**	**4.6**
3rd pillar: Infrastructure	62	4.3
4th pillar: Affordability	n/a	n/a
5th pillar: Skills	79	4.9
C. Usage subindex	**76**	**3.7**
6th pillar: Individual usage	54	4.6
7th pillar: Business usage	101	3.3
8th pillar: Government usage	115	3.3
D. Impact subindex	**94**	**3.3**
9th pillar: Economic impacts	91	3.0
10th pillar: Social impacts	91	3.7



The Networked Readiness Index in detail

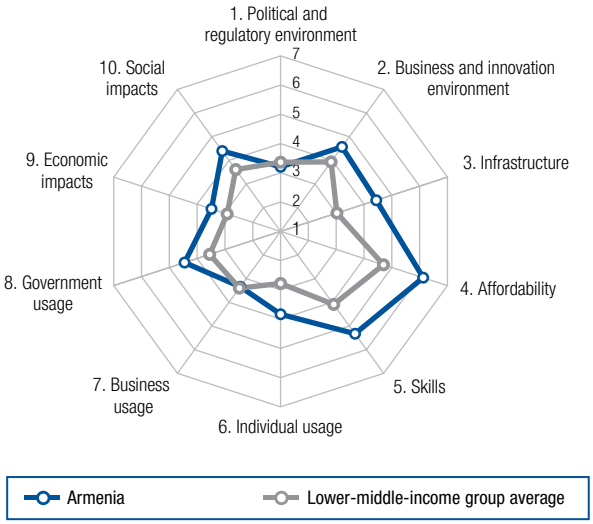
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	134	2.1
1.02	Laws relating to ICTs*	123	2.9
1.03	Judicial independence*	126	2.3
1.04	Efficiency of legal system in settling disputes*	129	2.6
1.05	Efficiency of legal system in challenging regs*	142	1.9
1.06	Intellectual property protection*	135	2.4
1.07	Software piracy rate, % software installed	66	69
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	84	590
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	124	3.8
2.02	Venture capital availability*	137	1.8
2.03	Total tax rate, % profits	143	137.3
2.04	No. days to start a business	106	25
2.05	No. procedures to start a business	139	14
2.06	Intensity of local competition*	131	4.1
2.07	Tertiary education gross enrollment rate, %	15	78.6
2.08	Quality of management schools*	34	4.8
2.09	Gov't procurement of advanced tech*	136	2.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	63	3,180.9
3.02	Mobile network coverage, % pop.	109	94.1
3.03	Int'l Internet bandwidth, kb/s per user	58	44.3
3.04	Secure Internet servers/million pop.	63	42.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	n/a	n/a
4.02	Fixed broadband Internet tariffs, PPP $/month	n/a	n/a
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	112	3.0
5.02	Quality of math & science education*	112	3.2
5.03	Secondary education gross enrollment rate, %	63	91.9
5.04	Adult literacy rate, %	28	98.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	12	162.5
6.02	Individuals using Internet, %	53	59.9
6.03	Households w/ personal computer, %	58	59.2
6.04	Households w/ Internet access, %	55	53.9
6.05	Fixed broadband Internet subs/100 pop.	49	14.4
6.06	Mobile broadband subs/100 pop.	67	32.1
6.07	Use of virtual social networks*	52	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	115	4.0
7.02	Capacity for innovation*	80	3.7
7.03	PCT patents, applications/million pop.	66	1.3
7.04	Business-to-business Internet use*	111	4.1
7.05	Business-to-consumer Internet use*	77	4.3
7.06	Extent of staff training*	95	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	139	2.5
8.02	Government Online Service Index, 0–1 (best)	55	0.55
8.03	Gov't success in ICT promotion*	136	3.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	110	3.8
9.02	ICT PCT patents, applications/million pop.	66	0.3
9.03	Impact of ICTs on new organizational models*	97	3.8
9.04	Knowledge-intensive jobs, % workforce	59	24.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	112	3.5
10.02	Internet access in schools*	76	4.1
10.03	ICT use & gov't efficiency*	140	2.8
10.04	E-Participation Index, 0–1 (best)	54	0.55

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Armenia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**58**	**4.2**
Networked Readiness Index 2014 (out of 148)	65	4.0
Networked Readiness Index 2013 (out of 144)	82	3.8
A. Environment subindex	**78**	**3.9**
1st pillar: Political and regulatory environment	107	3.2
2nd pillar: Business and innovation environment	53	4.6
B. Readiness subindex	**44**	**5.3**
3rd pillar: Infrastructure	57	4.4
4th pillar: Affordability	31	6.1
5th pillar: Skills	54	5.3
C. Usage subindex	**65**	**3.9**
6th pillar: Individual usage	74	3.8
7th pillar: Business usage	100	3.3
8th pillar: Government usage	45	4.5
D. Impact subindex	**54**	**3.9**
9th pillar: Economic impacts	50	3.5
10th pillar: Social impacts	58	4.4



The Networked Readiness Index in detail

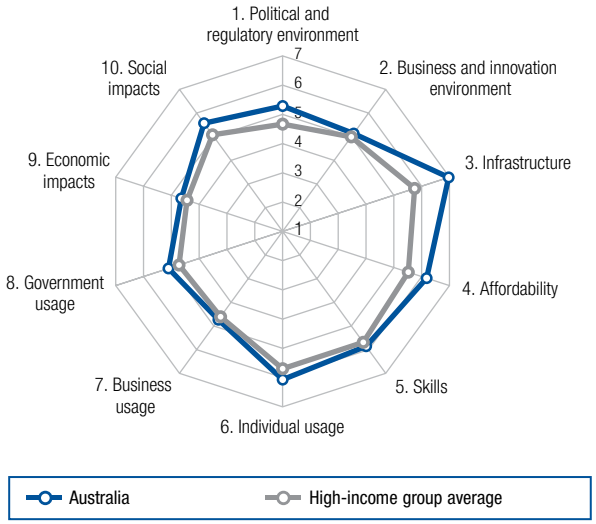
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	90	3.3
1.02	Laws relating to ICTs*	47	4.4
1.03	Judicial independence*	107	2.9
1.04	Efficiency of legal system in settling disputes*	94	3.4
1.05	Efficiency of legal system in challenging regs*	98	2.9
1.06	Intellectual property protection*	84	3.5
1.07	Software piracy rate, % software installed	98	86
1.08	No. procedures to enforce a contract	137	49
1.09	No. days to enforce a contract	79	570
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	95	4.4
2.02	Venture capital availability*	96	2.4
2.03	Total tax rate, % profits	14	20.4
2.04	No. days to start a business	8	3
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	85	4.9
2.07	Tertiary education gross enrollment rate, %	58	46.0
2.08	Quality of management schools*	116	3.5
2.09	Gov't procurement of advanced tech*	120	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	72	2,507.7
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	48	55.1
3.04	Secure Internet servers/million pop.	64	40.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	64	0.24
4.02	Fixed broadband Internet tariffs, PPP $/month	37	24.37
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	86	3.5
5.02	Quality of math & science education*	69	4.2
5.03	Secondary education gross enrollment rate, %	49	95.9
5.04	Adult literacy rate, %	12	99.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	71	112.4
6.02	Individuals using Internet, %	71	46.3
6.03	Households w/ personal computer, %	76	40.1
6.04	Households w/ Internet access, %	75	35.6
6.05	Fixed broadband Internet subs/100 pop.	71	7.9
6.06	Mobile broadband subs/100 pop.	69	31.0
6.07	Use of virtual social networks*	70	5.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	113	4.1
7.02	Capacity for innovation*	98	3.5
7.03	PCT patents, applications/million pop.	50	4.1
7.04	Business-to-business Internet use*	58	5.0
7.05	Business-to-consumer Internet use*	75	4.3
7.06	Extent of staff training*	118	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	48	4.2
8.02	Government Online Service Index, 0–1 (best)	43	0.61
8.03	Gov't success in ICT promotion*	52	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	56	4.6
9.02	ICT PCT patents, applications/million pop.	61	0.5
9.03	Impact of ICTs on new organizational models*	46	4.6
9.04	Knowledge-intensive jobs, % workforce	53	26.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	61	4.3
10.02	Internet access in schools*	68	4.3
10.03	ICT use & gov't efficiency*	37	4.8
10.04	E-Participation Index, 0–1 (best)	59	0.53

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Australia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**16**	**5.5**
Networked Readiness Index 2014 (out of 148)	18	5.4
Networked Readiness Index 2013 (out of 144)	18	5.3
A. Environment subindex	**17**	**5.2**
1st pillar: Political and regulatory environment	15	5.3
2nd pillar: Business and innovation environment	23	5.1
B. Readiness subindex	**7**	**6.3**
3rd pillar: Infrastructure	6	7.0
4th pillar: Affordability	28	6.2
5th pillar: Skills	17	5.9
C. Usage subindex	**20**	**5.3**
6th pillar: Individual usage	15	6.1
7th pillar: Business usage	24	4.7
8th pillar: Government usage	23	5.1
D. Impact subindex	**19**	**5.1**
9th pillar: Economic impacts	24	4.6
10th pillar: Social impacts	14	5.6



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	23	4.7
1.02	Laws relating to ICTs*	28	4.9
1.03	Judicial independence*	14	5.9
1.04	Efficiency of legal system in settling disputes*	26	4.8
1.05	Efficiency of legal system in challenging regs*	26	4.1
1.06	Intellectual property protection*	17	5.5
1.07	Software piracy rate, % software installed	5	21
1.08	No. procedures to enforce a contract	12	28
1.09	No. days to enforce a contract	25	395
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	24	6.0
2.02	Venture capital availability*	29	3.4
2.03	Total tax rate, % profits	103	47.3
2.04	No. days to start a business	4	3
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	8	6.0
2.07	Tertiary education gross enrollment rate, %	6	86.3
2.08	Quality of management schools*	27	5.1
2.09	Gov't procurement of advanced tech*	73	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	10	11,101.1
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	40	67.1
3.04	Secure Internet servers/million pop.	12	1,252.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	14	0.09
4.02	Fixed broadband Internet tariffs, PPP $/month	76	34.14
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	19	4.8
5.02	Quality of math & science education*	38	4.6
5.03	Secondary education gross enrollment rate, %	1	135.5
5.04	Adult literacy rate, %	n/a	n/a[1]

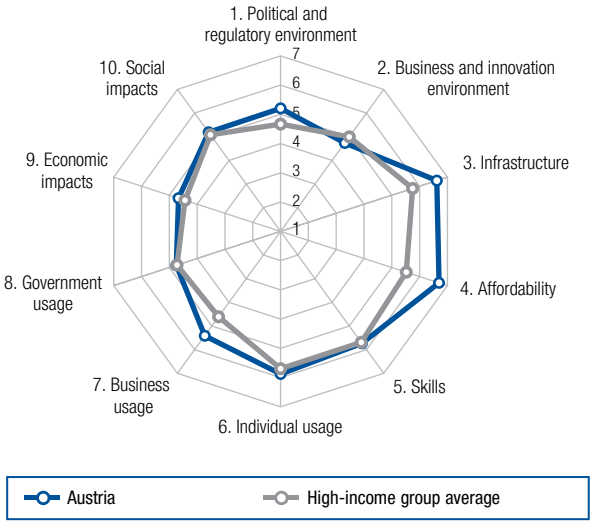
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	81	106.8
6.02	Individuals using Internet, %	18	83.0
6.03	Households w/ personal computer, %	20	83.5
6.04	Households w/ Internet access, %	15	83.0
6.05	Fixed broadband Internet subs/100 pop.	26	25.0
6.06	Mobile broadband subs/100 pop.	4	110.5
6.07	Use of virtual social networks*	16	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	23	5.6
7.02	Capacity for innovation*	27	4.6
7.03	PCT patents, applications/million pop.	22	77.1
7.04	Business-to-business Internet use*	28	5.5
7.05	Business-to-consumer Internet use*	16	5.7
7.06	Extent of staff training*	30	4.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	40	4.4
8.02	Government Online Service Index, 0–1 (best)	8	0.93
8.03	Gov't success in ICT promotion*	62	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	36	4.9
9.02	ICT PCT patents, applications/million pop.	21	23.0
9.03	Impact of ICTs on new organizational models*	18	5.2
9.04	Knowledge-intensive jobs, % workforce	15	43.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	32	5.1
10.02	Internet access in schools*	11	6.2
10.03	ICT use & gov't efficiency*	50	4.4
10.04	E-Participation Index, 0–1 (best)	7	0.94

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Austria

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**20**	**5.4**
Networked Readiness Index 2014 (out of 148)	22	5.3
Networked Readiness Index 2013 (out of 144)	19	5.2
A. Environment subindex	**24**	**5.0**
1st pillar: Political and regulatory environment	18	5.2
2nd pillar: Business and innovation environment	43	4.7
B. Readiness subindex	**6**	**6.3**
3rd pillar: Infrastructure	12	6.6
4th pillar: Affordability	5	6.7
5th pillar: Skills	27	5.7
C. Usage subindex	**18**	**5.3**
6th pillar: Individual usage	21	5.9
7th pillar: Business usage	13	5.4
8th pillar: Government usage	32	4.7
D. Impact subindex	**26**	**4.9**
9th pillar: Economic impacts	23	4.7
10th pillar: Social impacts	26	5.2



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	33	4.3
1.02	Laws relating to ICTs*	16	5.1
1.03	Judicial independence*	28	5.2
1.04	Efficiency of legal system in settling disputes*	24	4.9
1.05	Efficiency of legal system in challenging regs*	29	4.1
1.06	Intellectual property protection*	16	5.5
1.07	Software piracy rate, % software installed	6	22
1.08	No. procedures to enforce a contract	4	25
1.09	No. days to enforce a contract	28	397
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	23	6.0
2.02	Venture capital availability*	70	2.7
2.03	Total tax rate, % profits	119	52.0
2.04	No. days to start a business	103	22
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	15	5.8
2.07	Tertiary education gross enrollment rate, %	24	72.4
2.08	Quality of management schools*	47	4.6
2.09	Gov't procurement of advanced tech*	54	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	25	7,647.6
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	21	128.5
3.04	Secure Internet servers/million pop.	15	1,079.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	10	0.08
4.02	Fixed broadband Internet tariffs, PPP $/month	32	22.98
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	31	4.5
5.02	Quality of math & science education*	37	4.6
5.03	Secondary education gross enrollment rate, %	42	97.7
5.04	Adult literacy rate, %	n/a	n/a[1]

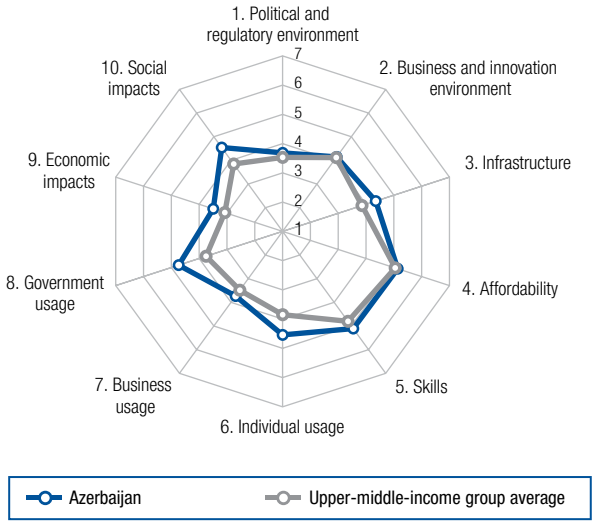
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	18	156.2
6.02	Individuals using Internet, %	22	80.6
6.03	Households w/ personal computer, %	25	80.9
6.04	Households w/ Internet access, %	20	80.9
6.05	Fixed broadband Internet subs/100 pop.	22	26.1
6.06	Mobile broadband subs/100 pop.	26	64.3
6.07	Use of virtual social networks*	24	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	17	5.7
7.02	Capacity for innovation*	19	5.0
7.03	PCT patents, applications/million pop.	10	166.4
7.04	Business-to-business Internet use*	15	5.7
7.05	Business-to-consumer Internet use*	24	5.5
7.06	Extent of staff training*	19	4.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	52	4.2
8.02	Government Online Service Index, 0–1 (best)	23	0.75
8.03	Gov't success in ICT promotion*	48	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	32	4.9
9.02	ICT PCT patents, applications/million pop.	15	36.0
9.03	Impact of ICTs on new organizational models*	49	4.5
9.04	Knowledge-intensive jobs, % workforce	24	39.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	18	5.4
10.02	Internet access in schools*	29	5.6
10.03	ICT use & gov't efficiency*	22	5.0
10.04	E-Participation Index, 0–1 (best)	40	0.63

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Azerbaijan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**57**	**4.3**
Networked Readiness Index 2014 (out of 148)	49	4.3
Networked Readiness Index 2013 (out of 144)	56	4.1
A. Environment subindex	**74**	**3.9**
1st pillar: Political and regulatory environment	69	3.7
2nd pillar: Business and innovation environment	79	4.1
B. Readiness subindex	**64**	**4.9**
3rd pillar: Infrastructure	60	4.3
4th pillar: Affordability	77	5.1
5th pillar: Skills	68	5.1
C. Usage subindex	**41**	**4.3**
6th pillar: Individual usage	59	4.5
7th pillar: Business usage	58	3.7
8th pillar: Government usage	34	4.7
D. Impact subindex	**48**	**4.0**
9th pillar: Economic impacts	49	3.5
10th pillar: Social impacts	49	4.5



The Networked Readiness Index in detail

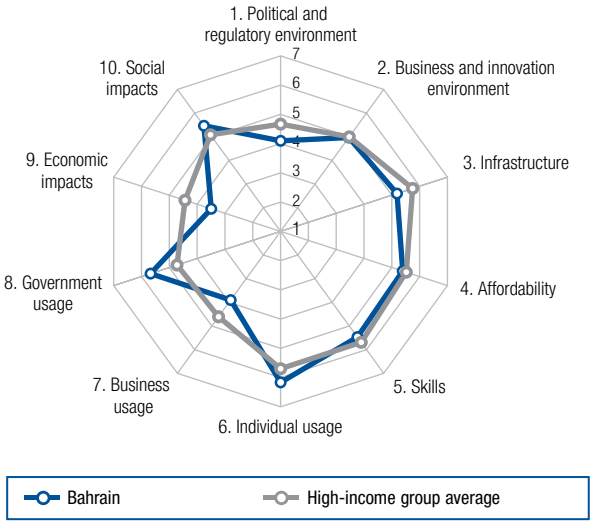
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	64	3.7
1.02	Laws relating to ICTs*	26	5.0
1.03	Judicial independence*	99	3.2
1.04	Efficiency of legal system in settling disputes*	60	3.8
1.05	Efficiency of legal system in challenging regs*	51	3.5
1.06	Intellectual property protection*	80	3.5
1.07	Software piracy rate, % software installed	95	85
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	9	277
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	63	5.0
2.02	Venture capital availability*	64	2.7
2.03	Total tax rate, % profits	80	39.8
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	120	4.3
2.07	Tertiary education gross enrollment rate, %	91	20.4
2.08	Quality of management schools*	124	3.3
2.09	Gov't procurement of advanced tech*	18	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	78	2,212.3
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	57	45.2
3.04	Secure Internet servers/million pop.	96	8.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	97	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	51	28.14
4.03	Internet & telephony competition, 0–2 (best)	103	1.40
	5th pillar: Skills		
5.01	Quality of educational system*	104	3.1
5.02	Quality of math & science education*	108	3.3
5.03	Secondary education gross enrollment rate, %	34	100.3
5.04	Adult literacy rate, %	3	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	79	107.6
6.02	Individuals using Internet, %	55	58.7
6.03	Households w/ personal computer, %	64	52.0
6.04	Households w/ Internet access, %	58	51.5
6.05	Fixed broadband Internet subs/100 pop.	41	17.0
6.06	Mobile broadband subs/100 pop.	51	43.9
6.07	Use of virtual social networks*	34	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	64	4.7
7.02	Capacity for innovation*	43	4.1
7.03	PCT patents, applications/million pop.	76	0.7
7.04	Business-to-business Internet use*	43	5.2
7.05	Business-to-consumer Internet use*	51	4.9
7.06	Extent of staff training*	94	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	9	5.2
8.02	Government Online Service Index, 0–1 (best)	74	0.43
8.03	Gov't success in ICT promotion*	10	5.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	42	4.8
9.02	ICT PCT patents, applications/million pop.	71	0.2
9.03	Impact of ICTs on new organizational models*	28	4.8
9.04	Knowledge-intensive jobs, % workforce	66	23.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	36	4.9
10.02	Internet access in schools*	69	4.3
10.03	ICT use & gov't efficiency*	10	5.4
10.04	E-Participation Index, 0–1 (best)	74	0.43

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Bahrain

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**30**	**4.9**
Networked Readiness Index 2014 (out of 148)	29	4.9
Networked Readiness Index 2013 (out of 144)	29	4.8
A. Environment subindex	**40**	**4.5**
1st pillar: Political and regulatory environment	45	4.1
2nd pillar: Business and innovation environment	29	5.0
B. Readiness subindex	**40**	**5.3**
3rd pillar: Infrastructure	35	5.2
4th pillar: Affordability	66	5.4
5th pillar: Skills	41	5.5
C. Usage subindex	**25**	**5.2**
6th pillar: Individual usage	14	6.2
7th pillar: Business usage	49	3.9
8th pillar: Government usage	4	5.7
D. Impact subindex	**33**	**4.5**
9th pillar: Economic impacts	48	3.5
10th pillar: Social impacts	17	5.5



The Networked Readiness Index in detail

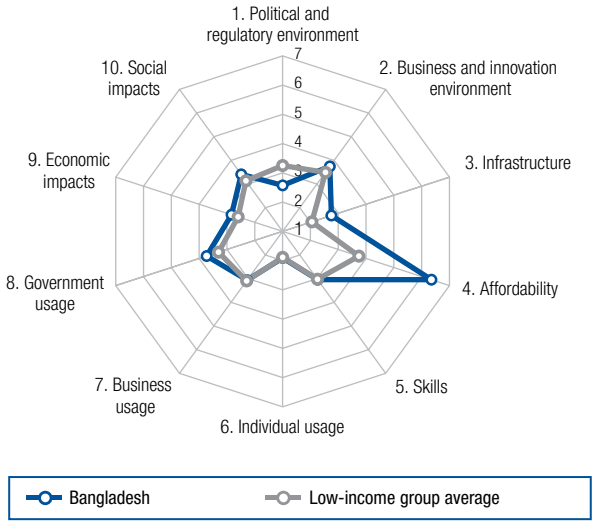
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	56	3.8
1.02	Laws relating to ICTs*	41	4.6
1.03	Judicial independence*	47	4.4
1.04	Efficiency of legal system in settling disputes*	40	4.2
1.05	Efficiency of legal system in challenging regs*	39	3.8
1.06	Intellectual property protection*	31	4.7
1.07	Software piracy rate, % software installed	44	53
1.08	No. procedures to enforce a contract	136	48
1.09	No. days to enforce a contract	98	635
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	26	5.9
2.02	Venture capital availability*	18	3.6
2.03	Total tax rate, % profits	5	13.5
2.04	No. days to start a business	50	9
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	46	5.4
2.07	Tertiary education gross enrollment rate, %	76	33.5
2.08	Quality of management schools*	59	4.4
2.09	Gov't procurement of advanced tech*	23	4.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	12	10,694.9
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	73	25.9
3.04	Secure Internet servers/million pop.	44	141.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	33	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	98	46.74
4.03	Internet & telephony competition, 0–2 (best)	67	1.92
	5th pillar: Skills		
5.01	Quality of educational system*	38	4.3
5.02	Quality of math & science education*	58	4.3
5.03	Secondary education gross enrollment rate, %	51	95.5
5.04	Adult literacy rate, %	42	95.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	9	165.9
6.02	Individuals using Internet, %	8	90.0
6.03	Households w/ personal computer, %	7	93.0
6.04	Households w/ Internet access, %	18	82.0
6.05	Fixed broadband Internet subs/100 pop.	53	13.2
6.06	Mobile broadband subs/100 pop.	5	110.0
6.07	Use of virtual social networks*	6	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	34	5.3
7.02	Capacity for innovation*	65	3.8
7.03	PCT patents, applications/million pop.	73	0.8
7.04	Business-to-business Internet use*	42	5.2
7.05	Business-to-consumer Internet use*	70	4.4
7.06	Extent of staff training*	29	4.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	11	5.2
8.02	Government Online Service Index, 0–1 (best)	7	0.94
8.03	Gov't success in ICT promotion*	12	5.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	38	4.9
9.02	ICT PCT patents, applications/million pop.	60	0.5
9.03	Impact of ICTs on new organizational models*	32	4.7
9.04	Knowledge-intensive jobs, % workforce	67	23.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	21	5.3
10.02	Internet access in schools*	39	5.2
10.03	ICT use & gov't efficiency*	11	5.3
10.04	E-Participation Index, 0–1 (best)	14	0.82

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Bangladesh

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**109**	**3.3**
Networked Readiness Index 2014 (out of 148)	119	3.2
Networked Readiness Index 2013 (out of 144)	114	3.2
A. Environment subindex	**130**	**3.2**
1st pillar: Political and regulatory environment	135	2.6
2nd pillar: Business and innovation environment	112	3.7
B. Readiness subindex	**100**	**4.0**
3rd pillar: Infrastructure	109	2.8
4th pillar: Affordability	21	6.3
5th pillar: Skills	125	3.0
C. Usage subindex	**120**	**2.9**
6th pillar: Individual usage	129	1.9
7th pillar: Business usage	124	3.1
8th pillar: Government usage	75	3.7
D. Impact subindex	**106**	**3.1**
9th pillar: Economic impacts	106	2.8
10th pillar: Social impacts	105	3.4



The Networked Readiness Index in detail

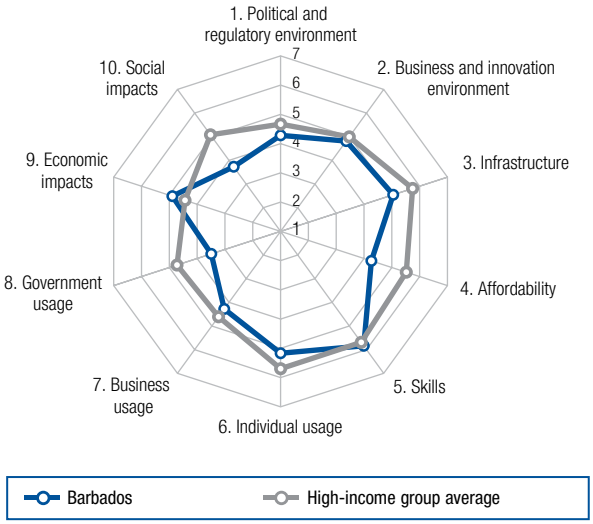
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	106	3.0
1.02	Laws relating to ICTs*	115	3.0
1.03	Judicial independence*	131	2.2
1.04	Efficiency of legal system in settling disputes*	122	2.9
1.05	Efficiency of legal system in challenging regs*	102	2.9
1.06	Intellectual property protection*	132	2.5
1.07	Software piracy rate, % software installed	99	87
1.08	No. procedures to enforce a contract	109	41
1.09	No. days to enforce a contract	141	1,442
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	99	4.3
2.02	Venture capital availability*	119	2.1
2.03	Total tax rate, % profits	50	32.5
2.04	No. days to start a business	99	20
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	79	4.9
2.07	Tertiary education gross enrollment rate, %	104	13.2
2.08	Quality of management schools*	105	3.7
2.09	Gov't procurement of advanced tech*	137	2.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	117	288.2
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	109	6.7
3.04	Secure Internet servers/million pop.	134	0.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	2	0.04
4.02	Fixed broadband Internet tariffs, PPP $/month	4	13.60
4.03	Internet & telephony competition, 0–2 (best)	111	1.25
	5th pillar: Skills		
5.01	Quality of educational system*	95	3.3
5.02	Quality of math & science education*	106	3.4
5.03	Secondary education gross enrollment rate, %	116	53.6
5.04	Adult literacy rate, %	106	61.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	117	74.4
6.02	Individuals using Internet, %	126	6.5
6.03	Households w/ personal computer, %	127	5.8
6.04	Households w/ Internet access, %	125	4.6
6.05	Fixed broadband Internet subs/100 pop.	109	1.0
6.06	Mobile broadband subs/100 pop.	119	1.9
6.07	Use of virtual social networks*	127	4.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	108	4.1
7.02	Capacity for innovation*	113	3.2
7.03	PCT patents, applications/million pop.	112	0.0
7.04	Business-to-business Internet use*	123	3.9
7.05	Business-to-consumer Internet use*	115	3.6
7.06	Extent of staff training*	130	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	60	4.0
8.02	Government Online Service Index, 0–1 (best)	89	0.35
8.03	Gov't success in ICT promotion*	76	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	112	3.7
9.02	ICT PCT patents, applications/million pop.	96	0.0
9.03	Impact of ICTs on new organizational models*	110	3.6
9.04	Knowledge-intensive jobs, % workforce	76	20.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	102	3.6
10.02	Internet access in schools*	120	3.1
10.03	ICT use & gov't efficiency*	100	3.6
10.04	E-Participation Index, 0–1 (best)	80	0.39

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Barbados

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**39**	**4.6**
Networked Readiness Index 2014 (out of 148)	55	4.2
Networked Readiness Index 2013 (out of 144)	39	4.5
A. Environment subindex	**37**	**4.5**
1st pillar: Political and regulatory environment	37	4.3
2nd pillar: Business and innovation environment	40	4.8
B. Readiness subindex	**55**	**5.0**
3rd pillar: Infrastructure	38	5.0
4th pillar: Affordability	100	4.3
5th pillar: Skills	20	5.8
C. Usage subindex	**43**	**4.3**
6th pillar: Individual usage	40	5.2
7th pillar: Business usage	30	4.3
8th pillar: Government usage	101	3.5
D. Impact subindex	**37**	**4.3**
9th pillar: Economic impacts	19	4.9
10th pillar: Social impacts	86	3.7



The Networked Readiness Index in detail

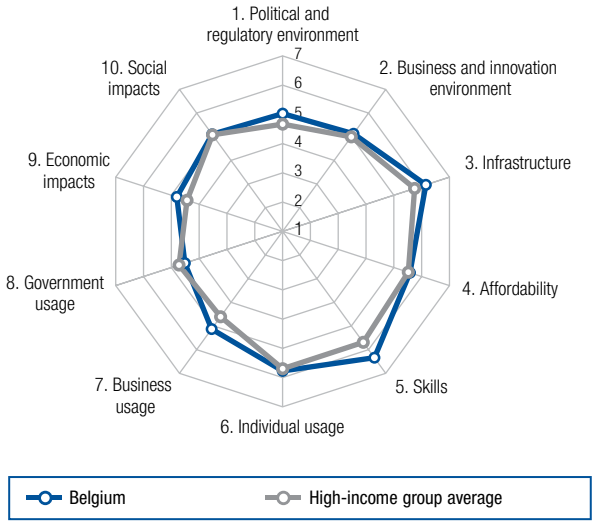
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	19	4.8
1.02	Laws relating to ICTs*	65	3.9
1.03	Judicial independence*	25	5.3
1.04	Efficiency of legal system in settling disputes*	36	4.3
1.05	Efficiency of legal system in challenging regs*	34	4.0
1.06	Intellectual property protection*	37	4.5
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	137	1,340
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	29	5.8
2.02	Venture capital availability*	101	2.3
2.03	Total tax rate, % profits	60	34.6
2.04	No. days to start a business	91	18
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	28	5.6
2.07	Tertiary education gross enrollment rate, %	42	60.8
2.08	Quality of management schools*	28	5.0
2.09	Gov't procurement of advanced tech*	88	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	58	3,555.7
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	53	52.0
3.04	Secure Internet servers/million pop.	29	340.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	99	0.35
4.02	Fixed broadband Internet tariffs, PPP $/month	99	47.23
4.03	Internet & telephony competition, 0–2 (best)	104	1.33
	5th pillar: Skills		
5.01	Quality of educational system*	15	5.0
5.02	Quality of math & science education*	7	5.5
5.03	Secondary education gross enrollment rate, %	19	104.7
5.04	Adult literacy rate, %	n/a	n/a

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	78	108.1
6.02	Individuals using Internet, %	29	75.0
6.03	Households w/ personal computer, %	44	69.1
6.04	Households w/ Internet access, %	42	66.7
6.05	Fixed broadband Internet subs/100 pop.	32	23.8
6.06	Mobile broadband subs/100 pop.	55	41.5
6.07	Use of virtual social networks*	21	6.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	46	5.0
7.02	Capacity for innovation*	57	3.9
7.03	PCT patents, applications/million pop.	19	88.3
7.04	Business-to-business Internet use*	79	4.6
7.05	Business-to-consumer Internet use*	80	4.3
7.06	Extent of staff training*	39	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	72	3.9
8.02	Government Online Service Index, 0–1 (best)	113	0.22
8.03	Gov't success in ICT promotion*	64	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	78	4.2
9.02	ICT PCT patents, applications/million pop.	6	79.4
9.03	Impact of ICTs on new organizational models*	70	4.1
9.04	Knowledge-intensive jobs, % workforce	47	30.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	53	4.5
10.02	Internet access in schools*	44	5.0
10.03	ICT use & gov't efficiency*	87	3.8
10.04	E-Participation Index, 0–1 (best)	131	0.10

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Belgium

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**24**	**5.3**
Networked Readiness Index 2014 (out of 148)	27	5.1
Networked Readiness Index 2013 (out of 144)	24	5.1
A. Environment subindex	**21**	**5.1**
1st pillar: Political and regulatory environment	22	5.0
2nd pillar: Business and innovation environment	24	5.1
B. Readiness subindex	**14**	**6.0**
3rd pillar: Infrastructure	21	6.1
4th pillar: Affordability	56	5.6
5th pillar: Skills	4	6.3
C. Usage subindex	**27**	**5.1**
6th pillar: Individual usage	25	5.8
7th pillar: Business usage	15	5.1
8th pillar: Government usage	43	4.5
D. Impact subindex	**25**	**4.9**
9th pillar: Economic impacts	20	4.8
10th pillar: Social impacts	29	5.1



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	47	4.0
1.02	Laws relating to ICTs*	35	4.7
1.03	Judicial independence*	18	5.7
1.04	Efficiency of legal system in settling disputes*	42	4.2
1.05	Efficiency of legal system in challenging regs*	32	4.1
1.06	Intellectual property protection*	23	5.3
1.07	Software piracy rate, % software installed	9	24
1.08	No. procedures to enforce a contract	5	26
1.09	No. days to enforce a contract	55	505
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	12	6.3
2.02	Venture capital availability*	33	3.3
2.03	Total tax rate, % profits	123	57.8
2.04	No. days to start a business	10	4
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	6	6.0
2.07	Tertiary education gross enrollment rate, %	26	70.8
2.08	Quality of management schools*	2	6.0
2.09	Gov't procurement of advanced tech*	63	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	30	6,943.8
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	11	201.9
3.04	Secure Internet servers/million pop.	19	737.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	88	0.32
4.02	Fixed broadband Internet tariffs, PPP $/month	57	29.57
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	6	5.3
5.02	Quality of math & science education*	3	6.0
5.03	Secondary education gross enrollment rate, %	15	107.3
5.04	Adult literacy rate, %	n/a	n/a[1]

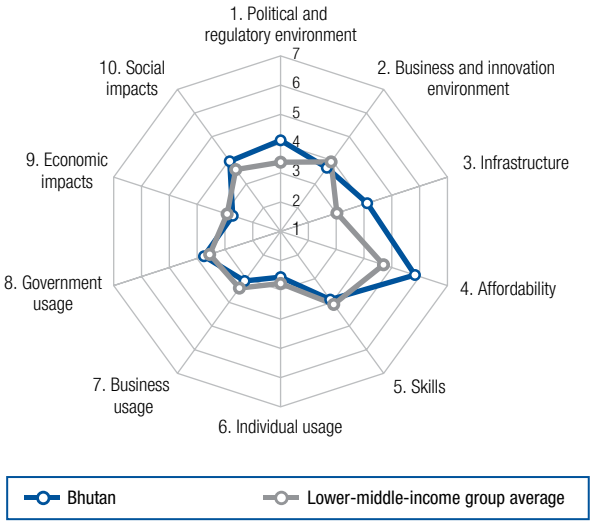
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	74	110.9
6.02	Individuals using Internet, %	20	82.2
6.03	Households w/ personal computer, %	23	81.9
6.04	Households w/ Internet access, %	23	80.0
6.05	Fixed broadband Internet subs/100 pop.	10	34.4
6.06	Mobile broadband subs/100 pop.	48	46.0
6.07	Use of virtual social networks*	26	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	20	5.6
7.02	Capacity for innovation*	14	5.2
7.03	PCT patents, applications/million pop.	16	110.3
7.04	Business-to-business Internet use*	22	5.6
7.05	Business-to-consumer Internet use*	31	5.2
7.06	Extent of staff training*	9	5.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	56	4.1
8.02	Government Online Service Index, 0–1 (best)	31	0.68
8.03	Gov't success in ICT promotion*	58	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	24	5.1
9.02	ICT PCT patents, applications/million pop.	18	29.4
9.03	Impact of ICTs on new organizational models*	24	5.0
9.04	Knowledge-intensive jobs, % workforce	12	44.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	17	5.4
10.02	Internet access in schools*	24	5.9
10.03	ICT use & gov't efficiency*	54	4.3
10.04	E-Participation Index, 0–1 (best)	40	0.63

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Bhutan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**88**	**3.7**
Networked Readiness Index 2014 (out of 148)	94	3.7
Networked Readiness Index 2013 (out of 144)	n/a	n/a
A. Environment subindex	**75**	**3.9**
1st pillar: Political and regulatory environment	43	4.1
2nd pillar: Business and innovation environment	114	3.7
B. Readiness subindex	**78**	**4.6**
3rd pillar: Infrastructure	72	4.1
4th pillar: Affordability	44	5.8
5th pillar: Skills	106	3.9
C. Usage subindex	**105**	**3.1**
6th pillar: Individual usage	108	2.6
7th pillar: Business usage	120	3.1
8th pillar: Government usage	74	3.8
D. Impact subindex	**95**	**3.3**
9th pillar: Economic impacts	111	2.7
10th pillar: Social impacts	79	4.0



The Networked Readiness Index in detail

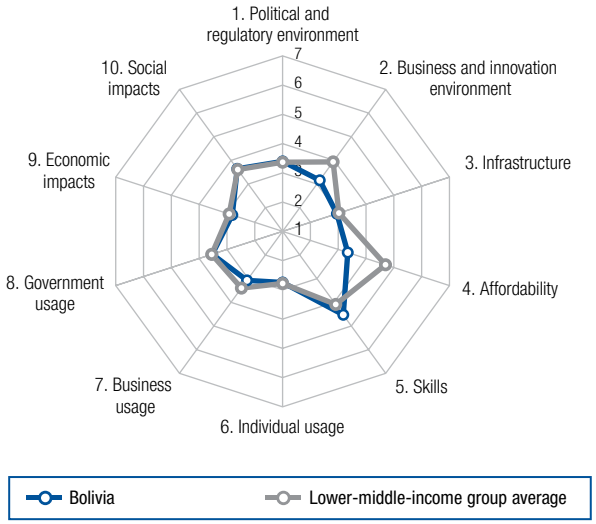
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	24	4.6
1.02	Laws relating to ICTs*	99	3.4
1.03	Judicial independence*	38	4.8
1.04	Efficiency of legal system in settling disputes*	44	4.1
1.05	Efficiency of legal system in challenging regs*	87	3.2
1.06	Intellectual property protection*	52	4.0
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	134	47
1.09	No. days to enforce a contract	3	225
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	125	3.8
2.02	Venture capital availability*	104	2.3
2.03	Total tax rate, % profits	73	38.7
2.04	No. days to start a business	89	17
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	106	4.6
2.07	Tertiary education gross enrollment rate, %	116	9.5
2.08	Quality of management schools*	110	3.6
2.09	Gov't procurement of advanced tech*	47	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	14	10,084.5
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	137	2.8
3.04	Secure Internet servers/million pop.	91	9.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	38	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	45	26.69
4.03	Internet & telephony competition, 0–2 (best)	104	1.33
	5th pillar: Skills		
5.01	Quality of educational system*	51	4.0
5.02	Quality of math & science education*	84	3.9
5.03	Secondary education gross enrollment rate, %	98	73.9
5.04	Adult literacy rate, %	102	64.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	119	72.2
6.02	Individuals using Internet, %	95	29.9
6.03	Households w/ personal computer, %	99	19.1
6.04	Households w/ Internet access, %	98	15.5
6.05	Fixed broadband Internet subs/100 pop.	92	2.7
6.06	Mobile broadband subs/100 pop.	88	15.6
6.07	Use of virtual social networks*	98	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	120	3.9
7.02	Capacity for innovation*	96	3.5
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	128	3.8
7.05	Business-to-consumer Internet use*	131	3.1
7.06	Extent of staff training*	108	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	37	4.5
8.02	Government Online Service Index, 0–1 (best)	107	0.24
8.03	Gov't success in ICT promotion*	61	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	114	3.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	115	3.5
9.04	Knowledge-intensive jobs, % workforce	91	16.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	57	4.3
10.02	Internet access in schools*	84	3.9
10.03	ICT use & gov't efficiency*	47	4.5
10.04	E-Participation Index, 0–1 (best)	85	0.35

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Bolivia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**111**	**3.3**
Networked Readiness Index 2014 (out of 148)	120	3.2
Networked Readiness Index 2013 (out of 144)	119	3.0
A. Environment subindex	**125**	**3.3**
1st pillar: Political and regulatory environment	97	3.4
2nd pillar: Business and innovation environment	135	3.2
B. Readiness subindex	**110**	**3.6**
3rd pillar: Infrastructure	102	2.9
4th pillar: Affordability	120	3.3
5th pillar: Skills	91	4.5
C. Usage subindex	**106**	**3.1**
6th pillar: Individual usage	101	2.7
7th pillar: Business usage	123	3.1
8th pillar: Government usage	98	3.5
D. Impact subindex	**100**	**3.2**
9th pillar: Economic impacts	108	2.8
10th pillar: Social impacts	93	3.6



The Networked Readiness Index in detail

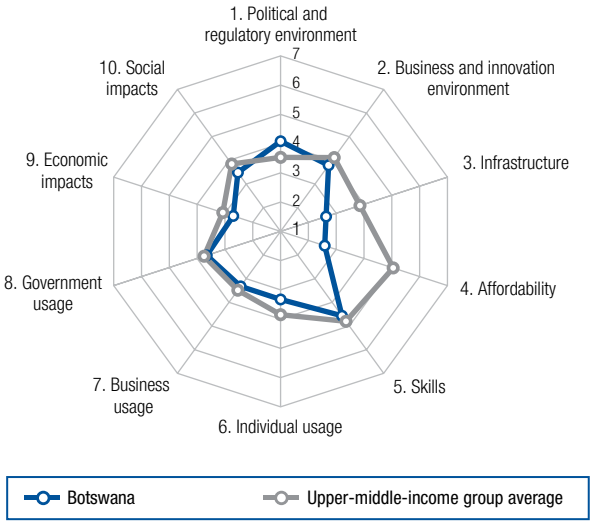
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	67	3.6
1.02	Laws relating to ICTs*	100	3.4
1.03	Judicial independence*	94	3.3
1.04	Efficiency of legal system in settling disputes*	66	3.7
1.05	Efficiency of legal system in challenging regs*	67	3.4
1.06	Intellectual property protection*	89	3.3
1.07	Software piracy rate, % software installed	81	79
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	85	591
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	128	3.8
2.02	Venture capital availability*	30	3.4
2.03	Total tax rate, % profits	142	83.7
2.04	No. days to start a business	129	49
2.05	No. procedures to start a business	140	15
2.06	Intensity of local competition*	138	3.8
2.07	Tertiary education gross enrollment rate, %	71	37.7
2.08	Quality of management schools*	130	3.0
2.09	Gov't procurement of advanced tech*	64	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	104	699.5
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	105	9.0
3.04	Secure Internet servers/million pop.	94	8.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	116	0.46
4.02	Fixed broadband Internet tariffs, PPP $/month	107	53.53
4.03	Internet & telephony competition, 0–2 (best)	130	0.80
	5th pillar: Skills		
5.01	Quality of educational system*	93	3.3
5.02	Quality of math & science education*	116	3.1
5.03	Secondary education gross enrollment rate, %	94	77.3
5.04	Adult literacy rate, %	44	95.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	98	97.7
6.02	Individuals using Internet, %	83	39.5
6.03	Households w/ personal computer, %	85	31.7
6.04	Households w/ Internet access, %	105	11.5
6.05	Fixed broadband Internet subs/100 pop.	102	1.3
6.06	Mobile broadband subs/100 pop.	91	13.9
6.07	Use of virtual social networks*	140	3.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	130	3.7
7.02	Capacity for innovation*	92	3.5
7.03	PCT patents, applications/million pop.	98	0.1
7.04	Business-to-business Internet use*	133	3.6
7.05	Business-to-consumer Internet use*	117	3.5
7.06	Extent of staff training*	114	3.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	94	3.5
8.02	Government Online Service Index, 0–1 (best)	80	0.39
8.03	Gov't success in ICT promotion*	102	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	102	3.9
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	95	3.8
9.04	Knowledge-intensive jobs, % workforce	95	15.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	92	3.8
10.02	Internet access in schools*	99	3.6
10.03	ICT use & gov't efficiency*	95	3.7
10.04	E-Participation Index, 0–1 (best)	77	0.41

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Botswana

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**104**	**3.4**
Networked Readiness Index 2014 (out of 148)	103	3.4
Networked Readiness Index 2013 (out of 144)	96	3.5
A. Environment subindex	**71**	**3.9**
1st pillar: Political and regulatory environment	47	4.1
2nd pillar: Business and innovation environment	106	3.8
B. Readiness subindex	**116**	**3.3**
3rd pillar: Infrastructure	114	2.6
4th pillar: Affordability	131	2.6
5th pillar: Skills	89	4.6
C. Usage subindex	**92**	**3.4**
6th pillar: Individual usage	85	3.3
7th pillar: Business usage	102	3.3
8th pillar: Government usage	81	3.7
D. Impact subindex	**111**	**3.1**
9th pillar: Economic impacts	113	2.7
10th pillar: Social impacts	101	3.5



The Networked Readiness Index in detail

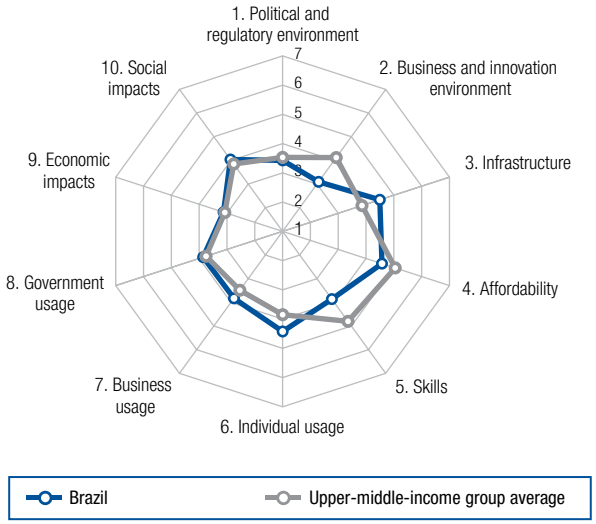
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	26	4.5
1.02	Laws relating to ICTs*	105	3.3
1.03	Judicial independence*	35	4.9
1.04	Efficiency of legal system in settling disputes*	32	4.4
1.05	Efficiency of legal system in challenging regs*	41	3.8
1.06	Intellectual property protection*	42	4.2
1.07	Software piracy rate, % software installed	81	79
1.08	No. procedures to enforce a contract	12	28
1.09	No. days to enforce a contract	96	625
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	92	4.4
2.02	Venture capital availability*	67	2.7
2.03	Total tax rate, % profits	24	25.3
2.04	No. days to start a business	132	60
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	95	4.7
2.07	Tertiary education gross enrollment rate, %	123	7.4
2.08	Quality of management schools*	112	3.6
2.09	Gov't procurement of advanced tech*	45	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	123	187.2
3.02	Mobile network coverage, % pop.	97	96.0
3.03	Int'l Internet bandwidth, kb/s per user	111	6.6
3.04	Secure Internet servers/million pop.	88	10.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	109	0.41
4.02	Fixed broadband Internet tariffs, PPP $/month	125	83.94
4.03	Internet & telephony competition, 0–2 (best)	110	1.27
	5th pillar: Skills		
5.01	Quality of educational system*	82	3.5
5.02	Quality of math & science education*	96	3.6
5.03	Secondary education gross enrollment rate, %	92	81.7
5.04	Adult literacy rate, %	73	88.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	14	160.6
6.02	Individuals using Internet, %	116	15.0
6.03	Households w/ personal computer, %	107	13.5
6.04	Households w/ Internet access, %	106	10.6
6.05	Fixed broadband Internet subs/100 pop.	106	1.1
6.06	Mobile broadband subs/100 pop.	20	74.1
6.07	Use of virtual social networks*	90	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	92	4.3
7.02	Capacity for innovation*	106	3.3
7.03	PCT patents, applications/million pop.	86	0.3
7.04	Business-to-business Internet use*	92	4.4
7.05	Business-to-consumer Internet use*	120	3.5
7.06	Extent of staff training*	68	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	63	4.0
8.02	Government Online Service Index, 0–1 (best)	97	0.31
8.03	Gov't success in ICT promotion*	74	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	117	3.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	125	3.3
9.04	Knowledge-intensive jobs, % workforce	85	17.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	97	3.7
10.02	Internet access in schools*	108	3.4
10.03	ICT use & gov't efficiency*	75	3.9
10.04	E-Participation Index, 0–1 (best)	97	0.31

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Brazil

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**84**	**3.9**
Networked Readiness Index 2014 (out of 148)	69	4.0
Networked Readiness Index 2013 (out of 144)	60	4.0
A. Environment subindex	**111**	**3.5**
1st pillar: Political and regulatory environment	95	3.4
2nd pillar: Business and innovation environment	121	3.6
B. Readiness subindex	**91**	**4.3**
3rd pillar: Infrastructure	56	4.5
4th pillar: Affordability	89	4.6
5th pillar: Skills	108	3.9
C. Usage subindex	**60**	**4.0**
6th pillar: Individual usage	62	4.4
7th pillar: Business usage	52	3.8
8th pillar: Government usage	71	3.9
D. Impact subindex	**75**	**3.6**
9th pillar: Economic impacts	76	3.1
10th pillar: Social impacts	73	4.0



The Networked Readiness Index in detail

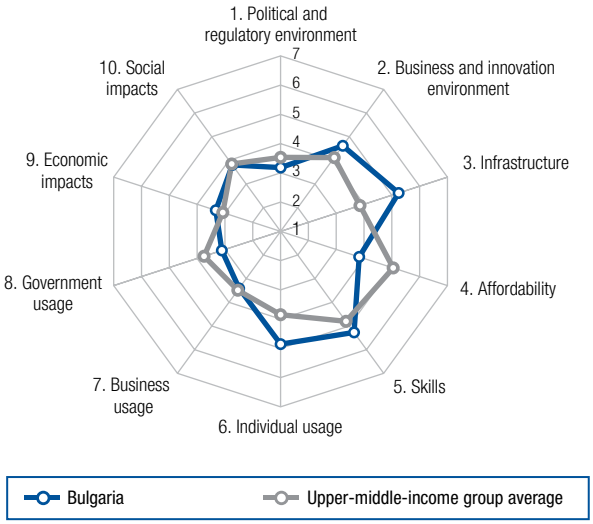
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	127	2.5
1.02	Laws relating to ICTs*	76	3.9
1.03	Judicial independence*	76	3.6
1.04	Efficiency of legal system in settling disputes*	106	3.2
1.05	Efficiency of legal system in challenging regs*	94	3.1
1.06	Intellectual property protection*	92	3.3
1.07	Software piracy rate, % software installed	39	50
1.08	No. procedures to enforce a contract	122	44
1.09	No. days to enforce a contract	111	731
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	77	4.7
2.02	Venture capital availability*	80	2.6
2.03	Total tax rate, % profits	137	69.0
2.04	No. days to start a business	137	84
2.05	No. procedures to start a business	131	12
2.06	Intensity of local competition*	52	5.3
2.07	Tertiary education gross enrollment rate, %	61	44.9
2.08	Quality of management schools*	53	4.5
2.09	Gov't procurement of advanced tech*	77	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	71	2,700.2
3.02	Mobile network coverage, % pop.	37	100.0
3.03	Int'l Internet bandwidth, kb/s per user	59	42.9
3.04	Secure Internet servers/million pop.	57	57.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	136	0.73
4.02	Fixed broadband Internet tariffs, PPP $/month	16	18.51
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	125	2.7
5.02	Quality of math & science education*	131	2.6
5.03	Secondary education gross enrollment rate, %	n/a	n/a
5.04	Adult literacy rate, %	64	92.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	39	135.3
6.02	Individuals using Internet, %	64	51.6
6.03	Households w/ personal computer, %	67	48.8
6.04	Households w/ Internet access, %	71	42.4
6.05	Fixed broadband Internet subs/100 pop.	63	10.1
6.06	Mobile broadband subs/100 pop.	43	51.5
6.07	Use of virtual social networks*	48	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	59	4.8
7.02	Capacity for innovation*	44	4.1
7.03	PCT patents, applications/million pop.	51	3.5
7.04	Business-to-business Internet use*	84	4.6
7.05	Business-to-consumer Internet use*	37	5.1
7.06	Extent of staff training*	44	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	106	3.3
8.02	Government Online Service Index, 0–1 (best)	49	0.60
8.03	Gov't success in ICT promotion*	106	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	75	4.2
9.02	ICT PCT patents, applications/million pop.	59	0.5
9.03	Impact of ICTs on new organizational models*	76	4.0
9.04	Knowledge-intensive jobs, % workforce	72	21.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	104	3.6
10.02	Internet access in schools*	98	3.6
10.03	ICT use & gov't efficiency*	96	3.7
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Bulgaria

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**73**	**4.0**
Networked Readiness Index 2014 (out of 148)	73	4.0
Networked Readiness Index 2013 (out of 144)	71	3.9
A. Environment subindex	**76**	**3.9**
1st pillar: Political and regulatory environment	108	3.2
2nd pillar: Business and innovation environment	50	4.6
B. Readiness subindex	**71**	**4.8**
3rd pillar: Infrastructure	34	5.2
4th pillar: Affordability	110	3.8
5th pillar: Skills	60	5.3
C. Usage subindex	**73**	**3.8**
6th pillar: Individual usage	47	4.9
7th pillar: Business usage	91	3.4
8th pillar: Government usage	118	3.1
D. Impact subindex	**77**	**3.6**
9th pillar: Economic impacts	61	3.3
10th pillar: Social impacts	84	3.8



The Networked Readiness Index in detail

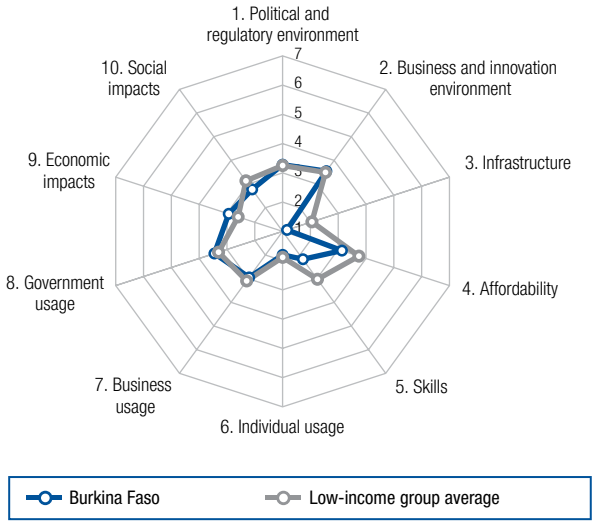
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	124	2.5
1.02	Laws relating to ICTs*	60	4.0
1.03	Judicial independence*	125	2.3
1.04	Efficiency of legal system in settling disputes*	123	2.8
1.05	Efficiency of legal system in challenging regs*	124	2.5
1.06	Intellectual property protection*	107	3.0
1.07	Software piracy rate, % software installed	61	63
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	75	564
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	91	4.4
2.02	Venture capital availability*	79	2.6
2.03	Total tax rate, % profits	29	27.0
2.04	No. days to start a business	91	18
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	75	5.0
2.07	Tertiary education gross enrollment rate, %	34	62.7
2.08	Quality of management schools*	121	3.4
2.09	Gov't procurement of advanced tech*	96	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	31	6,807.4
3.02	Mobile network coverage, % pop.	34	100.0
3.03	Int'l Internet bandwidth, kb/s per user	22	128.2
3.04	Secure Internet servers/million pop.	43	145.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	138	0.77
4.02	Fixed broadband Internet tariffs, PPP $/month	34	23.98
4.03	Internet & telephony competition, 0–2 (best)	104	1.33
	5th pillar: Skills		
5.01	Quality of educational system*	91	3.4
5.02	Quality of math & science education*	54	4.3
5.03	Secondary education gross enrollment rate, %	59	93.1
5.04	Adult literacy rate, %	24	98.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	30	145.2
6.02	Individuals using Internet, %	62	53.1
6.03	Households w/ personal computer, %	61	54.9
6.04	Households w/ Internet access, %	56	53.7
6.05	Fixed broadband Internet subs/100 pop.	39	19.3
6.06	Mobile broadband subs/100 pop.	33	58.1
6.07	Use of virtual social networks*	51	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	85	4.4
7.02	Capacity for innovation*	108	3.3
7.03	PCT patents, applications/million pop.	47	6.4
7.04	Business-to-business Internet use*	54	5.1
7.05	Business-to-consumer Internet use*	60	4.7
7.06	Extent of staff training*	126	3.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	104	3.4
8.02	Government Online Service Index, 0–1 (best)	111	0.24
8.03	Gov't success in ICT promotion*	113	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	92	4.1
9.02	ICT PCT patents, applications/million pop.	40	1.9
9.03	Impact of ICTs on new organizational models*	91	3.9
9.04	Knowledge-intensive jobs, % workforce	46	31.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	81	4.0
10.02	Internet access in schools*	45	5.0
10.03	ICT use & gov't efficiency*	91	3.7
10.04	E-Participation Index, 0–1 (best)	106	0.25

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Burkina Faso

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**132**	**2.8**
Networked Readiness Index 2014 (out of 148)	136	2.8
Networked Readiness Index 2013 (out of 144)	130	2.8
A. Environment subindex	**118**	**3.4**
1st pillar: Political and regulatory environment	103	3.3
2nd pillar: Business and innovation environment	122	3.5
B. Readiness subindex	**141**	**2.2**
3rd pillar: Infrastructure	140	1.2
4th pillar: Affordability	125	3.1
5th pillar: Skills	139	2.2
C. Usage subindex	**125**	**2.7**
6th pillar: Individual usage	133	1.8
7th pillar: Business usage	131	2.9
8th pillar: Government usage	104	3.5
D. Impact subindex	**121**	**2.9**
9th pillar: Economic impacts	100	2.9
10th pillar: Social impacts	131	2.8



The Networked Readiness Index in detail

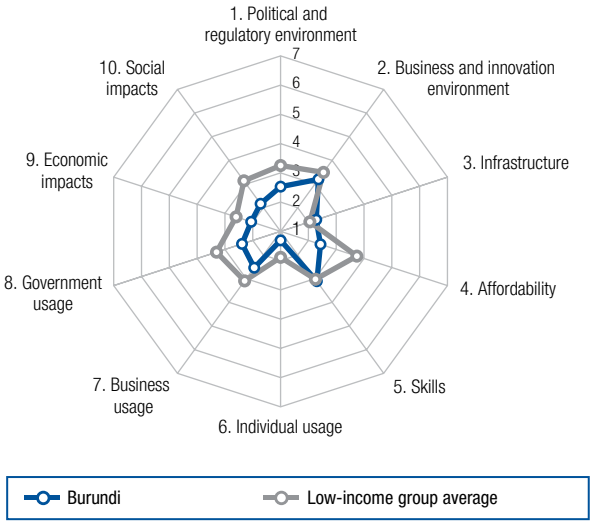
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	110	3.0
1.02	Laws relating to ICTs*	110	3.1
1.03	Judicial independence*	135	2.1
1.04	Efficiency of legal system in settling disputes*	81	3.5
1.05	Efficiency of legal system in challenging regs*	107	2.8
1.06	Intellectual property protection*	85	3.4
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	45	446
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	133	3.5
2.02	Venture capital availability*	143	1.5
2.03	Total tax rate, % profits	88	41.3
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	110	4.6
2.07	Tertiary education gross enrollment rate, %	130	4.6
2.08	Quality of management schools*	97	3.8
2.09	Gov't procurement of advanced tech*	95	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	139	43.1
3.02	Mobile network coverage, % pop.	136	61.1
3.03	Int'l Internet bandwidth, kb/s per user	134	3.1
3.04	Secure Internet servers/million pop.	133	0.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	94	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	128	98.59
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	119	2.9
5.02	Quality of math & science education*	88	3.8
5.03	Secondary education gross enrollment rate, %	138	25.9
5.04	Adult literacy rate, %	118	36.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	130	66.4
6.02	Individuals using Internet, %	133	4.4
6.03	Households w/ personal computer, %	132	4.0
6.04	Households w/ Internet access, %	134	3.2
6.05	Fixed broadband Internet subs/100 pop.	130	0.1
6.06	Mobile broadband subs/100 pop.	101	9.0
6.07	Use of virtual social networks*	136	4.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	132	3.7
7.02	Capacity for innovation*	99	3.4
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	106	4.2
7.05	Business-to-consumer Internet use*	128	3.3
7.06	Extent of staff training*	139	2.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	81	3.8
8.02	Government Online Service Index, 0–1 (best)	102	0.30
8.03	Gov't success in ICT promotion*	98	3.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	73	4.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	113	3.5
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	108	3.6
10.02	Internet access in schools*	139	1.8
10.03	ICT use & gov't efficiency*	76	3.9
10.04	E-Participation Index, 0–1 (best)	126	0.14

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Burundi

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**141**	**2.4**
Networked Readiness Index 2014 (out of 148)	147	2.3
Networked Readiness Index 2013 (out of 144)	144	2.3
A. Environment subindex	**136**	**2.9**
1st pillar: Political and regulatory environment	136	2.5
2nd pillar: Business and innovation environment	134	3.2
B. Readiness subindex	**132**	**2.6**
3rd pillar: Infrastructure	123	2.3
4th pillar: Affordability	133	2.4
5th pillar: Skills	124	3.1
C. Usage subindex	**143**	**2.1**
6th pillar: Individual usage	143	1.3
7th pillar: Business usage	140	2.5
8th pillar: Government usage	142	2.4
D. Impact subindex	**141**	**2.1**
9th pillar: Economic impacts	141	2.1
10th pillar: Social impacts	142	2.2



The Networked Readiness Index in detail

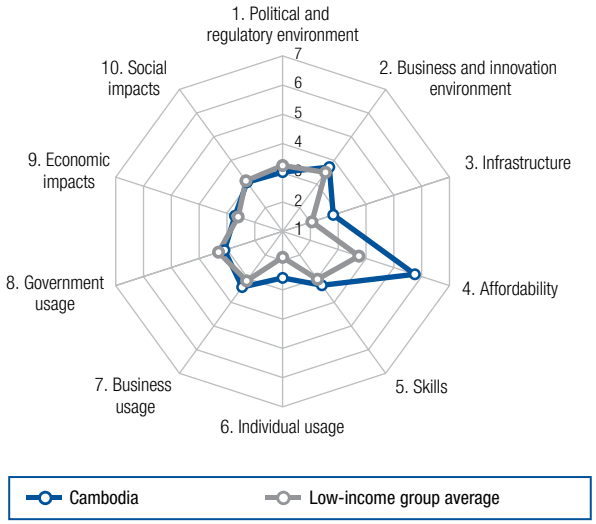
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	132	2.2
1.02	Laws relating to ICTs*	135	2.4
1.03	Judicial independence*	142	1.6
1.04	Efficiency of legal system in settling disputes*	120	2.9
1.05	Efficiency of legal system in challenging regs*	100	2.9
1.06	Intellectual property protection*	130	2.6
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	123	44
1.09	No. days to enforce a contract	118	832
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	140	3.1
2.02	Venture capital availability*	129	1.9
2.03	Total tax rate, % profits	102	45.7
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	133	3.9
2.07	Tertiary education gross enrollment rate, %	136	3.2
2.08	Quality of management schools*	137	2.6
2.09	Gov't procurement of advanced tech*	127	2.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	142	16.5
3.02	Mobile network coverage, % pop.	125	83.0
3.03	Int'l Internet bandwidth, kb/s per user	96	11.2
3.04	Secure Internet servers/million pop.	138	0.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	120	0.49
4.02	Fixed broadband Internet tariffs, PPP $/month	133	148.63
4.03	Internet & telephony competition, 0–2 (best)	97	1.57
	5th pillar: Skills		
5.01	Quality of educational system*	132	2.6
5.02	Quality of math & science education*	100	3.5
5.03	Secondary education gross enrollment rate, %	135	28.5
5.04	Adult literacy rate, %	79	85.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	142	25.0
6.02	Individuals using Internet, %	141	1.3
6.03	Households w/ personal computer, %	142	0.1
6.04	Households w/ Internet access, %	142	0.1
6.05	Fixed broadband Internet subs/100 pop.	142	0.0
6.06	Mobile broadband subs/100 pop.	131	0.0
6.07	Use of virtual social networks*	143	3.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	140	3.2
7.02	Capacity for innovation*	139	2.8
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	142	2.9
7.05	Business-to-consumer Internet use*	140	2.6
7.06	Extent of staff training*	136	2.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	120	3.0
8.02	Government Online Service Index, 0–1 (best)	138	0.02
8.03	Gov't success in ICT promotion*	135	3.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	140	2.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	142	2.4
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	140	2.8
10.02	Internet access in schools*	141	1.7
10.03	ICT use & gov't efficiency*	136	2.8
10.04	E-Participation Index, 0–1 (best)	138	0.06

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Cambodia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**110**	**3.3**
Networked Readiness Index 2014 (out of 148)	108	3.4
Networked Readiness Index 2013 (out of 144)	106	3.3
A. Environment subindex	**122**	**3.4**
1st pillar: Political and regulatory environment	119	3.0
2nd pillar: Business and innovation environment	113	3.7
B. Readiness subindex	**103**	**3.9**
3rd pillar: Infrastructure	108	2.8
4th pillar: Affordability	48	5.7
5th pillar: Skills	120	3.3
C. Usage subindex	**114**	**3.0**
6th pillar: Individual usage	105	2.6
7th pillar: Business usage	99	3.4
8th pillar: Government usage	120	3.1
D. Impact subindex	**118**	**2.9**
9th pillar: Economic impacts	112	2.7
10th pillar: Social impacts	123	3.1



The Networked Readiness Index in detail

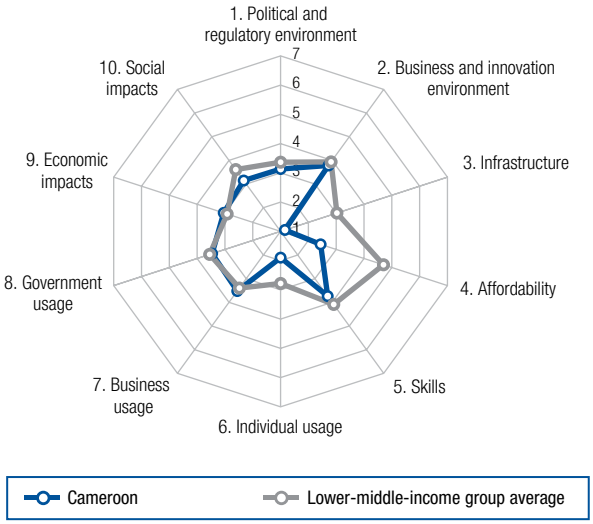
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	105	3.0
1.02	Laws relating to ICTs*	111	3.1
1.03	Judicial independence*	128	2.3
1.04	Efficiency of legal system in settling disputes*	113	3.1
1.05	Efficiency of legal system in challenging regs*	116	2.7
1.06	Intellectual property protection*	119	2.8
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	123	44
1.09	No. days to enforce a contract	53	483
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	87	4.5
2.02	Venture capital availability*	60	2.7
2.03	Total tax rate, % profits	16	21.0
2.04	No. days to start a business	142	101
2.05	No. procedures to start a business	127	11
2.06	Intensity of local competition*	86	4.9
2.07	Tertiary education gross enrollment rate, %	101	15.8
2.08	Quality of management schools*	123	3.3
2.09	Gov't procurement of advanced tech*	103	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	134	72.1
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	104	9.3
3.04	Secure Internet servers/million pop.	117	2.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	50	0.19
4.02	Fixed broadband Internet tariffs, PPP $/month	81	35.81
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	101	3.2
5.02	Quality of math & science education*	111	3.2
5.03	Secondary education gross enrollment rate, %	123	45.0
5.04	Adult literacy rate, %	90	77.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	41	133.9
6.02	Individuals using Internet, %	129	6.0
6.03	Households w/ personal computer, %	116	9.3
6.04	Households w/ Internet access, %	119	5.5
6.05	Fixed broadband Internet subs/100 pop.	119	0.2
6.06	Mobile broadband subs/100 pop.	100	9.6
6.07	Use of virtual social networks*	103	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	97	4.3
7.02	Capacity for innovation*	101	3.4
7.03	PCT patents, applications/million pop.	114	0.0
7.04	Business-to-business Internet use*	83	4.6
7.05	Business-to-consumer Internet use*	109	3.8
7.06	Extent of staff training*	82	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	105	3.3
8.02	Government Online Service Index, 0–1 (best)	117	0.17
8.03	Gov't success in ICT promotion*	94	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	79	4.2
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	60	4.3
9.04	Knowledge-intensive jobs, % workforce	113	4.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	115	3.4
10.02	Internet access in schools*	100	3.6
10.03	ICT use & gov't efficiency*	123	3.1
10.04	E-Participation Index, 0–1 (best)	116	0.20

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Cameroon

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**126**	**3.0**
Networked Readiness Index 2014 (out of 148)	131	2.9
Networked Readiness Index 2013 (out of 144)	124	2.9
A. Environment subindex	**115**	**3.5**
1st pillar: Political and regulatory environment	112	3.1
2nd pillar: Business and innovation environment	107	3.8
B. Readiness subindex	**136**	**2.4**
3rd pillar: Infrastructure	141	1.2
4th pillar: Affordability	132	2.4
5th pillar: Skills	111	3.7
C. Usage subindex	**116**	**3.0**
6th pillar: Individual usage	130	1.9
7th pillar: Business usage	80	3.5
8th pillar: Government usage	103	3.5
D. Impact subindex	**110**	**3.1**
9th pillar: Economic impacts	87	3.0
10th pillar: Social impacts	118	3.1



The Networked Readiness Index in detail

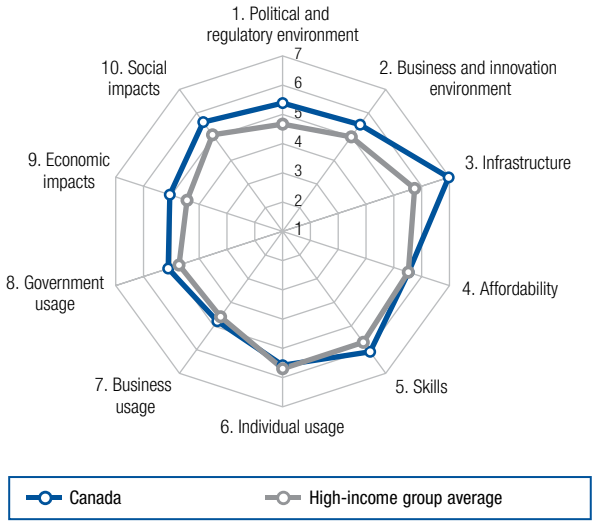
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	88	3.3
1.02	Laws relating to ICTs*	109	3.2
1.03	Judicial independence*	113	2.8
1.04	Efficiency of legal system in settling disputes*	78	3.5
1.05	Efficiency of legal system in challenging regs*	74	3.3
1.06	Intellectual property protection*	87	3.4
1.07	Software piracy rate, % software installed	89	82
1.08	No. procedures to enforce a contract	113	42
1.09	No. days to enforce a contract	117	800
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	112	4.1
2.02	Venture capital availability*	102	2.3
2.03	Total tax rate, % profits	109	48.8
2.04	No. days to start a business	83	15
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	109	4.6
2.07	Tertiary education gross enrollment rate, %	110	11.9
2.08	Quality of management schools*	58	4.4
2.09	Gov't procurement of advanced tech*	41	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	118	283.4
3.02	Mobile network coverage, % pop.	137	58.0
3.03	Int'l Internet bandwidth, kb/s per user	133	3.2
3.04	Secure Internet servers/million pop.	122	1.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	115	0.45
4.02	Fixed broadband Internet tariffs, PPP $/month	131	128.92
4.03	Internet & telephony competition, 0–2 (best)	113	1.22
	5th pillar: Skills		
5.01	Quality of educational system*	62	3.8
5.02	Quality of math & science education*	65	4.3
5.03	Secondary education gross enrollment rate, %	119	50.4
5.04	Adult literacy rate, %	92	75.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	124	70.4
6.02	Individuals using Internet, %	127	6.4
6.03	Households w/ personal computer, %	118	8.9
6.04	Households w/ Internet access, %	127	4.5
6.05	Fixed broadband Internet subs/100 pop.	131	0.1
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	114	4.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	84	4.4
7.02	Capacity for innovation*	64	3.8
7.03	PCT patents, applications/million pop.	119	0.0
7.04	Business-to-business Internet use*	86	4.6
7.05	Business-to-consumer Internet use*	88	4.2
7.06	Extent of staff training*	69	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	73	3.9
8.02	Government Online Service Index, 0–1 (best)	116	0.20
8.03	Gov't success in ICT promotion*	60	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	80	4.2
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	82	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	82	4.0
10.02	Internet access in schools*	127	2.7
10.03	ICT use & gov't efficiency*	71	4.0
10.04	E-Participation Index, 0–1 (best)	123	0.16

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Canada

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**11**	**5.5**
Networked Readiness Index 2014 (out of 148)	17	5.4
Networked Readiness Index 2013 (out of 144)	12	5.4
A. Environment subindex	**8**	**5.4**
1st pillar: Political and regulatory environment	11	5.4
2nd pillar: Business and innovation environment	4	5.5
B. Readiness subindex	**11**	**6.2**
3rd pillar: Infrastructure	6	7.0
4th pillar: Affordability	60	5.5
5th pillar: Skills	9	6.1
C. Usage subindex	**26**	**5.2**
6th pillar: Individual usage	29	5.6
7th pillar: Business usage	23	4.8
8th pillar: Government usage	22	5.1
D. Impact subindex	**13**	**5.3**
9th pillar: Economic impacts	14	5.1
10th pillar: Social impacts	9	5.6



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	11	5.3
1.02	Laws relating to ICTs*	10	5.3
1.03	Judicial independence*	9	6.2
1.04	Efficiency of legal system in settling disputes*	10	5.5
1.05	Efficiency of legal system in challenging regs*	11	4.8
1.06	Intellectual property protection*	12	5.7
1.07	Software piracy rate, % software installed	14	25
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	79	570
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	16	6.2
2.02	Venture capital availability*	17	3.6
2.03	Total tax rate, % profits	16	21.0
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	1	1
2.06	Intensity of local competition*	33	5.5
2.07	Tertiary education gross enrollment rate, %	n/a	n/a
2.08	Quality of management schools*	7	5.8
2.09	Gov't procurement of advanced tech*	48	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	3	18,577.6
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	23	115.9
3.04	Secure Internet servers/million pop.	17	1,035.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	58	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	85	37.94
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	11	5.2
5.02	Quality of math & science education*	19	5.1
5.03	Secondary education gross enrollment rate, %	23	103.4
5.04	Adult literacy rate, %	n/a	n/a[1]

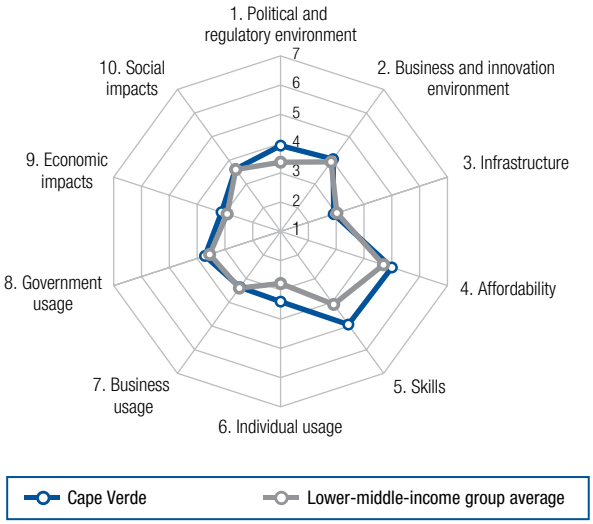
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	114	80.6
6.02	Individuals using Internet, %	13	85.8
6.03	Households w/ personal computer, %	18	83.6
6.04	Households w/ Internet access, %	16	82.6
6.05	Fixed broadband Internet subs/100 pop.	12	33.2
6.06	Mobile broadband subs/100 pop.	45	50.0
6.07	Use of virtual social networks*	15	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	30	5.4
7.02	Capacity for innovation*	26	4.6
7.03	PCT patents, applications/million pop.	21	86.2
7.04	Business-to-business Internet use*	23	5.6
7.05	Business-to-consumer Internet use*	17	5.7
7.06	Extent of staff training*	22	4.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	46	4.3
8.02	Government Online Service Index, 0–1 (best)	10	0.91
8.03	Gov't success in ICT promotion*	45	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	21	5.1
9.02	ICT PCT patents, applications/million pop.	13	37.5
9.03	Impact of ICTs on new organizational models*	12	5.2
9.04	Knowledge-intensive jobs, % workforce	14	44.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	14	5.5
10.02	Internet access in schools*	9	6.2
10.03	ICT use & gov't efficiency*	35	4.8
10.04	E-Participation Index, 0–1 (best)	14	0.82

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Cape Verde

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**87**	**3.8**
Networked Readiness Index 2014 (out of 148)	89	3.7
Networked Readiness Index 2013 (out of 144)	81	3.8
A. Environment subindex	**65**	**4.0**
1st pillar: Political and regulatory environment	55	3.9
2nd pillar: Business and innovation environment	90	4.0
B. Readiness subindex	**92**	**4.3**
3rd pillar: Infrastructure	104	2.9
4th pillar: Affordability	83	5.0
5th pillar: Skills	74	4.9
C. Usage subindex	**89**	**3.5**
6th pillar: Individual usage	82	3.4
7th pillar: Business usage	97	3.4
8th pillar: Government usage	77	3.7
D. Impact subindex	**90**	**3.4**
9th pillar: Economic impacts	77	3.1
10th pillar: Social impacts	94	3.6



The Networked Readiness Index in detail

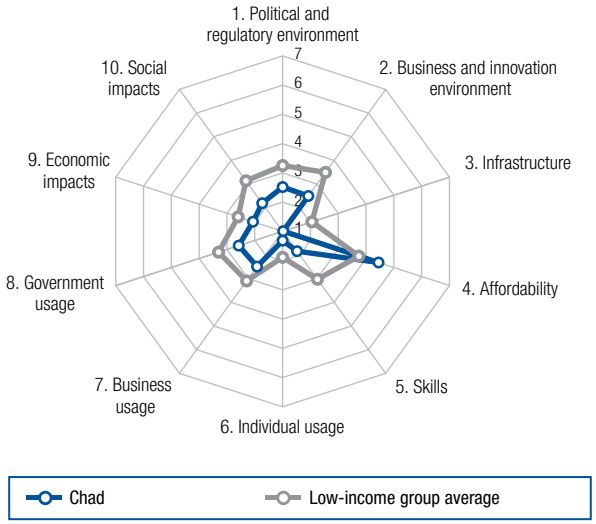
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	40	4.1
1.02	Laws relating to ICTs*	86	3.8
1.03	Judicial independence*	51	4.2
1.04	Efficiency of legal system in settling disputes*	77	3.6
1.05	Efficiency of legal system in challenging regs*	66	3.4
1.06	Intellectual property protection*	96	3.2
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	36	425
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	75	4.7
2.02	Venture capital availability*	91	2.5
2.03	Total tax rate, % profits	67	36.5
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	116	4.5
2.07	Tertiary education gross enrollment rate, %	90	20.6
2.08	Quality of management schools*	107	3.7
2.09	Gov't procurement of advanced tech*	36	3.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	109	588.6
3.02	Mobile network coverage, % pop.	97	96.0
3.03	Int'l Internet bandwidth, kb/s per user	94	11.6
3.04	Secure Internet servers/million pop.	74	26.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	131	0.62
4.02	Fixed broadband Internet tariffs, PPP $/month	15	18.25
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	57	3.9
5.02	Quality of math & science education*	86	3.9
5.03	Secondary education gross enrollment rate, %	61	92.7
5.04	Adult literacy rate, %	75	87.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	94	100.1
6.02	Individuals using Internet, %	89	37.5
6.03	Households w/ personal computer, %	87	30.2
6.04	Households w/ Internet access, %	87	22.8
6.05	Fixed broadband Internet subs/100 pop.	87	4.3
6.06	Mobile broadband subs/100 pop.	52	42.6
6.07	Use of virtual social networks*	80	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	69	4.6
7.02	Capacity for innovation*	97	3.5
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	99	4.3
7.05	Business-to-consumer Internet use*	108	3.8
7.06	Extent of staff training*	104	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	31	4.5
8.02	Government Online Service Index, 0–1 (best)	120	0.17
8.03	Gov't success in ICT promotion*	42	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	70	4.4
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	79	4.0
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	60	4.3
10.02	Internet access in schools*	90	3.8
10.03	ICT use & gov't efficiency*	31	4.8
10.04	E-Participation Index, 0–1 (best)	131	0.10

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Chad

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**143**	**2.3**
Networked Readiness Index 2014 (out of 148)	148	2.2
Networked Readiness Index 2013 (out of 144)	142	2.5
A. Environment subindex	**142**	**2.5**
1st pillar: Political and regulatory environment	138	2.5
2nd pillar: Business and innovation environment	143	2.5
B. Readiness subindex	**138**	**2.4**
3rd pillar: Infrastructure	143	1.0
4th pillar: Affordability	95	4.4
5th pillar: Skills	143	1.8
C. Usage subindex	**142**	**2.1**
6th pillar: Individual usage	142	1.3
7th pillar: Business usage	142	2.5
8th pillar: Government usage	136	2.6
D. Impact subindex	**140**	**2.1**
9th pillar: Economic impacts	140	2.1
10th pillar: Social impacts	140	2.2



The Networked Readiness Index in detail

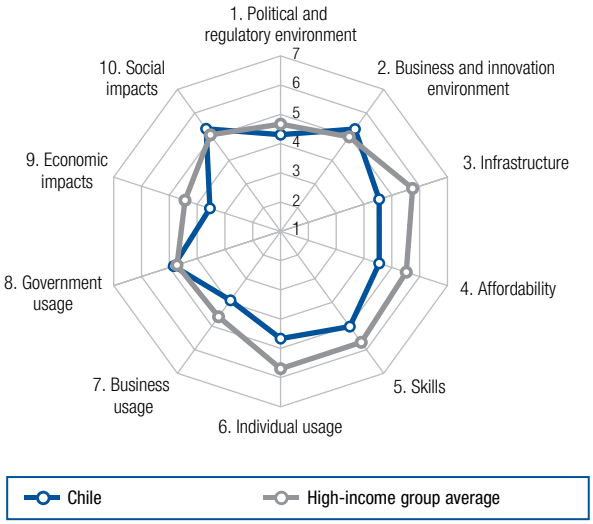
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	133	2.2
1.02	Laws relating to ICTs*	141	2.1
1.03	Judicial independence*	132	2.2
1.04	Efficiency of legal system in settling disputes*	132	2.5
1.05	Efficiency of legal system in challenging regs*	141	2.0
1.06	Intellectual property protection*	133	2.5
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	109	41
1.09	No. days to enforce a contract	114	743
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	142	2.9
2.02	Venture capital availability*	136	1.9
2.03	Total tax rate, % profits	129	63.5
2.04	No. days to start a business	132	60
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	136	3.8
2.07	Tertiary education gross enrollment rate, %	137	2.3
2.08	Quality of management schools*	136	2.7
2.09	Gov't procurement of advanced tech*	132	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	143	8.4
3.02	Mobile network coverage, % pop.	138	36.1
3.03	Int'l Internet bandwidth, kb/s per user	141	0.6
3.04	Secure Internet servers/million pop.	n/a	n/a
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	129	0.60
4.02	Fixed broadband Internet tariffs, PPP $/month	41	25.06
4.03	Internet & telephony competition, 0–2 (best)	99	1.50
	5th pillar: Skills		
5.01	Quality of educational system*	134	2.5
5.02	Quality of math & science education*	127	2.8
5.03	Secondary education gross enrollment rate, %	140	22.8
5.04	Adult literacy rate, %	116	40.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	139	35.6
6.02	Individuals using Internet, %	136	2.3
6.03	Households w/ personal computer, %	138	2.5
6.04	Households w/ Internet access, %	137	2.3
6.05	Fixed broadband Internet subs/100 pop.	124	0.1
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	142	3.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	139	3.3
7.02	Capacity for innovation*	138	2.8
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	143	2.7
7.05	Business-to-consumer Internet use*	143	2.2
7.06	Extent of staff training*	138	2.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	121	3.0
8.02	Government Online Service Index, 0–1 (best)	135	0.05
8.03	Gov't success in ICT promotion*	119	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	142	2.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	141	2.5
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	141	2.7
10.02	Internet access in schools*	143	1.5
10.03	ICT use & gov't efficiency*	126	3.0
10.04	E-Participation Index, 0–1 (best)	134	0.08

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Chile

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**38**	**4.6**
Networked Readiness Index 2014 (out of 148)	35	4.6
Networked Readiness Index 2013 (out of 144)	34	4.6
A. Environment subindex	**27**	**4.8**
1st pillar: Political and regulatory environment	35	4.3
2nd pillar: Business and innovation environment	14	5.3
B. Readiness subindex	**74**	**4.7**
3rd pillar: Infrastructure	54	4.5
4th pillar: Affordability	91	4.5
5th pillar: Skills	72	5.0
C. Usage subindex	**37**	**4.5**
6th pillar: Individual usage	52	4.7
7th pillar: Business usage	47	3.9
8th pillar: Government usage	29	4.8
D. Impact subindex	**35**	**4.4**
9th pillar: Economic impacts	44	3.5
10th pillar: Social impacts	23	5.3



The Networked Readiness Index in detail

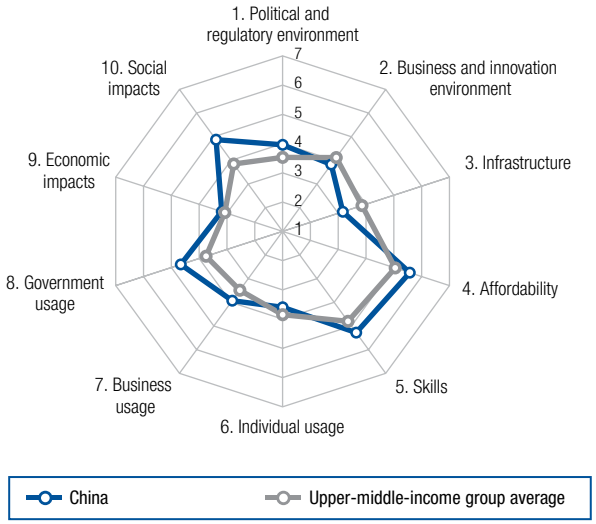
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	60	3.8
1.02	Laws relating to ICTs*	37	4.6
1.03	Judicial independence*	27	5.2
1.04	Efficiency of legal system in settling disputes*	30	4.4
1.05	Efficiency of legal system in challenging regs*	33	4.1
1.06	Intellectual property protection*	56	3.9
1.07	Software piracy rate, % software installed	52	59
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	52	480
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	31	5.7
2.02	Venture capital availability*	32	3.3
2.03	Total tax rate, % profits	30	27.9
2.04	No. days to start a business	23	6
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	27	5.6
2.07	Tertiary education gross enrollment rate, %	20	74.4
2.08	Quality of management schools*	13	5.4
2.09	Gov't procurement of advanced tech*	40	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	56	3,915.6
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	49	54.9
3.04	Secure Internet servers/million pop.	48	93.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	86	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	106	53.40
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	71	3.7
5.02	Quality of math & science education*	99	3.5
5.03	Secondary education gross enrollment rate, %	69	89.0
5.04	Adult literacy rate, %	34	97.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	40	134.3
6.02	Individuals using Internet, %	43	66.5
6.03	Households w/ personal computer, %	60	57.0
6.04	Households w/ Internet access, %	60	49.6
6.05	Fixed broadband Internet subs/100 pop.	54	13.0
6.06	Mobile broadband subs/100 pop.	63	35.6
6.07	Use of virtual social networks*	30	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	39	5.2
7.02	Capacity for innovation*	76	3.7
7.03	PCT patents, applications/million pop.	45	6.8
7.04	Business-to-business Internet use*	36	5.3
7.05	Business-to-consumer Internet use*	38	5.1
7.06	Extent of staff training*	52	4.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	49	4.2
8.02	Government Online Service Index, 0–1 (best)	16	0.82
8.03	Gov't success in ICT promotion*	56	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	29	5.0
9.02	ICT PCT patents, applications/million pop.	54	0.8
9.03	Impact of ICTs on new organizational models*	42	4.6
9.04	Knowledge-intensive jobs, % workforce	61	24.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	39	4.9
10.02	Internet access in schools*	42	5.1
10.03	ICT use & gov't efficiency*	38	4.8
10.04	E-Participation Index, 0–1 (best)	7	0.94

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

China

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**62**	**4.2**
Networked Readiness Index 2014 (out of 148)	62	4.1
Networked Readiness Index 2013 (out of 144)	58	4.0
A. Environment subindex	**77**	**3.9**
1st pillar: Political and regulatory environment	52	4.0
2nd pillar: Business and innovation environment	104	3.8
B. Readiness subindex	**76**	**4.7**
3rd pillar: Infrastructure	92	3.2
4th pillar: Affordability	57	5.6
5th pillar: Skills	59	5.3
C. Usage subindex	**57**	**4.1**
6th pillar: Individual usage	80	3.6
7th pillar: Business usage	46	3.9
8th pillar: Government usage	39	4.7
D. Impact subindex	**47**	**4.0**
9th pillar: Economic impacts	71	3.2
10th pillar: Social impacts	40	4.9



The Networked Readiness Index in detail

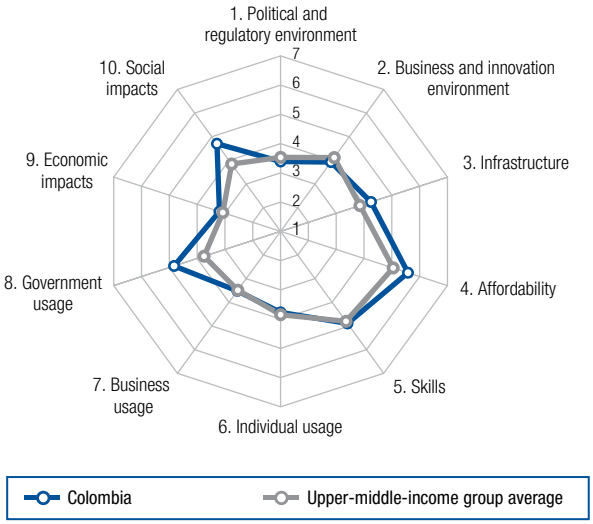
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	37	4.2
1.02	Laws relating to ICTs*	49	4.4
1.03	Judicial independence*	60	4.0
1.04	Efficiency of legal system in settling disputes*	49	4.1
1.05	Efficiency of legal system in challenging regs*	47	3.6
1.06	Intellectual property protection*	53	4.0
1.07	Software piracy rate, % software installed	72	74
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	46	453
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	97	4.3
2.02	Venture capital availability*	13	3.9
2.03	Total tax rate, % profits	130	64.6
2.04	No. days to start a business	118	31
2.05	No. procedures to start a business	127	11
2.06	Intensity of local competition*	44	5.4
2.07	Tertiary education gross enrollment rate, %	85	26.7
2.08	Quality of management schools*	85	3.9
2.09	Gov't procurement of advanced tech*	10	4.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	59	3,508.4
3.02	Mobile network coverage, % pop.	61	99.5
3.03	Int'l Internet bandwidth, kb/s per user	123	4.2
3.04	Secure Internet servers/million pop.	105	3.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	5	0.06
4.02	Fixed broadband Internet tariffs, PPP $/month	74	33.85
4.03	Internet & telephony competition, 0–2 (best)	116	1.20
	5th pillar: Skills		
5.01	Quality of educational system*	52	4.0
5.02	Quality of math & science education*	56	4.3
5.03	Secondary education gross enrollment rate, %	70	89.0
5.04	Adult literacy rate, %	38	96.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	108	88.7
6.02	Individuals using Internet, %	75	45.8
6.03	Households w/ personal computer, %	71	43.8
6.04	Households w/ Internet access, %	69	43.9
6.05	Fixed broadband Internet subs/100 pop.	51	13.6
6.06	Mobile broadband subs/100 pop.	80	21.4
6.07	Use of virtual social networks*	124	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	68	4.7
7.02	Capacity for innovation*	40	4.2
7.03	PCT patents, applications/million pop.	31	13.7
7.04	Business-to-business Internet use*	61	4.9
7.05	Business-to-consumer Internet use*	34	5.2
7.06	Extent of staff training*	46	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	25	4.7
8.02	Government Online Service Index, 0–1 (best)	47	0.61
8.03	Gov't success in ICT promotion*	38	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	49	4.6
9.02	ICT PCT patents, applications/million pop.	30	8.5
9.03	Impact of ICTs on new organizational models*	34	4.7
9.04	Knowledge-intensive jobs, % workforce	106	7.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	46	4.7
10.02	Internet access in schools*	38	5.3
10.03	ICT use & gov't efficiency*	41	4.7
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Colombia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**64**	**4.1**
Networked Readiness Index 2014 (out of 148)	63	4.0
Networked Readiness Index 2013 (out of 144)	66	3.9
A. Environment subindex	**97**	**3.7**
1st pillar: Political and regulatory environment	98	3.4
2nd pillar: Business and innovation environment	94	3.9
B. Readiness subindex	**59**	**4.9**
3rd pillar: Infrastructure	68	4.2
4th pillar: Affordability	55	5.6
5th pillar: Skills	77	4.9
C. Usage subindex	**59**	**4.0**
6th pillar: Individual usage	77	3.8
7th pillar: Business usage	81	3.5
8th pillar: Government usage	30	4.8
D. Impact subindex	**52**	**3.9**
9th pillar: Economic impacts	69	3.2
10th pillar: Social impacts	43	4.7



The Networked Readiness Index in detail

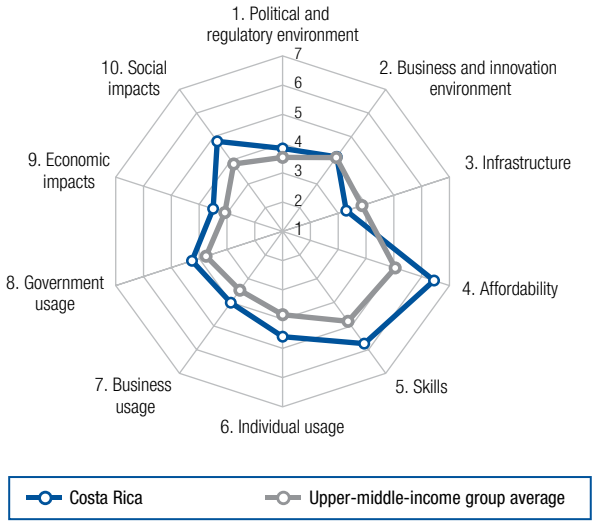
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	121	2.7
1.02	Laws relating to ICTs*	55	4.2
1.03	Judicial independence*	112	2.8
1.04	Efficiency of legal system in settling disputes*	91	3.4
1.05	Efficiency of legal system in challenging regs*	91	3.1
1.06	Intellectual property protection*	95	3.2
1.07	Software piracy rate, % software installed	42	52
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	134	1,288
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	84	4.5
2.02	Venture capital availability*	82	2.6
2.03	Total tax rate, % profits	140	75.4
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	56	5.2
2.07	Tertiary education gross enrollment rate, %	60	45.0
2.08	Quality of management schools*	69	4.3
2.09	Gov't procurement of advanced tech*	50	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	92	1,313.2
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	35	76.1
3.04	Secure Internet servers/million pop.	68	33.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	82	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	64	31.41
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	90	3.4
5.02	Quality of math & science education*	109	3.3
5.03	Secondary education gross enrollment rate, %	60	92.8
5.04	Adult literacy rate, %	51	94.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	87	104.1
6.02	Individuals using Internet, %	63	51.7
6.03	Households w/ personal computer, %	73	42.2
6.04	Households w/ Internet access, %	74	35.7
6.05	Fixed broadband Internet subs/100 pop.	67	9.3
6.06	Mobile broadband subs/100 pop.	77	25.0
6.07	Use of virtual social networks*	83	5.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	89	4.4
7.02	Capacity for innovation*	85	3.5
7.03	PCT patents, applications/million pop.	64	1.3
7.04	Business-to-business Internet use*	67	4.8
7.05	Business-to-consumer Internet use*	62	4.7
7.06	Extent of staff training*	83	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	42	4.4
8.02	Government Online Service Index, 0–1 (best)	17	0.79
8.03	Gov't success in ICT promotion*	57	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	51	4.6
9.02	ICT PCT patents, applications/million pop.	75	0.2
9.03	Impact of ICTs on new organizational models*	54	4.5
9.04	Knowledge-intensive jobs, % workforce	90	16.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	58	4.3
10.02	Internet access in schools*	82	4.0
10.03	ICT use & gov't efficiency*	61	4.2
10.04	E-Participation Index, 0–1 (best)	11	0.88

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Costa Rica

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**49**	**4.4**
Networked Readiness Index 2014 (out of 148)	53	4.2
Networked Readiness Index 2013 (out of 144)	53	4.1
A. Environment subindex	**66**	**4.0**
1st pillar: Political and regulatory environment	63	3.8
2nd pillar: Business and innovation environment	78	4.1
B. Readiness subindex	**51**	**5.2**
3rd pillar: Infrastructure	91	3.3
4th pillar: Affordability	16	6.4
5th pillar: Skills	26	5.7
C. Usage subindex	**44**	**4.3**
6th pillar: Individual usage	56	4.6
7th pillar: Business usage	39	4.0
8th pillar: Government usage	54	4.3
D. Impact subindex	**41**	**4.1**
9th pillar: Economic impacts	47	3.5
10th pillar: Social impacts	41	4.8



The Networked Readiness Index in detail

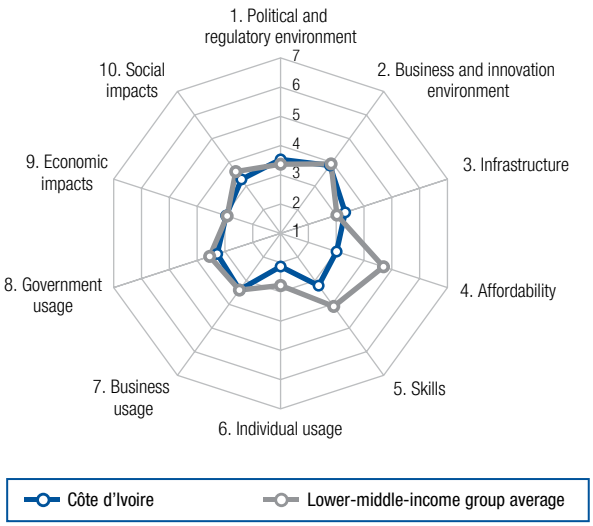
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	129	2.4
1.02	Laws relating to ICTs*	54	4.2
1.03	Judicial independence*	32	5.0
1.04	Efficiency of legal system in settling disputes*	63	3.8
1.05	Efficiency of legal system in challenging regs*	28	4.1
1.06	Intellectual property protection*	49	4.0
1.07	Software piracy rate, % software installed	52	59
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	120	852
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	62	5.0
2.02	Venture capital availability*	111	2.2
2.03	Total tax rate, % profits	124	58.0
2.04	No. days to start a business	105	24
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	59	5.2
2.07	Tertiary education gross enrollment rate, %	55	46.7
2.08	Quality of management schools*	16	5.3
2.09	Gov't procurement of advanced tech*	67	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	80	2,075.5
3.02	Mobile network coverage, % pop.	133	69.5
3.03	Int'l Internet bandwidth, kb/s per user	36	73.6
3.04	Secure Internet servers/million pop.	52	79.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	12	0.09
4.02	Fixed broadband Internet tariffs, PPP $/month	27	21.59
4.03	Internet & telephony competition, 0–2 (best)	96	1.63
	5th pillar: Skills		
5.01	Quality of educational system*	21	4.7
5.02	Quality of math & science education*	47	4.4
5.03	Secondary education gross enrollment rate, %	21	103.6
5.04	Adult literacy rate, %	31	97.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	28	146.0
6.02	Individuals using Internet, %	73	46.0
6.03	Households w/ personal computer, %	65	51.0
6.04	Households w/ Internet access, %	63	46.7
6.05	Fixed broadband Internet subs/100 pop.	66	9.7
6.06	Mobile broadband subs/100 pop.	21	72.7
6.07	Use of virtual social networks*	50	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	45	5.0
7.02	Capacity for innovation*	36	4.3
7.03	PCT patents, applications/million pop.	63	1.3
7.04	Business-to-business Internet use*	47	5.1
7.05	Business-to-consumer Internet use*	57	4.8
7.06	Extent of staff training*	21	4.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	75	3.8
8.02	Government Online Service Index, 0–1 (best)	43	0.61
8.03	Gov't success in ICT promotion*	65	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	43	4.7
9.02	ICT PCT patents, applications/million pop.	65	0.3
9.03	Impact of ICTs on new organizational models*	38	4.6
9.04	Knowledge-intensive jobs, % workforce	57	25.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	51	4.5
10.02	Internet access in schools*	57	4.7
10.03	ICT use & gov't efficiency*	68	4.1
10.04	E-Participation Index, 0–1 (best)	14	0.82

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Côte d'Ivoire

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**115**	**3.2**
Networked Readiness Index 2014 (out of 148)	122	3.1
Networked Readiness Index 2013 (out of 144)	120	3.0
A. Environment subindex	**95**	**3.7**
1st pillar: Political and regulatory environment	84	3.5
2nd pillar: Business and innovation environment	99	3.9
B. Readiness subindex	**118**	**3.2**
3rd pillar: Infrastructure	89	3.3
4th pillar: Affordability	127	3.0
5th pillar: Skills	123	3.2
C. Usage subindex	**117**	**2.9**
6th pillar: Individual usage	119	2.1
7th pillar: Business usage	95	3.4
8th pillar: Government usage	114	3.3
D. Impact subindex	**107**	**3.1**
9th pillar: Economic impacts	99	3.0
10th pillar: Social impacts	114	3.3



The Networked Readiness Index in detail

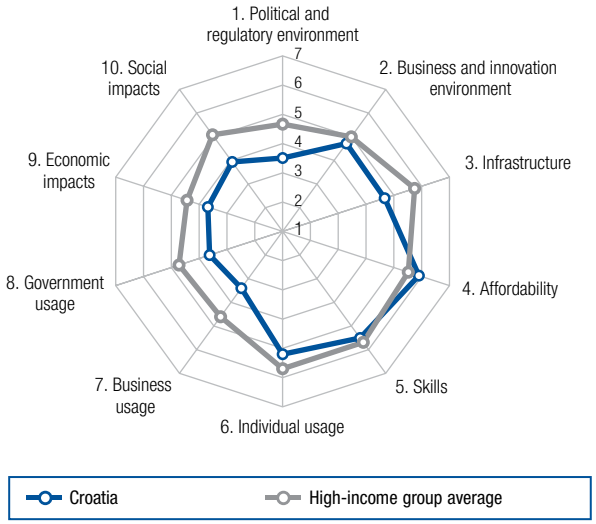
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	79	3.5
1.02	Laws relating to ICTs*	83	3.8
1.03	Judicial independence*	95	3.2
1.04	Efficiency of legal system in settling disputes*	67	3.7
1.05	Efficiency of legal system in challenging regs*	48	3.6
1.06	Intellectual property protection*	98	3.1
1.07	Software piracy rate, % software installed	84	80
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	68	525
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	88	4.5
2.02	Venture capital availability*	55	2.8
2.03	Total tax rate, % profits	118	51.9
2.04	No. days to start a business	40	7
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	112	4.6
2.07	Tertiary education gross enrollment rate, %	131	4.5
2.08	Quality of management schools*	37	4.8
2.09	Gov't procurement of advanced tech*	38	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	116	314.5
3.02	Mobile network coverage, % pop.	89	97.9
3.03	Int'l Internet bandwidth, kb/s per user	78	22.7
3.04	Secure Internet servers/million pop.	118	2.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	92	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	119	76.50
4.03	Internet & telephony competition, 0–2 (best)	113	1.22
	5th pillar: Skills		
5.01	Quality of educational system*	80	3.6
5.02	Quality of math & science education*	22	5.1
5.03	Secondary education gross enrollment rate, %	n/a	n/a
5.04	Adult literacy rate, %	115	43.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	104	95.4
6.02	Individuals using Internet, %	135	2.6
6.03	Households w/ personal computer, %	139	2.3
6.04	Households w/ Internet access, %	140	1.5
6.05	Fixed broadband Internet subs/100 pop.	116	0.3
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	110	5.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	73	4.6
7.02	Capacity for innovation*	88	3.5
7.03	PCT patents, applications/million pop.	111	0.0
7.04	Business-to-business Internet use*	124	3.9
7.05	Business-to-consumer Internet use*	110	3.8
7.06	Extent of staff training*	70	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	76	3.8
8.02	Government Online Service Index, 0–1 (best)	117	0.17
8.03	Gov't success in ICT promotion*	85	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	100	4.0
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	86	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	87	3.9
10.02	Internet access in schools*	110	3.4
10.03	ICT use & gov't efficiency*	89	3.8
10.04	E-Participation Index, 0–1 (best)	120	0.18

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Croatia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**54**	**4.3**
Networked Readiness Index 2014 (out of 148)	46	4.3
Networked Readiness Index 2013 (out of 144)	51	4.2
A. Environment subindex	**58**	**4.1**
1st pillar: Political and regulatory environment	87	3.5
2nd pillar: Business and innovation environment	44	4.7
B. Readiness subindex	**39**	**5.4**
3rd pillar: Infrastructure	47	4.7
4th pillar: Affordability	42	5.9
5th pillar: Skills	40	5.5
C. Usage subindex	**56**	**4.1**
6th pillar: Individual usage	39	5.2
7th pillar: Business usage	92	3.4
8th pillar: Government usage	83	3.6
D. Impact subindex	**63**	**3.8**
9th pillar: Economic impacts	40	3.7
10th pillar: Social impacts	80	3.9



The Networked Readiness Index in detail

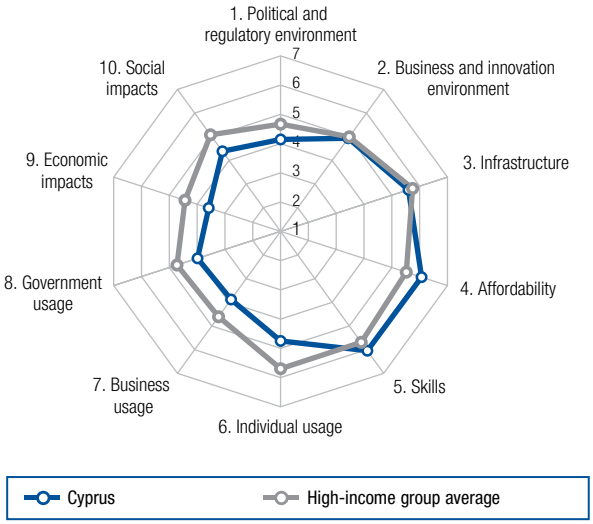
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	102	3.1
1.02	Laws relating to ICTs*	61	4.0
1.03	Judicial independence*	100	3.2
1.04	Efficiency of legal system in settling disputes*	133	2.5
1.05	Efficiency of legal system in challenging regs*	137	2.1
1.06	Intellectual property protection*	75	3.6
1.07	Software piracy rate, % software installed	42	52
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	82	572
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	59	5.1
2.02	Venture capital availability*	114	2.2
2.03	Total tax rate, % profits	12	18.8
2.04	No. days to start a business	83	15
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	83	4.9
2.07	Tertiary education gross enrollment rate, %	38	61.6
2.08	Quality of management schools*	76	4.2
2.09	Gov't procurement of advanced tech*	128	2.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	73	2,500.1
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	61	40.5
3.04	Secure Internet servers/million pop.	40	193.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	69	0.25
4.02	Fixed broadband Internet tariffs, PPP $/month	49	27.94
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	97	3.2
5.02	Quality of math & science education*	26	4.9
5.03	Secondary education gross enrollment rate, %	37	98.4
5.04	Adult literacy rate, %	15	99.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	67	114.5
6.02	Individuals using Internet, %	42	66.7
6.03	Households w/ personal computer, %	48	66.3
6.04	Households w/ Internet access, %	47	64.6
6.05	Fixed broadband Internet subs/100 pop.	36	21.5
6.06	Mobile broadband subs/100 pop.	25	65.3
6.07	Use of virtual social networks*	57	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	72	4.6
7.02	Capacity for innovation*	123	3.1
7.03	PCT patents, applications/million pop.	36	9.9
7.04	Business-to-business Internet use*	53	5.1
7.05	Business-to-consumer Internet use*	66	4.6
7.06	Extent of staff training*	128	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	97	3.5
8.02	Government Online Service Index, 0–1 (best)	69	0.46
8.03	Gov't success in ICT promotion*	109	3.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	64	4.5
9.02	ICT PCT patents, applications/million pop.	41	1.8
9.03	Impact of ICTs on new organizational models*	52	4.5
9.04	Knowledge-intensive jobs, % workforce	36	35.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	65	4.3
10.02	Internet access in schools*	52	4.8
10.03	ICT use & gov't efficiency*	97	3.6
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Cyprus

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**36**	**4.7**
Networked Readiness Index 2014 (out of 148)	37	4.6
Networked Readiness Index 2013 (out of 144)	35	4.6
A. Environment subindex	**39**	**4.5**
1st pillar: Political and regulatory environment	41	4.1
2nd pillar: Business and innovation environment	30	4.9
B. Readiness subindex	**20**	**5.9**
3rd pillar: Infrastructure	30	5.6
4th pillar: Affordability	34	6.1
5th pillar: Skills	11	6.0
C. Usage subindex	**50**	**4.2**
6th pillar: Individual usage	50	4.7
7th pillar: Business usage	51	3.9
8th pillar: Government usage	66	4.0
D. Impact subindex	**50**	**4.0**
9th pillar: Economic impacts	43	3.6
10th pillar: Social impacts	59	4.4



The Networked Readiness Index in detail

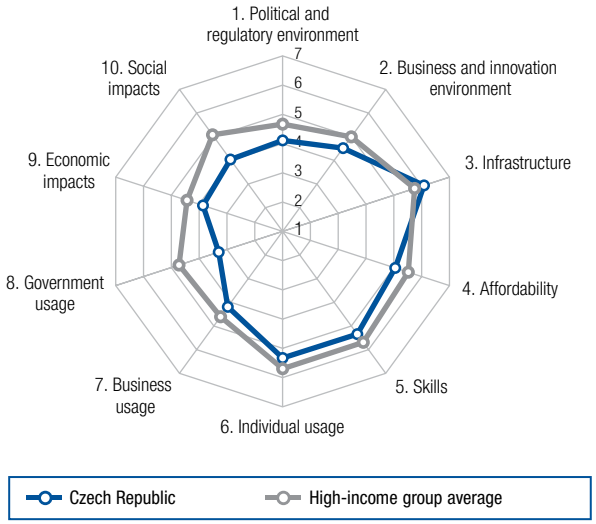
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	52	3.9
1.02	Laws relating to ICTs*	52	4.3
1.03	Judicial independence*	45	4.5
1.04	Efficiency of legal system in settling disputes*	51	4.0
1.05	Efficiency of legal system in challenging regs*	31	4.1
1.06	Intellectual property protection*	39	4.3
1.07	Software piracy rate, % software installed	34	47
1.08	No. procedures to enforce a contract	118	43
1.09	No. days to enforce a contract	112	735
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	42	5.4
2.02	Venture capital availability*	75	2.7
2.03	Total tax rate, % profits	21	23.2
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	37	5.4
2.07	Tertiary education gross enrollment rate, %	59	45.9
2.08	Quality of management schools*	30	5.0
2.09	Gov't procurement of advanced tech*	55	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	50	4,414.6
3.02	Mobile network coverage, % pop.	37	100.0
3.03	Int'l Internet bandwidth, kb/s per user	44	63.4
3.04	Secure Internet servers/million pop.	23	621.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	22	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	31	22.86
4.03	Internet & telephony competition, 0–2 (best)	109	1.31
	5th pillar: Skills		
5.01	Quality of educational system*	13	5.2
5.02	Quality of math & science education*	10	5.4
5.03	Secondary education gross enrollment rate, %	53	95.3
5.04	Adult literacy rate, %	17	99.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	99	96.4
6.02	Individuals using Internet, %	45	65.5
6.03	Households w/ personal computer, %	42	70.3
6.04	Households w/ Internet access, %	45	64.7
6.05	Fixed broadband Internet subs/100 pop.	38	19.9
6.06	Mobile broadband subs/100 pop.	66	32.1
6.07	Use of virtual social networks*	39	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	40	5.1
7.02	Capacity for innovation*	63	3.8
7.03	PCT patents, applications/million pop.	42	7.5
7.04	Business-to-business Internet use*	65	4.8
7.05	Business-to-consumer Internet use*	44	5.0
7.06	Extent of staff training*	43	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	64	4.0
8.02	Government Online Service Index, 0–1 (best)	67	0.47
8.03	Gov't success in ICT promotion*	72	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	68	4.4
9.02	ICT PCT patents, applications/million pop.	48	1.2
9.03	Impact of ICTs on new organizational models*	66	4.2
9.04	Knowledge-intensive jobs, % workforce	35	35.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	44	4.7
10.02	Internet access in schools*	30	5.6
10.03	ICT use & gov't efficiency*	51	4.4
10.04	E-Participation Index, 0–1 (best)	97	0.31

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Czech Republic

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**43**	**4.5**
Networked Readiness Index 2014 (out of 148)	42	4.5
Networked Readiness Index 2013 (out of 144)	42	4.4
A. Environment subindex	**47**	**4.3**
1st pillar: Political and regulatory environment	44	4.1
2nd pillar: Business and innovation environment	58	4.5
B. Readiness subindex	**36**	**5.5**
3rd pillar: Infrastructure	22	6.1
4th pillar: Affordability	80	5.0
5th pillar: Skills	53	5.3
C. Usage subindex	**45**	**4.3**
6th pillar: Individual usage	32	5.3
7th pillar: Business usage	32	4.2
8th pillar: Government usage	113	3.3
D. Impact subindex	**53**	**3.9**
9th pillar: Economic impacts	36	3.9
10th pillar: Social impacts	74	4.0



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	98	3.1
1.02	Laws relating to ICTs*	51	4.3
1.03	Judicial independence*	62	3.9
1.04	Efficiency of legal system in settling disputes*	99	3.3
1.05	Efficiency of legal system in challenging regs*	115	2.7
1.06	Intellectual property protection*	55	3.9
1.07	Software piracy rate, % software installed	20	34
1.08	No. procedures to enforce a contract	9	27
1.09	No. days to enforce a contract	91	611
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	51	5.2
2.02	Venture capital availability*	42	3.1
2.03	Total tax rate, % profits	107	48.5
2.04	No. days to start a business	95	19
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	17	5.7
2.07	Tertiary education gross enrollment rate, %	32	64.2
2.08	Quality of management schools*	68	4.3
2.09	Gov't procurement of advanced tech*	106	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	22	8,263.4
3.02	Mobile network coverage, % pop.	49	99.8
3.03	Int'l Internet bandwidth, kb/s per user	26	111.2
3.04	Secure Internet servers/million pop.	26	563.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	114	0.44
4.02	Fixed broadband Internet tariffs, PPP $/month	58	29.93
4.03	Internet & telephony competition, 0–2 (best)	70	1.88
	5th pillar: Skills		
5.01	Quality of educational system*	77	3.6
5.02	Quality of math & science education*	74	4.1
5.03	Secondary education gross enrollment rate, %	47	96.6
5.04	Adult literacy rate, %	n/a	n/a[1]

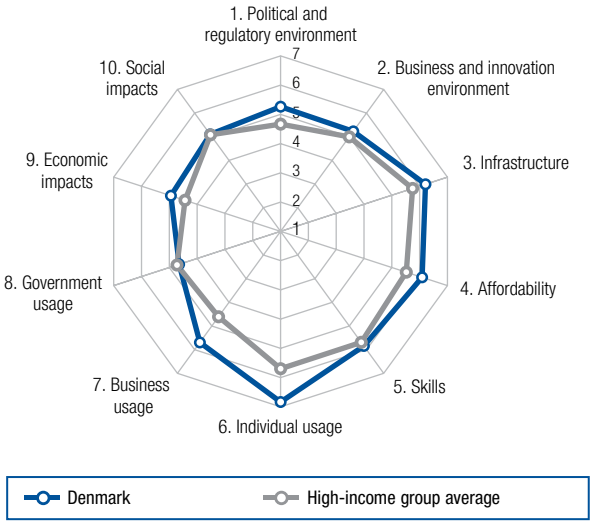
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	46	127.7
6.02	Individuals using Internet, %	31	74.1
6.03	Households w/ personal computer, %	36	73.9
6.04	Households w/ Internet access, %	33	72.6
6.05	Fixed broadband Internet subs/100 pop.	42	17.0
6.06	Mobile broadband subs/100 pop.	41	52.3
6.07	Use of virtual social networks*	53	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	50	5.0
7.02	Capacity for innovation*	28	4.6
7.03	PCT patents, applications/million pop.	29	18.8
7.04	Business-to-business Internet use*	25	5.6
7.05	Business-to-consumer Internet use*	12	5.8
7.06	Extent of staff training*	55	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	115	3.2
8.02	Government Online Service Index, 0–1 (best)	84	0.37
8.03	Gov't success in ICT promotion*	116	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	47	4.7
9.02	ICT PCT patents, applications/million pop.	35	3.1
9.03	Impact of ICTs on new organizational models*	44	4.6
9.04	Knowledge-intensive jobs, % workforce	27	37.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	56	4.3
10.02	Internet access in schools*	27	5.8
10.03	ICT use & gov't efficiency*	102	3.5
10.04	E-Participation Index, 0–1 (best)	106	0.25

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Denmark

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**15**	**5.5**
Networked Readiness Index 2014 (out of 148)	13	5.5
Networked Readiness Index 2013 (out of 144)	8	5.6
A. Environment subindex	**16**	**5.2**
1st pillar: Political and regulatory environment	16	5.3
2nd pillar: Business and innovation environment	18	5.2
B. Readiness subindex	**13**	**6.0**
3rd pillar: Infrastructure	20	6.2
4th pillar: Affordability	33	6.1
5th pillar: Skills	19	5.8
C. Usage subindex	**9**	**5.7**
6th pillar: Individual usage	1	6.8
7th pillar: Business usage	8	5.7
8th pillar: Government usage	40	4.6
D. Impact subindex	**21**	**5.0**
9th pillar: Economic impacts	18	4.9
10th pillar: Social impacts	30	5.1



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	17	4.9
1.02	Laws relating to ICTs*	22	5.0
1.03	Judicial independence*	3	6.5
1.04	Efficiency of legal system in settling disputes*	20	5.0
1.05	Efficiency of legal system in challenging regs*	44	3.7
1.06	Intellectual property protection*	24	5.3
1.07	Software piracy rate, % software installed	7	23
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	31	410
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	28	5.8
2.02	Venture capital availability*	87	2.5
2.03	Total tax rate, % profits	27	26.0
2.04	No. days to start a business	23	6
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	45	5.4
2.07	Tertiary education gross enrollment rate, %	14	79.6
2.08	Quality of management schools*	21	5.2
2.09	Gov't procurement of advanced tech*	80	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	38	5,437.3
3.02	Mobile network coverage, % pop.	93	97.0
3.03	Int'l Internet bandwidth, kb/s per user	9	261.2
3.04	Secure Internet servers/million pop.	5	2,103.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	6	0.06
4.02	Fixed broadband Internet tariffs, PPP $/month	75	34.11
4.03	Internet & telephony competition, 0–2 (best)	68	1.88
	5th pillar: Skills		
5.01	Quality of educational system*	18	4.8
5.02	Quality of math & science education*	42	4.5
5.03	Secondary education gross enrollment rate, %	4	124.7
5.04	Adult literacy rate, %	n/a	n/a[1]

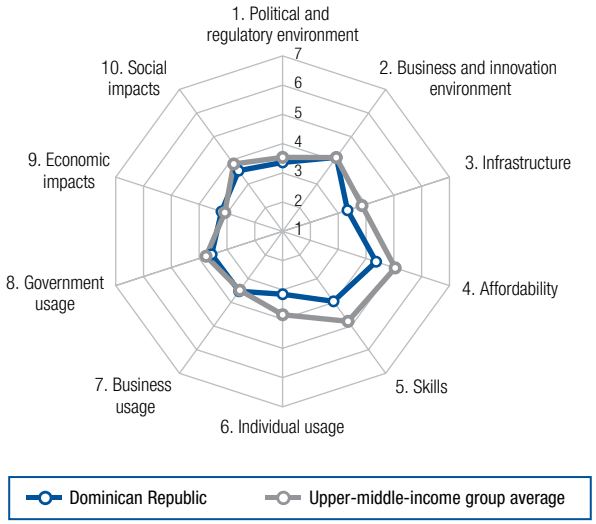
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	48	127.1
6.02	Individuals using Internet, %	4	94.6
6.03	Households w/ personal computer, %	6	93.1
6.04	Households w/ Internet access, %	7	92.7
6.05	Fixed broadband Internet subs/100 pop.	2	40.2
6.06	Mobile broadband subs/100 pop.	8	103.8
6.07	Use of virtual social networks*	36	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	15	5.7
7.02	Capacity for innovation*	8	5.3
7.03	PCT patents, applications/million pop.	8	213.3
7.04	Business-to-business Internet use*	27	5.6
7.05	Business-to-consumer Internet use*	23	5.5
7.06	Extent of staff training*	15	4.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	41	4.4
8.02	Government Online Service Index, 0–1 (best)	35	0.66
8.03	Gov't success in ICT promotion*	46	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	45	4.7
9.02	ICT PCT patents, applications/million pop.	12	42.1
9.03	Impact of ICTs on new organizational models*	33	4.7
9.04	Knowledge-intensive jobs, % workforce	10	45.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	27	5.2
10.02	Internet access in schools*	22	6.0
10.03	ICT use & gov't efficiency*	28	4.9
10.04	E-Participation Index, 0–1 (best)	54	0.55

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Dominican Republic

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**95**	**3.6**
Networked Readiness Index 2014 (out of 148)	93	3.7
Networked Readiness Index 2013 (out of 144)	90	3.6
A. Environment subindex	**91**	**3.7**
1st pillar: Political and regulatory environment	101	3.4
2nd pillar: Business and innovation environment	80	4.1
B. Readiness subindex	**106**	**3.9**
3rd pillar: Infrastructure	88	3.3
4th pillar: Affordability	97	4.4
5th pillar: Skills	104	4.0
C. Usage subindex	**93**	**3.4**
6th pillar: Individual usage	90	3.1
7th pillar: Business usage	77	3.5
8th pillar: Government usage	93	3.6
D. Impact subindex	**88**	**3.4**
9th pillar: Economic impacts	70	3.2
10th pillar: Social impacts	96	3.6



The Networked Readiness Index in detail

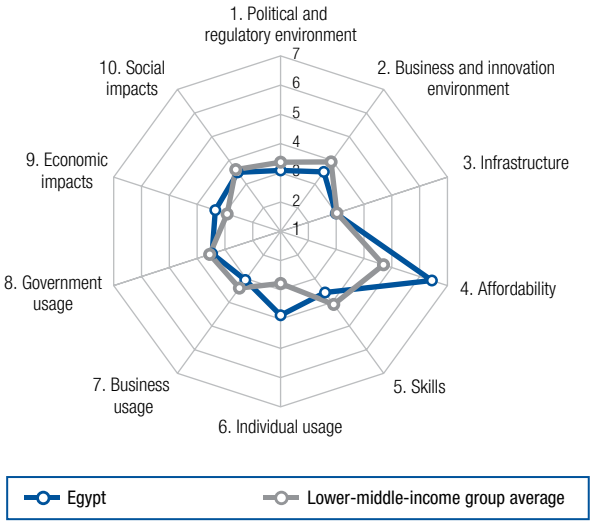
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	111	3.0
1.02	Laws relating to ICTs*	82	3.8
1.03	Judicial independence*	120	2.5
1.04	Efficiency of legal system in settling disputes*	86	3.4
1.05	Efficiency of legal system in challenging regs*	65	3.4
1.06	Intellectual property protection*	94	3.2
1.07	Software piracy rate, % software installed	75	75
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	47	460
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	60	5.0
2.02	Venture capital availability*	83	2.6
2.03	Total tax rate, % profits	96	43.4
2.04	No. days to start a business	99	20
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	72	5.0
2.07	Tertiary education gross enrollment rate, %	75	34.1
2.08	Quality of management schools*	109	3.6
2.09	Gov't procurement of advanced tech*	59	3.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	93	1,278.6
3.02	Mobile network coverage, % pop.	91	97.4
3.03	Int'l Internet bandwidth, kb/s per user	85	18.9
3.04	Secure Internet servers/million pop.	78	20.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	117	0.47
4.02	Fixed broadband Internet tariffs, PPP $/month	94	44.10
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	131	2.6
5.02	Quality of math & science education*	141	2.1
5.03	Secondary education gross enrollment rate, %	95	75.9
5.04	Adult literacy rate, %	66	91.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	109	88.4
6.02	Individuals using Internet, %	74	45.9
6.03	Households w/ personal computer, %	92	24.5
6.04	Households w/ Internet access, %	92	18.6
6.05	Fixed broadband Internet subs/100 pop.	84	4.6
6.06	Mobile broadband subs/100 pop.	75	25.4
6.07	Use of virtual social networks*	72	5.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	77	4.5
7.02	Capacity for innovation*	74	3.7
7.03	PCT patents, applications/million pop.	84	0.4
7.04	Business-to-business Internet use*	70	4.7
7.05	Business-to-consumer Internet use*	74	4.4
7.06	Extent of staff training*	86	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	101	3.4
8.02	Government Online Service Index, 0–1 (best)	82	0.39
8.03	Gov't success in ICT promotion*	91	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	55	4.6
9.02	ICT PCT patents, applications/million pop.	88	0.0
9.03	Impact of ICTs on new organizational models*	50	4.5
9.04	Knowledge-intensive jobs, % workforce	88	17.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	84	3.9
10.02	Internet access in schools*	104	3.5
10.03	ICT use & gov't efficiency*	85	3.8
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Egypt

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**94**	**3.6**
Networked Readiness Index 2014 (out of 148)	91	3.7
Networked Readiness Index 2013 (out of 144)	80	3.8
A. Environment subindex	**123**	**3.3**
1st pillar: Political and regulatory environment	115	3.1
2nd pillar: Business and innovation environment	124	3.5
B. Readiness subindex	**90**	**4.3**
3rd pillar: Infrastructure	99	3.0
4th pillar: Affordability	17	6.4
5th pillar: Skills	118	3.6
C. Usage subindex	**90**	**3.5**
6th pillar: Individual usage	73	3.9
7th pillar: Business usage	125	3.1
8th pillar: Government usage	102	3.5
D. Impact subindex	**84**	**3.4**
9th pillar: Economic impacts	60	3.3
10th pillar: Social impacts	100	3.5



The Networked Readiness Index in detail

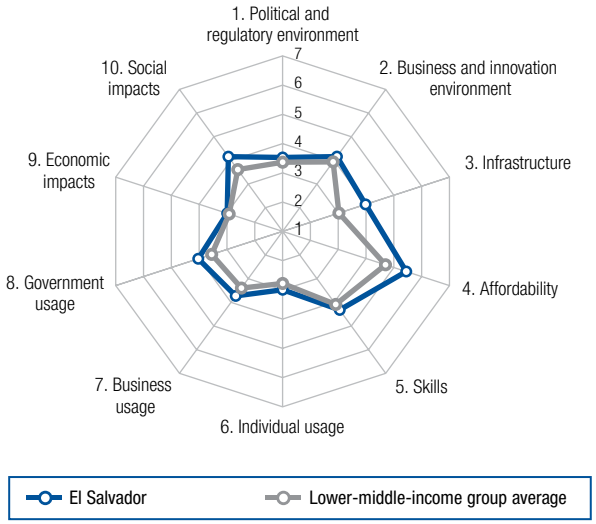
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	142	1.8
1.02	Laws relating to ICTs*	113	3.1
1.03	Judicial independence*	57	4.0
1.04	Efficiency of legal system in settling disputes*	104	3.3
1.05	Efficiency of legal system in challenging regs*	82	3.2
1.06	Intellectual property protection*	109	2.9
1.07	Software piracy rate, % software installed	57	62
1.08	No. procedures to enforce a contract	113	42
1.09	No. days to enforce a contract	128	1,010
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	127	3.8
2.02	Venture capital availability*	103	2.3
2.03	Total tax rate, % profits	100	45.0
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	132	4.0
2.07	Tertiary education gross enrollment rate, %	80	30.1
2.08	Quality of management schools*	143	2.0
2.09	Gov't procurement of advanced tech*	112	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	83	1,972.3
3.02	Mobile network coverage, % pop.	49	99.8
3.03	Int'l Internet bandwidth, kb/s per user	117	5.3
3.04	Secure Internet servers/million pop.	108	3.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	7	0.07
4.02	Fixed broadband Internet tariffs, PPP $/month	29	21.92
4.03	Internet & telephony competition, 0–2 (best)	94	1.64
	5th pillar: Skills		
5.01	Quality of educational system*	140	2.2
5.02	Quality of math & science education*	135	2.4
5.03	Secondary education gross enrollment rate, %	79	86.3
5.04	Adult literacy rate, %	93	73.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	55	121.5
6.02	Individuals using Internet, %	68	49.6
6.03	Households w/ personal computer, %	72	43.1
6.04	Households w/ Internet access, %	77	34.5
6.05	Fixed broadband Internet subs/100 pop.	89	3.3
6.06	Mobile broadband subs/100 pop.	68	31.1
6.07	Use of virtual social networks*	71	5.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	126	3.8
7.02	Capacity for innovation*	131	2.9
7.03	PCT patents, applications/million pop.	78	0.6
7.04	Business-to-business Internet use*	60	4.9
7.05	Business-to-consumer Internet use*	68	4.5
7.06	Extent of staff training*	141	2.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	138	2.6
8.02	Government Online Service Index, 0–1 (best)	51	0.59
8.03	Gov't success in ICT promotion*	131	3.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	107	3.8
9.02	ICT PCT patents, applications/million pop.	72	0.2
9.03	Impact of ICTs on new organizational models*	96	3.8
9.04	Knowledge-intensive jobs, % workforce	30	36.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	94	3.8
10.02	Internet access in schools*	131	2.5
10.03	ICT use & gov't efficiency*	108	3.5
10.04	E-Participation Index, 0–1 (best)	54	0.55

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

El Salvador

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**80**	**3.9**
Networked Readiness Index 2014 (out of 148)	98	3.6
Networked Readiness Index 2013 (out of 144)	93	3.5
A. Environment subindex	**83**	**3.8**
1st pillar: Political and regulatory environment	85	3.5
2nd pillar: Business and innovation environment	75	4.2
B. Readiness subindex	**80**	**4.6**
3rd pillar: Infrastructure	74	4.0
4th pillar: Affordability	63	5.4
5th pillar: Skills	97	4.3
C. Usage subindex	**84**	**3.6**
6th pillar: Individual usage	96	3.0
7th pillar: Business usage	59	3.7
8th pillar: Government usage	64	4.0
D. Impact subindex	**76**	**3.6**
9th pillar: Economic impacts	94	3.0
10th pillar: Social impacts	69	4.2



The Networked Readiness Index in detail

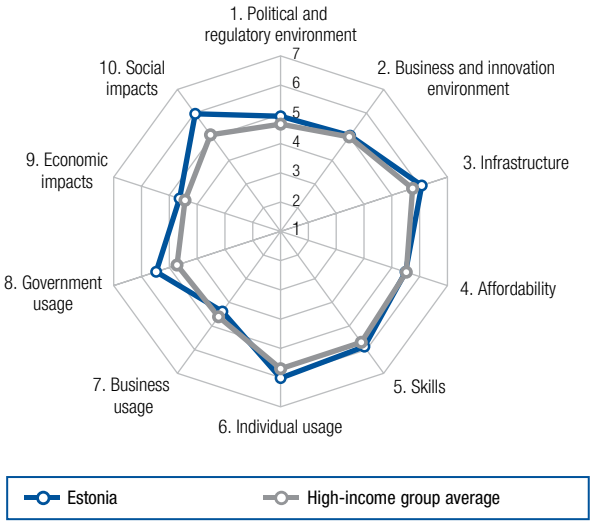
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	74	3.5
1.02	Laws relating to ICTs*	64	4.0
1.03	Judicial independence*	73	3.6
1.04	Efficiency of legal system in settling disputes*	85	3.5
1.05	Efficiency of legal system in challenging regs*	68	3.4
1.06	Intellectual property protection*	78	3.5
1.07	Software piracy rate, % software installed	84	80
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	116	786
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	107	4.2
2.02	Venture capital availability*	45	3.0
2.03	Total tax rate, % profits	73	38.7
2.04	No. days to start a business	88	17
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	89	4.8
2.07	Tertiary education gross enrollment rate, %	86	25.5
2.08	Quality of management schools*	64	4.3
2.09	Gov't procurement of advanced tech*	29	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	96	927.9
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	62	40.5
3.04	Secure Internet servers/million pop.	79	18.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	85	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	67	32.08
4.03	Internet & telephony competition, 0–2 (best)	73	1.87
	5th pillar: Skills		
5.01	Quality of educational system*	63	3.8
5.02	Quality of math & science education*	103	3.4
5.03	Secondary education gross enrollment rate, %	101	69.2
5.04	Adult literacy rate, %	74	88.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	38	136.2
6.02	Individuals using Internet, %	99	23.1
6.03	Households w/ personal computer, %	94	22.3
6.04	Households w/ Internet access, %	104	12.7
6.05	Fixed broadband Internet subs/100 pop.	86	4.5
6.06	Mobile broadband subs/100 pop.	105	6.0
6.07	Use of virtual social networks*	94	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	82	4.4
7.02	Capacity for innovation*	34	4.4
7.03	PCT patents, applications/million pop.	99	0.1
7.04	Business-to-business Internet use*	75	4.7
7.05	Business-to-consumer Internet use*	50	4.9
7.06	Extent of staff training*	71	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	80	3.8
8.02	Government Online Service Index, 0–1 (best)	59	0.54
8.03	Gov't success in ICT promotion*	78	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	65	4.5
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	61	4.3
9.04	Knowledge-intensive jobs, % workforce	101	12.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	72	4.1
10.02	Internet access in schools*	81	4.0
10.03	ICT use & gov't efficiency*	84	3.9
10.04	E-Participation Index, 0–1 (best)	45	0.61

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Estonia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**22**	**5.3**
Networked Readiness Index 2014 (out of 148)	21	5.3
Networked Readiness Index 2013 (out of 144)	22	5.1
A. Environment subindex	**23**	**5.0**
1st pillar: Political and regulatory environment	26	4.9
2nd pillar: Business and innovation environment	25	5.0
B. Readiness subindex	**22**	**5.8**
3rd pillar: Infrastructure	23	6.1
4th pillar: Affordability	62	5.5
5th pillar: Skills	16	5.9
C. Usage subindex	**23**	**5.3**
6th pillar: Individual usage	16	6.0
7th pillar: Business usage	28	4.4
8th pillar: Government usage	6	5.5
D. Impact subindex	**14**	**5.3**
9th pillar: Economic impacts	25	4.6
10th pillar: Social impacts	5	6.0



The Networked Readiness Index in detail

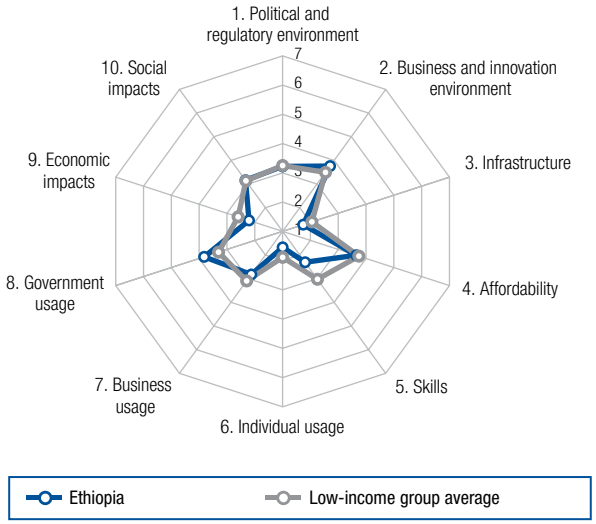
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	29	4.4
1.02	Laws relating to ICTs*	1	5.9
1.03	Judicial independence*	19	5.7
1.04	Efficiency of legal system in settling disputes*	39	4.3
1.05	Efficiency of legal system in challenging regs*	23	4.3
1.06	Intellectual property protection*	27	4.9
1.07	Software piracy rate, % software installed	34	47
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	36	425
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	27	5.8
2.02	Venture capital availability*	26	3.4
2.03	Total tax rate, % profits	112	49.3
2.04	No. days to start a business	14	5
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	29	5.5
2.07	Tertiary education gross enrollment rate, %	18	76.7
2.08	Quality of management schools*	48	4.6
2.09	Gov't procurement of advanced tech*	15	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	16	9,030.8
3.02	Mobile network coverage, % pop.	34	100.0
3.03	Int'l Internet bandwidth, kb/s per user	70	29.1
3.04	Secure Internet servers/million pop.	18	748.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	98	0.35
4.02	Fixed broadband Internet tariffs, PPP $/month	56	29.28
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	35	4.4
5.02	Quality of math & science education*	18	5.1
5.03	Secondary education gross enrollment rate, %	17	107.1
5.04	Adult literacy rate, %	2	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	16	159.7
6.02	Individuals using Internet, %	23	80.0
6.03	Households w/ personal computer, %	29	80.0
6.04	Households w/ Internet access, %	21	80.3
6.05	Fixed broadband Internet subs/100 pop.	20	26.5
6.06	Mobile broadband subs/100 pop.	17	77.4
6.07	Use of virtual social networks*	7	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	32	5.4
7.02	Capacity for innovation*	31	4.5
7.03	PCT patents, applications/million pop.	28	21.3
7.04	Business-to-business Internet use*	2	6.1
7.05	Business-to-consumer Internet use*	11	5.8
7.06	Extent of staff training*	36	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	12	5.1
8.02	Government Online Service Index, 0–1 (best)	18	0.77
8.03	Gov't success in ICT promotion*	7	5.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	3	5.7
9.02	ICT PCT patents, applications/million pop.	29	8.5
9.03	Impact of ICTs on new organizational models*	2	5.7
9.04	Knowledge-intensive jobs, % workforce	21	41.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	5	5.8
10.02	Internet access in schools*	2	6.6
10.03	ICT use & gov't efficiency*	5	5.8
10.04	E-Participation Index, 0–1 (best)	22	0.76

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Ethiopia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**130**	**2.9**
Networked Readiness Index 2014 (out of 148)	130	2.9
Networked Readiness Index 2013 (out of 144)	128	2.9
A. Environment subindex	**113**	**3.5**
1st pillar: Political and regulatory environment	105	3.2
2nd pillar: Business and innovation environment	110	3.8
B. Readiness subindex	**133**	**2.6**
3rd pillar: Infrastructure	135	1.7
4th pillar: Affordability	113	3.6
5th pillar: Skills	137	2.3
C. Usage subindex	**126**	**2.7**
6th pillar: Individual usage	140	1.5
7th pillar: Business usage	135	2.8
8th pillar: Government usage	72	3.8
D. Impact subindex	**128**	**2.7**
9th pillar: Economic impacts	139	2.2
10th pillar: Social impacts	117	3.2



The Networked Readiness Index in detail

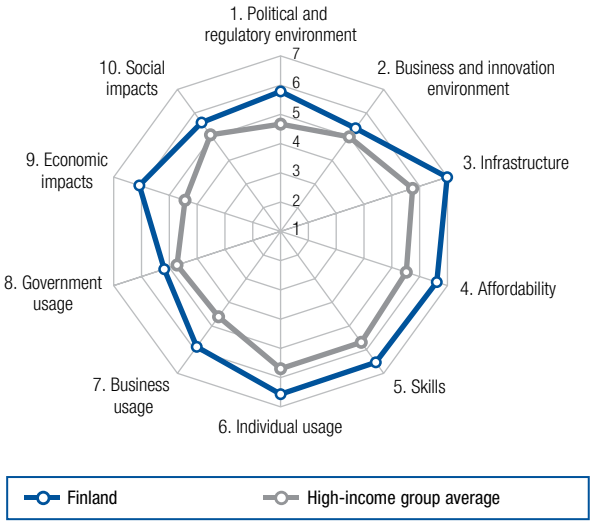
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	94	3.2
1.02	Laws relating to ICTs*	130	2.6
1.03	Judicial independence*	110	2.9
1.04	Efficiency of legal system in settling disputes*	96	3.3
1.05	Efficiency of legal system in challenging regs*	125	2.4
1.06	Intellectual property protection*	97	3.1
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	70	530
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	119	4.0
2.02	Venture capital availability*	110	2.2
2.03	Total tax rate, % profits	45	31.8
2.04	No. days to start a business	83	15
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	113	4.5
2.07	Tertiary education gross enrollment rate, %	127	5.4
2.08	Quality of management schools*	95	3.8
2.09	Gov't procurement of advanced tech*	52	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	137	57.7
3.02	Mobile network coverage, % pop.	131	73.0
3.03	Int'l Internet bandwidth, kb/s per user	110	6.7
3.04	Secure Internet servers/million pop.	139	0.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	28	0.13
4.02	Fixed broadband Internet tariffs, PPP $/month	114	60.41
4.03	Internet & telephony competition, 0–2 (best)	136	0.00
	5th pillar: Skills		
5.01	Quality of educational system*	74	3.6
5.02	Quality of math & science education*	94	3.6
5.03	Secondary education gross enrollment rate, %	134	28.9
5.04	Adult literacy rate, %	114	49.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	141	27.3
6.02	Individuals using Internet, %	139	1.9
6.03	Households w/ personal computer, %	140	2.1
6.04	Households w/ Internet access, %	137	2.3
6.05	Fixed broadband Internet subs/100 pop.	118	0.3
6.06	Mobile broadband subs/100 pop.	111	4.8
6.07	Use of virtual social networks*	131	4.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	128	3.8
7.02	Capacity for innovation*	133	2.9
7.03	PCT patents, applications/million pop.	118	0.0
7.04	Business-to-business Internet use*	138	3.3
7.05	Business-to-consumer Internet use*	138	2.8
7.06	Extent of staff training*	122	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	78	3.8
8.02	Government Online Service Index, 0–1 (best)	70	0.46
8.03	Gov't success in ICT promotion*	92	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	126	3.3
9.02	ICT PCT patents, applications/million pop.	98	0.0
9.03	Impact of ICTs on new organizational models*	129	3.2
9.04	Knowledge-intensive jobs, % workforce	114	3.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	127	3.2
10.02	Internet access in schools*	115	3.2
10.03	ICT use & gov't efficiency*	90	3.7
10.04	E-Participation Index, 0–1 (best)	106	0.25

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Finland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**2**	**6.0**
Networked Readiness Index 2014 (out of 148)	1	6.0
Networked Readiness Index 2013 (out of 144)	1	6.0
A. Environment subindex	**3**	**5.6**
1st pillar: Political and regulatory environment	4	5.8
2nd pillar: Business and innovation environment	11	5.4
B. Readiness subindex	**1**	**6.7**
3rd pillar: Infrastructure	5	7.0
4th pillar: Affordability	9	6.6
5th pillar: Skills	1	6.5
C. Usage subindex	**3**	**5.9**
6th pillar: Individual usage	5	6.6
7th pillar: Business usage	4	5.9
8th pillar: Government usage	17	5.2
D. Impact subindex	**3**	**5.8**
9th pillar: Economic impacts	1	6.1
10th pillar: Social impacts	12	5.6



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	4	5.6
1.02	Laws relating to ICTs*	9	5.3
1.03	Judicial independence*	2	6.6
1.04	Efficiency of legal system in settling disputes*	2	6.0
1.05	Efficiency of legal system in challenging regs*	1	5.6
1.06	Intellectual property protection*	1	6.2
1.07	Software piracy rate, % software installed	9	24
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	20	375
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	1	6.6
2.02	Venture capital availability*	8	4.3
2.03	Total tax rate, % profits	82	40.0
2.04	No. days to start a business	79	14
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	108	4.6
2.07	Tertiary education gross enrollment rate, %	4	93.7
2.08	Quality of management schools*	12	5.6
2.09	Gov't procurement of advanced tech*	22	4.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	8	12,998.2
3.02	Mobile network coverage, % pop.	60	99.5
3.03	Int'l Internet bandwidth, kb/s per user	15	172.2
3.04	Secure Internet servers/million pop.	8	1,546.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	8	0.08
4.02	Fixed broadband Internet tariffs, PPP $/month	39	24.73
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	2	5.9
5.02	Quality of math & science education*	2	6.3
5.03	Secondary education gross enrollment rate, %	14	107.7
5.04	Adult literacy rate, %	n/a	n/a[1]

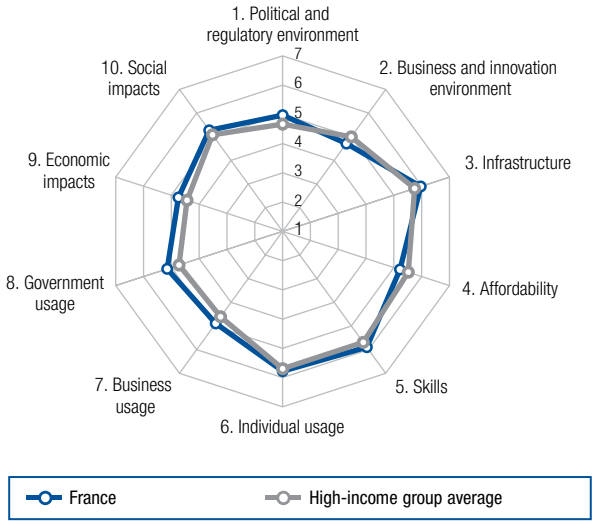
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	8	171.6
6.02	Individuals using Internet, %	7	91.5
6.03	Households w/ personal computer, %	11	88.7
6.04	Households w/ Internet access, %	10	89.2
6.05	Fixed broadband Internet subs/100 pop.	15	30.8
6.06	Mobile broadband subs/100 pop.	2	123.5
6.07	Use of virtual social networks*	18	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	10	5.8
7.02	Capacity for innovation*	5	5.6
7.03	PCT patents, applications/million pop.	4	292.9
7.04	Business-to-business Internet use*	5	6.1
7.05	Business-to-consumer Internet use*	33	5.2
7.06	Extent of staff training*	5	5.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	17	4.9
8.02	Government Online Service Index, 0–1 (best)	18	0.77
8.03	Gov't success in ICT promotion*	20	5.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	1	5.8
9.02	ICT PCT patents, applications/million pop.	1	157.4
9.03	Impact of ICTs on new organizational models*	1	5.8
9.04	Knowledge-intensive jobs, % workforce	11	44.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	11	5.6
10.02	Internet access in schools*	4	6.5
10.03	ICT use & gov't efficiency*	16	5.1
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

France

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**26**	**5.2**
Networked Readiness Index 2014 (out of 148)	25	5.1
Networked Readiness Index 2013 (out of 144)	26	5.1
A. Environment subindex	**26**	**4.8**
1st pillar: Political and regulatory environment	25	5.0
2nd pillar: Business and innovation environment	45	4.7
B. Readiness subindex	**26**	**5.7**
3rd pillar: Infrastructure	24	6.0
4th pillar: Affordability	73	5.2
5th pillar: Skills	14	5.9
C. Usage subindex	**24**	**5.3**
6th pillar: Individual usage	24	5.8
7th pillar: Business usage	20	4.9
8th pillar: Government usage	18	5.1
D. Impact subindex	**23**	**5.0**
9th pillar: Economic impacts	22	4.7
10th pillar: Social impacts	25	5.3



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	27	4.5
1.02	Laws relating to ICTs*	25	5.0
1.03	Judicial independence*	33	5.0
1.04	Efficiency of legal system in settling disputes*	41	4.2
1.05	Efficiency of legal system in challenging regs*	25	4.2
1.06	Intellectual property protection*	13	5.6
1.07	Software piracy rate, % software installed	22	36
1.08	No. procedures to enforce a contract	14	29
1.09	No. days to enforce a contract	25	395
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	19	6.1
2.02	Venture capital availability*	35	3.3
2.03	Total tax rate, % profits	135	66.6
2.04	No. days to start a business	14	5
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	31	5.5
2.07	Tertiary education gross enrollment rate, %	45	58.3
2.08	Quality of management schools*	8	5.7
2.09	Gov't procurement of advanced tech*	43	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	21	8,452.4
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	17	141.5
3.04	Secure Internet servers/million pop.	28	486.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	118	0.48
4.02	Fixed broadband Internet tariffs, PPP $/month	40	24.95
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	34	4.4
5.02	Quality of math & science education*	17	5.2
5.03	Secondary education gross enrollment rate, %	11	109.7
5.04	Adult literacy rate, %	n/a	n/a[1]

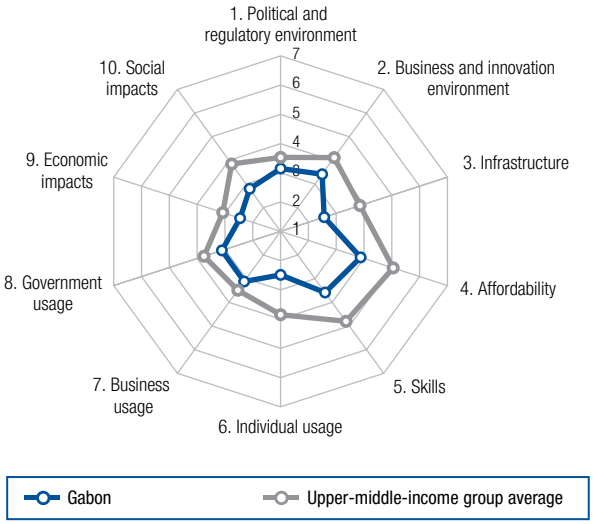
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	96	98.5
6.02	Individuals using Internet, %	21	81.9
6.03	Households w/ personal computer, %	24	81.6
6.04	Households w/ Internet access, %	19	81.7
6.05	Fixed broadband Internet subs/100 pop.	4	38.8
6.06	Mobile broadband subs/100 pop.	36	56.9
6.07	Use of virtual social networks*	68	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	27	5.5
7.02	Capacity for innovation*	21	4.8
7.03	PCT patents, applications/million pop.	15	117.0
7.04	Business-to-business Internet use*	44	5.2
7.05	Business-to-consumer Internet use*	29	5.3
7.06	Extent of staff training*	31	4.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	53	4.1
8.02	Government Online Service Index, 0–1 (best)	1	1.00
8.03	Gov't success in ICT promotion*	63	4.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	31	4.9
9.02	ICT PCT patents, applications/million pop.	16	33.8
9.03	Impact of ICTs on new organizational models*	48	4.5
9.04	Knowledge-intensive jobs, % workforce	13	44.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	34	5.0
10.02	Internet access in schools*	55	4.7
10.03	ICT use & gov't efficiency*	43	4.6
10.04	E-Participation Index, 0–1 (best)	4	0.96

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Gabon

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**122**	**3.0**
Networked Readiness Index 2014 (out of 148)	128	3.0
Networked Readiness Index 2013 (out of 144)	121	3.0
A. Environment subindex	**124**	**3.3**
1st pillar: Political and regulatory environment	111	3.1
2nd pillar: Business and innovation environment	129	3.4
B. Readiness subindex	**112**	**3.3**
3rd pillar: Infrastructure	118	2.6
4th pillar: Affordability	108	3.9
5th pillar: Skills	116	3.6
C. Usage subindex	**119**	**2.9**
6th pillar: Individual usage	109	2.5
7th pillar: Business usage	118	3.1
8th pillar: Government usage	119	3.1
D. Impact subindex	**130**	**2.6**
9th pillar: Economic impacts	130	2.5
10th pillar: Social impacts	129	2.8



The Networked Readiness Index in detail

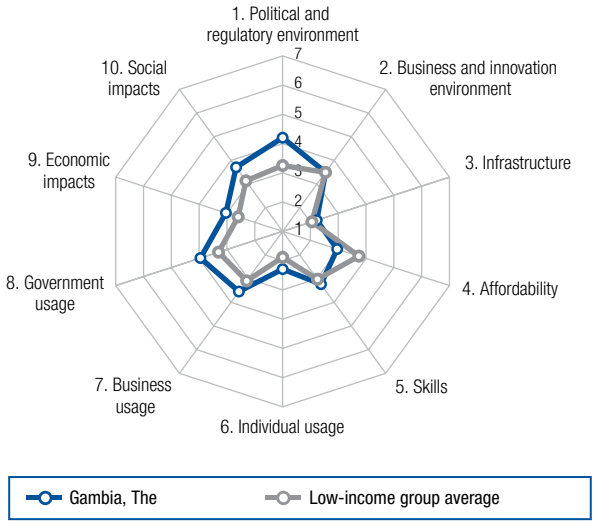
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	53	3.9
1.02	Laws relating to ICTs*	131	2.6
1.03	Judicial independence*	111	2.9
1.04	Efficiency of legal system in settling disputes*	79	3.5
1.05	Efficiency of legal system in challenging regs*	97	3.0
1.06	Intellectual property protection*	120	2.8
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	129	1,070
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	117	4.0
2.02	Venture capital availability*	123	2.0
2.03	Total tax rate, % profits	85	40.6
2.04	No. days to start a business	130	50
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	123	4.3
2.07	Tertiary education gross enrollment rate, %	119	8.5
2.08	Quality of management schools*	117	3.5
2.09	Gov't procurement of advanced tech*	85	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	95	1,109.8
3.02	Mobile network coverage, % pop.	129	79.0
3.03	Int'l Internet bandwidth, kb/s per user	87	18.1
3.04	Secure Internet servers/million pop.	89	9.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	106	0.40
4.02	Fixed broadband Internet tariffs, PPP $/month	104	50.55
4.03	Internet & telephony competition, 0–2 (best)	112	1.23
	5th pillar: Skills		
5.01	Quality of educational system*	118	2.9
5.02	Quality of math & science education*	110	3.3
5.03	Secondary education gross enrollment rate, %	115	53.9
5.04	Adult literacy rate, %	80	83.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	3	214.8
6.02	Individuals using Internet, %	124	9.2
6.03	Households w/ personal computer, %	110	11.3
6.04	Households w/ Internet access, %	109	8.8
6.05	Fixed broadband Internet subs/100 pop.	114	0.5
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	125	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	86	4.4
7.02	Capacity for innovation*	125	3.1
7.03	PCT patents, applications/million pop.	88	0.3
7.04	Business-to-business Internet use*	126	3.9
7.05	Business-to-consumer Internet use*	134	3.0
7.06	Extent of staff training*	100	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	83	3.7
8.02	Government Online Service Index, 0–1 (best)	131	0.09
8.03	Gov't success in ICT promotion*	83	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	123	3.5
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	138	2.8
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	121	3.2
10.02	Internet access in schools*	135	2.2
10.03	ICT use & gov't efficiency*	107	3.5
10.04	E-Participation Index, 0–1 (best)	113	0.22

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Gambia, The

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**108**	**3.3**
Networked Readiness Index 2014 (out of 148)	107	3.4
Networked Readiness Index 2013 (out of 144)	98	3.5
A. Environment subindex	**82**	**3.8**
1st pillar: Political and regulatory environment	40	4.2
2nd pillar: Business and innovation environment	126	3.5
B. Readiness subindex	**127**	**2.8**
3rd pillar: Infrastructure	125	2.2
4th pillar: Affordability	128	3.0
5th pillar: Skills	122	3.2
C. Usage subindex	**100**	**3.3**
6th pillar: Individual usage	115	2.3
7th pillar: Business usage	74	3.5
8th pillar: Government usage	67	4.0
D. Impact subindex	**91**	**3.4**
9th pillar: Economic impacts	89	3.0
10th pillar: Social impacts	88	3.7



The Networked Readiness Index in detail

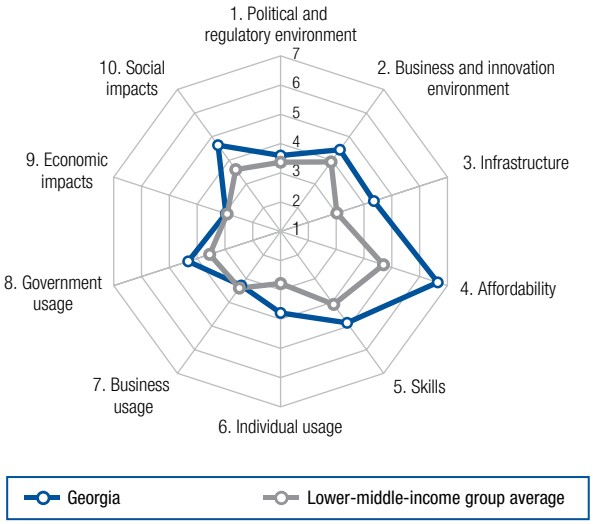
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	35	4.3
1.02	Laws relating to ICTs*	74	3.9
1.03	Judicial independence*	66	3.8
1.04	Efficiency of legal system in settling disputes*	35	4.4
1.05	Efficiency of legal system in challenging regs*	76	3.3
1.06	Intellectual property protection*	46	4.1
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	30	407
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	73	4.8
2.02	Venture capital availability*	93	2.4
2.03	Total tax rate, % profits	128	63.3
2.04	No. days to start a business	107	26
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	87	4.9
2.07	Tertiary education gross enrollment rate, %	135	3.4
2.08	Quality of management schools*	75	4.2
2.09	Gov't procurement of advanced tech*	32	3.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	127	136.9
3.02	Mobile network coverage, % pop.	122	85.0
3.03	Int'l Internet bandwidth, kb/s per user	108	7.2
3.04	Secure Internet servers/million pop.	102	4.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	79	0.28
4.02	Fixed broadband Internet tariffs, PPP $/month	132	141.85
4.03	Internet & telephony competition, 0–2 (best)	121	1.13
	5th pillar: Skills		
5.01	Quality of educational system*	39	4.3
5.02	Quality of math & science education*	97	3.6
5.03	Secondary education gross enrollment rate, %	113	57.5
5.04	Adult literacy rate, %	112	55.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	95	100.0
6.02	Individuals using Internet, %	117	14.0
6.03	Households w/ personal computer, %	122	7.4
6.04	Households w/ Internet access, %	114	7.6
6.05	Fixed broadband Internet subs/100 pop.	137	0.0
6.06	Mobile broadband subs/100 pop.	123	1.2
6.07	Use of virtual social networks*	108	5.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	76	4.5
7.02	Capacity for innovation*	78	3.7
7.03	PCT patents, applications/million pop.	97	0.1
7.04	Business-to-business Internet use*	94	4.4
7.05	Business-to-consumer Internet use*	106	3.9
7.06	Extent of staff training*	42	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	21	4.8
8.02	Government Online Service Index, 0–1 (best)	114	0.20
8.03	Gov't success in ICT promotion*	29	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	82	4.2
9.02	ICT PCT patents, applications/million pop.	78	0.1
9.03	Impact of ICTs on new organizational models*	83	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	67	4.3
10.02	Internet access in schools*	86	3.8
10.03	ICT use & gov't efficiency*	49	4.4
10.04	E-Participation Index, 0–1 (best)	113	0.22

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Georgia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**60**	**4.2**
Networked Readiness Index 2014 (out of 148)	60	4.1
Networked Readiness Index 2013 (out of 144)	65	3.9
A. Environment subindex	**62**	**4.0**
1st pillar: Political and regulatory environment	76	3.6
2nd pillar: Business and innovation environment	62	4.4
B. Readiness subindex	**45**	**5.3**
3rd pillar: Infrastructure	59	4.3
4th pillar: Affordability	7	6.6
5th pillar: Skills	78	4.9
C. Usage subindex	**72**	**3.8**
6th pillar: Individual usage	76	3.8
7th pillar: Business usage	104	3.3
8th pillar: Government usage	50	4.3
D. Impact subindex	**64**	**3.8**
9th pillar: Economic impacts	97	3.0
10th pillar: Social impacts	45	4.6



The Networked Readiness Index in detail

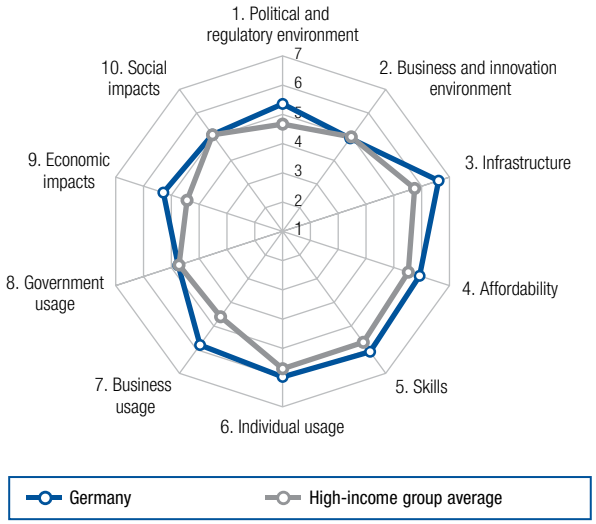
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	62	3.7
1.02	Laws relating to ICTs*	68	3.9
1.03	Judicial independence*	65	3.8
1.04	Efficiency of legal system in settling disputes*	71	3.7
1.05	Efficiency of legal system in challenging regs*	83	3.2
1.06	Intellectual property protection*	105	3.0
1.07	Software piracy rate, % software installed	103	90
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	11	285
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	89	4.5
2.02	Venture capital availability*	118	2.1
2.03	Total tax rate, % profits	10	16.4
2.04	No. days to start a business	2	2
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	105	4.6
2.07	Tertiary education gross enrollment rate, %	84	27.9
2.08	Quality of management schools*	98	3.8
2.09	Gov't procurement of advanced tech*	69	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	77	2,273.7
3.02	Mobile network coverage, % pop.	65	99.1
3.03	Int'l Internet bandwidth, kb/s per user	33	77.3
3.04	Secure Internet servers/million pop.	70	28.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	13	0.09
4.02	Fixed broadband Internet tariffs, PPP $/month	35	23.98
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	98	3.2
5.02	Quality of math & science education*	105	3.4
5.03	Secondary education gross enrollment rate, %	78	86.8
5.04	Adult literacy rate, %	9	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	66	115.0
6.02	Individuals using Internet, %	80	43.1
6.03	Households w/ personal computer, %	77	39.6
6.04	Households w/ Internet access, %	76	34.6
6.05	Fixed broadband Internet subs/100 pop.	62	10.8
6.06	Mobile broadband subs/100 pop.	85	16.4
6.07	Use of virtual social networks*	47	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	103	4.2
7.02	Capacity for innovation*	110	3.3
7.03	PCT patents, applications/million pop.	60	1.6
7.04	Business-to-business Internet use*	73	4.7
7.05	Business-to-consumer Internet use*	94	4.1
7.06	Extent of staff training*	113	3.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	66	4.0
8.02	Government Online Service Index, 0–1 (best)	49	0.60
8.03	Gov't success in ICT promotion*	55	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	101	3.9
9.02	ICT PCT patents, applications/million pop.	57	0.7
9.03	Impact of ICTs on new organizational models*	107	3.6
9.04	Knowledge-intensive jobs, % workforce	69	22.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	55	4.4
10.02	Internet access in schools*	59	4.6
10.03	ICT use & gov't efficiency*	26	4.9
10.04	E-Participation Index, 0–1 (best)	49	0.59

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Germany

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**13**	**5.5**
Networked Readiness Index 2014 (out of 148)	12	5.5
Networked Readiness Index 2013 (out of 144)	13	5.4
A. Environment subindex	**19**	**5.1**
1st pillar: Political and regulatory environment	13	5.4
2nd pillar: Business and innovation environment	31	4.9
B. Readiness subindex	**9**	**6.2**
3rd pillar: Infrastructure	13	6.6
4th pillar: Affordability	41	5.9
5th pillar: Skills	10	6.1
C. Usage subindex	**14**	**5.5**
6th pillar: Individual usage	17	6.0
7th pillar: Business usage	5	5.8
8th pillar: Government usage	31	4.8
D. Impact subindex	**17**	**5.2**
9th pillar: Economic impacts	9	5.3
10th pillar: Social impacts	31	5.1



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	13	5.2
1.02	Laws relating to ICTs*	30	4.8
1.03	Judicial independence*	15	5.9
1.04	Efficiency of legal system in settling disputes*	11	5.4
1.05	Efficiency of legal system in challenging regs*	12	4.8
1.06	Intellectual property protection*	21	5.4
1.07	Software piracy rate, % software installed	9	24
1.08	No. procedures to enforce a contract	22	31
1.09	No. days to enforce a contract	24	394
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	17	6.2
2.02	Venture capital availability*	28	3.4
2.03	Total tax rate, % profits	109	48.8
2.04	No. days to start a business	82	15
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	12	5.9
2.07	Tertiary education gross enrollment rate, %	37	61.7
2.08	Quality of management schools*	29	5.0
2.09	Gov't procurement of advanced tech*	16	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	26	7,596.4
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	25	112.4
3.04	Secure Internet servers/million pop.	16	1,070.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	20	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	86	38.38
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	12	5.2
5.02	Quality of math & science education*	20	5.1
5.03	Secondary education gross enrollment rate, %	29	101.3
5.04	Adult literacy rate, %	n/a	n/a[1]

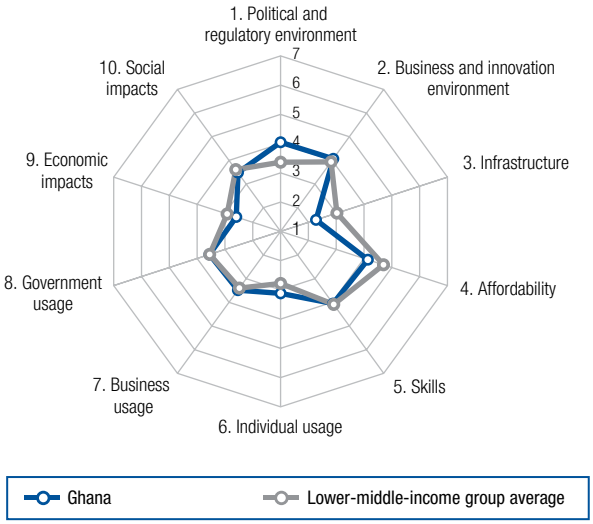
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	57	120.9
6.02	Individuals using Internet, %	17	84.0
6.03	Households w/ personal computer, %	10	88.9
6.04	Households w/ Internet access, %	12	87.7
6.05	Fixed broadband Internet subs/100 pop.	9	34.6
6.06	Mobile broadband subs/100 pop.	50	44.7
6.07	Use of virtual social networks*	59	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	13	5.7
7.02	Capacity for innovation*	4	5.6
7.03	PCT patents, applications/million pop.	6	222.8
7.04	Business-to-business Internet use*	29	5.5
7.05	Business-to-consumer Internet use*	13	5.8
7.06	Extent of staff training*	13	5.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	36	4.5
8.02	Government Online Service Index, 0–1 (best)	34	0.67
8.03	Gov't success in ICT promotion*	31	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	19	5.2
9.02	ICT PCT patents, applications/million pop.	11	52.6
9.03	Impact of ICTs on new organizational models*	22	5.0
9.04	Knowledge-intensive jobs, % workforce	18	42.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	29	5.2
10.02	Internet access in schools*	43	5.0
10.03	ICT use & gov't efficiency*	33	4.8
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Ghana

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**101**	**3.5**
Networked Readiness Index 2014 (out of 148)	96	3.6
Networked Readiness Index 2013 (out of 144)	95	3.5
A. Environment subindex	**61**	**4.1**
1st pillar: Political and regulatory environment	50	4.0
2nd pillar: Business and innovation environment	88	4.1
B. Readiness subindex	**111**	**3.5**
3rd pillar: Infrastructure	124	2.3
4th pillar: Affordability	105	4.1
5th pillar: Skills	103	4.0
C. Usage subindex	**96**	**3.4**
6th pillar: Individual usage	91	3.1
7th pillar: Business usage	84	3.5
8th pillar: Government usage	92	3.6
D. Impact subindex	**113**	**3.0**
9th pillar: Economic impacts	121	2.6
10th pillar: Social impacts	102	3.5



The Networked Readiness Index in detail

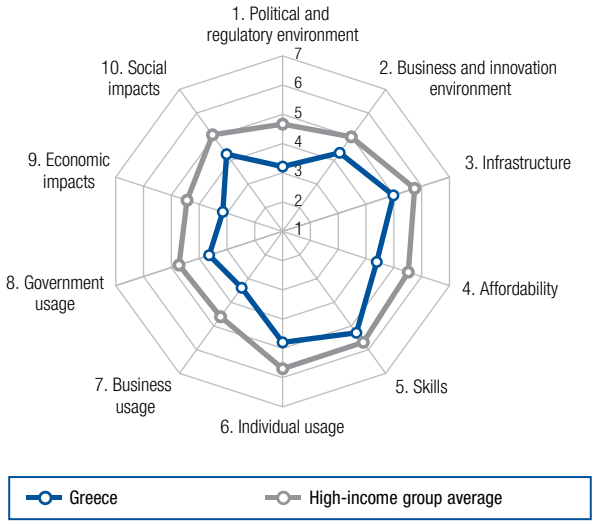
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	45	4.0
1.02	Laws relating to ICTs*	85	3.8
1.03	Judicial independence*	48	4.4
1.04	Efficiency of legal system in settling disputes*	45	4.1
1.05	Efficiency of legal system in challenging regs*	64	3.4
1.06	Intellectual property protection*	45	4.1
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	108	710
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	104	4.3
2.02	Venture capital availability*	36	3.2
2.03	Total tax rate, % profits	54	33.3
2.04	No. days to start a business	79	14
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	117	4.4
2.07	Tertiary education gross enrollment rate, %	106	12.2
2.08	Quality of management schools*	50	4.6
2.09	Gov't procurement of advanced tech*	65	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	114	451.2
3.02	Mobile network coverage, % pop.	121	87.0
3.03	Int'l Internet bandwidth, kb/s per user	118	5.2
3.04	Secure Internet servers/million pop.	112	2.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	31	0.13
4.02	Fixed broadband Internet tariffs, PPP $/month	117	71.61
4.03	Internet & telephony competition, 0–2 (best)	89	1.67
	5th pillar: Skills		
5.01	Quality of educational system*	59	3.8
5.02	Quality of math & science education*	52	4.4
5.03	Secondary education gross enrollment rate, %	110	61.1
5.04	Adult literacy rate, %	91	76.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	76	108.2
6.02	Individuals using Internet, %	121	12.3
6.03	Households w/ personal computer, %	79	36.6
6.04	Households w/ Internet access, %	78	31.8
6.05	Fixed broadband Internet subs/100 pop.	117	0.3
6.06	Mobile broadband subs/100 pop.	57	39.9
6.07	Use of virtual social networks*	130	4.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	95	4.3
7.02	Capacity for innovation*	49	4.0
7.03	PCT patents, applications/million pop.	104	0.1
7.04	Business-to-business Internet use*	109	4.1
7.05	Business-to-consumer Internet use*	105	3.9
7.06	Extent of staff training*	61	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	77	3.8
8.02	Government Online Service Index, 0–1 (best)	94	0.31
8.03	Gov't success in ICT promotion*	88	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	96	4.0
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	112	3.5
9.04	Knowledge-intensive jobs, % workforce	105	8.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	105	3.6
10.02	Internet access in schools*	113	3.2
10.03	ICT use & gov't efficiency*	93	3.7
10.04	E-Participation Index, 0–1 (best)	80	0.39

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Greece

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**66**	**4.1**
Networked Readiness Index 2014 (out of 148)	74	3.9
Networked Readiness Index 2013 (out of 144)	64	3.9
A. Environment subindex	**88**	**3.8**
1st pillar: Political and regulatory environment	106	3.2
2nd pillar: Business and innovation environment	68	4.3
B. Readiness subindex	**60**	**4.9**
3rd pillar: Infrastructure	40	5.0
4th pillar: Affordability	96	4.4
5th pillar: Skills	58	5.3
C. Usage subindex	**63**	**3.9**
6th pillar: Individual usage	48	4.8
7th pillar: Business usage	96	3.4
8th pillar: Government usage	82	3.6
D. Impact subindex	**68**	**3.7**
9th pillar: Economic impacts	74	3.1
10th pillar: Social impacts	65	4.3



The Networked Readiness Index in detail

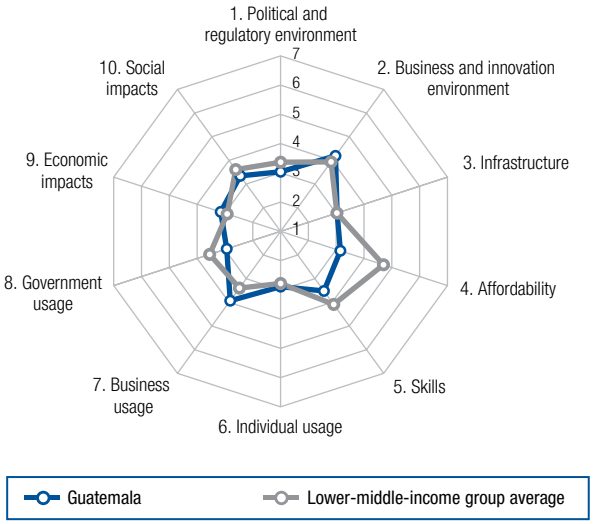
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	104	3.1
1.02	Laws relating to ICTs*	102	3.4
1.03	Judicial independence*	70	3.7
1.04	Efficiency of legal system in settling disputes*	125	2.7
1.05	Efficiency of legal system in challenging regs*	114	2.7
1.06	Intellectual property protection*	57	3.9
1.07	Software piracy rate, % software installed	57	62
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	142	1,580
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	61	5.0
2.02	Venture capital availability*	135	1.9
2.03	Total tax rate, % profits	115	49.9
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	71	5.1
2.07	Tertiary education gross enrollment rate, %	1	114.0
2.08	Quality of management schools*	89	3.9
2.09	Gov't procurement of advanced tech*	135	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	44	5,189.4
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	38	72.1
3.04	Secure Internet servers/million pop.	45	136.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	133	0.64
4.02	Fixed broadband Internet tariffs, PPP $/month	48	27.41
4.03	Internet & telephony competition, 0–2 (best)	80	1.80
	5th pillar: Skills		
5.01	Quality of educational system*	111	3.0
5.02	Quality of math & science education*	61	4.3
5.03	Secondary education gross enrollment rate, %	13	107.9
5.04	Adult literacy rate, %	32	97.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	61	116.8
6.02	Individuals using Internet, %	54	59.9
6.03	Households w/ personal computer, %	56	59.5
6.04	Households w/ Internet access, %	52	56.3
6.05	Fixed broadband Internet subs/100 pop.	21	26.2
6.06	Mobile broadband subs/100 pop.	62	36.1
6.07	Use of virtual social networks*	85	5.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	74	4.5
7.02	Capacity for innovation*	109	3.3
7.03	PCT patents, applications/million pop.	39	9.0
7.04	Business-to-business Internet use*	102	4.3
7.05	Business-to-consumer Internet use*	81	4.3
7.06	Extent of staff training*	111	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	122	3.0
8.02	Government Online Service Index, 0–1 (best)	47	0.61
8.03	Gov't success in ICT promotion*	127	3.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	120	3.6
9.02	ICT PCT patents, applications/million pop.	37	2.4
9.03	Impact of ICTs on new organizational models*	120	3.4
9.04	Knowledge-intensive jobs, % workforce	41	32.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	100	3.6
10.02	Internet access in schools*	77	4.1
10.03	ICT use & gov't efficiency*	110	3.4
10.04	E-Participation Index, 0–1 (best)	17	0.80

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Guatemala

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**107**	**3.3**
Networked Readiness Index 2014 (out of 148)	101	3.5
Networked Readiness Index 2013 (out of 144)	102	3.4
A. Environment subindex	**99**	**3.6**
1st pillar: Political and regulatory environment	118	3.0
2nd pillar: Business and innovation environment	74	4.2
B. Readiness subindex	**117**	**3.2**
3rd pillar: Infrastructure	95	3.0
4th pillar: Affordability	124	3.1
5th pillar: Skills	119	3.5
C. Usage subindex	**101**	**3.3**
6th pillar: Individual usage	99	2.9
7th pillar: Business usage	44	3.9
8th pillar: Government usage	123	2.9
D. Impact subindex	**98**	**3.2**
9th pillar: Economic impacts	73	3.2
10th pillar: Social impacts	109	3.3



The Networked Readiness Index in detail

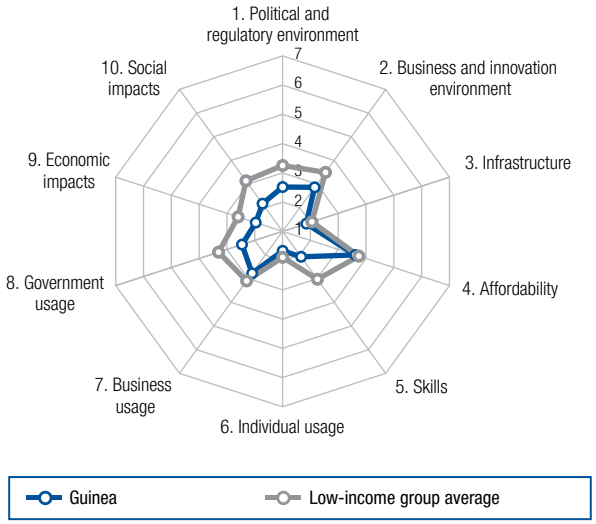
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	138	2.0
1.02	Laws relating to ICTs*	70	3.9
1.03	Judicial independence*	105	3.0
1.04	Efficiency of legal system in settling disputes*	95	3.3
1.05	Efficiency of legal system in challenging regs*	54	3.5
1.06	Intellectual property protection*	102	3.1
1.07	Software piracy rate, % software installed	81	79
1.08	No. procedures to enforce a contract	22	31
1.09	No. days to enforce a contract	139	1,402
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	47	5.3
2.02	Venture capital availability*	63	2.7
2.03	Total tax rate, % profits	81	39.9
2.04	No. days to start a business	93	19
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	42	5.4
2.07	Tertiary education gross enrollment rate, %	96	17.9
2.08	Quality of management schools*	41	4.7
2.09	Gov't procurement of advanced tech*	110	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	112	553.9
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	95	11.5
3.04	Secure Internet servers/million pop.	85	13.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	132	0.63
4.02	Fixed broadband Internet tariffs, PPP $/month	111	57.39
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	126	2.7
5.02	Quality of math & science education*	134	2.5
5.03	Secondary education gross enrollment rate, %	108	65.1
5.04	Adult literacy rate, %	84	81.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	34	140.4
6.02	Individuals using Internet, %	103	19.7
6.03	Households w/ personal computer, %	98	19.7
6.04	Households w/ Internet access, %	108	9.3
6.05	Fixed broadband Internet subs/100 pop.	96	2.3
6.06	Mobile broadband subs/100 pop.	109	4.9
6.07	Use of virtual social networks*	75	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	47	5.0
7.02	Capacity for innovation*	41	4.2
7.03	PCT patents, applications/million pop.	102	0.1
7.04	Business-to-business Internet use*	63	4.9
7.05	Business-to-consumer Internet use*	55	4.9
7.06	Extent of staff training*	28	4.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	107	3.3
8.02	Government Online Service Index, 0–1 (best)	123	0.15
8.03	Gov't success in ICT promotion*	110	3.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	40	4.8
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	30	4.7
9.04	Knowledge-intensive jobs, % workforce	102	10.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	63	4.3
10.02	Internet access in schools*	107	3.4
10.03	ICT use & gov't efficiency*	105	3.5
10.04	E-Participation Index, 0–1 (best)	116	0.20

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Guinea

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**142**	**2.4**
Networked Readiness Index 2014 (out of 148)	145	2.5
Networked Readiness Index 2013 (out of 144)	140	2.6
A. Environment subindex	**140**	**2.7**
1st pillar: Political and regulatory environment	137	2.5
2nd pillar: Business and innovation environment	140	2.9
B. Readiness subindex	**134**	**2.5**
3rd pillar: Infrastructure	134	1.8
4th pillar: Affordability	115	3.6
5th pillar: Skills	141	2.1
C. Usage subindex	**140**	**2.3**
6th pillar: Individual usage	134	1.7
7th pillar: Business usage	136	2.8
8th pillar: Government usage	141	2.5
D. Impact subindex	**142**	**2.1**
9th pillar: Economic impacts	142	2.0
10th pillar: Social impacts	141	2.2



The Networked Readiness Index in detail

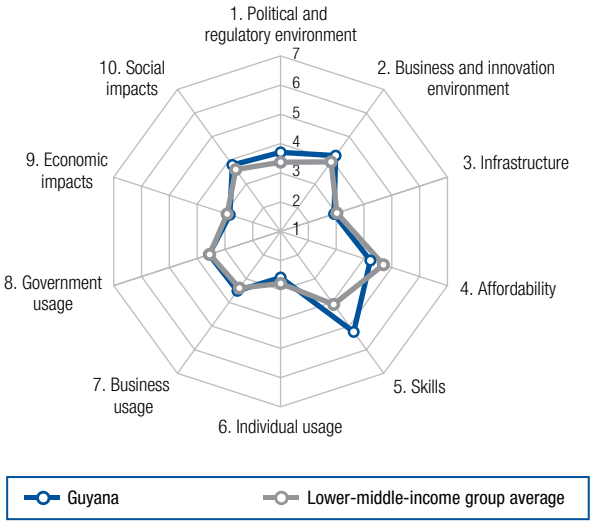
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	131	2.3
1.02	Laws relating to ICTs*	139	2.2
1.03	Judicial independence*	138	2.0
1.04	Efficiency of legal system in settling disputes*	141	2.3
1.05	Efficiency of legal system in challenging regs*	126	2.4
1.06	Intellectual property protection*	139	2.2
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	137	49
1.09	No. days to enforce a contract	8	276
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	136	3.3
2.02	Venture capital availability*	130	1.9
2.03	Total tax rate, % profits	136	68.3
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	128	4.2
2.07	Tertiary education gross enrollment rate, %	114	9.9
2.08	Quality of management schools*	140	2.3
2.09	Gov't procurement of advanced tech*	130	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	133	89.1
3.02	Mobile network coverage, % pop.	128	80.0
3.03	Int'l Internet bandwidth, kb/s per user	139	2.5
3.04	Secure Internet servers/million pop.	141	0.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	44	0.16
4.02	Fixed broadband Internet tariffs, PPP $/month	140	2,409.93
4.03	Internet & telephony competition, 0–2 (best)	91	1.65
	5th pillar: Skills		
5.01	Quality of educational system*	136	2.4
5.02	Quality of math & science education*	115	3.1
5.03	Secondary education gross enrollment rate, %	127	38.1
5.04	Adult literacy rate, %	119	30.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	131	63.3
6.02	Individuals using Internet, %	140	1.6
6.03	Households w/ personal computer, %	140	2.1
6.04	Households w/ Internet access, %	141	1.4
6.05	Fixed broadband Internet subs/100 pop.	141	0.0
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	139	4.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	133	3.7
7.02	Capacity for innovation*	140	2.7
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	135	3.5
7.05	Business-to-consumer Internet use*	135	3.0
7.06	Extent of staff training*	127	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	126	3.0
8.02	Government Online Service Index, 0–1 (best)	140	0.00
8.03	Gov't success in ICT promotion*	121	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	135	3.2
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	139	2.7
9.04	Knowledge-intensive jobs, % workforce	118	0.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	134	3.0
10.02	Internet access in schools*	138	1.8
10.03	ICT use & gov't efficiency*	137	2.8
10.04	E-Participation Index, 0–1 (best)	140	0.02

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Guyana

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**93**	**3.7**
Networked Readiness Index 2014 (out of 148)	88	3.8
Networked Readiness Index 2013 (out of 144)	100	3.4
A. Environment subindex	**70**	**3.9**
1st pillar: Political and regulatory environment	68	3.7
2nd pillar: Business and innovation environment	73	4.2
B. Readiness subindex	**99**	**4.1**
3rd pillar: Infrastructure	103	2.9
4th pillar: Affordability	102	4.2
5th pillar: Skills	62	5.2
C. Usage subindex	**102**	**3.2**
6th pillar: Individual usage	107	2.6
7th pillar: Business usage	82	3.5
8th pillar: Government usage	89	3.6
D. Impact subindex	**97**	**3.3**
9th pillar: Economic impacts	107	2.8
10th pillar: Social impacts	83	3.8



The Networked Readiness Index in detail

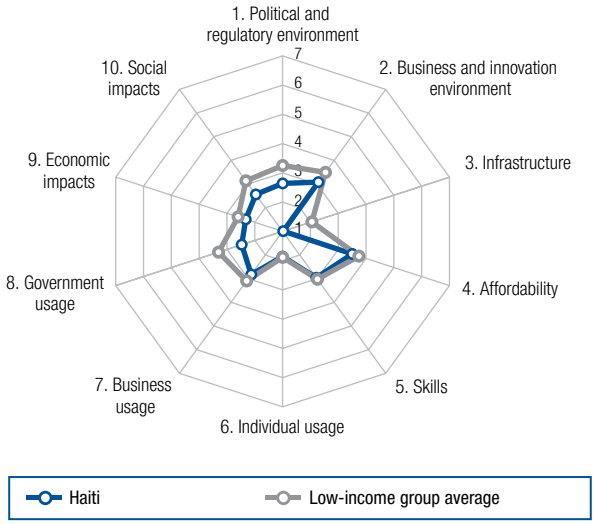
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	75	3.5
1.02	Laws relating to ICTs*	84	3.8
1.03	Judicial independence*	87	3.4
1.04	Efficiency of legal system in settling disputes*	80	3.5
1.05	Efficiency of legal system in challenging regs*	57	3.5
1.06	Intellectual property protection*	90	3.3
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	83	581
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	78	4.7
2.02	Venture capital availability*	34	3.3
2.03	Total tax rate, % profits	48	32.3
2.04	No. days to start a business	95	19
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	102	4.7
2.07	Tertiary education gross enrollment rate, %	105	12.9
2.08	Quality of management schools*	46	4.6
2.09	Gov't procurement of advanced tech*	39	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	98	890.4
3.02	Mobile network coverage, % pop.	92	97.1
3.03	Int'l Internet bandwidth, kb/s per user	99	10.2
3.04	Secure Internet servers/million pop.	86	12.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	71	0.26
4.02	Fixed broadband Internet tariffs, PPP $/month	91	42.61
4.03	Internet & telephony competition, 0–2 (best)	132	0.50
	5th pillar: Skills		
5.01	Quality of educational system*	54	3.9
5.02	Quality of math & science education*	55	4.3
5.03	Secondary education gross enrollment rate, %	31	101.0
5.04	Adult literacy rate, %	71	88.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	126	69.4
6.02	Individuals using Internet, %	93	33.0
6.03	Households w/ personal computer, %	93	22.9
6.04	Households w/ Internet access, %	90	20.6
6.05	Fixed broadband Internet subs/100 pop.	85	4.6
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	87	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	80	4.4
7.02	Capacity for innovation*	61	3.8
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	101	4.3
7.05	Business-to-consumer Internet use*	84	4.2
7.06	Extent of staff training*	64	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	58	4.0
8.02	Government Online Service Index, 0–1 (best)	107	0.24
8.03	Gov't success in ICT promotion*	66	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	97	4.0
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	77	4.0
9.04	Knowledge-intensive jobs, % workforce	100	12.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	75	4.0
10.02	Internet access in schools*	71	4.2
10.03	ICT use & gov't efficiency*	74	3.9
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Haiti

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**137**	**2.5**
Networked Readiness Index 2014 (out of 148)	143	2.5
Networked Readiness Index 2013 (out of 144)	141	2.6
A. Environment subindex	**137**	**2.9**
1st pillar: Political and regulatory environment	134	2.6
2nd pillar: Business and innovation environment	137	3.1
B. Readiness subindex	**135**	**2.5**
3rd pillar: Infrastructure	142	1.0
4th pillar: Affordability	116	3.5
5th pillar: Skills	127	3.0
C. Usage subindex	**139**	**2.4**
6th pillar: Individual usage	131	1.9
7th pillar: Business usage	134	2.8
8th pillar: Government usage	140	2.5
D. Impact subindex	**135**	**2.4**
9th pillar: Economic impacts	135	2.3
10th pillar: Social impacts	134	2.6



The Networked Readiness Index in detail

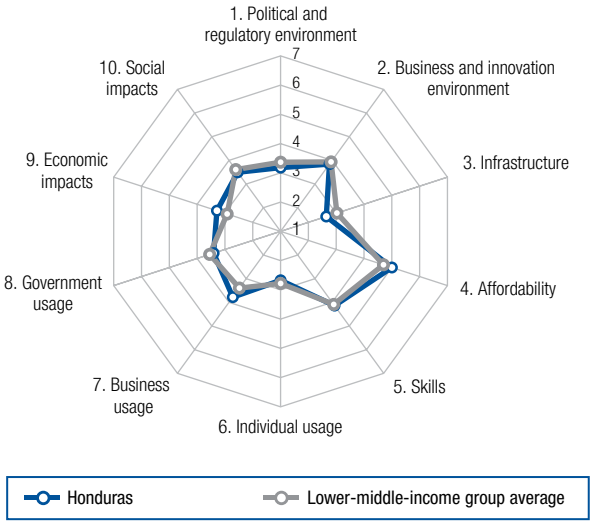
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	135	2.1
1.02	Laws relating to ICTs*	137	2.3
1.03	Judicial independence*	134	2.1
1.04	Efficiency of legal system in settling disputes*	138	2.4
1.05	Efficiency of legal system in challenging regs*	136	2.2
1.06	Intellectual property protection*	141	2.2
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	70	530
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	132	3.6
2.02	Venture capital availability*	124	2.0
2.03	Total tax rate, % profits	84	40.3
2.04	No. days to start a business	141	97
2.05	No. procedures to start a business	133	12
2.06	Intensity of local competition*	139	3.8
2.07	Tertiary education gross enrollment rate, %	n/a	n/a
2.08	Quality of management schools*	129	3.1
2.09	Gov't procurement of advanced tech*	131	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	135	71.6
3.02	Mobile network coverage, % pop.	n/a	n/a
3.03	Int'l Internet bandwidth, kb/s per user	n/a	n/a
3.04	Secure Internet servers/million pop.	128	1.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	61	0.24
4.02	Fixed broadband Internet tariffs, PPP $/month	127	92.53
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	137	2.3
5.02	Quality of math & science education*	124	2.9
5.03	Secondary education gross enrollment rate, %	105	68.1
5.04	Adult literacy rate, %	107	60.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	127	69.4
6.02	Individuals using Internet, %	123	10.6
6.03	Households w/ personal computer, %	120	8.0
6.04	Households w/ Internet access, %	131	3.7
6.05	Fixed broadband Internet subs/100 pop.	143	0.0
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	120	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	135	3.5
7.02	Capacity for innovation*	135	2.9
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	134	3.5
7.05	Business-to-consumer Internet use*	118	3.5
7.06	Extent of staff training*	129	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	137	2.6
8.02	Government Online Service Index, 0–1 (best)	130	0.11
8.03	Gov't success in ICT promotion*	133	3.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	138	3.0
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	133	3.0
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	137	2.9
10.02	Internet access in schools*	129	2.6
10.03	ICT use & gov't efficiency*	141	2.7
10.04	E-Participation Index, 0–1 (best)	120	0.18

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Honduras

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**100**	**3.5**
Networked Readiness Index 2014 (out of 148)	116	3.2
Networked Readiness Index 2013 (out of 144)	109	3.3
A. Environment subindex	**109**	**3.5**
1st pillar: Political and regulatory environment	109	3.2
2nd pillar: Business and innovation environment	102	3.8
B. Readiness subindex	**105**	**3.9**
3rd pillar: Infrastructure	113	2.6
4th pillar: Affordability	82	5.0
5th pillar: Skills	101	4.1
C. Usage subindex	**99**	**3.3**
6th pillar: Individual usage	103	2.7
7th pillar: Business usage	56	3.8
8th pillar: Government usage	106	3.4
D. Impact subindex	**86**	**3.4**
9th pillar: Economic impacts	64	3.3
10th pillar: Social impacts	99	3.5



The Networked Readiness Index in detail

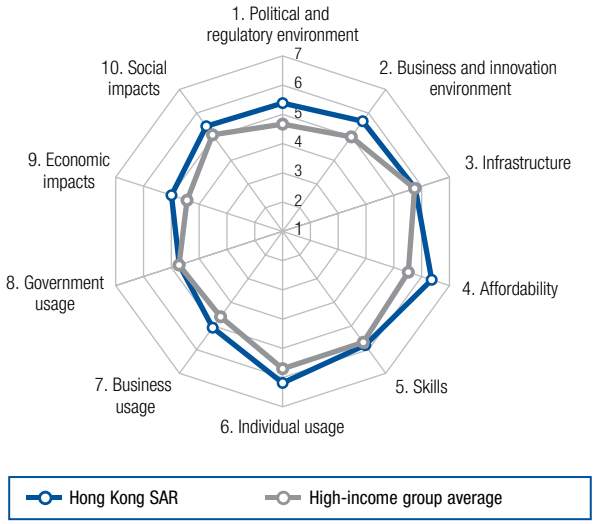
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	86	3.3
1.02	Laws relating to ICTs*	95	3.5
1.03	Judicial independence*	114	2.8
1.04	Efficiency of legal system in settling disputes*	76	3.6
1.05	Efficiency of legal system in challenging regs*	61	3.5
1.06	Intellectual property protection*	79	3.5
1.07	Software piracy rate, % software installed	72	74
1.08	No. procedures to enforce a contract	134	47
1.09	No. days to enforce a contract	125	920
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	72	4.8
2.02	Venture capital availability*	56	2.8
2.03	Total tax rate, % profits	94	43.0
2.04	No. days to start a business	79	14
2.05	No. procedures to start a business	133	12
2.06	Intensity of local competition*	88	4.8
2.07	Tertiary education gross enrollment rate, %	92	20.4
2.08	Quality of management schools*	111	3.6
2.09	Gov't procurement of advanced tech*	68	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	97	916.3
3.02	Mobile network coverage, % pop.	119	89.9
3.03	Int'l Internet bandwidth, kb/s per user	101	10.0
3.04	Secure Internet servers/million pop.	92	9.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	105	0.39
4.02	Fixed broadband Internet tariffs, PPP $/month	82	36.56
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	100	3.2
5.02	Quality of math & science education*	121	2.9
5.03	Secondary education gross enrollment rate, %	99	73.1
5.04	Adult literacy rate, %	72	88.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	101	95.9
6.02	Individuals using Internet, %	106	17.8
6.03	Households w/ personal computer, %	96	20.1
6.04	Households w/ Internet access, %	95	16.4
6.05	Fixed broadband Internet subs/100 pop.	110	0.9
6.06	Mobile broadband subs/100 pop.	96	11.7
6.07	Use of virtual social networks*	78	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	60	4.8
7.02	Capacity for innovation*	52	4.0
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	62	4.9
7.05	Business-to-consumer Internet use*	67	4.6
7.06	Extent of staff training*	38	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	102	3.4
8.02	Government Online Service Index, 0–1 (best)	78	0.40
8.03	Gov't success in ICT promotion*	120	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	69	4.4
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	53	4.5
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	74	4.0
10.02	Internet access in schools*	105	3.5
10.03	ICT use & gov't efficiency*	106	3.5
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Hong Kong SAR

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**14**	**5.5**
Networked Readiness Index 2014 (out of 148)	8	5.6
Networked Readiness Index 2013 (out of 144)	14	5.4
A. Environment subindex	**5**	**5.5**
1st pillar: Political and regulatory environment	12	5.4
2nd pillar: Business and innovation environment	3	5.6
B. Readiness subindex	**17**	**6.0**
3rd pillar: Infrastructure	28	5.8
4th pillar: Affordability	20	6.4
5th pillar: Skills	22	5.8
C. Usage subindex	**19**	**5.3**
6th pillar: Individual usage	12	6.2
7th pillar: Business usage	18	5.1
8th pillar: Government usage	36	4.7
D. Impact subindex	**16**	**5.2**
9th pillar: Economic impacts	16	5.0
10th pillar: Social impacts	18	5.4



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	38	4.2
1.02	Laws relating to ICTs*	14	5.2
1.03	Judicial independence*	5	6.3
1.04	Efficiency of legal system in settling disputes*	3	5.9
1.05	Efficiency of legal system in challenging regs*	3	5.4
1.06	Intellectual property protection*	10	5.8
1.07	Software piracy rate, % software installed	30	43
1.08	No. procedures to enforce a contract	5	26
1.09	No. days to enforce a contract	15	360
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	18	6.1
2.02	Venture capital availability*	5	4.3
2.03	Total tax rate, % profits	19	22.8
2.04	No. days to start a business	4	3
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	4	6.1
2.07	Tertiary education gross enrollment rate, %	43	59.7
2.08	Quality of management schools*	14	5.4
2.09	Gov't procurement of advanced tech*	30	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	37	5,519.3
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	2	1,939.5
3.04	Secure Internet servers/million pop.	22	623.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	1	0.02
4.02	Fixed broadband Internet tariffs, PPP $/month	60	30.22
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	20	4.8
5.02	Quality of math & science education*	9	5.4
5.03	Secondary education gross enrollment rate, %	71	88.7
5.04	Adult literacy rate, %	n/a	n/a[1]

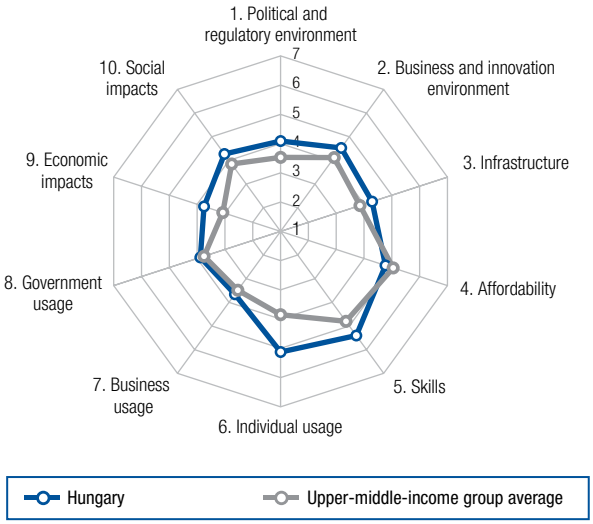
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	1	237.4
6.02	Individuals using Internet, %	30	74.2
6.03	Households w/ personal computer, %	22	81.9
6.04	Households w/ Internet access, %	24	79.9
6.05	Fixed broadband Internet subs/100 pop.	16	30.8
6.06	Mobile broadband subs/100 pop.	10	94.0
6.07	Use of virtual social networks*	20	6.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	19	5.6
7.02	Capacity for innovation*	32	4.5
7.03	PCT patents, applications/million pop.	n/a	n/a
7.04	Business-to-business Internet use*	19	5.6
7.05	Business-to-consumer Internet use*	27	5.4
7.06	Extent of staff training*	26	4.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	27	4.6
8.02	Government Online Service Index, 0–1 (best)	n/a	n/a
8.03	Gov't success in ICT promotion*	30	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	25	5.0
9.02	ICT PCT patents, applications/million pop.	n/a	n/a
9.03	Impact of ICTs on new organizational models*	21	5.1
9.04	Knowledge-intensive jobs, % workforce	28	37.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	23	5.3
10.02	Internet access in schools*	16	6.0
10.03	ICT use & gov't efficiency*	24	5.0
10.04	E-Participation Index, 0–1 (best)	n/a	n/a

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Hungary

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**53**	**4.3**
Networked Readiness Index 2014 (out of 148)	47	4.3
Networked Readiness Index 2013 (out of 144)	44	4.3
A. Environment subindex	**48**	**4.3**
1st pillar: Political and regulatory environment	46	4.1
2nd pillar: Business and innovation environment	57	4.5
B. Readiness subindex	**68**	**4.8**
3rd pillar: Infrastructure	65	4.3
4th pillar: Affordability	86	4.8
5th pillar: Skills	47	5.4
C. Usage subindex	**49**	**4.2**
6th pillar: Individual usage	42	5.1
7th pillar: Business usage	64	3.7
8th pillar: Government usage	69	3.9
D. Impact subindex	**49**	**4.0**
9th pillar: Economic impacts	38	3.8
10th pillar: Social impacts	63	4.3



The Networked Readiness Index in detail

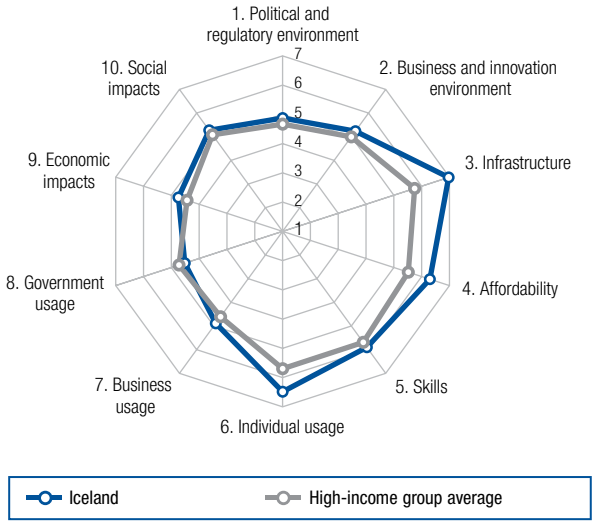
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	61	3.8
1.02	Laws relating to ICTs*	53	4.3
1.03	Judicial independence*	56	4.0
1.04	Efficiency of legal system in settling disputes*	103	3.3
1.05	Efficiency of legal system in challenging regs*	121	2.5
1.06	Intellectual property protection*	71	3.7
1.07	Software piracy rate, % software installed	27	39
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	25	395
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	44	5.3
2.02	Venture capital availability*	121	2.1
2.03	Total tax rate, % profits	105	48.0
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	47	5.3
2.07	Tertiary education gross enrollment rate, %	44	59.6
2.08	Quality of management schools*	66	4.3
2.09	Gov't procurement of advanced tech*	94	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	60	3,468.4
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	75	24.9
3.04	Secure Internet servers/million pop.	36	249.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	75	0.27
4.02	Fixed broadband Internet tariffs, PPP $/month	102	49.37
4.03	Internet & telephony competition, 0–2 (best)	70	1.88
	5th pillar: Skills		
5.01	Quality of educational system*	96	3.3
5.02	Quality of math & science education*	60	4.3
5.03	Secondary education gross enrollment rate, %	27	101.6
5.04	Adult literacy rate, %	18	99.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	62	116.4
6.02	Individuals using Internet, %	35	72.6
6.03	Households w/ personal computer, %	38	73.1
6.04	Households w/ Internet access, %	36	71.5
6.05	Fixed broadband Internet subs/100 pop.	28	24.9
6.06	Mobile broadband subs/100 pop.	74	26.3
6.07	Use of virtual social networks*	69	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	65	4.7
7.02	Capacity for innovation*	126	3.0
7.03	PCT patents, applications/million pop.	27	24.2
7.04	Business-to-business Internet use*	30	5.5
7.05	Business-to-consumer Internet use*	46	4.9
7.06	Extent of staff training*	107	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	93	3.6
8.02	Government Online Service Index, 0–1 (best)	53	0.56
8.03	Gov't success in ICT promotion*	100	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	62	4.5
9.02	ICT PCT patents, applications/million pop.	28	8.5
9.03	Impact of ICTs on new organizational models*	75	4.1
9.04	Knowledge-intensive jobs, % workforce	33	35.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	73	4.1
10.02	Internet access in schools*	35	5.4
10.03	ICT use & gov't efficiency*	77	3.9
10.04	E-Participation Index, 0–1 (best)	72	0.45

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Iceland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**19**	**5.4**
Networked Readiness Index 2014 (out of 148)	19	5.3
Networked Readiness Index 2013 (out of 144)	17	5.3
A. Environment subindex	**22**	**5.0**
1st pillar: Political and regulatory environment	27	4.9
2nd pillar: Business and innovation environment	17	5.2
B. Readiness subindex	**3**	**6.4**
3rd pillar: Infrastructure	6	7.0
4th pillar: Affordability	25	6.3
5th pillar: Skills	13	5.9
C. Usage subindex	**21**	**5.3**
6th pillar: Individual usage	8	6.5
7th pillar: Business usage	21	4.9
8th pillar: Government usage	42	4.5
D. Impact subindex	**22**	**5.0**
9th pillar: Economic impacts	21	4.7
10th pillar: Social impacts	24	5.3



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	43	4.1
1.02	Laws relating to ICTs*	21	5.1
1.03	Judicial independence*	23	5.5
1.04	Efficiency of legal system in settling disputes*	25	4.9
1.05	Efficiency of legal system in challenging regs*	17	4.5
1.06	Intellectual property protection*	30	4.8
1.07	Software piracy rate, % software installed	37	48
1.08	No. procedures to enforce a contract	9	27
1.09	No. days to enforce a contract	33	417
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	5	6.4
2.02	Venture capital availability*	58	2.8
2.03	Total tax rate, % profits	38	29.7
2.04	No. days to start a business	10	4
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	80	4.9
2.07	Tertiary education gross enrollment rate, %	11	80.9
2.08	Quality of management schools*	20	5.2
2.09	Gov't procurement of advanced tech*	60	3.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	1	54,718.2
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	5	443.2
3.04	Secure Internet servers/million pop.	1	2,922.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	37	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	50	28.13
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	17	4.9
5.02	Quality of math & science education*	33	4.7
5.03	Secondary education gross enrollment rate, %	12	108.6
5.04	Adult literacy rate, %	n/a	n/a[1]

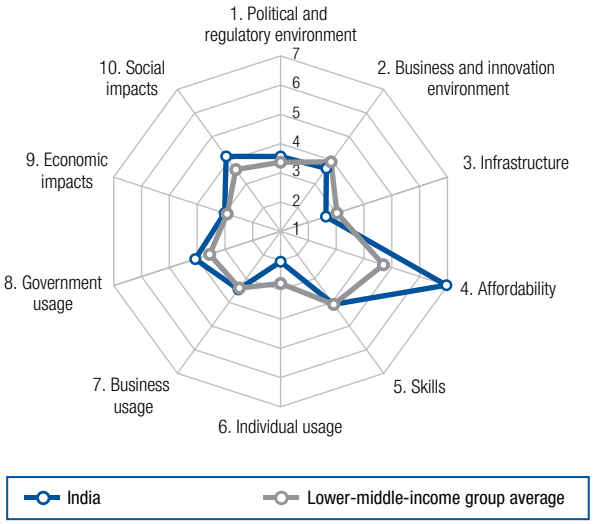
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	77	108.1
6.02	Individuals using Internet, %	1	96.5
6.03	Households w/ personal computer, %	2	96.7
6.04	Households w/ Internet access, %	2	96.4
6.05	Fixed broadband Internet subs/100 pop.	8	35.1
6.06	Mobile broadband subs/100 pop.	19	74.7
6.07	Use of virtual social networks*	1	6.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	1	6.2
7.02	Capacity for innovation*	46	4.0
7.03	PCT patents, applications/million pop.	17	97.0
7.04	Business-to-business Internet use*	12	5.8
7.05	Business-to-consumer Internet use*	22	5.5
7.06	Extent of staff training*	25	4.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	44	4.3
8.02	Government Online Service Index, 0–1 (best)	43	0.61
8.03	Gov't success in ICT promotion*	47	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	23	5.1
9.02	ICT PCT patents, applications/million pop.	22	18.1
9.03	Impact of ICTs on new organizational models*	15	5.2
9.04	Knowledge-intensive jobs, % workforce	4	49.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	13	5.5
10.02	Internet access in schools*	1	6.7
10.03	ICT use & gov't efficiency*	29	4.9
10.04	E-Participation Index, 0–1 (best)	64	0.49

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

India

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**89**	**3.7**
Networked Readiness Index 2014 (out of 148)	83	3.8
Networked Readiness Index 2013 (out of 144)	68	3.9
A. Environment subindex	**101**	**3.6**
1st pillar: Political and regulatory environment	82	3.6
2nd pillar: Business and innovation environment	115	3.7
B. Readiness subindex	**83**	**4.6**
3rd pillar: Infrastructure	115	2.6
4th pillar: Affordability	1	7.0
5th pillar: Skills	102	4.1
C. Usage subindex	**103**	**3.2**
6th pillar: Individual usage	121	2.0
7th pillar: Business usage	88	3.5
8th pillar: Government usage	62	4.1
D. Impact subindex	**73**	**3.6**
9th pillar: Economic impacts	92	3.0
10th pillar: Social impacts	68	4.2



The Networked Readiness Index in detail

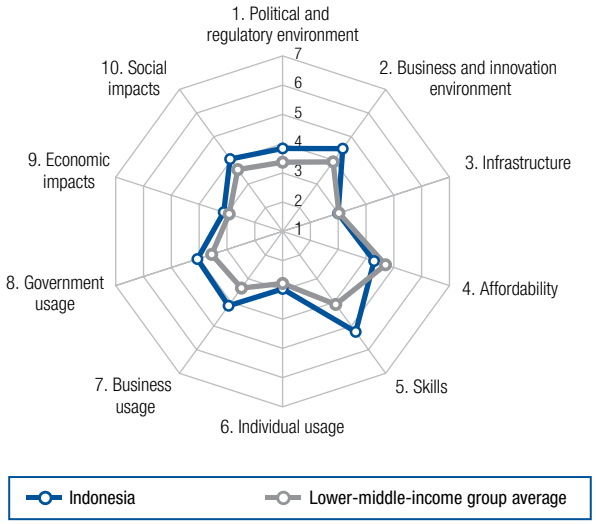
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	57	3.8
1.02	Laws relating to ICTs*	67	3.9
1.03	Judicial independence*	50	4.2
1.04	Efficiency of legal system in settling disputes*	57	3.8
1.05	Efficiency of legal system in challenging regs*	43	3.8
1.06	Intellectual property protection*	65	3.7
1.07	Software piracy rate, % software installed	54	60
1.08	No. procedures to enforce a contract	130	46
1.09	No. days to enforce a contract	140	1,420
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	110	4.1
2.02	Venture capital availability*	20	3.5
2.03	Total tax rate, % profits	126	61.7
2.04	No. days to start a business	111	28
2.05	No. procedures to start a business	132	12
2.06	Intensity of local competition*	91	4.8
2.07	Tertiary education gross enrollment rate, %	87	24.8
2.08	Quality of management schools*	56	4.4
2.09	Gov't procurement of advanced tech*	61	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	99	861.7
3.02	Mobile network coverage, % pop.	110	93.5
3.03	Int'l Internet bandwidth, kb/s per user	113	6.5
3.04	Secure Internet servers/million pop.	104	3.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	4	0.06
4.02	Fixed broadband Internet tariffs, PPP $/month	13	17.29
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	45	4.2
5.02	Quality of math & science education*	67	4.2
5.03	Secondary education gross enrollment rate, %	104	68.5
5.04	Adult literacy rate, %	94	71.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	123	70.8
6.02	Individuals using Internet, %	115	15.1
6.03	Households w/ personal computer, %	109	11.9
6.04	Households w/ Internet access, %	102	13.0
6.05	Fixed broadband Internet subs/100 pop.	104	1.2
6.06	Mobile broadband subs/100 pop.	113	3.2
6.07	Use of virtual social networks*	134	4.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	102	4.2
7.02	Capacity for innovation*	48	4.0
7.03	PCT patents, applications/million pop.	61	1.5
7.04	Business-to-business Internet use*	119	4.0
7.05	Business-to-consumer Internet use*	95	4.1
7.06	Extent of staff training*	77	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	71	3.9
8.02	Government Online Service Index, 0–1 (best)	57	0.54
8.03	Gov't success in ICT promotion*	81	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	87	4.1
9.02	ICT PCT patents, applications/million pop.	58	0.5
9.03	Impact of ICTs on new organizational models*	89	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	76	4.0
10.02	Internet access in schools*	87	3.8
10.03	ICT use & gov't efficiency*	70	4.0
10.04	E-Participation Index, 0–1 (best)	40	0.63

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Indonesia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**79**	**3.9**
Networked Readiness Index 2014 (out of 148)	64	4.0
Networked Readiness Index 2013 (out of 144)	76	3.8
A. Environment subindex	**54**	**4.2**
1st pillar: Political and regulatory environment	62	3.8
2nd pillar: Business and innovation environment	59	4.5
B. Readiness subindex	**96**	**4.2**
3rd pillar: Infrastructure	98	3.0
4th pillar: Affordability	99	4.3
5th pillar: Skills	63	5.2
C. Usage subindex	**77**	**3.7**
6th pillar: Individual usage	97	3.0
7th pillar: Business usage	35	4.1
8th pillar: Government usage	63	4.1
D. Impact subindex	**74**	**3.6**
9th pillar: Economic impacts	78	3.1
10th pillar: Social impacts	72	4.1



The Networked Readiness Index in detail

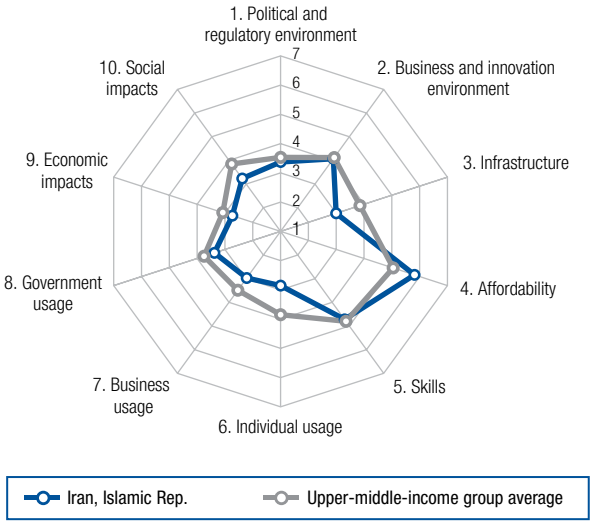
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	51	3.9
1.02	Laws relating to ICTs*	45	4.5
1.03	Judicial independence*	63	3.9
1.04	Efficiency of legal system in settling disputes*	43	4.1
1.05	Efficiency of legal system in challenging regs*	38	3.8
1.06	Intellectual property protection*	43	4.1
1.07	Software piracy rate, % software installed	93	84
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	51	471
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	53	5.2
2.02	Venture capital availability*	14	3.9
2.03	Total tax rate, % profits	42	31.4
2.04	No. days to start a business	131	53
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	53	5.3
2.07	Tertiary education gross enrollment rate, %	77	31.5
2.08	Quality of management schools*	49	4.6
2.09	Gov't procurement of advanced tech*	13	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	102	748.1
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	100	10.1
3.04	Secure Internet servers/million pop.	103	4.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	81	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	110	56.41
4.03	Internet & telephony competition, 0–2 (best)	85	1.76
	5th pillar: Skills		
5.01	Quality of educational system*	32	4.5
5.02	Quality of math & science education*	36	4.6
5.03	Secondary education gross enrollment rate, %	90	82.5
5.04	Adult literacy rate, %	59	93.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	49	125.4
6.02	Individuals using Internet, %	112	15.8
6.03	Households w/ personal computer, %	104	15.6
6.04	Households w/ Internet access, %	118	5.7
6.05	Fixed broadband Internet subs/100 pop.	103	1.3
6.06	Mobile broadband subs/100 pop.	78	24.2
6.07	Use of virtual social networks*	55	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	42	5.1
7.02	Capacity for innovation*	22	4.8
7.03	PCT patents, applications/million pop.	101	0.1
7.04	Business-to-business Internet use*	51	5.1
7.05	Business-to-consumer Internet use*	28	5.4
7.06	Extent of staff training*	24	4.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	34	4.5
8.02	Government Online Service Index, 0–1 (best)	87	0.36
8.03	Gov't success in ICT promotion*	49	4.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	33	4.9
9.02	ICT PCT patents, applications/million pop.	94	0.0
9.03	Impact of ICTs on new organizational models*	35	4.7
9.04	Knowledge-intensive jobs, % workforce	104	8.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	59	4.3
10.02	Internet access in schools*	48	4.9
10.03	ICT use & gov't efficiency*	59	4.2
10.04	E-Participation Index, 0–1 (best)	100	0.29

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Iran, Islamic Rep.

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**96**	**3.6**
Networked Readiness Index 2014 (out of 148)	104	3.4
Networked Readiness Index 2013 (out of 144)	101	3.4
A. Environment subindex	**93**	**3.7**
1st pillar: Political and regulatory environment	100	3.4
2nd pillar: Business and innovation environment	86	4.1
B. Readiness subindex	**86**	**4.5**
3rd pillar: Infrastructure	97	3.0
4th pillar: Affordability	46	5.8
5th pillar: Skills	85	4.7
C. Usage subindex	**108**	**3.1**
6th pillar: Individual usage	100	2.9
7th pillar: Business usage	129	3.0
8th pillar: Government usage	109	3.4
D. Impact subindex	**116**	**3.0**
9th pillar: Economic impacts	110	2.7
10th pillar: Social impacts	115	3.2



The Networked Readiness Index in detail

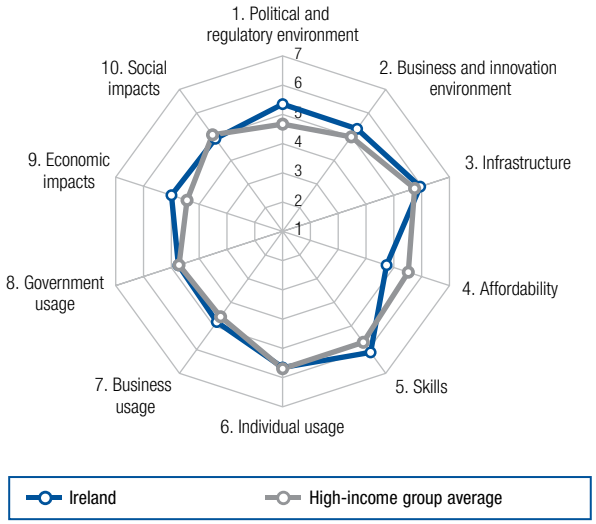
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	71	3.6
1.02	Laws relating to ICTs*	104	3.3
1.03	Judicial independence*	89	3.4
1.04	Efficiency of legal system in settling disputes*	93	3.4
1.05	Efficiency of legal system in challenging regs*	130	2.3
1.06	Intellectual property protection*	126	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	55	505
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	122	3.9
2.02	Venture capital availability*	133	1.9
2.03	Total tax rate, % profits	98	44.1
2.04	No. days to start a business	69	12
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	118	4.4
2.07	Tertiary education gross enrollment rate, %	49	55.2
2.08	Quality of management schools*	103	3.8
2.09	Gov't procurement of advanced tech*	91	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	64	3,178.1
3.02	Mobile network coverage, % pop.	97	96.0
3.03	Int'l Internet bandwidth, kb/s per user	121	4.6
3.04	Secure Internet servers/million pop.	124	1.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	23	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	19	19.55
4.03	Internet & telephony competition, 0–2 (best)	129	0.86
	5th pillar: Skills		
5.01	Quality of educational system*	108	3.0
5.02	Quality of math & science education*	44	4.5
5.03	Secondary education gross enrollment rate, %	81	86.3
5.04	Adult literacy rate, %	77	86.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	112	84.2
6.02	Individuals using Internet, %	94	31.4
6.03	Households w/ personal computer, %	70	44.6
6.04	Households w/ Internet access, %	73	35.8
6.05	Fixed broadband Internet subs/100 pop.	79	5.6
6.06	Mobile broadband subs/100 pop.	124	1.2
6.07	Use of virtual social networks*	141	3.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	131	3.7
7.02	Capacity for innovation*	94	3.5
7.03	PCT patents, applications/million pop.	105	0.1
7.04	Business-to-business Internet use*	132	3.6
7.05	Business-to-consumer Internet use*	116	3.6
7.06	Extent of staff training*	134	3.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	111	3.3
8.02	Government Online Service Index, 0–1 (best)	84	0.37
8.03	Gov't success in ICT promotion*	108	3.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	108	3.8
9.02	ICT PCT patents, applications/million pop.	90	0.0
9.03	Impact of ICTs on new organizational models*	111	3.5
9.04	Knowledge-intensive jobs, % workforce	93	16.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	106	3.6
10.02	Internet access in schools*	126	2.7
10.03	ICT use & gov't efficiency*	79	3.9
10.04	E-Participation Index, 0–1 (best)	100	0.29

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Ireland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**25**	**5.2**
Networked Readiness Index 2014 (out of 148)	26	5.1
Networked Readiness Index 2013 (out of 144)	27	5.1
A. Environment subindex	**12**	**5.3**
1st pillar: Political and regulatory environment	14	5.3
2nd pillar: Business and innovation environment	13	5.3
B. Readiness subindex	**29**	**5.6**
3rd pillar: Infrastructure	26	5.9
4th pillar: Affordability	87	4.7
5th pillar: Skills	8	6.1
C. Usage subindex	**28**	**5.1**
6th pillar: Individual usage	27	5.7
7th pillar: Business usage	22	4.8
8th pillar: Government usage	33	4.7
D. Impact subindex	**24**	**5.0**
9th pillar: Economic impacts	15	5.0
10th pillar: Social impacts	38	4.9



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	22	4.7
1.02	Laws relating to ICTs*	23	5.0
1.03	Judicial independence*	6	6.3
1.04	Efficiency of legal system in settling disputes*	21	4.9
1.05	Efficiency of legal system in challenging regs*	16	4.7
1.06	Intellectual property protection*	14	5.6
1.07	Software piracy rate, % software installed	19	33
1.08	No. procedures to enforce a contract	1	21
1.09	No. days to enforce a contract	102	650
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	22	6.0
2.02	Venture capital availability*	46	3.0
2.03	Total tax rate, % profits	26	25.9
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	60	5.2
2.07	Tertiary education gross enrollment rate, %	25	71.2
2.08	Quality of management schools*	15	5.3
2.09	Gov't procurement of advanced tech*	62	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	35	5,996.2
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	20	132.3
3.04	Secure Internet servers/million pop.	21	718.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	125	0.54
4.02	Fixed broadband Internet tariffs, PPP $/month	59	30.07
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	5	5.4
5.02	Quality of math & science education*	24	5.0
5.03	Secondary education gross enrollment rate, %	6	119.1
5.04	Adult literacy rate, %	n/a	n/a[1]

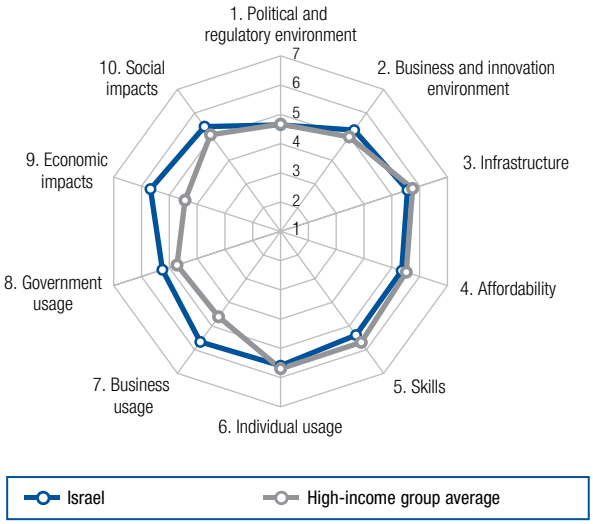
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	89	102.8
6.02	Individuals using Internet, %	25	78.2
6.03	Households w/ personal computer, %	19	83.6
6.04	Households w/ Internet access, %	17	82.4
6.05	Fixed broadband Internet subs/100 pop.	29	24.2
6.06	Mobile broadband subs/100 pop.	23	67.2
6.07	Use of virtual social networks*	23	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	25	5.6
7.02	Capacity for innovation*	17	5.0
7.03	PCT patents, applications/million pop.	20	87.4
7.04	Business-to-business Internet use*	35	5.3
7.05	Business-to-consumer Internet use*	45	5.0
7.06	Extent of staff training*	20	4.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	35	4.5
8.02	Government Online Service Index, 0–1 (best)	31	0.68
8.03	Gov't success in ICT promotion*	36	4.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	16	5.3
9.02	ICT PCT patents, applications/million pop.	14	37.2
9.03	Impact of ICTs on new organizational models*	13	5.2
9.04	Knowledge-intensive jobs, % workforce	23	40.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	47	4.7
10.02	Internet access in schools*	36	5.4
10.03	ICT use & gov't efficiency*	39	4.7
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Israel

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**21**	**5.4**
Networked Readiness Index 2014 (out of 148)	15	5.4
Networked Readiness Index 2013 (out of 144)	15	5.4
A. Environment subindex	**25**	**5.0**
1st pillar: Political and regulatory environment	28	4.6
2nd pillar: Business and innovation environment	15	5.3
B. Readiness subindex	**37**	**5.4**
3rd pillar: Infrastructure	31	5.6
4th pillar: Affordability	68	5.3
5th pillar: Skills	48	5.4
C. Usage subindex	**15**	**5.5**
6th pillar: Individual usage	28	5.6
7th pillar: Business usage	9	5.7
8th pillar: Government usage	15	5.2
D. Impact subindex	**7**	**5.5**
9th pillar: Economic impacts	6	5.7
10th pillar: Social impacts	19	5.4



The Networked Readiness Index in detail

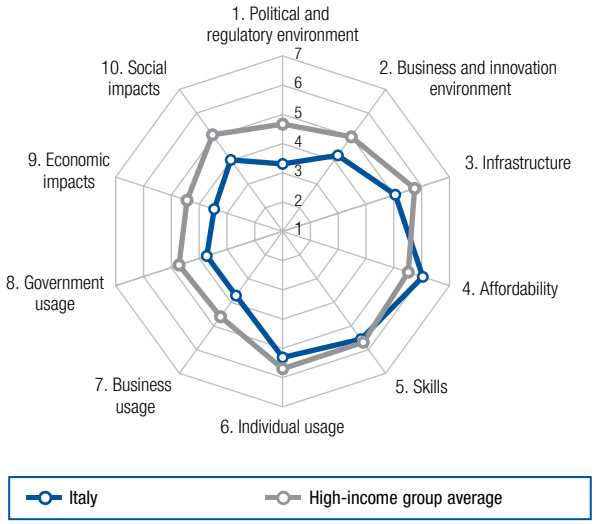
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	50	3.9
1.02	Laws relating to ICTs*	32	4.8
1.03	Judicial independence*	16	5.8
1.04	Efficiency of legal system in settling disputes*	46	4.1
1.05	Efficiency of legal system in challenging regs*	35	4.0
1.06	Intellectual property protection*	33	4.6
1.07	Software piracy rate, % software installed	17	30
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	122	890
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	10	6.3
2.02	Venture capital availability*	9	4.2
2.03	Total tax rate, % profits	40	30.1
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	125	4.2
2.07	Tertiary education gross enrollment rate, %	30	65.8
2.08	Quality of management schools*	32	4.9
2.09	Gov't procurement of advanced tech*	9	4.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	24	7,675.1
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	29	100.5
3.04	Secure Internet servers/million pop.	32	270.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	83	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	70	32.58
4.03	Internet & telephony competition, 0–2 (best)	85	1.76
	5th pillar: Skills		
5.01	Quality of educational system*	69	3.7
5.02	Quality of math & science education*	79	4.0
5.03	Secondary education gross enrollment rate, %	26	101.7
5.04	Adult literacy rate, %	30	97.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	54	122.8
6.02	Individuals using Internet, %	37	70.8
6.03	Households w/ personal computer, %	16	85.0
6.04	Households w/ Internet access, %	37	71.1
6.05	Fixed broadband Internet subs/100 pop.	24	25.9
6.06	Mobile broadband subs/100 pop.	40	53.0
6.07	Use of virtual social networks*	28	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	5	6.0
7.02	Capacity for innovation*	3	5.8
7.03	PCT patents, applications/million pop.	5	236.2
7.04	Business-to-business Internet use*	31	5.5
7.05	Business-to-consumer Internet use*	21	5.5
7.06	Extent of staff training*	76	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	32	4.5
8.02	Government Online Service Index, 0–1 (best)	13	0.87
8.03	Gov't success in ICT promotion*	22	5.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	22	5.1
9.02	ICT PCT patents, applications/million pop.	4	109.9
9.03	Impact of ICTs on new organizational models*	29	4.7
9.04	Knowledge-intensive jobs, % workforce	8	46.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	28	5.2
10.02	Internet access in schools*	32	5.5
10.03	ICT use & gov't efficiency*	34	4.8
10.04	E-Participation Index, 0–1 (best)	12	0.86

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Italy

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**55**	**4.3**
Networked Readiness Index 2014 (out of 148)	58	4.2
Networked Readiness Index 2013 (out of 144)	50	4.2
A. Environment subindex	**90**	**3.8**
1st pillar: Political and regulatory environment	102	3.3
2nd pillar: Business and innovation environment	72	4.2
B. Readiness subindex	**32**	**5.5**
3rd pillar: Infrastructure	37	5.0
4th pillar: Affordability	36	6.0
5th pillar: Skills	37	5.6
C. Usage subindex	**46**	**4.2**
6th pillar: Individual usage	33	5.3
7th pillar: Business usage	60	3.7
8th pillar: Government usage	76	3.7
D. Impact subindex	**66**	**3.7**
9th pillar: Economic impacts	51	3.5
10th pillar: Social impacts	75	4.0



The Networked Readiness Index in detail

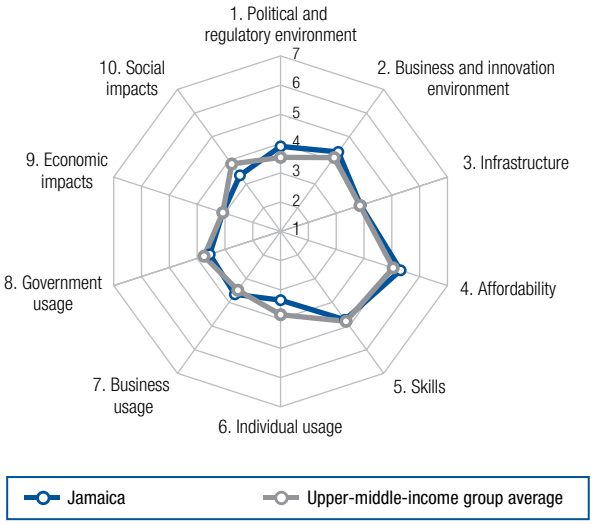
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	128	2.4
1.02	Laws relating to ICTs*	87	3.7
1.03	Judicial independence*	78	3.5
1.04	Efficiency of legal system in settling disputes*	142	2.0
1.05	Efficiency of legal system in challenging regs*	134	2.2
1.06	Intellectual property protection*	70	3.7
1.07	Software piracy rate, % software installed	34	47
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	131	1,185
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	64	5.0
2.02	Venture capital availability*	127	2.0
2.03	Total tax rate, % profits	131	65.4
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	58	5.2
2.07	Tertiary education gross enrollment rate, %	35	62.5
2.08	Quality of management schools*	26	5.1
2.09	Gov't procurement of advanced tech*	129	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	47	4,944.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	31	89.8
3.04	Secure Internet servers/million pop.	38	203.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	43	0.16
4.02	Fixed broadband Internet tariffs, PPP $/month	46	26.81
4.03	Internet & telephony competition, 0–2 (best)	89	1.67
	5th pillar: Skills		
5.01	Quality of educational system*	67	3.7
5.02	Quality of math & science education*	45	4.5
5.03	Secondary education gross enrollment rate, %	32	100.7
5.04	Adult literacy rate, %	16	99.2

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	17	158.8
6.02	Individuals using Internet, %	56	58.5
6.03	Households w/ personal computer, %	41	71.1
6.04	Households w/ Internet access, %	40	68.9
6.05	Fixed broadband Internet subs/100 pop.	34	22.3
6.06	Mobile broadband subs/100 pop.	30	61.4
6.07	Use of virtual social networks*	41	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	106	4.2
7.02	Capacity for innovation*	39	4.3
7.03	PCT patents, applications/million pop.	25	54.6
7.04	Business-to-business Internet use*	103	4.3
7.05	Business-to-consumer Internet use*	73	4.4
7.06	Extent of staff training*	132	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	132	2.9
8.02	Government Online Service Index, 0–1 (best)	23	0.75
8.03	Gov't success in ICT promotion*	139	2.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	99	4.0
9.02	ICT PCT patents, applications/million pop.	27	9.3
9.03	Impact of ICTs on new organizational models*	119	3.4
9.04	Knowledge-intensive jobs, % workforce	34	35.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	117	3.4
10.02	Internet access in schools*	91	3.8
10.03	ICT use & gov't efficiency*	120	3.2
10.04	E-Participation Index, 0–1 (best)	19	0.78

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Jamaica

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**82**	**3.9**
Networked Readiness Index 2014 (out of 148)	86	3.8
Networked Readiness Index 2013 (out of 144)	85	3.7
A. Environment subindex	**57**	**4.1**
1st pillar: Political and regulatory environment	58	3.9
2nd pillar: Business and innovation environment	65	4.4
B. Readiness subindex	**77**	**4.6**
3rd pillar: Infrastructure	78	3.9
4th pillar: Affordability	71	5.3
5th pillar: Skills	83	4.7
C. Usage subindex	**88**	**3.5**
6th pillar: Individual usage	84	3.4
7th pillar: Business usage	63	3.7
8th pillar: Government usage	94	3.5
D. Impact subindex	**101**	**3.2**
9th pillar: Economic impacts	82	3.1
10th pillar: Social impacts	106	3.4



The Networked Readiness Index in detail

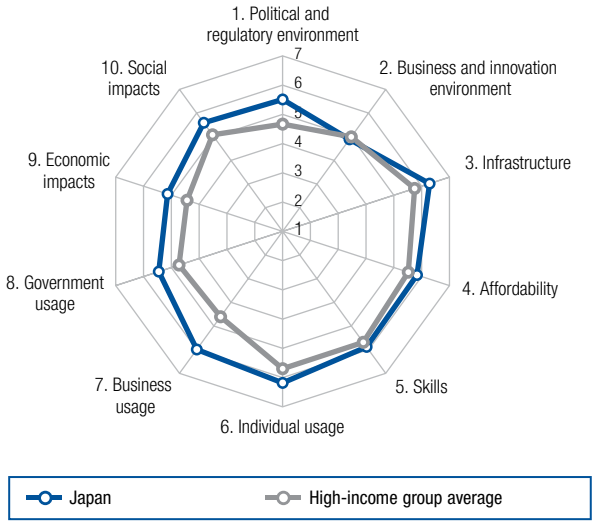
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	83	3.4
1.02	Laws relating to ICTs*	90	3.6
1.03	Judicial independence*	42	4.5
1.04	Efficiency of legal system in settling disputes*	88	3.4
1.05	Efficiency of legal system in challenging regs*	53	3.5
1.06	Intellectual property protection*	62	3.8
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	103	655
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	43	5.4
2.02	Venture capital availability*	117	2.2
2.03	Total tax rate, % profits	78	39.3
2.04	No. days to start a business	83	15
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	39	5.4
2.07	Tertiary education gross enrollment rate, %	79	30.8
2.08	Quality of management schools*	57	4.4
2.09	Gov't procurement of advanced tech*	114	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	84	1,904.2
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	67	32.3
3.04	Secure Internet servers/million pop.	61	44.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	52	0.21
4.02	Fixed broadband Internet tariffs, PPP $/month	93	42.98
4.03	Internet & telephony competition, 0–2 (best)	64	1.93
	5th pillar: Skills		
5.01	Quality of educational system*	70	3.7
5.02	Quality of math & science education*	101	3.5
5.03	Secondary education gross enrollment rate, %	72	88.6
5.04	Adult literacy rate, %	70	88.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	91	102.2
6.02	Individuals using Internet, %	88	37.8
6.03	Households w/ personal computer, %	86	30.5
6.04	Households w/ Internet access, %	85	23.5
6.05	Fixed broadband Internet subs/100 pop.	81	5.1
6.06	Mobile broadband subs/100 pop.	71	30.8
6.07	Use of virtual social networks*	79	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	61	4.7
7.02	Capacity for innovation*	53	4.0
7.03	PCT patents, applications/million pop.	83	0.4
7.04	Business-to-business Internet use*	68	4.8
7.05	Business-to-consumer Internet use*	93	4.1
7.06	Extent of staff training*	59	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	92	3.6
8.02	Government Online Service Index, 0–1 (best)	94	0.31
8.03	Gov't success in ICT promotion*	70	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	89	4.1
9.02	ICT PCT patents, applications/million pop.	74	0.2
9.03	Impact of ICTs on new organizational models*	67	4.2
9.04	Knowledge-intensive jobs, % workforce	75	20.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	103	3.6
10.02	Internet access in schools*	83	4.0
10.03	ICT use & gov't efficiency*	94	3.7
10.04	E-Participation Index, 0–1 (best)	116	0.20

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Japan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**10**	**5.6**
Networked Readiness Index 2014 (out of 148)	16	5.4
Networked Readiness Index 2013 (out of 144)	21	5.2
A. Environment subindex	**18**	**5.2**
1st pillar: Political and regulatory environment	8	5.5
2nd pillar: Business and innovation environment	35	4.9
B. Readiness subindex	**15**	**6.0**
3rd pillar: Infrastructure	17	6.3
4th pillar: Affordability	43	5.8
5th pillar: Skills	15	5.9
C. Usage subindex	**4**	**5.9**
6th pillar: Individual usage	13	6.2
7th pillar: Business usage	2	6.0
8th pillar: Government usage	7	5.4
D. Impact subindex	**11**	**5.4**
9th pillar: Economic impacts	12	5.1
10th pillar: Social impacts	13	5.6



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	14	5.2
1.02	Laws relating to ICTs*	18	5.1
1.03	Judicial independence*	8	6.2
1.04	Efficiency of legal system in settling disputes*	18	5.2
1.05	Efficiency of legal system in challenging regs*	19	4.4
1.06	Intellectual property protection*	7	6.0
1.07	Software piracy rate, % software installed	2	19
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	15	360
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	14	6.2
2.02	Venture capital availability*	24	3.4
2.03	Total tax rate, % profits	116	51.3
2.04	No. days to start a business	59	11
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	1	6.4
2.07	Tertiary education gross enrollment rate, %	39	61.5
2.08	Quality of management schools*	72	4.2
2.09	Gov't procurement of advanced tech*	21	4.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	23	8,041.6
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	63	39.2
3.04	Secure Internet servers/million pop.	20	736.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	102	0.37
4.02	Fixed broadband Internet tariffs, PPP $/month	23	20.50
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	33	4.4
5.02	Quality of math & science education*	21	5.1
5.03	Secondary education gross enrollment rate, %	25	101.8
5.04	Adult literacy rate, %	n/a	n/a[1]

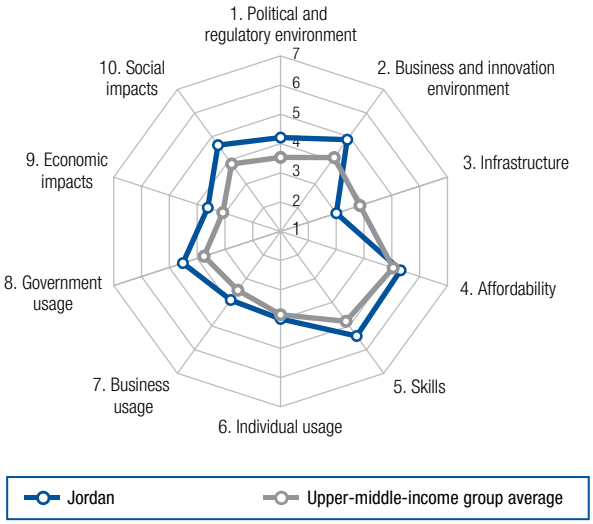
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	60	117.6
6.02	Individuals using Internet, %	12	86.3
6.03	Households w/ personal computer, %	34	76.2
6.04	Households w/ Internet access, %	13	86.2
6.05	Fixed broadband Internet subs/100 pop.	19	28.9
6.06	Mobile broadband subs/100 pop.	3	120.5
6.07	Use of virtual social networks*	61	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	2	6.1
7.02	Capacity for innovation*	7	5.4
7.03	PCT patents, applications/million pop.	1	334.7
7.04	Business-to-business Internet use*	4	6.1
7.05	Business-to-consumer Internet use*	3	6.1
7.06	Extent of staff training*	2	5.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	20	4.9
8.02	Government Online Service Index, 0–1 (best)	4	0.94
8.03	Gov't success in ICT promotion*	27	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	14	5.4
9.02	ICT PCT patents, applications/million pop.	3	141.9
9.03	Impact of ICTs on new organizational models*	39	4.6
9.04	Knowledge-intensive jobs, % workforce	63	24.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	24	5.3
10.02	Internet access in schools*	37	5.3
10.03	ICT use & gov't efficiency*	25	5.0
10.04	E-Participation Index, 0–1 (best)	4	0.96

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Jordan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**52**	**4.3**
Networked Readiness Index 2014 (out of 148)	44	4.4
Networked Readiness Index 2013 (out of 144)	47	4.2
A. Environment subindex	**38**	**4.5**
1st pillar: Political and regulatory environment	39	4.2
2nd pillar: Business and innovation environment	36	4.9
B. Readiness subindex	**81**	**4.6**
3rd pillar: Infrastructure	96	3.0
4th pillar: Affordability	70	5.3
5th pillar: Skills	44	5.4
C. Usage subindex	**51**	**4.1**
6th pillar: Individual usage	69	4.0
7th pillar: Business usage	50	3.9
8th pillar: Government usage	44	4.5
D. Impact subindex	**43**	**4.1**
9th pillar: Economic impacts	42	3.6
10th pillar: Social impacts	44	4.6



The Networked Readiness Index in detail

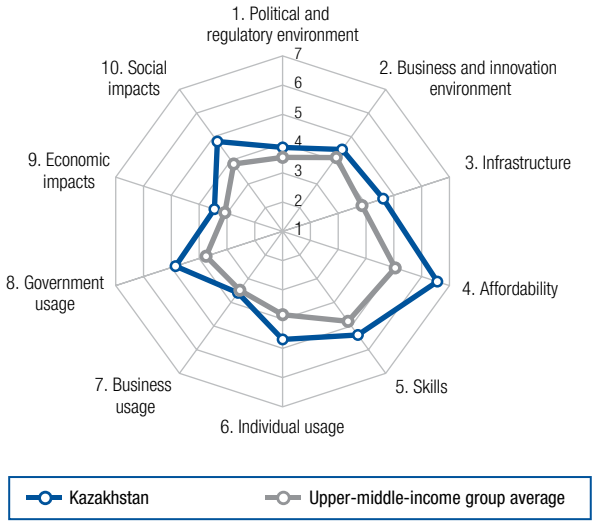
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	65	3.7
1.02	Laws relating to ICTs*	39	4.6
1.03	Judicial independence*	46	4.5
1.04	Efficiency of legal system in settling disputes*	31	4.4
1.05	Efficiency of legal system in challenging regs*	22	4.4
1.06	Intellectual property protection*	34	4.6
1.07	Software piracy rate, % software installed	50	57
1.08	No. procedures to enforce a contract	91	39
1.09	No. days to enforce a contract	106	689
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	41	5.4
2.02	Venture capital availability*	23	3.5
2.03	Total tax rate, % profits	34	29.0
2.04	No. days to start a business	69	12
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	57	5.2
2.07	Tertiary education gross enrollment rate, %	56	46.6
2.08	Quality of management schools*	43	4.7
2.09	Gov't procurement of advanced tech*	35	3.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	75	2,369.7
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	126	4.0
3.04	Secure Internet servers/million pop.	71	26.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	53	0.21
4.02	Fixed broadband Internet tariffs, PPP $/month	92	42.69
4.03	Internet & telephony competition, 0–2 (best)	63	1.94
	5th pillar: Skills		
5.01	Quality of educational system*	24	4.6
5.02	Quality of math & science education*	39	4.6
5.03	Secondary education gross enrollment rate, %	75	87.8
5.04	Adult literacy rate, %	47	95.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	33	141.8
6.02	Individuals using Internet, %	76	44.2
6.03	Households w/ personal computer, %	59	58.7
6.04	Households w/ Internet access, %	67	44.9
6.05	Fixed broadband Internet subs/100 pop.	91	2.8
6.06	Mobile broadband subs/100 pop.	86	16.1
6.07	Use of virtual social networks*	58	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	36	5.3
7.02	Capacity for innovation*	58	3.9
7.03	PCT patents, applications/million pop.	74	0.7
7.04	Business-to-business Internet use*	39	5.3
7.05	Business-to-consumer Internet use*	43	5.0
7.06	Extent of staff training*	58	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	26	4.6
8.02	Government Online Service Index, 0–1 (best)	62	0.52
8.03	Gov't success in ICT promotion*	32	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	41	4.8
9.02	ICT PCT patents, applications/million pop.	63	0.4
9.03	Impact of ICTs on new organizational models*	31	4.7
9.04	Knowledge-intensive jobs, % workforce	49	28.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	35	4.9
10.02	Internet access in schools*	46	5.0
10.03	ICT use & gov't efficiency*	30	4.8
10.04	E-Participation Index, 0–1 (best)	69	0.47

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Kazakhstan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**40**	**4.5**
Networked Readiness Index 2014 (out of 148)	38	4.6
Networked Readiness Index 2013 (out of 144)	43	4.3
A. Environment subindex	**55**	**4.2**
1st pillar: Political and regulatory environment	61	3.9
2nd pillar: Business and innovation environment	61	4.5
B. Readiness subindex	**35**	**5.5**
3rd pillar: Infrastructure	49	4.6
4th pillar: Affordability	11	6.6
5th pillar: Skills	49	5.4
C. Usage subindex	**40**	**4.4**
6th pillar: Individual usage	51	4.7
7th pillar: Business usage	67	3.6
8th pillar: Government usage	28	4.8
D. Impact subindex	**44**	**4.1**
9th pillar: Economic impacts	52	3.5
10th pillar: Social impacts	42	4.8



The Networked Readiness Index in detail

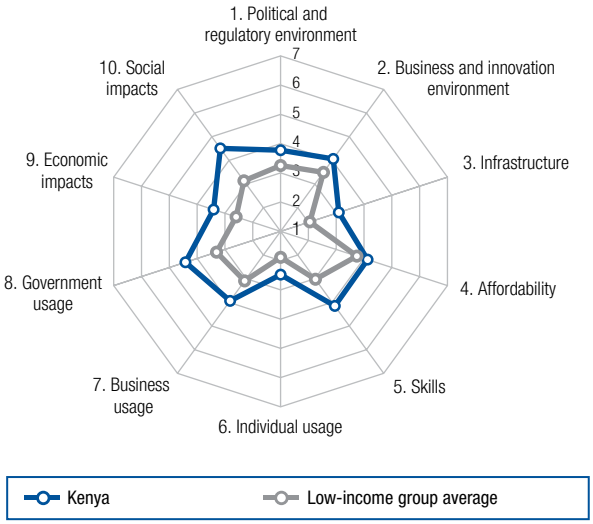
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	32	4.3
1.02	Laws relating to ICTs*	48	4.4
1.03	Judicial independence*	86	3.4
1.04	Efficiency of legal system in settling disputes*	59	3.8
1.05	Efficiency of legal system in challenging regs*	60	3.5
1.06	Intellectual property protection*	74	3.7
1.07	Software piracy rate, % software installed	72	74
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	17	370
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	93	4.4
2.02	Venture capital availability*	47	3.0
2.03	Total tax rate, % profits	32	28.6
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	111	4.6
2.07	Tertiary education gross enrollment rate, %	62	44.5
2.08	Quality of management schools*	92	3.9
2.09	Gov't procurement of advanced tech*	74	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	43	5,229.7
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	54	49.8
3.04	Secure Internet servers/million pop.	90	9.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	27	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	28	21.64
4.03	Internet & telephony competition, 0–2 (best)	73	1.87
	5th pillar: Skills		
5.01	Quality of educational system*	76	3.6
5.02	Quality of math & science education*	72	4.1
5.03	Secondary education gross enrollment rate, %	40	97.7
5.04	Adult literacy rate, %	6	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	5	184.7
6.02	Individuals using Internet, %	61	54.0
6.03	Households w/ personal computer, %	52	63.0
6.04	Households w/ Internet access, %	53	55.0
6.05	Fixed broadband Internet subs/100 pop.	58	11.3
6.06	Mobile broadband subs/100 pop.	34	57.2
6.07	Use of virtual social networks*	88	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	90	4.4
7.02	Capacity for innovation*	69	3.7
7.03	PCT patents, applications/million pop.	70	0.9
7.04	Business-to-business Internet use*	64	4.8
7.05	Business-to-consumer Internet use*	59	4.7
7.06	Extent of staff training*	62	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	43	4.3
8.02	Government Online Service Index, 0–1 (best)	23	0.75
8.03	Gov't success in ICT promotion*	34	4.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	74	4.3
9.02	ICT PCT patents, applications/million pop.	79	0.1
9.03	Impact of ICTs on new organizational models*	65	4.2
9.04	Knowledge-intensive jobs, % workforce	42	32.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	62	4.3
10.02	Internet access in schools*	56	4.7
10.03	ICT use & gov't efficiency*	44	4.6
10.04	E-Participation Index, 0–1 (best)	22	0.76

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Kenya

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**86**	**3.8**
Networked Readiness Index 2014 (out of 148)	92	3.7
Networked Readiness Index 2013 (out of 144)	92	3.5
A. Environment subindex	**72**	**3.9**
1st pillar: Political and regulatory environment	66	3.8
2nd pillar: Business and innovation environment	89	4.1
B. Readiness subindex	**107**	**3.8**
3rd pillar: Infrastructure	94	3.1
4th pillar: Affordability	106	4.1
5th pillar: Skills	100	4.1
C. Usage subindex	**83**	**3.6**
6th pillar: Individual usage	110	2.5
7th pillar: Business usage	43	3.9
8th pillar: Government usage	49	4.4
D. Impact subindex	**51**	**4.0**
9th pillar: Economic impacts	59	3.4
10th pillar: Social impacts	52	4.5



The Networked Readiness Index in detail

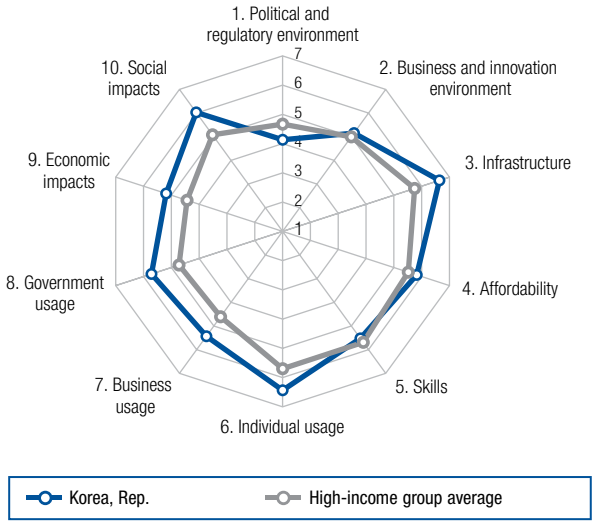
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	44	4.0
1.02	Laws relating to ICTs*	57	4.2
1.03	Judicial independence*	52	4.1
1.04	Efficiency of legal system in settling disputes*	47	4.1
1.05	Efficiency of legal system in challenging regs*	42	3.8
1.06	Intellectual property protection*	69	3.7
1.07	Software piracy rate, % software installed	79	78
1.08	No. procedures to enforce a contract	123	44
1.09	No. days to enforce a contract	49	465
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	55	5.1
2.02	Venture capital availability*	43	3.1
2.03	Total tax rate, % profits	71	38.1
2.04	No. days to start a business	113	30
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	21	5.7
2.07	Tertiary education gross enrollment rate, %	133	4.0
2.08	Quality of management schools*	44	4.7
2.09	Gov't procurement of advanced tech*	49	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	124	186.8
3.02	Mobile network coverage, % pop.	120	89.1
3.03	Int'l Internet bandwidth, kb/s per user	74	25.8
3.04	Secure Internet servers/million pop.	101	4.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	17	0.10
4.02	Fixed broadband Internet tariffs, PPP $/month	121	77.91
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	30	4.5
5.02	Quality of math & science education*	76	4.0
5.03	Secondary education gross enrollment rate, %	111	60.1
5.04	Adult literacy rate, %	89	78.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	120	71.8
6.02	Individuals using Internet, %	85	39.0
6.03	Households w/ personal computer, %	112	10.8
6.04	Households w/ Internet access, %	99	14.2
6.05	Fixed broadband Internet subs/100 pop.	123	0.1
6.06	Mobile broadband subs/100 pop.	115	3.0
6.07	Use of virtual social networks*	62	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	56	4.8
7.02	Capacity for innovation*	33	4.5
7.03	PCT patents, applications/million pop.	92	0.2
7.04	Business-to-business Internet use*	45	5.2
7.05	Business-to-consumer Internet use*	61	4.7
7.06	Extent of staff training*	34	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	22	4.7
8.02	Government Online Service Index, 0–1 (best)	75	0.43
8.03	Gov't success in ICT promotion*	21	5.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	39	4.8
9.02	ICT PCT patents, applications/million pop.	84	0.1
9.03	Impact of ICTs on new organizational models*	57	4.4
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	52	4.5
10.02	Internet access in schools*	79	4.1
10.03	ICT use & gov't efficiency*	46	4.5
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Korea, Rep.

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**12**	**5.5**
Networked Readiness Index 2014 (out of 148)	10	5.5
Networked Readiness Index 2013 (out of 144)	11	5.5
A. Environment subindex	**34**	**4.6**
1st pillar: Political and regulatory environment	42	4.1
2nd pillar: Business and innovation environment	22	5.1
B. Readiness subindex	**16**	**6.0**
3rd pillar: Infrastructure	11	6.6
4th pillar: Affordability	45	5.8
5th pillar: Skills	39	5.5
C. Usage subindex	**6**	**5.9**
6th pillar: Individual usage	9	6.4
7th pillar: Business usage	12	5.4
8th pillar: Government usage	3	5.7
D. Impact subindex	**5**	**5.6**
9th pillar: Economic impacts	10	5.2
10th pillar: Social impacts	4	6.0



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	112	2.9
1.02	Laws relating to ICTs*	12	5.2
1.03	Judicial independence*	82	3.5
1.04	Efficiency of legal system in settling disputes*	82	3.5
1.05	Efficiency of legal system in challenging regs*	113	2.8
1.06	Intellectual property protection*	68	3.7
1.07	Software piracy rate, % software installed	25	38
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	4	230
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	30	5.7
2.02	Venture capital availability*	107	2.2
2.03	Total tax rate, % profits	49	32.4
2.04	No. days to start a business	10	4
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	13	5.9
2.07	Tertiary education gross enrollment rate, %	2	98.4
2.08	Quality of management schools*	73	4.2
2.09	Gov't procurement of advanced tech*	20	4.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	13	10,567.2
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	68	30.3
3.04	Secure Internet servers/million pop.	6	1,994.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	32	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	78	34.96
4.03	Internet & telephony competition, 0–2 (best)	85	1.76
	5th pillar: Skills		
5.01	Quality of educational system*	73	3.6
5.02	Quality of math & science education*	34	4.7
5.03	Secondary education gross enrollment rate, %	46	97.2
5.04	Adult literacy rate, %	n/a	n/a[1]

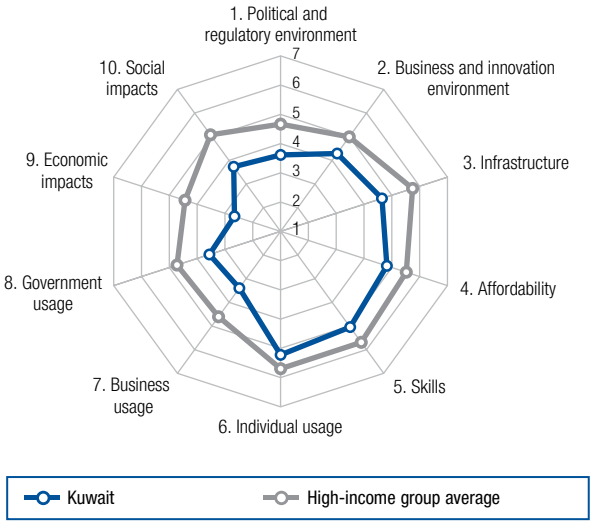
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	73	111.0
6.02	Individuals using Internet, %	15	84.8
6.03	Households w/ personal computer, %	26	80.6
6.04	Households w/ Internet access, %	1	98.1
6.05	Fixed broadband Internet subs/100 pop.	6	38.0
6.06	Mobile broadband subs/100 pop.	7	105.3
6.07	Use of virtual social networks*	54	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	28	5.4
7.02	Capacity for innovation*	24	4.7
7.03	PCT patents, applications/million pop.	7	220.0
7.04	Business-to-business Internet use*	18	5.6
7.05	Business-to-consumer Internet use*	6	6.0
7.06	Extent of staff training*	53	4.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	15	5.0
8.02	Government Online Service Index, 0–1 (best)	3	0.98
8.03	Gov't success in ICT promotion*	11	5.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	12	5.5
9.02	ICT PCT patents, applications/million pop.	5	105.7
9.03	Impact of ICTs on new organizational models*	20	5.1
9.04	Knowledge-intensive jobs, % workforce	70	21.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	12	5.6
10.02	Internet access in schools*	10	6.2
10.03	ICT use & gov't efficiency*	13	5.3
10.04	E-Participation Index, 0–1 (best)	1	1.00

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Kuwait

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**72**	**4.0**
Networked Readiness Index 2014 (out of 148)	72	4.0
Networked Readiness Index 2013 (out of 144)	62	3.9
A. Environment subindex	**69**	**3.9**
1st pillar: Political and regulatory environment	74	3.6
2nd pillar: Business and innovation environment	70	4.3
B. Readiness subindex	**66**	**4.8**
3rd pillar: Infrastructure	48	4.6
4th pillar: Affordability	85	4.8
5th pillar: Skills	70	5.0
C. Usage subindex	**58**	**4.1**
6th pillar: Individual usage	38	5.2
7th pillar: Business usage	93	3.4
8th pillar: Government usage	91	3.6
D. Impact subindex	**102**	**3.2**
9th pillar: Economic impacts	119	2.7
10th pillar: Social impacts	87	3.7



The Networked Readiness Index in detail

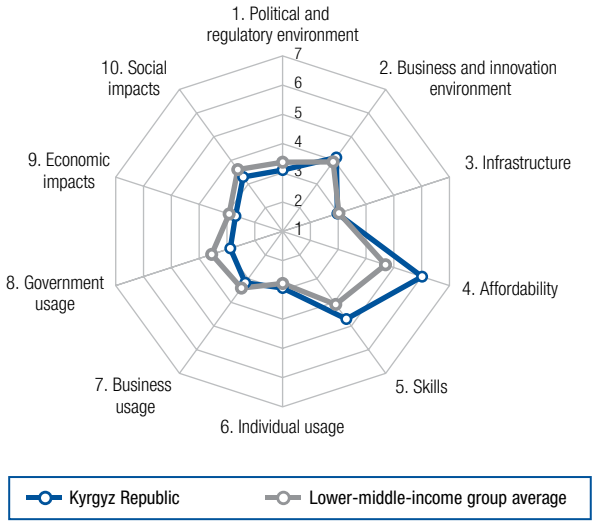
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	68	3.6
1.02	Laws relating to ICTs*	126	2.8
1.03	Judicial independence*	37	4.9
1.04	Efficiency of legal system in settling disputes*	65	3.7
1.05	Efficiency of legal system in challenging regs*	45	3.7
1.06	Intellectual property protection*	83	3.5
1.07	Software piracy rate, % software installed	51	58
1.08	No. procedures to enforce a contract	141	50
1.09	No. days to enforce a contract	77	566
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	67	4.9
2.02	Venture capital availability*	69	2.7
2.03	Total tax rate, % profits	4	12.8
2.04	No. days to start a business	117	31
2.05	No. procedures to start a business	133	12
2.06	Intensity of local competition*	114	4.5
2.07	Tertiary education gross enrollment rate, %	67	40.7
2.08	Quality of management schools*	87	3.9
2.09	Gov't procurement of advanced tech*	118	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	4	18,388.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	102	9.8
3.04	Secure Internet servers/million pop.	41	184.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	66	0.25
4.02	Fixed broadband Internet tariffs, PPP $/month	30	22.37
4.03	Internet & telephony competition, 0–2 (best)	134	0.25
	5th pillar: Skills		
5.01	Quality of educational system*	105	3.1
5.02	Quality of math & science education*	102	3.4
5.03	Secondary education gross enrollment rate, %	33	100.3
5.04	Adult literacy rate, %	41	96.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	4	190.3
6.02	Individuals using Internet, %	27	75.5
6.03	Households w/ personal computer, %	17	83.9
6.04	Households w/ Internet access, %	37	71.1
6.05	Fixed broadband Internet subs/100 pop.	101	1.4
6.06	Mobile broadband subs/100 pop.	n/a	n/a
6.07	Use of virtual social networks*	63	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	62	4.7
7.02	Capacity for innovation*	128	3.0
7.03	PCT patents, applications/million pop.	82	0.4
7.04	Business-to-business Internet use*	77	4.7
7.05	Business-to-consumer Internet use*	72	4.4
7.06	Extent of staff training*	97	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	127	2.9
8.02	Government Online Service Index, 0–1 (best)	52	0.57
8.03	Gov't success in ICT promotion*	130	3.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	127	3.3
9.02	ICT PCT patents, applications/million pop.	82	0.1
9.03	Impact of ICTs on new organizational models*	122	3.4
9.04	Knowledge-intensive jobs, % workforce	83	18.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	93	3.8
10.02	Internet access in schools*	80	4.1
10.03	ICT use & gov't efficiency*	103	3.5
10.04	E-Participation Index, 0–1 (best)	74	0.43

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Kyrgyz Republic

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**98**	**3.5**
Networked Readiness Index 2014 (out of 148)	118	3.2
Networked Readiness Index 2013 (out of 144)	118	3.1
A. Environment subindex	**102**	**3.6**
1st pillar: Political and regulatory environment	114	3.1
2nd pillar: Business and innovation environment	81	4.1
B. Readiness subindex	**82**	**4.6**
3rd pillar: Infrastructure	100	3.0
4th pillar: Affordability	39	6.0
5th pillar: Skills	86	4.7
C. Usage subindex	**115**	**3.0**
6th pillar: Individual usage	98	2.9
7th pillar: Business usage	113	3.2
8th pillar: Government usage	126	2.9
D. Impact subindex	**114**	**3.0**
9th pillar: Economic impacts	114	2.7
10th pillar: Social impacts	112	3.3



The Networked Readiness Index in detail

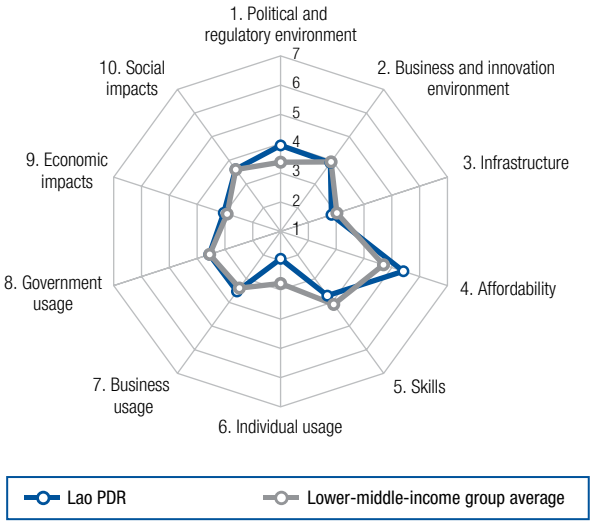
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	116	2.8
1.02	Laws relating to ICTs*	127	2.8
1.03	Judicial independence*	118	2.5
1.04	Efficiency of legal system in settling disputes*	121	2.9
1.05	Efficiency of legal system in challenging regs*	119	2.6
1.06	Intellectual property protection*	129	2.6
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	6	260
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	131	3.7
2.02	Venture capital availability*	115	2.2
2.03	Total tax rate, % profits	34	29.0
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	107	4.6
2.07	Tertiary education gross enrollment rate, %	65	41.3
2.08	Quality of management schools*	132	2.9
2.09	Gov't procurement of advanced tech*	133	2.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	70	2,748.7
3.02	Mobile network coverage, % pop.	90	97.6
3.03	Int'l Internet bandwidth, kb/s per user	127	3.9
3.04	Secure Internet servers/million pop.	100	5.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	45	0.17
4.02	Fixed broadband Internet tariffs, PPP $/month	61	30.24
4.03	Internet & telephony competition, 0–2 (best)	70	1.88
	5th pillar: Skills		
5.01	Quality of educational system*	120	2.9
5.02	Quality of math & science education*	120	3.0
5.03	Secondary education gross enrollment rate, %	74	88.2
5.04	Adult literacy rate, %	13	99.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	56	121.4
6.02	Individuals using Internet, %	98	23.4
6.03	Households w/ personal computer, %	97	20.0
6.04	Households w/ Internet access, %	113	7.7
6.05	Fixed broadband Internet subs/100 pop.	95	2.4
6.06	Mobile broadband subs/100 pop.	81	19.1
6.07	Use of virtual social networks*	107	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	118	3.9
7.02	Capacity for innovation*	111	3.3
7.03	PCT patents, applications/million pop.	103	0.1
7.04	Business-to-business Internet use*	110	4.1
7.05	Business-to-consumer Internet use*	87	4.2
7.06	Extent of staff training*	112	3.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	135	2.7
8.02	Government Online Service Index, 0–1 (best)	105	0.28
8.03	Gov't success in ICT promotion*	128	3.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	119	3.6
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	121	3.4
9.04	Knowledge-intensive jobs, % workforce	87	17.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	130	3.1
10.02	Internet access in schools*	95	3.6
10.03	ICT use & gov't efficiency*	131	3.0
10.04	E-Participation Index, 0–1 (best)	77	0.41

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Lao PDR

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**97**	**3.6**
Networked Readiness Index 2014 (out of 148)	109	3.3
Networked Readiness Index 2013 (out of 144)	n/a	n/a
A. Environment subindex	**73**	**3.9**
1st pillar: Political and regulatory environment	53	3.9
2nd pillar: Business and innovation environment	96	3.9
B. Readiness subindex	**101**	**4.0**
3rd pillar: Infrastructure	107	2.8
4th pillar: Affordability	64	5.4
5th pillar: Skills	112	3.7
C. Usage subindex	**113**	**3.0**
6th pillar: Individual usage	128	1.9
7th pillar: Business usage	75	3.5
8th pillar: Government usage	90	3.6
D. Impact subindex	**96**	**3.3**
9th pillar: Economic impacts	88	3.0
10th pillar: Social impacts	95	3.6



The Networked Readiness Index in detail

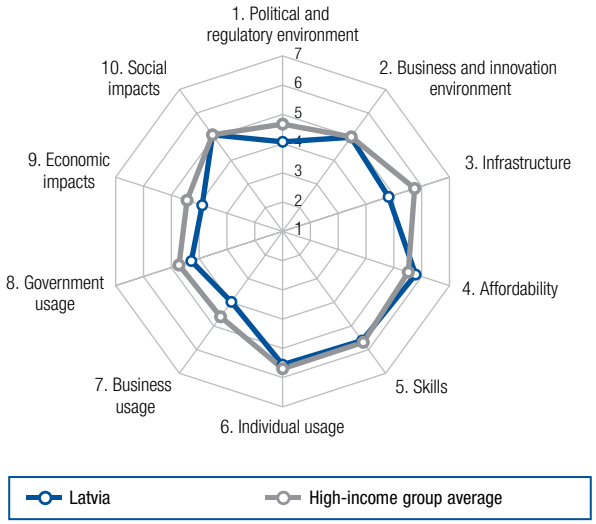
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	30	4.4
1.02	Laws relating to ICTs*	79	3.8
1.03	Judicial independence*	61	3.9
1.04	Efficiency of legal system in settling disputes*	38	4.3
1.05	Efficiency of legal system in challenging regs*	106	2.8
1.06	Intellectual property protection*	76	3.6
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	113	42
1.09	No. days to enforce a contract	44	443
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	114	4.1
2.02	Venture capital availability*	85	2.5
2.03	Total tax rate, % profits	25	25.8
2.04	No. days to start a business	140	92
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	69	5.1
2.07	Tertiary education gross enrollment rate, %	99	16.7
2.08	Quality of management schools*	79	4.1
2.09	Gov't procurement of advanced tech*	51	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	110	567.4
3.02	Mobile network coverage, % pop.	97	96.0
3.03	Int'l Internet bandwidth, kb/s per user	98	10.6
3.04	Secure Internet servers/million pop.	130	1.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	80	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	11	16.62
4.03	Internet & telephony competition, 0–2 (best)	127	0.91
	5th pillar: Skills		
5.01	Quality of educational system*	60	3.8
5.02	Quality of math & science education*	83	3.9
5.03	Secondary education gross enrollment rate, %	122	46.5
5.04	Adult literacy rate, %	86	79.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	129	68.1
6.02	Individuals using Internet, %	120	12.5
6.03	Households w/ personal computer, %	114	9.6
6.04	Households w/ Internet access, %	122	5.1
6.05	Fixed broadband Internet subs/100 pop.	122	0.1
6.06	Mobile broadband subs/100 pop.	118	2.5
6.07	Use of virtual social networks*	113	4.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	96	4.3
7.02	Capacity for innovation*	71	3.7
7.03	PCT patents, applications/million pop.	115	0.0
7.04	Business-to-business Internet use*	87	4.6
7.05	Business-to-consumer Internet use*	89	4.1
7.06	Extent of staff training*	45	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	51	4.2
8.02	Government Online Service Index, 0–1 (best)	125	0.14
8.03	Gov't success in ICT promotion*	39	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	81	4.2
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	80	4.0
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	68	4.2
10.02	Internet access in schools*	88	3.8
10.03	ICT use & gov't efficiency*	57	4.3
10.04	E-Participation Index, 0–1 (best)	116	0.20

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Latvia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**33**	**4.7**
Networked Readiness Index 2014 (out of 148)	39	4.6
Networked Readiness Index 2013 (out of 144)	41	4.4
A. Environment subindex	**41**	**4.5**
1st pillar: Political and regulatory environment	48	4.1
2nd pillar: Business and innovation environment	28	5.0
B. Readiness subindex	**38**	**5.4**
3rd pillar: Infrastructure	43	4.8
4th pillar: Affordability	47	5.8
5th pillar: Skills	32	5.6
C. Usage subindex	**36**	**4.6**
6th pillar: Individual usage	30	5.6
7th pillar: Business usage	41	4.0
8th pillar: Government usage	51	4.3
D. Impact subindex	**32**	**4.5**
9th pillar: Economic impacts	35	3.9
10th pillar: Social impacts	32	5.1



The Networked Readiness Index in detail

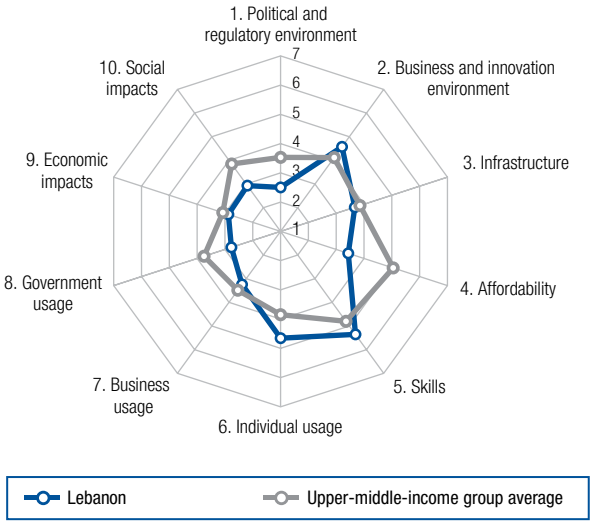
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	81	3.4
1.02	Laws relating to ICTs*	50	4.4
1.03	Judicial independence*	58	4.0
1.04	Efficiency of legal system in settling disputes*	115	3.0
1.05	Efficiency of legal system in challenging regs*	95	3.0
1.06	Intellectual property protection*	51	4.0
1.07	Software piracy rate, % software installed	44	53
1.08	No. procedures to enforce a contract	9	27
1.09	No. days to enforce a contract	50	469
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	35	5.7
2.02	Venture capital availability*	48	3.0
2.03	Total tax rate, % profits	61	35.0
2.04	No. days to start a business	72	13
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	23	5.6
2.07	Tertiary education gross enrollment rate, %	31	65.1
2.08	Quality of management schools*	52	4.6
2.09	Gov't procurement of advanced tech*	92	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	69	2,958.7
3.02	Mobile network coverage, % pop.	84	98.8
3.03	Int'l Internet bandwidth, kb/s per user	39	68.1
3.04	Secure Internet servers/million pop.	31	272.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	55	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	55	28.99
4.03	Internet & telephony competition, 0–2 (best)	83	1.77
	5th pillar: Skills		
5.01	Quality of educational system*	65	3.8
5.02	Quality of math & science education*	27	4.9
5.03	Secondary education gross enrollment rate, %	41	97.7
5.04	Adult literacy rate, %	1	99.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	2	228.4
6.02	Individuals using Internet, %	28	75.2
6.03	Households w/ personal computer, %	40	71.7
6.04	Households w/ Internet access, %	35	71.6
6.05	Fixed broadband Internet subs/100 pop.	33	23.5
6.06	Mobile broadband subs/100 pop.	29	62.1
6.07	Use of virtual social networks*	32	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	48	5.0
7.02	Capacity for innovation*	81	3.6
7.03	PCT patents, applications/million pop.	32	13.4
7.04	Business-to-business Internet use*	40	5.3
7.05	Business-to-consumer Internet use*	18	5.6
7.06	Extent of staff training*	33	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	95	3.5
8.02	Government Online Service Index, 0–1 (best)	28	0.70
8.03	Gov't success in ICT promotion*	75	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	61	4.5
9.02	ICT PCT patents, applications/million pop.	33	3.5
9.03	Impact of ICTs on new organizational models*	37	4.6
9.04	Knowledge-intensive jobs, % workforce	25	39.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	42	4.7
10.02	Internet access in schools*	21	6.0
10.03	ICT use & gov't efficiency*	52	4.4
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Lebanon

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**99**	**3.5**
Networked Readiness Index 2014 (out of 148)	97	3.6
Networked Readiness Index 2013 (out of 144)	94	3.5
A. Environment subindex	**107**	**3.5**
1st pillar: Political and regulatory environment	139	2.5
2nd pillar: Business and innovation environment	52	4.6
B. Readiness subindex	**98**	**4.1**
3rd pillar: Infrastructure	82	3.7
4th pillar: Affordability	117	3.4
5th pillar: Skills	51	5.3
C. Usage subindex	**86**	**3.6**
6th pillar: Individual usage	53	4.6
7th pillar: Business usage	108	3.2
8th pillar: Government usage	130	2.8
D. Impact subindex	**117**	**2.9**
9th pillar: Economic impacts	104	2.9
10th pillar: Social impacts	125	2.9



The Networked Readiness Index in detail

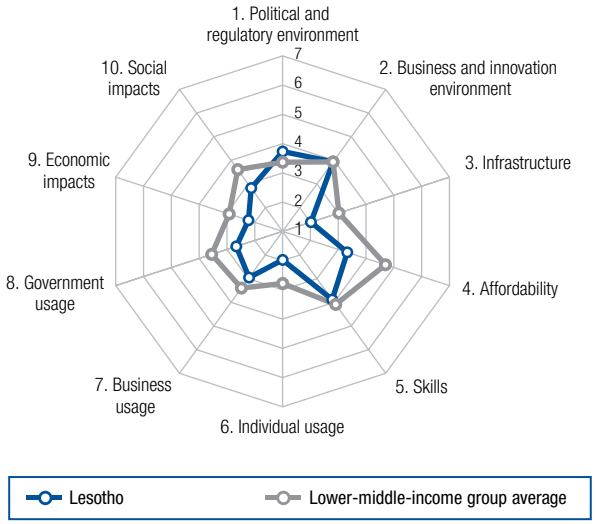
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	141	1.8
1.02	Laws relating to ICTs*	142	2.0
1.03	Judicial independence*	137	2.1
1.04	Efficiency of legal system in settling disputes*	131	2.5
1.05	Efficiency of legal system in challenging regs*	138	2.1
1.06	Intellectual property protection*	138	2.2
1.07	Software piracy rate, % software installed	69	71
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	109	721
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	100	4.3
2.02	Venture capital availability*	59	2.8
2.03	Total tax rate, % profits	39	29.9
2.04	No. days to start a business	50	9
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	30	5.5
2.07	Tertiary education gross enrollment rate, %	57	46.3
2.08	Quality of management schools*	17	5.3
2.09	Gov't procurement of advanced tech*	141	2.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	57	3,733.9
3.02	Mobile network coverage, % pop.	64	99.1
3.03	Int'l Internet bandwidth, kb/s per user	91	15.4
3.04	Secure Internet servers/million pop.	62	43.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	134	0.69
4.02	Fixed broadband Internet tariffs, PPP $/month	62	30.29
4.03	Internet & telephony competition, 0–2 (best)	131	0.55
	5th pillar: Skills		
5.01	Quality of educational system*	28	4.6
5.02	Quality of math & science education*	5	5.7
5.03	Secondary education gross enrollment rate, %	97	74.0
5.04	Adult literacy rate, %	58	93.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	115	80.6
6.02	Individuals using Internet, %	38	70.5
6.03	Households w/ personal computer, %	13	87.9
6.04	Households w/ Internet access, %	43	66.2
6.05	Fixed broadband Internet subs/100 pop.	64	10.0
6.06	Mobile broadband subs/100 pop.	53	41.8
6.07	Use of virtual social networks*	66	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	94	4.3
7.02	Capacity for innovation*	54	4.0
7.03	PCT patents, applications/million pop.	58	1.8
7.04	Business-to-business Internet use*	130	3.7
7.05	Business-to-consumer Internet use*	130	3.1
7.06	Extent of staff training*	116	3.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	140	2.4
8.02	Government Online Service Index, 0–1 (best)	88	0.35
8.03	Gov't success in ICT promotion*	140	2.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	133	3.3
9.02	ICT PCT patents, applications/million pop.	53	0.9
9.03	Impact of ICTs on new organizational models*	137	2.9
9.04	Knowledge-intensive jobs, % workforce	44	31.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	139	2.8
10.02	Internet access in schools*	92	3.7
10.03	ICT use & gov't efficiency*	142	2.4
10.04	E-Participation Index, 0–1 (best)	100	0.29

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Lesotho

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**124**	**3.0**
Networked Readiness Index 2014 (out of 148)	133	2.9
Networked Readiness Index 2013 (out of 144)	138	2.7
A. Environment subindex	**85**	**3.8**
1st pillar: Political and regulatory environment	67	3.7
2nd pillar: Business and innovation environment	93	3.9
B. Readiness subindex	**121**	**3.1**
3rd pillar: Infrastructure	130	2.0
4th pillar: Affordability	121	3.3
5th pillar: Skills	107	3.9
C. Usage subindex	**134**	**2.5**
6th pillar: Individual usage	124	2.0
7th pillar: Business usage	130	3.0
8th pillar: Government usage	135	2.7
D. Impact subindex	**133**	**2.5**
9th pillar: Economic impacts	138	2.2
10th pillar: Social impacts	128	2.8



The Networked Readiness Index in detail

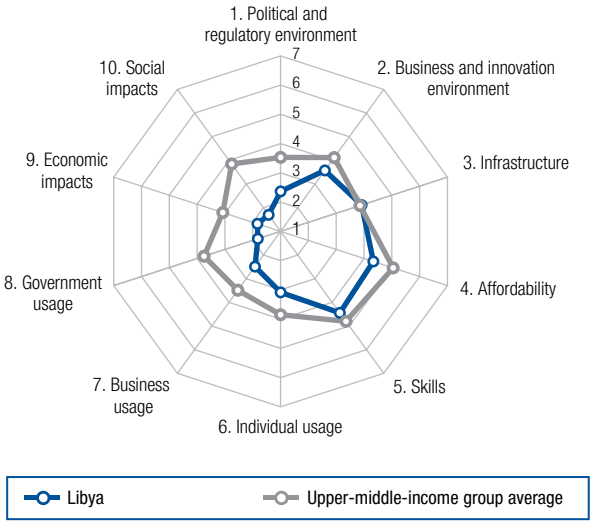
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	54	3.9
1.02	Laws relating to ICTs*	107	3.2
1.03	Judicial independence*	55	4.1
1.04	Efficiency of legal system in settling disputes*	70	3.7
1.05	Efficiency of legal system in challenging regs*	62	3.5
1.06	Intellectual property protection*	81	3.5
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	109	41
1.09	No. days to enforce a contract	93	615
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	134	3.5
2.02	Venture capital availability*	72	2.7
2.03	Total tax rate, % profits	6	13.6
2.04	No. days to start a business	112	29
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	93	4.8
2.07	Tertiary education gross enrollment rate, %	111	10.8
2.08	Quality of management schools*	91	3.9
2.09	Gov't procurement of advanced tech*	105	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	132	99.6
3.02	Mobile network coverage, % pop.	126	81.0
3.03	Int'l Internet bandwidth, kb/s per user	115	5.9
3.04	Secure Internet servers/million pop.	137	0.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	127	0.56
4.02	Fixed broadband Internet tariffs, PPP $/month	113	59.23
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	49	4.1
5.02	Quality of math & science education*	90	3.8
5.03	Secondary education gross enrollment rate, %	117	53.3
5.04	Adult literacy rate, %	87	79.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	110	86.3
6.02	Individuals using Internet, %	132	5.0
6.03	Households w/ personal computer, %	125	6.4
6.04	Households w/ Internet access, %	128	4.3
6.05	Fixed broadband Internet subs/100 pop.	126	0.1
6.06	Mobile broadband subs/100 pop.	104	7.4
6.07	Use of virtual social networks*	138	4.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	136	3.5
7.02	Capacity for innovation*	121	3.1
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	139	3.2
7.05	Business-to-consumer Internet use*	133	3.1
7.06	Extent of staff training*	75	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	130	2.9
8.02	Government Online Service Index, 0–1 (best)	121	0.16
8.03	Gov't success in ICT promotion*	132	3.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	131	3.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	132	3.0
9.04	Knowledge-intensive jobs, % workforce	109	6.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	126	3.2
10.02	Internet access in schools*	114	3.2
10.03	ICT use & gov't efficiency*	125	3.1
10.04	E-Participation Index, 0–1 (best)	126	0.14

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Libya

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**131**	**2.9**
Networked Readiness Index 2014 (out of 148)	138	2.7
Networked Readiness Index 2013 (out of 144)	132	2.8
A. Environment subindex	**133**	**3.0**
1st pillar: Political and regulatory environment	142	2.4
2nd pillar: Business and innovation environment	119	3.6
B. Readiness subindex	**94**	**4.2**
3rd pillar: Infrastructure	76	3.9
4th pillar: Affordability	98	4.3
5th pillar: Skills	93	4.4
C. Usage subindex	**136**	**2.5**
6th pillar: Individual usage	92	3.1
7th pillar: Business usage	141	2.5
8th pillar: Government usage	143	1.8
D. Impact subindex	**143**	**1.8**
9th pillar: Economic impacts	143	1.8
10th pillar: Social impacts	143	1.7



The Networked Readiness Index in detail

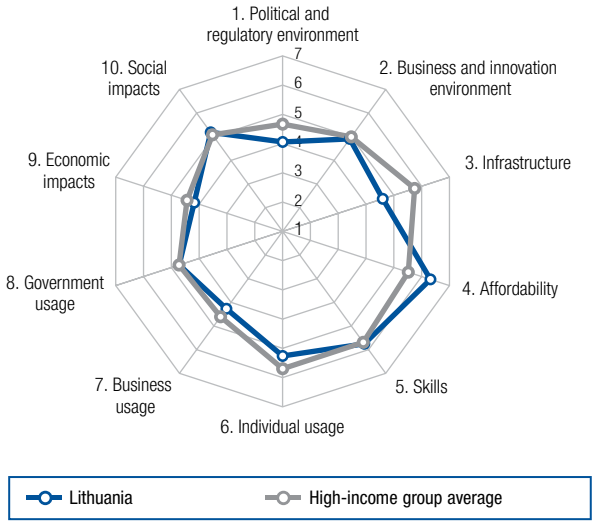
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	139	2.0
1.02	Laws relating to ICTs*	143	1.9
1.03	Judicial independence*	104	3.0
1.04	Efficiency of legal system in settling disputes*	134	2.4
1.05	Efficiency of legal system in challenging regs*	127	2.4
1.06	Intellectual property protection*	142	1.8
1.07	Software piracy rate, % software installed	102	89
1.08	No. procedures to enforce a contract	118	43
1.09	No. days to enforce a contract	107	690
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	139	3.1
2.02	Venture capital availability*	141	1.6
2.03	Total tax rate, % profits	43	31.5
2.04	No. days to start a business	123	35
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	140	3.7
2.07	Tertiary education gross enrollment rate, %	41	60.9
2.08	Quality of management schools*	141	2.3
2.09	Gov't procurement of advanced tech*	142	1.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	48	4,524.5
3.02	Mobile network coverage, % pop.	85	98.0
3.03	Int'l Internet bandwidth, kb/s per user	81	21.5
3.04	Secure Internet servers/million pop.	109	3.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	19	0.11
4.02	Fixed broadband Internet tariffs, PPP $/month	90	41.55
4.03	Internet & telephony competition, 0–2 (best)	136	0.00
	5th pillar: Skills		
5.01	Quality of educational system*	143	1.9
5.02	Quality of math & science education*	125	2.9
5.03	Secondary education gross enrollment rate, %	20	104.3
5.04	Adult literacy rate, %	68	91.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	10	165.0
6.02	Individuals using Internet, %	108	16.5
6.03	Households w/ personal computer, %	99	19.1
6.04	Households w/ Internet access, %	97	15.9
6.05	Fixed broadband Internet subs/100 pop.	108	1.0
6.06	Mobile broadband subs/100 pop.	n/a	n/a
6.07	Use of virtual social networks*	101	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	141	3.2
7.02	Capacity for innovation*	143	2.5
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	131	3.7
7.05	Business-to-consumer Internet use*	142	2.5
7.06	Extent of staff training*	142	2.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	143	2.1
8.02	Government Online Service Index, 0–1 (best)	138	0.02
8.03	Gov't success in ICT promotion*	143	2.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	143	2.1
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	143	2.4
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	143	1.9
10.02	Internet access in schools*	142	1.6
10.03	ICT use & gov't efficiency*	143	1.9
10.04	E-Participation Index, 0–1 (best)	138	0.06

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Lithuania

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**31**	**4.9**
Networked Readiness Index 2014 (out of 148)	31	4.8
Networked Readiness Index 2013 (out of 144)	32	4.7
A. Environment subindex	**42**	**4.5**
1st pillar: Political and regulatory environment	49	4.1
2nd pillar: Business and innovation environment	33	4.9
B. Readiness subindex	**31**	**5.6**
3rd pillar: Infrastructure	50	4.6
4th pillar: Affordability	22	6.3
5th pillar: Skills	25	5.7
C. Usage subindex	**32**	**4.7**
6th pillar: Individual usage	37	5.3
7th pillar: Business usage	31	4.3
8th pillar: Government usage	35	4.7
D. Impact subindex	**29**	**4.7**
9th pillar: Economic impacts	28	4.2
10th pillar: Social impacts	27	5.2



The Networked Readiness Index in detail

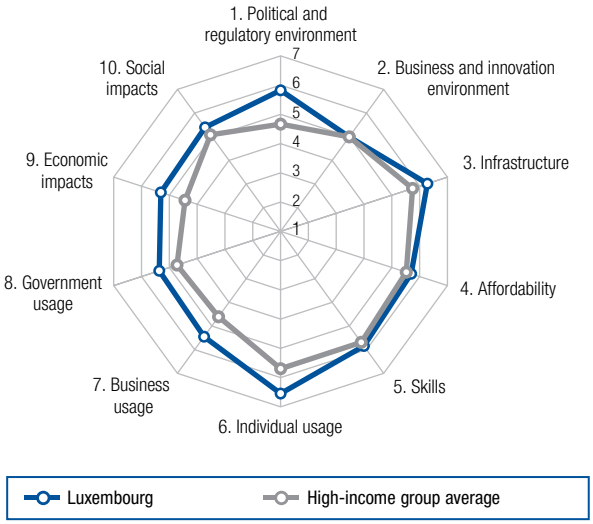
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	78	3.5
1.02	Laws relating to ICTs*	34	4.7
1.03	Judicial independence*	71	3.6
1.04	Efficiency of legal system in settling disputes*	84	3.5
1.05	Efficiency of legal system in challenging regs*	108	2.8
1.06	Intellectual property protection*	58	3.8
1.07	Software piracy rate, % software installed	44	53
1.08	No. procedures to enforce a contract	22	31
1.09	No. days to enforce a contract	12	300
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	32	5.7
2.02	Venture capital availability*	73	2.7
2.03	Total tax rate, % profits	93	42.6
2.04	No. days to start a business	9	4
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	22	5.6
2.07	Tertiary education gross enrollment rate, %	22	73.9
2.08	Quality of management schools*	60	4.4
2.09	Gov't procurement of advanced tech*	100	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	89	1,402.2
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	30	99.6
3.04	Secure Internet servers/million pop.	35	256.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	70	0.26
4.02	Fixed broadband Internet tariffs, PPP $/month	18	18.85
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	55	3.9
5.02	Quality of math & science education*	23	5.1
5.03	Secondary education gross enrollment rate, %	18	105.9
5.04	Adult literacy rate, %	4	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	24	151.3
6.02	Individuals using Internet, %	40	68.5
6.03	Households w/ personal computer, %	49	65.9
6.04	Households w/ Internet access, %	44	64.7
6.05	Fixed broadband Internet subs/100 pop.	35	22.0
6.06	Mobile broadband subs/100 pop.	46	48.2
6.07	Use of virtual social networks*	13	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	33	5.4
7.02	Capacity for innovation*	38	4.3
7.03	PCT patents, applications/million pop.	35	10.4
7.04	Business-to-business Internet use*	1	6.4
7.05	Business-to-consumer Internet use*	8	5.9
7.06	Extent of staff training*	50	4.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	62	4.0
8.02	Government Online Service Index, 0–1 (best)	21	0.76
8.03	Gov't success in ICT promotion*	41	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	27	5.0
9.02	ICT PCT patents, applications/million pop.	36	2.8
9.03	Impact of ICTs on new organizational models*	23	5.0
9.04	Knowledge-intensive jobs, % workforce	19	42.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	31	5.1
10.02	Internet access in schools*	23	5.9
10.03	ICT use & gov't efficiency*	36	4.8
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Luxembourg

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**9**	**5.6**
Networked Readiness Index 2014 (out of 148)	11	5.5
Networked Readiness Index 2013 (out of 144)	16	5.4
A. Environment subindex	**10**	**5.4**
1st pillar: Political and regulatory environment	3	5.8
2nd pillar: Business and innovation environment	27	5.0
B. Readiness subindex	**19**	**5.9**
3rd pillar: Infrastructure	18	6.3
4th pillar: Affordability	50	5.7
5th pillar: Skills	18	5.8
C. Usage subindex	**7**	**5.8**
6th pillar: Individual usage	6	6.5
7th pillar: Business usage	11	5.4
8th pillar: Government usage	11	5.4
D. Impact subindex	**12**	**5.3**
9th pillar: Economic impacts	8	5.3
10th pillar: Social impacts	20	5.4



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	6	5.6
1.02	Laws relating to ICTs*	2	5.9
1.03	Judicial independence*	12	6.0
1.04	Efficiency of legal system in settling disputes*	12	5.4
1.05	Efficiency of legal system in challenging regs*	6	5.1
1.06	Intellectual property protection*	3	6.1
1.07	Software piracy rate, % software installed	3	20
1.08	No. procedures to enforce a contract	5	26
1.09	No. days to enforce a contract	13	321
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	13	6.2
2.02	Venture capital availability*	10	4.2
2.03	Total tax rate, % profits	13	20.2
2.04	No. days to start a business	93	19
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	54	5.2
2.07	Tertiary education gross enrollment rate, %	95	18.2
2.08	Quality of management schools*	39	4.7
2.09	Gov't procurement of advanced tech*	6	4.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	45	5,164.4
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	1	6,445.8
3.04	Secure Internet servers/million pop.	4	2,190.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	74	0.26
4.02	Fixed broadband Internet tariffs, PPP $/month	66	31.58
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	25	4.6
5.02	Quality of math & science education*	28	4.8
5.03	Secondary education gross enrollment rate, %	30	101.0
5.04	Adult literacy rate, %	n/a	n/a[1]

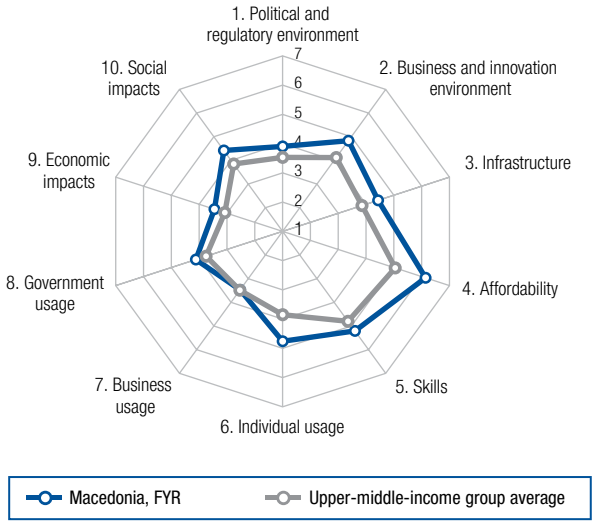
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	26	148.6
6.02	Individuals using Internet, %	6	93.8
6.03	Households w/ personal computer, %	4	94.3
6.04	Households w/ Internet access, %	5	94.5
6.05	Fixed broadband Internet subs/100 pop.	11	33.3
6.06	Mobile broadband subs/100 pop.	16	80.5
6.07	Use of virtual social networks*	33	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	8	6.0
7.02	Capacity for innovation*	9	5.3
7.03	PCT patents, applications/million pop.	13	129.6
7.04	Business-to-business Internet use*	11	5.8
7.05	Business-to-consumer Internet use*	19	5.6
7.06	Extent of staff training*	3	5.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	5	5.5
8.02	Government Online Service Index, 0–1 (best)	42	0.62
8.03	Gov't success in ICT promotion*	4	5.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	7	5.6
9.02	ICT PCT patents, applications/million pop.	19	29.0
9.03	Impact of ICTs on new organizational models*	17	5.2
9.04	Knowledge-intensive jobs, % workforce	1	59.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	7	5.8
10.02	Internet access in schools*	14	6.1
10.03	ICT use & gov't efficiency*	9	5.4
10.04	E-Participation Index, 0–1 (best)	54	0.55

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Macedonia, FYR

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**47**	**4.4**
Networked Readiness Index 2014 (out of 148)	57	4.2
Networked Readiness Index 2013 (out of 144)	67	3.9
A. Environment subindex	**46**	**4.4**
1st pillar: Political and regulatory environment	59	3.9
2nd pillar: Business and innovation environment	39	4.8
B. Readiness subindex	**46**	**5.3**
3rd pillar: Infrastructure	58	4.4
4th pillar: Affordability	29	6.1
5th pillar: Skills	64	5.2
C. Usage subindex	**52**	**4.1**
6th pillar: Individual usage	49	4.8
7th pillar: Business usage	85	3.5
8th pillar: Government usage	59	4.1
D. Impact subindex	**55**	**3.9**
9th pillar: Economic impacts	53	3.4
10th pillar: Social impacts	55	4.4



The Networked Readiness Index in detail

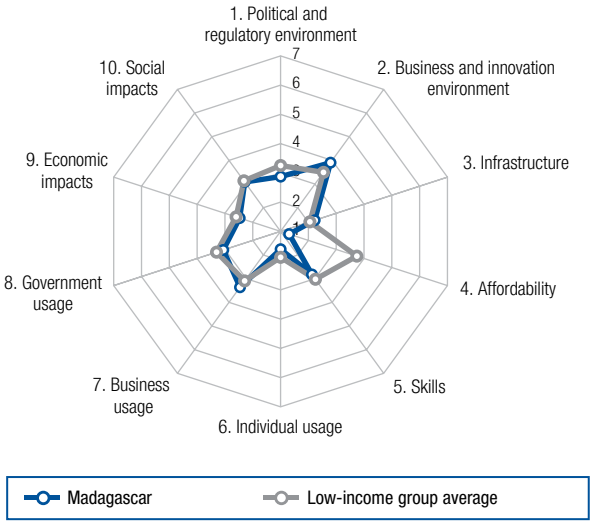
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	36	4.2
1.02	Laws relating to ICTs*	43	4.5
1.03	Judicial independence*	79	3.5
1.04	Efficiency of legal system in settling disputes*	53	4.0
1.05	Efficiency of legal system in challenging regs*	92	3.1
1.06	Intellectual property protection*	48	4.0
1.07	Software piracy rate, % software installed	62	65
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	89	604
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	69	4.9
2.02	Venture capital availability*	52	2.9
2.03	Total tax rate, % profits	1	7.4
2.04	No. days to start a business	2	2
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	43	5.4
2.07	Tertiary education gross enrollment rate, %	70	38.5
2.08	Quality of management schools*	90	3.9
2.09	Gov't procurement of advanced tech*	56	3.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	61	3,268.2
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	65	36.4
3.04	Secure Internet servers/million pop.	58	51.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	40	0.15
4.02	Fixed broadband Internet tariffs, PPP $/month	63	30.98
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	53	4.0
5.02	Quality of math & science education*	48	4.4
5.03	Secondary education gross enrollment rate, %	89	82.8
5.04	Adult literacy rate, %	29	97.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	82	106.2
6.02	Individuals using Internet, %	50	61.2
6.03	Households w/ personal computer, %	45	68.3
6.04	Households w/ Internet access, %	49	61.9
6.05	Fixed broadband Internet subs/100 pop.	47	15.1
6.06	Mobile broadband subs/100 pop.	58	38.0
6.07	Use of virtual social networks*	12	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	105	4.2
7.02	Capacity for innovation*	91	3.5
7.03	PCT patents, applications/million pop.	80	0.6
7.04	Business-to-business Internet use*	55	5.0
7.05	Business-to-consumer Internet use*	71	4.4
7.06	Extent of staff training*	81	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	19	4.9
8.02	Government Online Service Index, 0–1 (best)	107	0.24
8.03	Gov't success in ICT promotion*	19	5.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	52	4.6
9.02	ICT PCT patents, applications/million pop.	81	0.1
9.03	Impact of ICTs on new organizational models*	62	4.3
9.04	Knowledge-intensive jobs, % workforce	51	27.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	33	5.0
10.02	Internet access in schools*	33	5.5
10.03	ICT use & gov't efficiency*	27	4.9
10.04	E-Participation Index, 0–1 (best)	113	0.22

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Madagascar

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**135**	**2.7**
Networked Readiness Index 2014 (out of 148)	139	2.7
Networked Readiness Index 2013 (out of 144)	137	2.7
A. Environment subindex	**121**	**3.4**
1st pillar: Political and regulatory environment	126	2.9
2nd pillar: Business and innovation environment	95	3.9
B. Readiness subindex	**142**	**2.1**
3rd pillar: Infrastructure	126	2.2
4th pillar: Affordability	140	1.3
5th pillar: Skills	129	2.8
C. Usage subindex	**130**	**2.7**
6th pillar: Individual usage	138	1.6
7th pillar: Business usage	98	3.4
8th pillar: Government usage	122	3.1
D. Impact subindex	**124**	**2.8**
9th pillar: Economic impacts	129	2.5
10th pillar: Social impacts	121	3.1



The Networked Readiness Index in detail

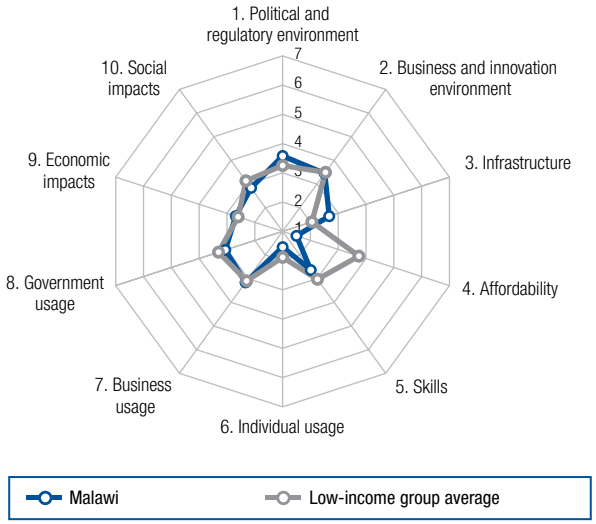
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	123	2.6
1.02	Laws relating to ICTs*	125	2.9
1.03	Judicial independence*	133	2.2
1.04	Efficiency of legal system in settling disputes*	116	2.9
1.05	Efficiency of legal system in challenging regs*	117	2.7
1.06	Intellectual property protection*	114	2.9
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	121	871
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	103	4.3
2.02	Venture capital availability*	89	2.5
2.03	Total tax rate, % profits	63	35.1
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	90	4.8
2.07	Tertiary education gross enrollment rate, %	132	4.2
2.08	Quality of management schools*	93	3.8
2.09	Gov't procurement of advanced tech*	83	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	138	57.4
3.02	Mobile network coverage, % pop.	111	92.2
3.03	Int'l Internet bandwidth, kb/s per user	142	0.4
3.04	Secure Internet servers/million pop.	136	0.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	139	0.83
4.02	Fixed broadband Internet tariffs, PPP $/month	135	178.53
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	114	3.0
5.02	Quality of math & science education*	93	3.7
5.03	Secondary education gross enrollment rate, %	128	38.0
5.04	Adult literacy rate, %	103	64.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	138	36.9
6.02	Individuals using Internet, %	138	2.2
6.03	Households w/ personal computer, %	134	3.7
6.04	Households w/ Internet access, %	133	3.7
6.05	Fixed broadband Internet subs/100 pop.	135	0.1
6.06	Mobile broadband subs/100 pop.	114	3.1
6.07	Use of virtual social networks*	109	5.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	87	4.4
7.02	Capacity for innovation*	83	3.6
7.03	PCT patents, applications/million pop.	107	0.0
7.04	Business-to-business Internet use*	105	4.2
7.05	Business-to-consumer Internet use*	91	4.1
7.06	Extent of staff training*	102	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	119	3.0
8.02	Government Online Service Index, 0–1 (best)	107	0.24
8.03	Gov't success in ICT promotion*	105	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	104	3.8
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	98	3.8
9.04	Knowledge-intensive jobs, % workforce	116	2.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	111	3.5
10.02	Internet access in schools*	134	2.4
10.03	ICT use & gov't efficiency*	114	3.4
10.04	E-Participation Index, 0–1 (best)	85	0.35

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Malawi

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**133**	**2.8**
Networked Readiness Index 2014 (out of 148)	132	2.9
Networked Readiness Index 2013 (out of 144)	129	2.8
A. Environment subindex	**108**	**3.5**
1st pillar: Political and regulatory environment	80	3.6
2nd pillar: Business and innovation environment	128	3.4
B. Readiness subindex	**140**	**2.3**
3rd pillar: Infrastructure	111	2.7
4th pillar: Affordability	139	1.5
5th pillar: Skills	131	2.6
C. Usage subindex	**132**	**2.6**
6th pillar: Individual usage	141	1.5
7th pillar: Business usage	115	3.2
8th pillar: Government usage	121	3.1
D. Impact subindex	**125**	**2.8**
9th pillar: Economic impacts	115	2.7
10th pillar: Social impacts	127	2.8



The Networked Readiness Index in detail

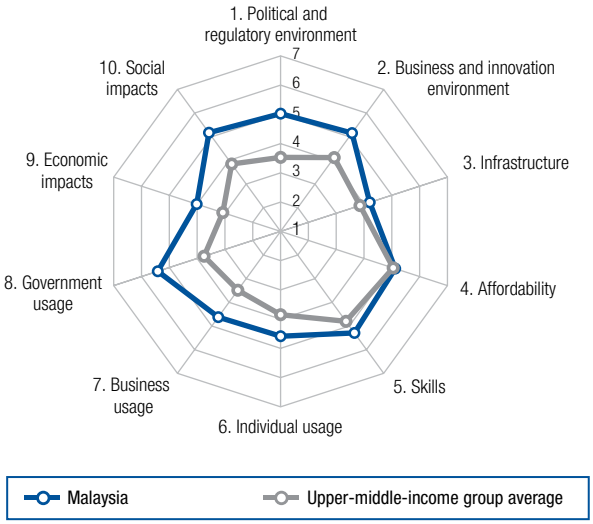
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	85	3.3
1.02	Laws relating to ICTs*	117	3.0
1.03	Judicial independence*	59	4.0
1.04	Efficiency of legal system in settling disputes*	72	3.7
1.05	Efficiency of legal system in challenging regs*	49	3.6
1.06	Intellectual property protection*	99	3.1
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	113	42
1.09	No. days to enforce a contract	41	432
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	129	3.8
2.02	Venture capital availability*	112	2.2
2.03	Total tax rate, % profits	64	35.5
2.04	No. days to start a business	125	38
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	76	4.9
2.07	Tertiary education gross enrollment rate, %	139	0.8
2.08	Quality of management schools*	127	3.2
2.09	Gov't procurement of advanced tech*	109	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	128	131.4
3.02	Mobile network coverage, % pop.	58	99.6
3.03	Int'l Internet bandwidth, kb/s per user	120	4.7
3.04	Secure Internet servers/million pop.	131	0.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	137	0.73
4.02	Fixed broadband Internet tariffs, PPP $/month	137	189.03
4.03	Internet & telephony competition, 0–2 (best)	113	1.22
	5th pillar: Skills		
5.01	Quality of educational system*	99	3.2
5.02	Quality of math & science education*	119	3.0
5.03	Secondary education gross enrollment rate, %	131	34.2
5.04	Adult literacy rate, %	101	65.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	140	32.3
6.02	Individuals using Internet, %	130	5.4
6.03	Households w/ personal computer, %	130	4.5
6.04	Households w/ Internet access, %	116	6.0
6.05	Fixed broadband Internet subs/100 pop.	136	0.0
6.06	Mobile broadband subs/100 pop.	112	3.9
6.07	Use of virtual social networks*	132	4.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	125	3.8
7.02	Capacity for innovation*	116	3.2
7.03	PCT patents, applications/million pop.	116	0.0
7.04	Business-to-business Internet use*	112	4.1
7.05	Business-to-consumer Internet use*	127	3.3
7.06	Extent of staff training*	65	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	98	3.5
8.02	Government Online Service Index, 0–1 (best)	117	0.17
8.03	Gov't success in ICT promotion*	104	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	121	3.6
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	114	3.5
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	128	3.1
10.02	Internet access in schools*	128	2.7
10.03	ICT use & gov't efficiency*	122	3.1
10.04	E-Participation Index, 0–1 (best)	111	0.24

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Malaysia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**32**	**4.9**
Networked Readiness Index 2014 (out of 148)	30	4.8
Networked Readiness Index 2013 (out of 144)	30	4.8
A. Environment subindex	**20**	**5.1**
1st pillar: Political and regulatory environment	23	5.0
2nd pillar: Business and innovation environment	21	5.1
B. Readiness subindex	**63**	**4.9**
3rd pillar: Infrastructure	70	4.2
4th pillar: Affordability	79	5.1
5th pillar: Skills	57	5.3
C. Usage subindex	**30**	**4.9**
6th pillar: Individual usage	57	4.6
7th pillar: Business usage	26	4.6
8th pillar: Government usage	9	5.4
D. Impact subindex	**30**	**4.6**
9th pillar: Economic impacts	31	4.0
10th pillar: Social impacts	28	5.2



The Networked Readiness Index in detail

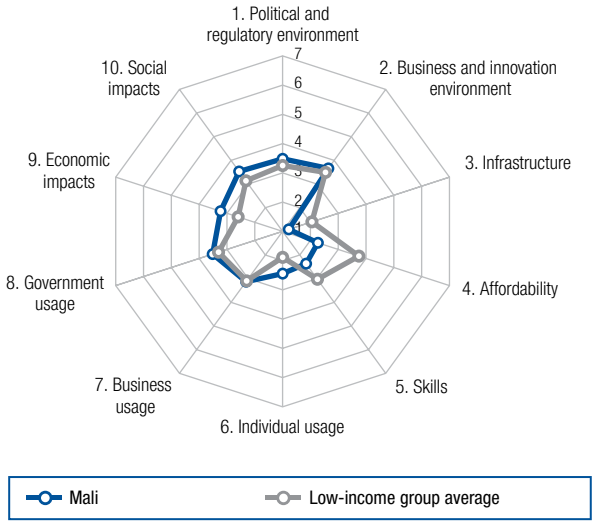
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	12	5.2
1.02	Laws relating to ICTs*	8	5.4
1.03	Judicial independence*	36	4.9
1.04	Efficiency of legal system in settling disputes*	14	5.3
1.05	Efficiency of legal system in challenging regs*	13	4.8
1.06	Intellectual property protection*	25	5.2
1.07	Software piracy rate, % software installed	47	54
1.08	No. procedures to enforce a contract	14	29
1.09	No. days to enforce a contract	36	425
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	33	5.7
2.02	Venture capital availability*	2	4.6
2.03	Total tax rate, % profits	77	39.2
2.04	No. days to start a business	23	6
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	34	5.5
2.07	Tertiary education gross enrollment rate, %	72	36.0
2.08	Quality of management schools*	25	5.1
2.09	Gov't procurement of advanced tech*	3	5.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	49	4,523.5
3.02	Mobile network coverage, % pop.	102	95.2
3.03	Int'l Internet bandwidth, kb/s per user	69	29.5
3.04	Secure Internet servers/million pop.	55	66.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	60	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	97	46.40
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	10	5.3
5.02	Quality of math & science education*	16	5.2
5.03	Secondary education gross enrollment rate, %	106	67.2
5.04	Adult literacy rate, %	53	94.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	32	144.7
6.02	Individuals using Internet, %	41	67.0
6.03	Households w/ personal computer, %	50	65.1
6.04	Households w/ Internet access, %	46	64.7
6.05	Fixed broadband Internet subs/100 pop.	70	8.2
6.06	Mobile broadband subs/100 pop.	94	12.5
6.07	Use of virtual social networks*	37	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	24	5.6
7.02	Capacity for innovation*	13	5.2
7.03	PCT patents, applications/million pop.	34	11.5
7.04	Business-to-business Internet use*	21	5.6
7.05	Business-to-consumer Internet use*	15	5.7
7.06	Extent of staff training*	4	5.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	6	5.5
8.02	Government Online Service Index, 0–1 (best)	31	0.68
8.03	Gov't success in ICT promotion*	6	5.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	10	5.5
9.02	ICT PCT patents, applications/million pop.	31	6.0
9.03	Impact of ICTs on new organizational models*	4	5.5
9.04	Knowledge-intensive jobs, % workforce	58	24.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	15	5.5
10.02	Internet access in schools*	34	5.4
10.03	ICT use & gov't efficiency*	6	5.6
10.04	E-Participation Index, 0–1 (best)	59	0.53

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mali

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**127**	**3.0**
Networked Readiness Index 2014 (out of 148)	127	3.0
Networked Readiness Index 2013 (out of 144)	122	3.0
A. Environment subindex	**105**	**3.6**
1st pillar: Political and regulatory environment	91	3.5
2nd pillar: Business and innovation environment	116	3.7
B. Readiness subindex	**143**	**1.9**
3rd pillar: Infrastructure	138	1.2
4th pillar: Affordability	135	2.3
5th pillar: Skills	136	2.4
C. Usage subindex	**112**	**3.0**
6th pillar: Individual usage	113	2.4
7th pillar: Business usage	117	3.1
8th pillar: Government usage	99	3.5
D. Impact subindex	**87**	**3.4**
9th pillar: Economic impacts	68	3.2
10th pillar: Social impacts	98	3.5



The Networked Readiness Index in detail

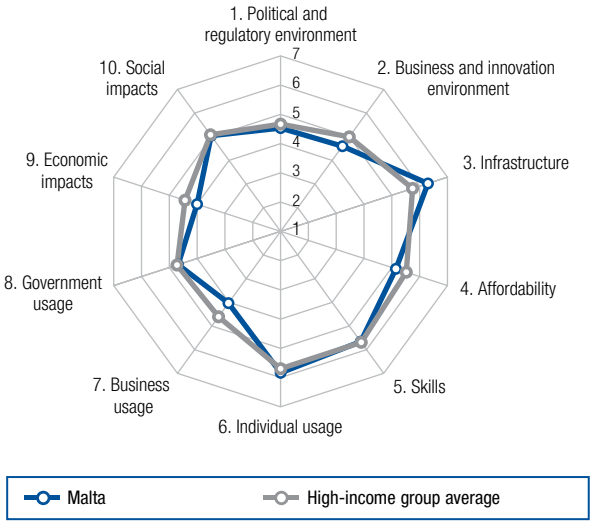
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	92	3.3
1.02	Laws relating to ICTs*	96	3.5
1.03	Judicial independence*	103	3.1
1.04	Efficiency of legal system in settling disputes*	87	3.4
1.05	Efficiency of legal system in challenging regs*	58	3.5
1.06	Intellectual property protection*	108	3.0
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	94	620
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	105	4.2
2.02	Venture capital availability*	94	2.4
2.03	Total tax rate, % profits	106	48.3
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	97	4.7
2.07	Tertiary education gross enrollment rate, %	122	7.5
2.08	Quality of management schools*	120	3.4
2.09	Gov't procurement of advanced tech*	58	3.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	140	37.2
3.02	Mobile network coverage, % pop.	139	20.0
3.03	Int'l Internet bandwidth, kb/s per user	116	5.9
3.04	Secure Internet servers/million pop.	129	1.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	122	0.50
4.02	Fixed broadband Internet tariffs, PPP $/month	129	109.67
4.03	Internet & telephony competition, 0–2 (best)	116	1.20
	5th pillar: Skills		
5.01	Quality of educational system*	110	3.0
5.02	Quality of math & science education*	114	3.1
5.03	Secondary education gross enrollment rate, %	124	44.5
5.04	Adult literacy rate, %	117	38.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	44	129.1
6.02	Individuals using Internet, %	136	2.3
6.03	Households w/ personal computer, %	115	9.3
6.04	Households w/ Internet access, %	135	3.0
6.05	Fixed broadband Internet subs/100 pop.	139	0.0
6.06	Mobile broadband subs/100 pop.	120	1.8
6.07	Use of virtual social networks*	121	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	107	4.1
7.02	Capacity for innovation*	112	3.3
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	91	4.5
7.05	Business-to-consumer Internet use*	122	3.4
7.06	Extent of staff training*	125	3.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	54	4.1
8.02	Government Online Service Index, 0–1 (best)	128	0.13
8.03	Gov't success in ICT promotion*	40	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	57	4.5
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	69	4.1
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	54	4.5
10.02	Internet access in schools*	109	3.4
10.03	ICT use & gov't efficiency*	58	4.3
10.04	E-Participation Index, 0–1 (best)	123	0.16

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Malta

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**29**	**4.9**
Networked Readiness Index 2014 (out of 148)	28	5.0
Networked Readiness Index 2013 (out of 144)	28	4.9
A. Environment subindex	**36**	**4.6**
1st pillar: Political and regulatory environment	30	4.5
2nd pillar: Business and innovation environment	51	4.6
B. Readiness subindex	**25**	**5.7**
3rd pillar: Infrastructure	16	6.3
4th pillar: Affordability	76	5.1
5th pillar: Skills	29	5.7
C. Usage subindex	**31**	**4.8**
6th pillar: Individual usage	23	5.8
7th pillar: Business usage	37	4.0
8th pillar: Government usage	38	4.7
D. Impact subindex	**31**	**4.5**
9th pillar: Economic impacts	33	4.0
10th pillar: Social impacts	33	5.0



The Networked Readiness Index in detail

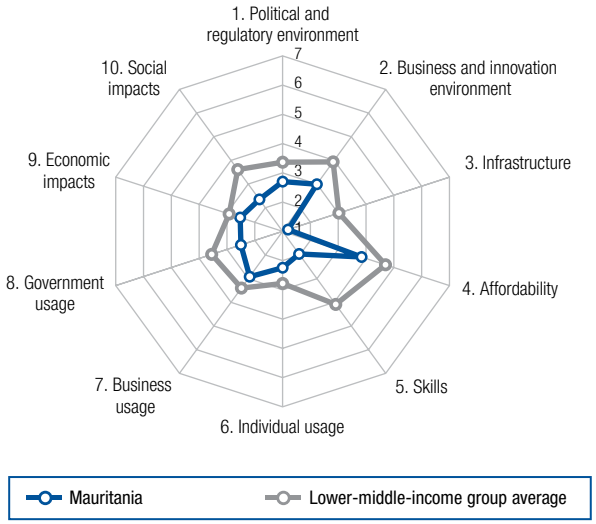
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	18	4.9
1.02	Laws relating to ICTs*	27	4.9
1.03	Judicial independence*	40	4.6
1.04	Efficiency of legal system in settling disputes*	37	4.3
1.05	Efficiency of legal system in challenging regs*	50	3.6
1.06	Intellectual property protection*	36	4.5
1.07	Software piracy rate, % software installed	31	44
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	55	505
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	34	5.7
2.02	Venture capital availability*	40	3.1
2.03	Total tax rate, % profits	89	41.6
2.04	No. days to start a business	122	35
2.05	No. procedures to start a business	127	11
2.06	Intensity of local competition*	3	6.1
2.07	Tertiary education gross enrollment rate, %	66	41.2
2.08	Quality of management schools*	31	4.9
2.09	Gov't procurement of advanced tech*	19	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	40	5,270.6
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	3	1,204.6
3.04	Secure Internet servers/million pop.	9	1,469.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	123	0.51
4.02	Fixed broadband Internet tariffs, PPP $/month	33	23.63
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	16	5.0
5.02	Quality of math & science education*	13	5.3
5.03	Secondary education gross enrollment rate, %	80	86.3
5.04	Adult literacy rate, %	56	94.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	43	129.8
6.02	Individuals using Internet, %	39	68.9
6.03	Households w/ personal computer, %	27	80.3
6.04	Households w/ Internet access, %	25	78.8
6.05	Fixed broadband Internet subs/100 pop.	13	32.8
6.06	Mobile broadband subs/100 pop.	37	56.8
6.07	Use of virtual social networks*	14	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	38	5.2
7.02	Capacity for innovation*	47	4.0
7.03	PCT patents, applications/million pop.	37	9.8
7.04	Business-to-business Internet use*	32	5.5
7.05	Business-to-consumer Internet use*	42	5.0
7.06	Extent of staff training*	40	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	10	5.2
8.02	Government Online Service Index, 0–1 (best)	78	0.40
8.03	Gov't success in ICT promotion*	8	5.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	37	4.9
9.02	ICT PCT patents, applications/million pop.	32	3.6
9.03	Impact of ICTs on new organizational models*	41	4.6
9.04	Knowledge-intensive jobs, % workforce	22	40.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	16	5.4
10.02	Internet access in schools*	26	5.8
10.03	ICT use & gov't efficiency*	17	5.0
10.04	E-Participation Index, 0–1 (best)	69	0.47

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mauritania

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**138**	**2.5**
Networked Readiness Index 2014 (out of 148)	142	2.6
Networked Readiness Index 2013 (out of 144)	135	2.7
A. Environment subindex	**138**	**2.8**
1st pillar: Political and regulatory environment	131	2.7
2nd pillar: Business and innovation environment	139	3.0
B. Readiness subindex	**139**	**2.3**
3rd pillar: Infrastructure	139	1.2
4th pillar: Affordability	109	3.8
5th pillar: Skills	142	2.0
C. Usage subindex	**133**	**2.6**
6th pillar: Individual usage	117	2.2
7th pillar: Business usage	132	2.9
8th pillar: Government usage	138	2.5
D. Impact subindex	**137**	**2.4**
9th pillar: Economic impacts	124	2.5
10th pillar: Social impacts	139	2.3



The Networked Readiness Index in detail

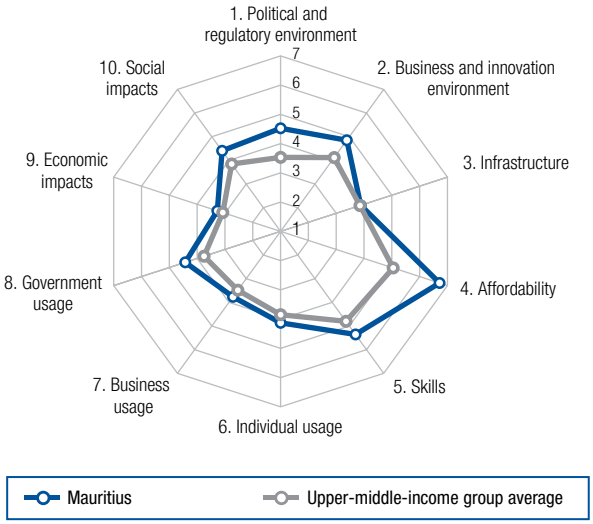
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	130	2.3
1.02	Laws relating to ICTs*	119	3.0
1.03	Judicial independence*	124	2.3
1.04	Efficiency of legal system in settling disputes*	137	2.4
1.05	Efficiency of legal system in challenging regs*	139	2.1
1.06	Intellectual property protection*	140	2.2
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	130	46
1.09	No. days to enforce a contract	17	370
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	86	4.5
2.02	Venture capital availability*	134	1.9
2.03	Total tax rate, % profits	138	71.3
2.04	No. days to start a business	50	9
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	130	4.1
2.07	Tertiary education gross enrollment rate, %	128	5.1
2.08	Quality of management schools*	135	2.8
2.09	Gov't procurement of advanced tech*	125	2.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	122	194.2
3.02	Mobile network coverage, % pop.	135	62.0
3.03	Int'l Internet bandwidth, kb/s per user	138	2.6
3.04	Secure Internet servers/million pop.	116	2.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	111	0.43
4.02	Fixed broadband Internet tariffs, PPP $/month	112	58.36
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	127	2.7
5.02	Quality of math & science education*	123	2.9
5.03	Secondary education gross enrollment rate, %	137	26.8
5.04	Adult literacy rate, %	113	52.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	90	102.5
6.02	Individuals using Internet, %	128	6.2
6.03	Households w/ personal computer, %	132	4.0
6.04	Households w/ Internet access, %	128	4.3
6.05	Fixed broadband Internet subs/100 pop.	120	0.2
6.06	Mobile broadband subs/100 pop.	108	5.4
6.07	Use of virtual social networks*	112	4.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	104	4.2
7.02	Capacity for innovation*	130	2.9
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	82	4.6
7.05	Business-to-consumer Internet use*	132	3.1
7.06	Extent of staff training*	143	2.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	134	2.8
8.02	Government Online Service Index, 0–1 (best)	135	0.05
8.03	Gov't success in ICT promotion*	118	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	130	3.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	128	3.3
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	135	2.9
10.02	Internet access in schools*	137	2.1
10.03	ICT use & gov't efficiency*	132	2.9
10.04	E-Participation Index, 0–1 (best)	134	0.08

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mauritius

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**45**	**4.5**
Networked Readiness Index 2014 (out of 148)	48	4.3
Networked Readiness Index 2013 (out of 144)	55	4.1
A. Environment subindex	**33**	**4.7**
1st pillar: Political and regulatory environment	31	4.5
2nd pillar: Business and innovation environment	38	4.8
B. Readiness subindex	**43**	**5.3**
3rd pillar: Infrastructure	77	3.9
4th pillar: Affordability	3	6.7
5th pillar: Skills	50	5.4
C. Usage subindex	**53**	**4.1**
6th pillar: Individual usage	66	4.1
7th pillar: Business usage	57	3.8
8th pillar: Government usage	46	4.4
D. Impact subindex	**61**	**3.8**
9th pillar: Economic impacts	65	3.3
10th pillar: Social impacts	56	4.4



The Networked Readiness Index in detail

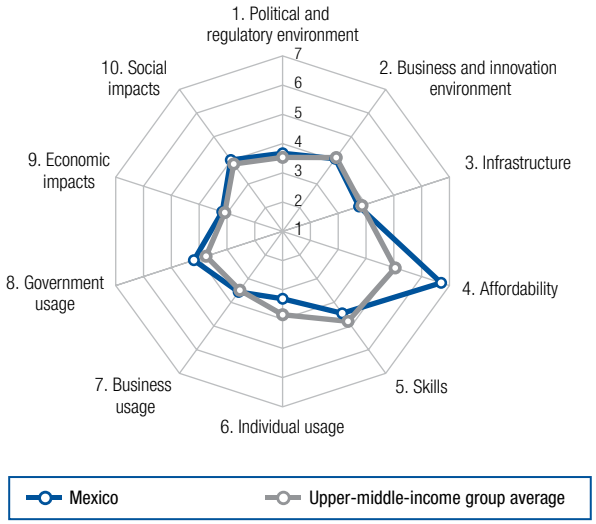
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	21	4.7
1.02	Laws relating to ICTs*	46	4.4
1.03	Judicial independence*	31	5.1
1.04	Efficiency of legal system in settling disputes*	22	4.9
1.05	Efficiency of legal system in challenging regs*	30	4.1
1.06	Intellectual property protection*	41	4.2
1.07	Software piracy rate, % software installed	49	55
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	65	519
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	48	5.2
2.02	Venture capital availability*	41	3.1
2.03	Total tax rate, % profits	23	24.5
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	24	5.6
2.07	Tertiary education gross enrollment rate, %	68	40.3
2.08	Quality of management schools*	55	4.4
2.09	Gov't procurement of advanced tech*	66	3.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	82	2,043.5
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	76	24.6
3.04	Secure Internet servers/million pop.	46	127.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	47	0.18
4.02	Fixed broadband Internet tariffs, PPP $/month	2	12.18
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	42	4.2
5.02	Quality of math & science education*	40	4.6
5.03	Secondary education gross enrollment rate, %	50	95.9
5.04	Adult literacy rate, %	69	90.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	53	123.2
6.02	Individuals using Internet, %	85	39.0
6.03	Households w/ personal computer, %	68	48.5
6.04	Households w/ Internet access, %	68	44.5
6.05	Fixed broadband Internet subs/100 pop.	57	12.5
6.06	Mobile broadband subs/100 pop.	72	28.7
6.07	Use of virtual social networks*	64	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	44	5.0
7.02	Capacity for innovation*	50	4.0
7.03	PCT patents, applications/million pop.	62	1.5
7.04	Business-to-business Internet use*	76	4.7
7.05	Business-to-consumer Internet use*	101	4.0
7.06	Extent of staff training*	35	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	30	4.6
8.02	Government Online Service Index, 0–1 (best)	67	0.47
8.03	Gov't success in ICT promotion*	24	4.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	59	4.5
9.02	ICT PCT patents, applications/million pop.	55	0.8
9.03	Impact of ICTs on new organizational models*	55	4.4
9.04	Knowledge-intensive jobs, % workforce	74	20.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	49	4.6
10.02	Internet access in schools*	65	4.4
10.03	ICT use & gov't efficiency*	48	4.4
10.04	E-Participation Index, 0–1 (best)	59	0.53

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mexico

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**69**	**4.0**
Networked Readiness Index 2014 (out of 148)	79	3.9
Networked Readiness Index 2013 (out of 144)	63	3.9
A. Environment subindex	**81**	**3.9**
1st pillar: Political and regulatory environment	70	3.7
2nd pillar: Business and innovation environment	87	4.1
B. Readiness subindex	**58**	**5.0**
3rd pillar: Infrastructure	81	3.7
4th pillar: Affordability	4	6.7
5th pillar: Skills	92	4.5
C. Usage subindex	**79**	**3.7**
6th pillar: Individual usage	87	3.3
7th pillar: Business usage	72	3.6
8th pillar: Government usage	56	4.2
D. Impact subindex	**72**	**3.6**
9th pillar: Economic impacts	72	3.2
10th pillar: Social impacts	76	4.0



The Networked Readiness Index in detail

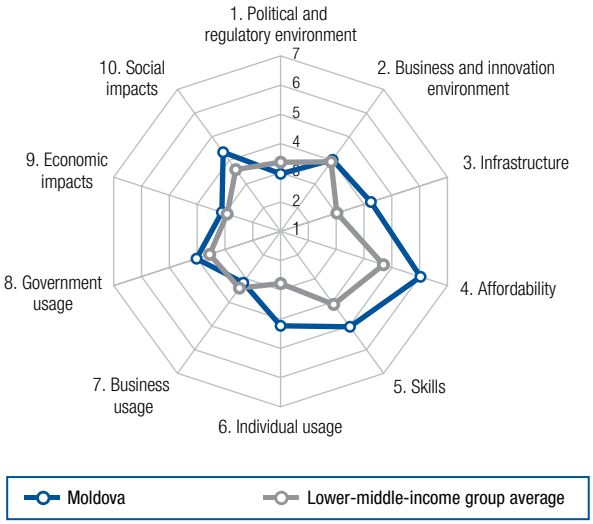
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	103	3.1
1.02	Laws relating to ICTs*	62	4.0
1.03	Judicial independence*	98	3.2
1.04	Efficiency of legal system in settling disputes*	98	3.3
1.05	Efficiency of legal system in challenging regs*	88	3.1
1.06	Intellectual property protection*	82	3.5
1.07	Software piracy rate, % software installed	47	54
1.08	No. procedures to enforce a contract	69	37
1.09	No. days to enforce a contract	22	389
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	66	4.9
2.02	Venture capital availability*	86	2.5
2.03	Total tax rate, % profits	117	51.8
2.04	No. days to start a business	35	6
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	64	5.1
2.07	Tertiary education gross enrollment rate, %	81	29.0
2.08	Quality of management schools*	70	4.2
2.09	Gov't procurement of advanced tech*	76	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	74	2,449.5
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	79	22.6
3.04	Secure Internet servers/million pop.	73	26.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	26	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	25	21.14
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	122	2.8
5.02	Quality of math & science education*	128	2.7
5.03	Secondary education gross enrollment rate, %	83	85.7
5.04	Adult literacy rate, %	48	95.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	111	85.8
6.02	Individuals using Internet, %	79	43.5
6.03	Households w/ personal computer, %	80	35.8
6.04	Households w/ Internet access, %	81	30.7
6.05	Fixed broadband Internet subs/100 pop.	61	10.9
6.06	Mobile broadband subs/100 pop.	92	13.5
6.07	Use of virtual social networks*	96	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	70	4.6
7.02	Capacity for innovation*	72	3.7
7.03	PCT patents, applications/million pop.	59	1.8
7.04	Business-to-business Internet use*	74	4.7
7.05	Business-to-consumer Internet use*	82	4.2
7.06	Extent of staff training*	74	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	84	3.7
8.02	Government Online Service Index, 0–1 (best)	35	0.66
8.03	Gov't success in ICT promotion*	93	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	67	4.4
9.02	ICT PCT patents, applications/million pop.	68	0.3
9.03	Impact of ICTs on new organizational models*	63	4.3
9.04	Knowledge-intensive jobs, % workforce	81	19.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	91	3.8
10.02	Internet access in schools*	93	3.7
10.03	ICT use & gov't efficiency*	81	3.9
10.04	E-Participation Index, 0–1 (best)	45	0.61

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Moldova

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**68**	**4.0**
Networked Readiness Index 2014 (out of 148)	77	3.9
Networked Readiness Index 2013 (out of 144)	77	3.8
A. Environment subindex	**112**	**3.5**
1st pillar: Political and regulatory environment	124	3.0
2nd pillar: Business and innovation environment	91	4.0
B. Readiness subindex	**53**	**5.1**
3rd pillar: Infrastructure	69	4.2
4th pillar: Affordability	37	6.0
5th pillar: Skills	71	5.0
C. Usage subindex	**71**	**3.8**
6th pillar: Individual usage	64	4.2
7th pillar: Business usage	114	3.2
8th pillar: Government usage	65	4.0
D. Impact subindex	**67**	**3.7**
9th pillar: Economic impacts	79	3.1
10th pillar: Social impacts	60	4.3



The Networked Readiness Index in detail

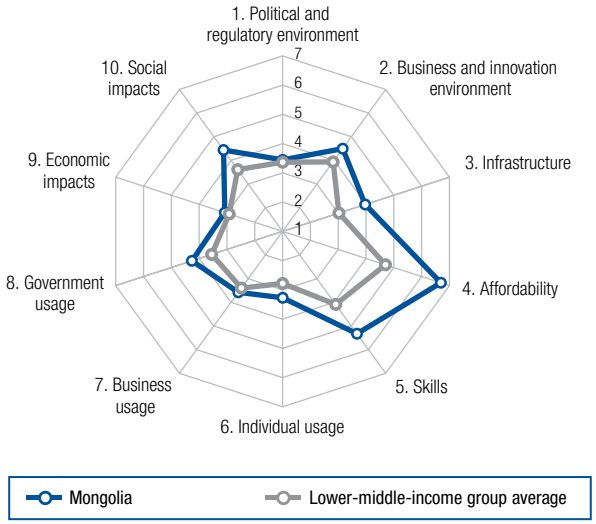
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	114	2.8
1.02	Laws relating to ICTs*	77	3.9
1.03	Judicial independence*	140	2.0
1.04	Efficiency of legal system in settling disputes*	126	2.7
1.05	Efficiency of legal system in challenging regs*	133	2.3
1.06	Intellectual property protection*	117	2.8
1.07	Software piracy rate, % software installed	103	90
1.08	No. procedures to enforce a contract	22	31
1.09	No. days to enforce a contract	78	567
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	96	4.3
2.02	Venture capital availability*	116	2.2
2.03	Total tax rate, % profits	79	39.7
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	99	4.7
2.07	Tertiary education gross enrollment rate, %	69	40.1
2.08	Quality of management schools*	125	3.2
2.09	Gov't procurement of advanced tech*	126	2.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	86	1,625.3
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	24	115.8
3.04	Secure Internet servers/million pop.	75	24.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	62	0.24
4.02	Fixed broadband Internet tariffs, PPP $/month	44	26.51
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	103	3.2
5.02	Quality of math & science education*	80	4.0
5.03	Secondary education gross enrollment rate, %	73	88.2
5.04	Adult literacy rate, %	14	99.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	83	106.0
6.02	Individuals using Internet, %	70	48.8
6.03	Households w/ personal computer, %	66	49.5
6.04	Households w/ Internet access, %	64	46.0
6.05	Fixed broadband Internet subs/100 pop.	52	13.4
6.06	Mobile broadband subs/100 pop.	47	47.2
6.07	Use of virtual social networks*	73	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	109	4.1
7.02	Capacity for innovation*	127	3.0
7.03	PCT patents, applications/million pop.	67	1.2
7.04	Business-to-business Internet use*	93	4.4
7.05	Business-to-consumer Internet use*	85	4.2
7.06	Extent of staff training*	119	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	87	3.7
8.02	Government Online Service Index, 0–1 (best)	60	0.53
8.03	Gov't success in ICT promotion*	67	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	115	3.7
9.02	ICT PCT patents, applications/million pop.	62	0.4
9.03	Impact of ICTs on new organizational models*	106	3.6
9.04	Knowledge-intensive jobs, % workforce	48	30.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	88	3.8
10.02	Internet access in schools*	49	4.9
10.03	ICT use & gov't efficiency*	80	3.9
10.04	E-Participation Index, 0–1 (best)	40	0.63

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mongolia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**61**	**4.2**
Networked Readiness Index 2014 (out of 148)	61	4.1
Networked Readiness Index 2013 (out of 144)	59	4.0
A. Environment subindex	**68**	**4.0**
1st pillar: Political and regulatory environment	94	3.4
2nd pillar: Business and innovation environment	60	4.5
B. Readiness subindex	**42**	**5.3**
3rd pillar: Infrastructure	75	4.0
4th pillar: Affordability	6	6.7
5th pillar: Skills	55	5.3
C. Usage subindex	**78**	**3.7**
6th pillar: Individual usage	88	3.3
7th pillar: Business usage	69	3.6
8th pillar: Government usage	53	4.3
D. Impact subindex	**65**	**3.8**
9th pillar: Economic impacts	83	3.1
10th pillar: Social impacts	54	4.4



The Networked Readiness Index in detail

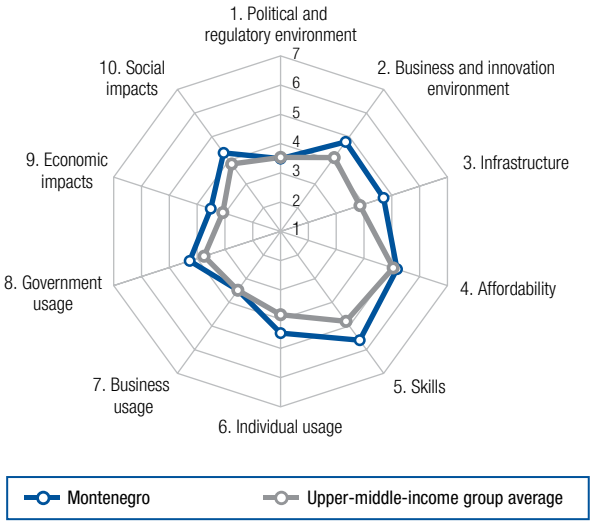
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	109	3.0
1.02	Laws relating to ICTs*	88	3.7
1.03	Judicial independence*	108	2.9
1.04	Efficiency of legal system in settling disputes*	108	3.2
1.05	Efficiency of legal system in challenging regs*	122	2.5
1.06	Intellectual property protection*	124	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	19	374
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	76	4.7
2.02	Venture capital availability*	140	1.6
2.03	Total tax rate, % profits	22	24.4
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	82	4.9
2.07	Tertiary education gross enrollment rate, %	40	61.1
2.08	Quality of management schools*	131	2.9
2.09	Gov't procurement of advanced tech*	93	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	85	1,725.7
3.02	Mobile network coverage, % pop.	115	91.3
3.03	Int'l Internet bandwidth, kb/s per user	46	59.7
3.04	Secure Internet servers/million pop.	76	22.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	34	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	20	19.84
4.03	Internet & telephony competition, 0–2 (best)	n/a	n/a
	5th pillar: Skills		
5.01	Quality of educational system*	115	2.9
5.02	Quality of math & science education*	46	4.5
5.03	Secondary education gross enrollment rate, %	22	103.5
5.04	Adult literacy rate, %	25	98.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	52	124.2
6.02	Individuals using Internet, %	107	17.7
6.03	Households w/ personal computer, %	81	34.3
6.04	Households w/ Internet access, %	100	14.0
6.05	Fixed broadband Internet subs/100 pop.	82	4.9
6.06	Mobile broadband subs/100 pop.	84	18.2
6.07	Use of virtual social networks*	44	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	66	4.7
7.02	Capacity for innovation*	104	3.3
7.03	PCT patents, applications/million pop.	75	0.7
7.04	Business-to-business Internet use*	48	5.1
7.05	Business-to-consumer Internet use*	64	4.6
7.06	Extent of staff training*	73	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	67	3.9
8.02	Government Online Service Index, 0–1 (best)	43	0.61
8.03	Gov't success in ICT promotion*	73	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	84	4.1
9.02	ICT PCT patents, applications/million pop.	64	0.4
9.03	Impact of ICTs on new organizational models*	103	3.6
9.04	Knowledge-intensive jobs, % workforce	62	24.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	71	4.1
10.02	Internet access in schools*	62	4.6
10.03	ICT use & gov't efficiency*	73	4.0
10.04	E-Participation Index, 0–1 (best)	30	0.69

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Montenegro

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**56**	**4.3**
Networked Readiness Index 2014 (out of 148)	52	4.3
Networked Readiness Index 2013 (out of 144)	48	4.2
A. Environment subindex	**56**	**4.1**
1st pillar: Political and regulatory environment	90	3.5
2nd pillar: Business and innovation environment	42	4.8
B. Readiness subindex	**49**	**5.2**
3rd pillar: Infrastructure	45	4.7
4th pillar: Affordability	75	5.2
5th pillar: Skills	35	5.6
C. Usage subindex	**55**	**4.1**
6th pillar: Individual usage	60	4.5
7th pillar: Business usage	83	3.5
8th pillar: Government usage	52	4.3
D. Impact subindex	**57**	**3.9**
9th pillar: Economic impacts	46	3.5
10th pillar: Social impacts	61	4.3



The Networked Readiness Index in detail

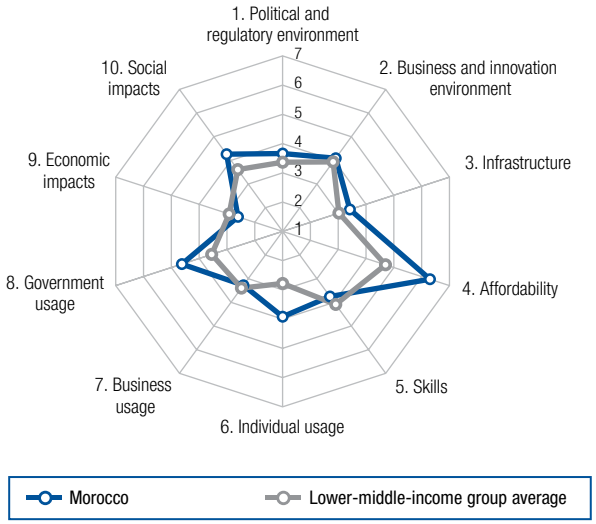
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	42	4.1
1.02	Laws relating to ICTs*	59	4.1
1.03	Judicial independence*	90	3.4
1.04	Efficiency of legal system in settling disputes*	69	3.7
1.05	Efficiency of legal system in challenging regs*	81	3.2
1.06	Intellectual property protection*	73	3.7
1.07	Software piracy rate, % software installed	79	78
1.08	No. procedures to enforce a contract	137	49
1.09	No. days to enforce a contract	72	545
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	71	4.8
2.02	Venture capital availability*	50	2.9
2.03	Total tax rate, % profits	18	22.3
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	134	3.9
2.07	Tertiary education gross enrollment rate, %	47	55.5
2.08	Quality of management schools*	38	4.8
2.09	Gov't procurement of advanced tech*	57	3.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	52	4,279.4
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	34	76.5
3.04	Secure Internet servers/million pop.	65	37.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	91	0.32
4.02	Fixed broadband Internet tariffs, PPP $/month	84	37.73
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	41	4.3
5.02	Quality of math & science education*	25	4.9
5.03	Secondary education gross enrollment rate, %	66	90.9
5.04	Adult literacy rate, %	21	98.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	15	159.9
6.02	Individuals using Internet, %	58	56.8
6.03	Households w/ personal computer, %	62	53.8
6.04	Households w/ Internet access, %	53	55.0
6.05	Fixed broadband Internet subs/100 pop.	56	12.8
6.06	Mobile broadband subs/100 pop.	79	23.1
6.07	Use of virtual social networks*	31	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	88	4.4
7.02	Capacity for innovation*	84	3.6
7.03	PCT patents, applications/million pop.	71	0.8
7.04	Business-to-business Internet use*	71	4.7
7.05	Business-to-consumer Internet use*	69	4.5
7.06	Extent of staff training*	87	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	45	4.3
8.02	Government Online Service Index, 0–1 (best)	60	0.53
8.03	Gov't success in ICT promotion*	59	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	77	4.2
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	85	3.9
9.04	Knowledge-intensive jobs, % workforce	29	37.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	70	4.2
10.02	Internet access in schools*	73	4.2
10.03	ICT use & gov't efficiency*	53	4.4
10.04	E-Participation Index, 0–1 (best)	49	0.59

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Morocco

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**78**	**3.9**
Networked Readiness Index 2014 (out of 148)	99	3.6
Networked Readiness Index 2013 (out of 144)	89	3.6
A. Environment subindex	**80**	**3.9**
1st pillar: Political and regulatory environment	71	3.7
2nd pillar: Business and innovation environment	83	4.1
B. Readiness subindex	**87**	**4.5**
3rd pillar: Infrastructure	87	3.4
4th pillar: Affordability	24	6.3
5th pillar: Skills	110	3.8
C. Usage subindex	**64**	**3.9**
6th pillar: Individual usage	70	3.9
7th pillar: Business usage	105	3.3
8th pillar: Government usage	41	4.6
D. Impact subindex	**83**	**3.4**
9th pillar: Economic impacts	120	2.6
10th pillar: Social impacts	64	4.3



The Networked Readiness Index in detail

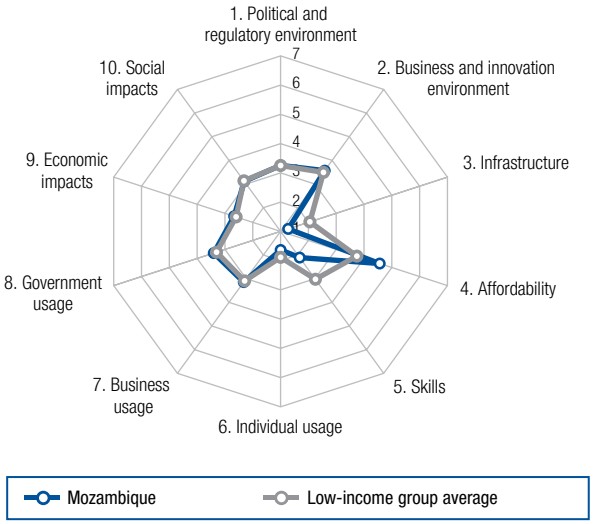
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	76	3.5
1.02	Laws relating to ICTs*	73	3.9
1.03	Judicial independence*	81	3.5
1.04	Efficiency of legal system in settling disputes*	73	3.7
1.05	Efficiency of legal system in challenging regs*	73	3.3
1.06	Intellectual property protection*	64	3.7
1.07	Software piracy rate, % software installed	64	66
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	59	510
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	57	5.1
2.02	Venture capital availability*	49	2.9
2.03	Total tax rate, % profits	112	49.3
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	48	5.3
2.07	Tertiary education gross enrollment rate, %	100	16.2
2.08	Quality of management schools*	54	4.5
2.09	Gov't procurement of advanced tech*	78	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	101	775.8
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	80	22.3
3.04	Secure Internet servers/million pop.	107	3.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	42	0.15
4.02	Fixed broadband Internet tariffs, PPP $/month	47	27.40
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	102	3.2
5.02	Quality of math & science education*	68	4.2
5.03	Secondary education gross enrollment rate, %	103	68.9
5.04	Adult literacy rate, %	99	68.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	45	128.5
6.02	Individuals using Internet, %	59	56.0
6.03	Households w/ personal computer, %	69	47.0
6.04	Households w/ Internet access, %	64	46.0
6.05	Fixed broadband Internet subs/100 pop.	94	2.5
6.06	Mobile broadband subs/100 pop.	89	15.0
6.07	Use of virtual social networks*	92	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	75	4.5
7.02	Capacity for innovation*	117	3.2
7.03	PCT patents, applications/million pop.	69	1.0
7.04	Business-to-business Internet use*	113	4.1
7.05	Business-to-consumer Internet use*	104	3.9
7.06	Extent of staff training*	106	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	47	4.2
8.02	Government Online Service Index, 0–1 (best)	30	0.69
8.03	Gov't success in ICT promotion*	51	4.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	88	4.1
9.02	ICT PCT patents, applications/million pop.	70	0.2
9.03	Impact of ICTs on new organizational models*	100	3.7
9.04	Knowledge-intensive jobs, % workforce	108	6.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	89	3.8
10.02	Internet access in schools*	112	3.3
10.03	ICT use & gov't efficiency*	64	4.1
10.04	E-Participation Index, 0–1 (best)	17	0.80

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Mozambique

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**129**	**2.9**
Networked Readiness Index 2014 (out of 148)	137	2.8
Networked Readiness Index 2013 (out of 144)	133	2.8
A. Environment subindex	**119**	**3.4**
1st pillar: Political and regulatory environment	104	3.3
2nd pillar: Business and innovation environment	120	3.6
B. Readiness subindex	**130**	**2.6**
3rd pillar: Infrastructure	137	1.3
4th pillar: Affordability	90	4.6
5th pillar: Skills	140	2.1
C. Usage subindex	**127**	**2.7**
6th pillar: Individual usage	136	1.6
7th pillar: Business usage	116	3.1
8th pillar: Government usage	108	3.4
D. Impact subindex	**119**	**2.9**
9th pillar: Economic impacts	117	2.7
10th pillar: Social impacts	120	3.1



The Networked Readiness Index in detail

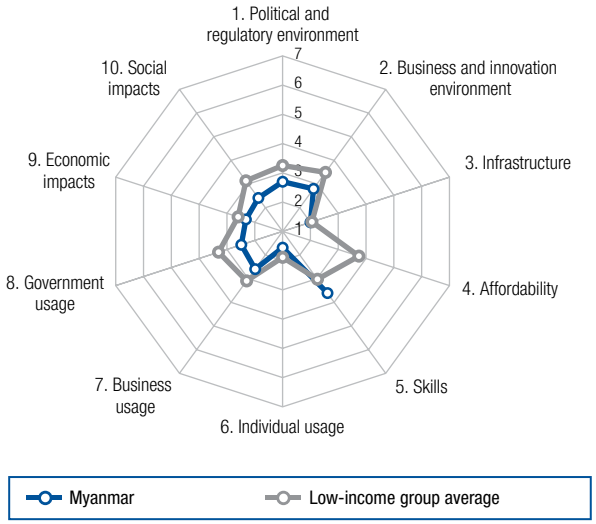
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	82	3.4
1.02	Laws relating to ICTs*	120	3.0
1.03	Judicial independence*	122	2.5
1.04	Efficiency of legal system in settling disputes*	102	3.3
1.05	Efficiency of legal system in challenging regs*	112	2.8
1.06	Intellectual property protection*	121	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	18	30
1.09	No. days to enforce a contract	115	760
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	102	4.3
2.02	Venture capital availability*	120	2.1
2.03	Total tax rate, % profits	69	36.6
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	96	4.7
2.07	Tertiary education gross enrollment rate, %	129	4.9
2.08	Quality of management schools*	133	2.9
2.09	Gov't procurement of advanced tech*	86	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	105	684.7
3.02	Mobile network coverage, % pop.	n/a	n/a
3.03	Int'l Internet bandwidth, kb/s per user	136	2.9
3.04	Secure Internet servers/million pop.	120	1.6
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	67	0.25
4.02	Fixed broadband Internet tariffs, PPP $/month	96	45.51
4.03	Internet & telephony competition, 0–2 (best)	119	1.17
	5th pillar: Skills		
5.01	Quality of educational system*	123	2.8
5.02	Quality of math & science education*	133	2.6
5.03	Secondary education gross enrollment rate, %	139	25.9
5.04	Adult literacy rate, %	109	58.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	136	48.0
6.02	Individuals using Internet, %	130	5.4
6.03	Households w/ personal computer, %	124	6.7
6.04	Households w/ Internet access, %	125	4.6
6.05	Fixed broadband Internet subs/100 pop.	133	0.1
6.06	Mobile broadband subs/100 pop.	121	1.8
6.07	Use of virtual social networks*	126	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	99	4.2
7.02	Capacity for innovation*	114	3.2
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	108	4.1
7.05	Business-to-consumer Internet use*	113	3.6
7.06	Extent of staff training*	120	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	103	3.4
8.02	Government Online Service Index, 0–1 (best)	94	0.31
8.03	Gov't success in ICT promotion*	90	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	118	3.6
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	123	3.4
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	129	3.1
10.02	Internet access in schools*	123	2.8
10.03	ICT use & gov't efficiency*	104	3.5
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Myanmar

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**139**	**2.5**
Networked Readiness Index 2014 (out of 148)	146	2.3
Networked Readiness Index 2013 (out of 144)	n/a	n/a
A. Environment subindex	**139**	**2.7**
1st pillar: Political and regulatory environment	132	2.7
2nd pillar: Business and innovation environment	141	2.8
B. Readiness subindex	**128**	**2.8**
3rd pillar: Infrastructure	131	2.0
4th pillar: Affordability	n/a	n/a
5th pillar: Skills	115	3.6
C. Usage subindex	**141**	**2.2**
6th pillar: Individual usage	139	1.6
7th pillar: Business usage	139	2.6
8th pillar: Government usage	139	2.5
D. Impact subindex	**139**	**2.4**
9th pillar: Economic impacts	136	2.3
10th pillar: Social impacts	138	2.4



The Networked Readiness Index in detail

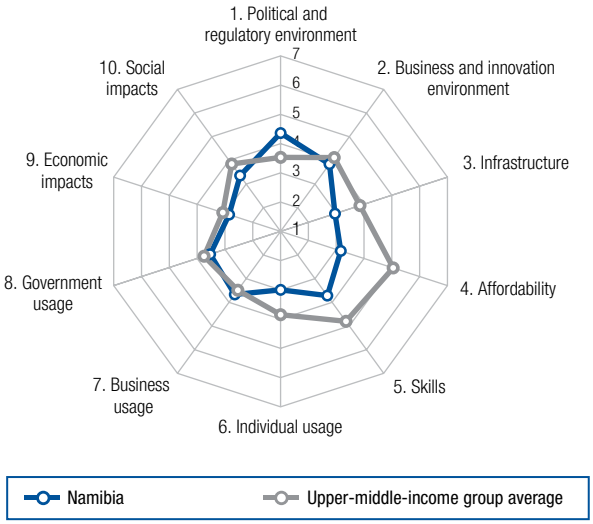
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	95	3.2
1.02	Laws relating to ICTs*	134	2.4
1.03	Judicial independence*	116	2.6
1.04	Efficiency of legal system in settling disputes*	124	2.7
1.05	Efficiency of legal system in challenging regs*	128	2.4
1.06	Intellectual property protection*	122	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	127	45
1.09	No. days to enforce a contract	130	1,160
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	143	2.7
2.02	Venture capital availability*	142	1.6
2.03	Total tax rate, % profits	104	47.7
2.04	No. days to start a business	136	72
2.05	No. procedures to start a business	127	11
2.06	Intensity of local competition*	100	4.7
2.07	Tertiary education gross enrollment rate, %	103	13.8
2.08	Quality of management schools*	138	2.6
2.09	Gov't procurement of advanced tech*	138	2.5
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	126	140.0
3.02	Mobile network coverage, % pop.	140	2.3
3.03	Int'l Internet bandwidth, kb/s per user	72	26.2
3.04	Secure Internet servers/million pop.	140	0.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	n/a	n/a
4.02	Fixed broadband Internet tariffs, PPP $/month	n/a	n/a
4.03	Internet & telephony competition, 0–2 (best)	136	0.00
	5th pillar: Skills		
5.01	Quality of educational system*	128	2.7
5.02	Quality of math & science education*	129	2.7
5.03	Secondary education gross enrollment rate, %	120	50.2
5.04	Adult literacy rate, %	62	93.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	143	12.8
6.02	Individuals using Internet, %	142	1.2
6.03	Households w/ personal computer, %	137	2.8
6.04	Households w/ Internet access, %	139	2.2
6.05	Fixed broadband Internet subs/100 pop.	121	0.2
6.06	Mobile broadband subs/100 pop.	125	1.0
6.07	Use of virtual social networks*	116	4.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	143	2.9
7.02	Capacity for innovation*	136	2.9
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	136	3.4
7.05	Business-to-consumer Internet use*	129	3.2
7.06	Extent of staff training*	137	2.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	125	3.0
8.02	Government Online Service Index, 0–1 (best)	137	0.02
8.03	Gov't success in ICT promotion*	126	3.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	136	3.1
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	136	2.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	132	3.0
10.02	Internet access in schools*	136	2.1
10.03	ICT use & gov't efficiency*	129	3.0
10.04	E-Participation Index, 0–1 (best)	134	0.08

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Namibia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**102**	**3.5**
Networked Readiness Index 2014 (out of 148)	105	3.4
Networked Readiness Index 2013 (out of 144)	111	3.3
A. Environment subindex	**59**	**4.1**
1st pillar: Political and regulatory environment	34	4.4
2nd pillar: Business and innovation environment	103	3.8
B. Readiness subindex	**114**	**3.3**
3rd pillar: Infrastructure	101	3.0
4th pillar: Affordability	123	3.2
5th pillar: Skills	113	3.7
C. Usage subindex	**95**	**3.4**
6th pillar: Individual usage	95	3.0
7th pillar: Business usage	61	3.7
8th pillar: Government usage	97	3.5
D. Impact subindex	**109**	**3.1**
9th pillar: Economic impacts	105	2.8
10th pillar: Social impacts	107	3.4



The Networked Readiness Index in detail

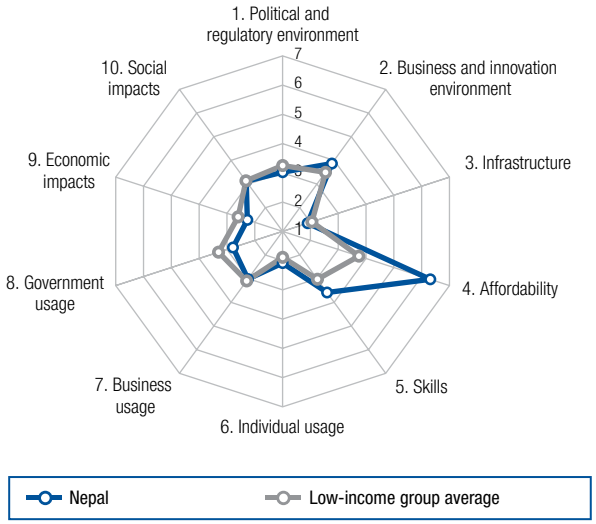
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	41	4.1
1.02	Laws relating to ICTs*	91	3.6
1.03	Judicial independence*	39	4.7
1.04	Efficiency of legal system in settling disputes*	29	4.5
1.05	Efficiency of legal system in challenging regs*	36	3.9
1.06	Intellectual property protection*	40	4.3
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	47	460
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	54	5.1
2.02	Venture capital availability*	88	2.5
2.03	Total tax rate, % profits	15	20.7
2.04	No. days to start a business	134	66
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	104	4.6
2.07	Tertiary education gross enrollment rate, %	117	9.3
2.08	Quality of management schools*	118	3.4
2.09	Gov't procurement of advanced tech*	82	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	108	644.8
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	106	9.0
3.04	Secure Internet servers/million pop.	81	18.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	73	0.26
4.02	Fixed broadband Internet tariffs, PPP $/month	126	86.95
4.03	Internet & telephony competition, 0–2 (best)	101	1.43
	5th pillar: Skills		
5.01	Quality of educational system*	107	3.1
5.02	Quality of math & science education*	126	2.9
5.03	Secondary education gross enrollment rate, %	109	64.8
5.04	Adult literacy rate, %	82	81.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	59	118.4
6.02	Individuals using Internet, %	118	13.9
6.03	Households w/ personal computer, %	105	15.4
6.04	Households w/ Internet access, %	96	16.0
6.05	Fixed broadband Internet subs/100 pop.	100	1.5
6.06	Mobile broadband subs/100 pop.	64	34.2
6.07	Use of virtual social networks*	84	5.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	54	4.9
7.02	Capacity for innovation*	79	3.7
7.03	PCT patents, applications/million pop.	96	0.2
7.04	Business-to-business Internet use*	50	5.1
7.05	Business-to-consumer Internet use*	83	4.2
7.06	Extent of staff training*	57	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	85	3.7
8.02	Government Online Service Index, 0–1 (best)	92	0.32
8.03	Gov't success in ICT promotion*	87	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	91	4.1
9.02	ICT PCT patents, applications/million pop.	86	0.1
9.03	Impact of ICTs on new organizational models*	93	3.9
9.04	Knowledge-intensive jobs, % workforce	98	14.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	99	3.7
10.02	Internet access in schools*	106	3.5
10.03	ICT use & gov't efficiency*	115	3.3
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Nepal

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**118**	**3.2**
Networked Readiness Index 2014 (out of 148)	123	3.1
Networked Readiness Index 2013 (out of 144)	126	2.9
A. Environment subindex	**116**	**3.4**
1st pillar: Political and regulatory environment	120	3.0
2nd pillar: Business and innovation environment	100	3.9
B. Readiness subindex	**104**	**3.9**
3rd pillar: Infrastructure	133	1.9
4th pillar: Affordability	23	6.3
5th pillar: Skills	117	3.6
C. Usage subindex	**131**	**2.6**
6th pillar: Individual usage	120	2.1
7th pillar: Business usage	127	3.0
8th pillar: Government usage	129	2.8
D. Impact subindex	**127**	**2.7**
9th pillar: Economic impacts	137	2.3
10th pillar: Social impacts	119	3.1



The Networked Readiness Index in detail

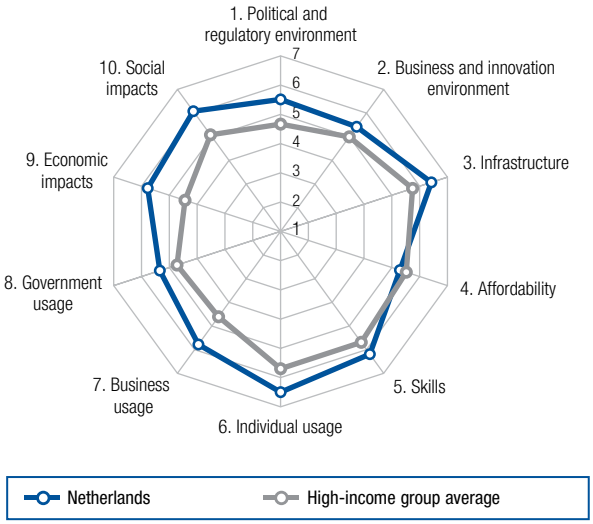
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	126	2.5
1.02	Laws relating to ICTs*	129	2.7
1.03	Judicial independence*	92	3.3
1.04	Efficiency of legal system in settling disputes*	119	2.9
1.05	Efficiency of legal system in challenging regs*	101	2.9
1.06	Intellectual property protection*	110	2.9
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	91	39
1.09	No. days to enforce a contract	123	910
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	115	4.0
2.02	Venture capital availability*	105	2.2
2.03	Total tax rate, % profits	37	29.5
2.04	No. days to start a business	89	17
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	94	4.8
2.07	Tertiary education gross enrollment rate, %	102	14.5
2.08	Quality of management schools*	94	3.8
2.09	Gov't procurement of advanced tech*	124	2.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	129	122.0
3.02	Mobile network coverage, % pop.	127	80.6
3.03	Int'l Internet bandwidth, kb/s per user	135	3.0
3.04	Secure Internet servers/million pop.	114	2.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	11	0.09
4.02	Fixed broadband Internet tariffs, PPP $/month	24	20.53
4.03	Internet & telephony competition, 0–2 (best)	102	1.41
	5th pillar: Skills		
5.01	Quality of educational system*	75	3.6
5.02	Quality of math & science education*	87	3.8
5.03	Secondary education gross enrollment rate, %	107	66.6
5.04	Adult literacy rate, %	104	63.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	116	76.8
6.02	Individuals using Internet, %	119	13.3
6.03	Households w/ personal computer, %	121	7.8
6.04	Households w/ Internet access, %	123	4.9
6.05	Fixed broadband Internet subs/100 pop.	105	1.1
6.06	Mobile broadband subs/100 pop.	97	10.9
6.07	Use of virtual social networks*	119	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	123	3.9
7.02	Capacity for innovation*	122	3.1
7.03	PCT patents, applications/million pop.	117	0.0
7.04	Business-to-business Internet use*	125	3.9
7.05	Business-to-consumer Internet use*	114	3.6
7.06	Extent of staff training*	124	3.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	129	2.9
8.02	Government Online Service Index, 0–1 (best)	121	0.16
8.03	Gov't success in ICT promotion*	114	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	125	3.4
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	124	3.3
9.04	Knowledge-intensive jobs, % workforce	112	4.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	118	3.3
10.02	Internet access in schools*	102	3.5
10.03	ICT use & gov't efficiency*	134	2.9
10.04	E-Participation Index, 0–1 (best)	100	0.29

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Netherlands

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**4**	**5.8**
Networked Readiness Index 2014 (out of 148)	4	5.8
Networked Readiness Index 2013 (out of 144)	4	5.8
A. Environment subindex	**7**	**5.5**
1st pillar: Political and regulatory environment	7	5.5
2nd pillar: Business and innovation environment	8	5.4
B. Readiness subindex	**18**	**6.0**
3rd pillar: Infrastructure	14	6.4
4th pillar: Affordability	72	5.3
5th pillar: Skills	6	6.2
C. Usage subindex	**5**	**5.9**
6th pillar: Individual usage	7	6.5
7th pillar: Business usage	6	5.8
8th pillar: Government usage	13	5.3
D. Impact subindex	**2**	**5.9**
9th pillar: Economic impacts	5	5.8
10th pillar: Social impacts	3	6.1



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	16	5.0
1.02	Laws relating to ICTs*	15	5.2
1.03	Judicial independence*	10	6.1
1.04	Efficiency of legal system in settling disputes*	9	5.5
1.05	Efficiency of legal system in challenging regs*	5	5.2
1.06	Intellectual property protection*	11	5.7
1.07	Software piracy rate, % software installed	14	25
1.08	No. procedures to enforce a contract	5	26
1.09	No. days to enforce a contract	63	514
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	9	6.3
2.02	Venture capital availability*	22	3.5
2.03	Total tax rate, % profits	76	39.0
2.04	No. days to start a business	10	4
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	14	5.9
2.07	Tertiary education gross enrollment rate, %	17	77.3
2.08	Quality of management schools*	9	5.7
2.09	Gov't procurement of advanced tech*	28	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	34	6,096.8
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	10	235.0
3.04	Secure Internet servers/million pop.	2	2,382.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	101	0.36
4.02	Fixed broadband Internet tariffs, PPP $/month	68	32.21
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	8	5.3
5.02	Quality of math & science education*	8	5.4
5.03	Secondary education gross enrollment rate, %	3	129.9
5.04	Adult literacy rate, %	n/a	n/a[1]

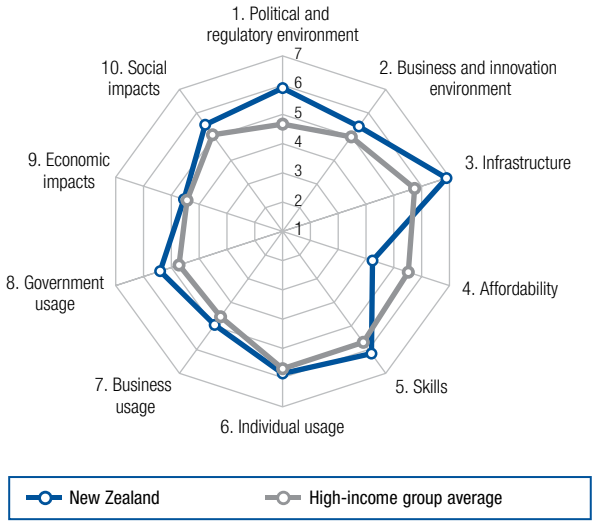
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	69	113.7
6.02	Individuals using Internet, %	5	94.0
6.03	Households w/ personal computer, %	3	95.2
6.04	Households w/ Internet access, %	4	94.6
6.05	Fixed broadband Internet subs/100 pop.	3	40.1
6.06	Mobile broadband subs/100 pop.	28	62.3
6.07	Use of virtual social networks*	4	6.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	21	5.6
7.02	Capacity for innovation*	11	5.2
7.03	PCT patents, applications/million pop.	9	207.2
7.04	Business-to-business Internet use*	9	5.9
7.05	Business-to-consumer Internet use*	4	6.0
7.06	Extent of staff training*	12	5.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	33	4.5
8.02	Government Online Service Index, 0–1 (best)	8	0.93
8.03	Gov't success in ICT promotion*	23	4.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	5	5.6
9.02	ICT PCT patents, applications/million pop.	9	60.3
9.03	Impact of ICTs on new organizational models*	6	5.5
9.04	Knowledge-intensive jobs, % workforce	9	46.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	4	5.9
10.02	Internet access in schools*	5	6.4
10.03	ICT use & gov't efficiency*	18	5.0
10.04	E-Participation Index, 0–1 (best)	1	1.00

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

New Zealand

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**17**	**5.5**
Networked Readiness Index 2014 (out of 148)	20	5.3
Networked Readiness Index 2013 (out of 144)	20	5.2
A. Environment subindex	**2**	**5.7**
1st pillar: Political and regulatory environment	1	5.9
2nd pillar: Business and innovation environment	6	5.4
B. Readiness subindex	**24**	**5.8**
3rd pillar: Infrastructure	9	6.9
4th pillar: Affordability	101	4.2
5th pillar: Skills	7	6.2
C. Usage subindex	**16**	**5.4**
6th pillar: Individual usage	22	5.9
7th pillar: Business usage	19	5.0
8th pillar: Government usage	10	5.4
D. Impact subindex	**20**	**5.0**
9th pillar: Economic impacts	26	4.5
10th pillar: Social impacts	15	5.5



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	2	5.8
1.02	Laws relating to ICTs*	11	5.3
1.03	Judicial independence*	1	6.7
1.04	Efficiency of legal system in settling disputes*	4	5.9
1.05	Efficiency of legal system in challenging regs*	2	5.5
1.06	Intellectual property protection*	6	6.0
1.07	Software piracy rate, % software installed	3	20
1.08	No. procedures to enforce a contract	18	30
1.09	No. days to enforce a contract	2	216
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	21	6.1
2.02	Venture capital availability*	12	3.9
2.03	Total tax rate, % profits	59	34.4
2.04	No. days to start a business	1	1
2.05	No. procedures to start a business	1	1
2.06	Intensity of local competition*	26	5.6
2.07	Tertiary education gross enrollment rate, %	12	79.8
2.08	Quality of management schools*	22	5.2
2.09	Gov't procurement of advanced tech*	71	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	15	9,984.7
3.02	Mobile network coverage, % pop.	93	97.0
3.03	Int'l Internet bandwidth, kb/s per user	56	45.6
3.04	Secure Internet servers/million pop.	14	1,100.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	95	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	105	51.52
4.03	Internet & telephony competition, 0–2 (best)	98	1.53
	5th pillar: Skills		
5.01	Quality of educational system*	7	5.3
5.02	Quality of math & science education*	12	5.3
5.03	Secondary education gross enrollment rate, %	5	119.5
5.04	Adult literacy rate, %	n/a	n/a[1]

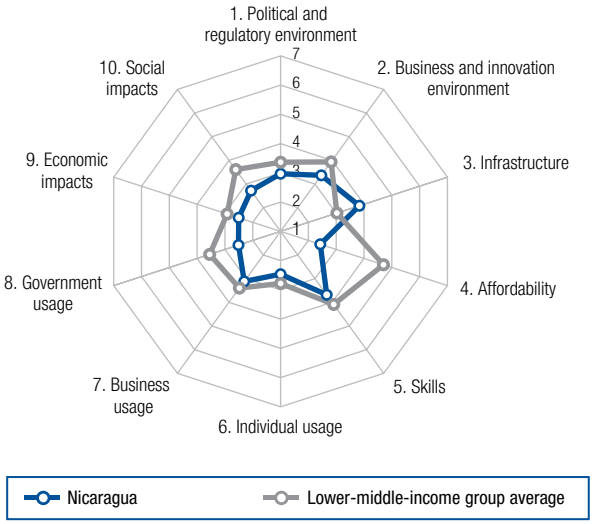
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	84	105.8
6.02	Individuals using Internet, %	19	82.8
6.03	Households w/ personal computer, %	31	77.3
6.04	Households w/ Internet access, %	28	76.8
6.05	Fixed broadband Internet subs/100 pop.	18	29.2
6.06	Mobile broadband subs/100 pop.	15	81.3
6.07	Use of virtual social networks*	19	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	11	5.8
7.02	Capacity for innovation*	15	5.1
7.03	PCT patents, applications/million pop.	23	73.4
7.04	Business-to-business Internet use*	16	5.6
7.05	Business-to-consumer Internet use*	9	5.9
7.06	Extent of staff training*	17	4.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	7	5.3
8.02	Government Online Service Index, 0–1 (best)	15	0.84
8.03	Gov't success in ICT promotion*	25	4.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	15	5.4
9.02	ICT PCT patents, applications/million pop.	23	13.5
9.03	Impact of ICTs on new organizational models*	16	5.2
9.04	Knowledge-intensive jobs, % workforce	17	42.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	22	5.3
10.02	Internet access in schools*	19	6.0
10.03	ICT use & gov't efficiency*	23	5.0
10.04	E-Participation Index, 0–1 (best)	19	0.78

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Nicaragua

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**128**	**2.9**
Networked Readiness Index 2014 (out of 148)	124	3.1
Networked Readiness Index 2013 (out of 144)	125	2.9
A. Environment subindex	**129**	**3.2**
1st pillar: Political and regulatory environment	123	3.0
2nd pillar: Business and innovation environment	131	3.4
B. Readiness subindex	**113**	**3.3**
3rd pillar: Infrastructure	79	3.8
4th pillar: Affordability	134	2.4
5th pillar: Skills	114	3.7
C. Usage subindex	**128**	**2.7**
6th pillar: Individual usage	112	2.5
7th pillar: Business usage	119	3.1
8th pillar: Government usage	137	2.5
D. Impact subindex	**131**	**2.6**
9th pillar: Economic impacts	126	2.5
10th pillar: Social impacts	132	2.7



The Networked Readiness Index in detail

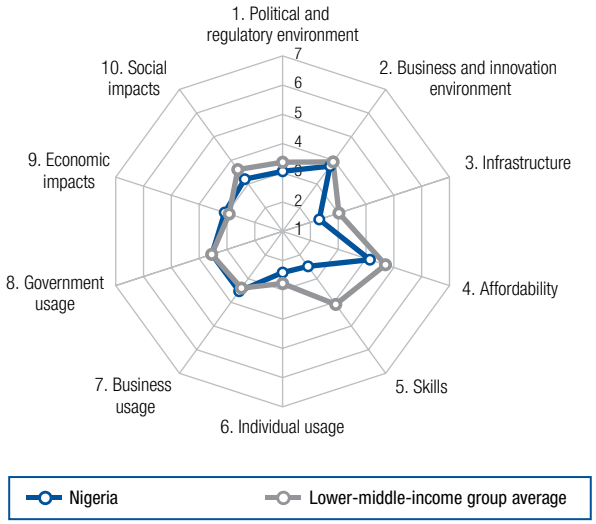
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	119	2.7
1.02	Laws relating to ICTs*	118	3.0
1.03	Judicial independence*	130	2.3
1.04	Efficiency of legal system in settling disputes*	101	3.3
1.05	Efficiency of legal system in challenging regs*	118	2.6
1.06	Intellectual property protection*	100	3.1
1.07	Software piracy rate, % software installed	89	82
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	65	519
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	120	3.9
2.02	Venture capital availability*	65	2.7
2.03	Total tax rate, % profits	133	65.8
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	129	4.2
2.07	Tertiary education gross enrollment rate, %	94	19.0
2.08	Quality of management schools*	106	3.7
2.09	Gov't procurement of advanced tech*	119	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	107	647.7
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	66	32.6
3.04	Secure Internet servers/million pop.	97	8.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	140	1.09
4.02	Fixed broadband Internet tariffs, PPP $/month	103	49.45
4.03	Internet & telephony competition, 0–2 (best)	68	1.88
	5th pillar: Skills		
5.01	Quality of educational system*	129	2.7
5.02	Quality of math & science education*	130	2.7
5.03	Secondary education gross enrollment rate, %	102	68.9
5.04	Adult literacy rate, %	81	82.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	72	112.0
6.02	Individuals using Internet, %	113	15.5
6.03	Households w/ personal computer, %	111	10.9
6.04	Households w/ Internet access, %	107	9.4
6.05	Fixed broadband Internet subs/100 pop.	97	2.2
6.06	Mobile broadband subs/100 pop.	122	1.3
6.07	Use of virtual social networks*	123	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	124	3.8
7.02	Capacity for innovation*	118	3.2
7.03	PCT patents, applications/million pop.	95	0.2
7.04	Business-to-business Internet use*	122	3.9
7.05	Business-to-consumer Internet use*	119	3.5
7.06	Extent of staff training*	88	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	131	2.9
8.02	Government Online Service Index, 0–1 (best)	131	0.09
8.03	Gov't success in ICT promotion*	134	3.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	134	3.2
9.02	ICT PCT patents, applications/million pop.	85	0.1
9.03	Impact of ICTs on new organizational models*	126	3.3
9.04	Knowledge-intensive jobs, % workforce	97	14.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	124	3.2
10.02	Internet access in schools*	121	3.0
10.03	ICT use & gov't efficiency*	124	3.1
10.04	E-Participation Index, 0–1 (best)	131	0.10

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Nigeria

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**119**	**3.2**
Networked Readiness Index 2014 (out of 148)	112	3.3
Networked Readiness Index 2013 (out of 144)	113	3.3
A. Environment subindex	**120**	**3.4**
1st pillar: Political and regulatory environment	116	3.1
2nd pillar: Business and innovation environment	111	3.8
B. Readiness subindex	**123**	**3.0**
3rd pillar: Infrastructure	121	2.3
4th pillar: Affordability	104	4.1
5th pillar: Skills	135	2.5
C. Usage subindex	**104**	**3.2**
6th pillar: Individual usage	114	2.4
7th pillar: Business usage	79	3.5
8th pillar: Government usage	95	3.5
D. Impact subindex	**104**	**3.1**
9th pillar: Economic impacts	81	3.1
10th pillar: Social impacts	116	3.2



The Networked Readiness Index in detail

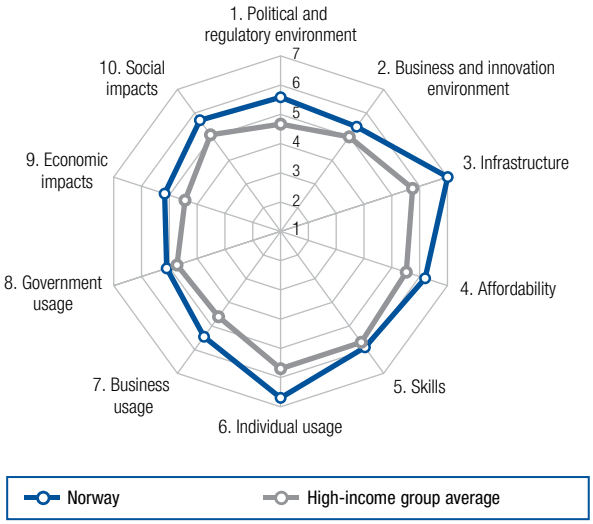
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	107	3.0
1.02	Laws relating to ICTs*	121	2.9
1.03	Judicial independence*	102	3.1
1.04	Efficiency of legal system in settling disputes*	97	3.3
1.05	Efficiency of legal system in challenging regs*	105	2.9
1.06	Intellectual property protection*	125	2.7
1.07	Software piracy rate, % software installed	86	81
1.08	No. procedures to enforce a contract	108	40
1.09	No. days to enforce a contract	58	510
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	94	4.4
2.02	Venture capital availability*	131	1.9
2.03	Total tax rate, % profits	52	32.7
2.04	No. days to start a business	116	31
2.05	No. procedures to start a business	106	9
2.06	Intensity of local competition*	50	5.3
2.07	Tertiary education gross enrollment rate, %	112	10.4
2.08	Quality of management schools*	101	3.8
2.09	Gov't procurement of advanced tech*	108	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	125	164.6
3.02	Mobile network coverage, % pop.	116	91.2
3.03	Int'l Internet bandwidth, kb/s per user	130	3.4
3.04	Secure Internet servers/million pop.	119	1.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	35	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	118	74.65
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	121	2.9
5.02	Quality of math & science education*	132	2.6
5.03	Secondary education gross enrollment rate, %	125	43.8
5.04	Adult literacy rate, %	108	59.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	118	73.3
6.02	Individuals using Internet, %	87	38.0
6.03	Households w/ personal computer, %	119	8.4
6.04	Households w/ Internet access, %	112	7.8
6.05	Fixed broadband Internet subs/100 pop.	140	0.0
6.06	Mobile broadband subs/100 pop.	98	10.1
6.07	Use of virtual social networks*	82	5.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	91	4.3
7.02	Capacity for innovation*	73	3.7
7.03	PCT patents, applications/million pop.	113	0.0
7.04	Business-to-business Internet use*	88	4.5
7.05	Business-to-consumer Internet use*	92	4.1
7.06	Extent of staff training*	48	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	90	3.6
8.02	Government Online Service Index, 0–1 (best)	97	0.31
8.03	Gov't success in ICT promotion*	71	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	71	4.3
9.02	ICT PCT patents, applications/million pop.	95	0.0
9.03	Impact of ICTs on new organizational models*	88	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	123	3.2
10.02	Internet access in schools*	111	3.4
10.03	ICT use & gov't efficiency*	119	3.3
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Norway

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**5**	**5.8**
Networked Readiness Index 2014 (out of 148)	5	5.7
Networked Readiness Index 2013 (out of 144)	5	5.7
A. Environment subindex	**6**	**5.5**
1st pillar: Political and regulatory environment	6	5.6
2nd pillar: Business and innovation environment	7	5.4
B. Readiness subindex	**5**	**6.4**
3rd pillar: Infrastructure	1	7.0
4th pillar: Affordability	27	6.2
5th pillar: Skills	12	5.9
C. Usage subindex	**8**	**5.7**
6th pillar: Individual usage	3	6.7
7th pillar: Business usage	10	5.5
8th pillar: Government usage	24	5.1
D. Impact subindex	**10**	**5.4**
9th pillar: Economic impacts	11	5.2
10th pillar: Social impacts	7	5.7



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	7	5.4
1.02	Laws relating to ICTs*	6	5.5
1.03	Judicial independence*	4	6.3
1.04	Efficiency of legal system in settling disputes*	7	5.6
1.05	Efficiency of legal system in challenging regs*	10	4.8
1.06	Intellectual property protection*	15	5.6
1.07	Software piracy rate, % software installed	14	25
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	10	280
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	3	6.5
2.02	Venture capital availability*	6	4.3
2.03	Total tax rate, % profits	86	40.7
2.04	No. days to start a business	17	5
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	49	5.3
2.07	Tertiary education gross enrollment rate, %	21	74.1
2.08	Quality of management schools*	19	5.3
2.09	Gov't procurement of advanced tech*	14	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	2	29,246.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	13	195.9
3.04	Secure Internet servers/million pop.	7	1,725.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	18	0.11
4.02	Fixed broadband Internet tariffs, PPP $/month	72	33.02
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	14	5.0
5.02	Quality of math & science education*	41	4.5
5.03	Secondary education gross enrollment rate, %	10	111.1
5.04	Adult literacy rate, %	n/a	n/a[1]

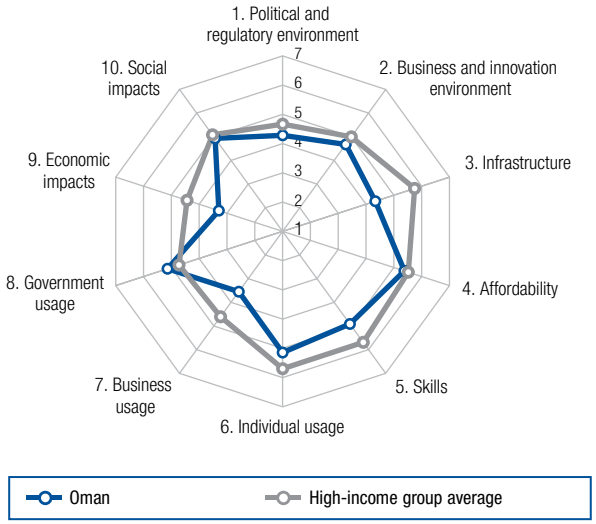
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	63	116.3
6.02	Individuals using Internet, %	2	95.1
6.03	Households w/ personal computer, %	5	93.3
6.04	Households w/ Internet access, %	6	94.3
6.05	Fixed broadband Internet subs/100 pop.	5	38.1
6.06	Mobile broadband subs/100 pop.	13	86.7
6.07	Use of virtual social networks*	2	6.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	4	6.1
7.02	Capacity for innovation*	16	5.0
7.03	PCT patents, applications/million pop.	12	136.0
7.04	Business-to-business Internet use*	8	5.9
7.05	Business-to-consumer Internet use*	7	5.9
7.06	Extent of staff training*	8	5.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	23	4.7
8.02	Government Online Service Index, 0–1 (best)	21	0.76
8.03	Gov't success in ICT promotion*	18	5.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	11	5.5
9.02	ICT PCT patents, applications/million pop.	17	32.2
9.03	Impact of ICTs on new organizational models*	3	5.5
9.04	Knowledge-intensive jobs, % workforce	7	46.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	6	5.8
10.02	Internet access in schools*	3	6.5
10.03	ICT use & gov't efficiency*	12	5.3
10.04	E-Participation Index, 0–1 (best)	30	0.69

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Oman

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**42**	**4.5**
Networked Readiness Index 2014 (out of 148)	40	4.6
Networked Readiness Index 2013 (out of 144)	40	4.5
A. Environment subindex	**43**	**4.5**
1st pillar: Political and regulatory environment	36	4.3
2nd pillar: Business and innovation environment	46	4.7
B. Readiness subindex	**62**	**4.9**
3rd pillar: Infrastructure	61	4.3
4th pillar: Affordability	67	5.4
5th pillar: Skills	75	4.9
C. Usage subindex	**35**	**4.6**
6th pillar: Individual usage	41	5.1
7th pillar: Business usage	73	3.5
8th pillar: Government usage	19	5.1
D. Impact subindex	**45**	**4.1**
9th pillar: Economic impacts	62	3.3
10th pillar: Social impacts	35	4.9



The Networked Readiness Index in detail

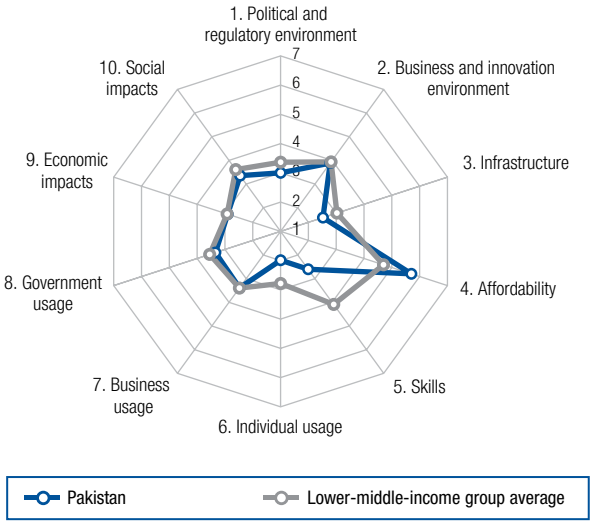
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	25	4.5
1.02	Laws relating to ICTs*	38	4.6
1.03	Judicial independence*	29	5.1
1.04	Efficiency of legal system in settling disputes*	27	4.8
1.05	Efficiency of legal system in challenging regs*	37	3.9
1.06	Intellectual property protection*	29	4.9
1.07	Software piracy rate, % software installed	54	60
1.08	No. procedures to enforce a contract	142	51
1.09	No. days to enforce a contract	87	598
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	56	5.1
2.02	Venture capital availability*	21	3.5
2.03	Total tax rate, % profits	20	23.0
2.04	No. days to start a business	40	7
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	73	5.0
2.07	Tertiary education gross enrollment rate, %	83	28.1
2.08	Quality of management schools*	113	3.6
2.09	Gov't procurement of advanced tech*	12	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	29	7,231.6
3.02	Mobile network coverage, % pop.	85	98.0
3.03	Int'l Internet bandwidth, kb/s per user	83	19.5
3.04	Secure Internet servers/million pop.	56	62.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	78	0.28
4.02	Fixed broadband Internet tariffs, PPP $/month	79	35.29
4.03	Internet & telephony competition, 0–2 (best)	73	1.87
	5th pillar: Skills		
5.01	Quality of educational system*	81	3.5
5.02	Quality of math & science education*	95	3.6
5.03	Secondary education gross enrollment rate, %	58	93.5
5.04	Adult literacy rate, %	67	91.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	20	154.6
6.02	Individuals using Internet, %	44	66.5
6.03	Households w/ personal computer, %	21	82.9
6.04	Households w/ Internet access, %	22	80.1
6.05	Fixed broadband Internet subs/100 pop.	93	2.6
6.06	Mobile broadband subs/100 pop.	22	67.3
6.07	Use of virtual social networks*	91	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	58	4.8
7.02	Capacity for innovation*	103	3.4
7.03	PCT patents, applications/million pop.	77	0.6
7.04	Business-to-business Internet use*	80	4.6
7.05	Business-to-consumer Internet use*	98	4.0
7.06	Extent of staff training*	49	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	18	4.9
8.02	Government Online Service Index, 0–1 (best)	26	0.73
8.03	Gov't success in ICT promotion*	17	5.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	60	4.5
9.02	ICT PCT patents, applications/million pop.	73	0.2
9.03	Impact of ICTs on new organizational models*	72	4.1
9.04	Knowledge-intensive jobs, % workforce	64	24.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	37	4.9
10.02	Internet access in schools*	60	4.6
10.03	ICT use & gov't efficiency*	21	5.0
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Pakistan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**112**	**3.3**
Networked Readiness Index 2014 (out of 148)	111	3.3
Networked Readiness Index 2013 (out of 144)	105	3.3
A. Environment subindex	**117**	**3.4**
1st pillar: Political and regulatory environment	121	3.0
2nd pillar: Business and innovation environment	97	3.9
B. Readiness subindex	**109**	**3.6**
3rd pillar: Infrastructure	119	2.5
4th pillar: Affordability	49	5.7
5th pillar: Skills	133	2.6
C. Usage subindex	**118**	**2.9**
6th pillar: Individual usage	123	2.0
7th pillar: Business usage	94	3.4
8th pillar: Government usage	110	3.3
D. Impact subindex	**105**	**3.1**
9th pillar: Economic impacts	102	2.9
10th pillar: Social impacts	108	3.4



The Networked Readiness Index in detail

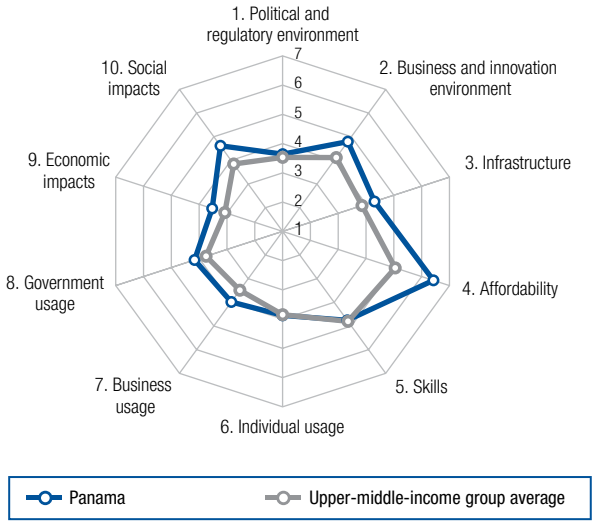
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	89	3.3
1.02	Laws relating to ICTs*	114	3.1
1.03	Judicial independence*	67	3.8
1.04	Efficiency of legal system in settling disputes*	100	3.3
1.05	Efficiency of legal system in challenging regs*	89	3.1
1.06	Intellectual property protection*	116	2.9
1.07	Software piracy rate, % software installed	95	85
1.08	No. procedures to enforce a contract	130	46
1.09	No. days to enforce a contract	127	993
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	85	4.5
2.02	Venture capital availability*	92	2.5
2.03	Total tax rate, % profits	51	32.6
2.04	No. days to start a business	95	19
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	84	4.9
2.07	Tertiary education gross enrollment rate, %	115	9.5
2.08	Quality of management schools*	67	4.3
2.09	Gov't procurement of advanced tech*	97	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	113	540.7
3.02	Mobile network coverage, % pop.	112	92.0
3.03	Int'l Internet bandwidth, kb/s per user	112	6.5
3.04	Secure Internet servers/million pop.	123	1.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	15	0.10
4.02	Fixed broadband Internet tariffs, PPP $/month	95	44.38
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	92	3.4
5.02	Quality of math & science education*	104	3.4
5.03	Secondary education gross enrollment rate, %	129	36.6
5.04	Adult literacy rate, %	110	57.9

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	125	70.1
6.02	Individuals using Internet, %	122	10.9
6.03	Households w/ personal computer, %	106	14.1
6.04	Households w/ Internet access, %	110	8.3
6.05	Fixed broadband Internet subs/100 pop.	113	0.6
6.06	Mobile broadband subs/100 pop.	128	0.5
6.07	Use of virtual social networks*	118	4.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	83	4.4
7.02	Capacity for innovation*	51	4.0
7.03	PCT patents, applications/million pop.	109	0.0
7.04	Business-to-business Internet use*	97	4.3
7.05	Business-to-consumer Internet use*	102	3.9
7.06	Extent of staff training*	121	3.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	117	3.1
8.02	Government Online Service Index, 0–1 (best)	92	0.32
8.03	Gov't success in ICT promotion*	89	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	94	4.0
9.02	ICT PCT patents, applications/million pop.	91	0.0
9.03	Impact of ICTs on new organizational models*	104	3.6
9.04	Knowledge-intensive jobs, % workforce	77	19.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	119	3.3
10.02	Internet access in schools*	89	3.8
10.03	ICT use & gov't efficiency*	116	3.3
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Panama

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**51**	**4.4**
Networked Readiness Index 2014 (out of 148)	43	4.4
Networked Readiness Index 2013 (out of 144)	46	4.2
A. Environment subindex	**52**	**4.2**
1st pillar: Political and regulatory environment	73	3.6
2nd pillar: Business and innovation environment	41	4.8
B. Readiness subindex	**50**	**5.2**
3rd pillar: Infrastructure	63	4.3
4th pillar: Affordability	19	6.4
5th pillar: Skills	82	4.8
C. Usage subindex	**61**	**4.0**
6th pillar: Individual usage	72	3.9
7th pillar: Business usage	40	4.0
8th pillar: Government usage	57	4.2
D. Impact subindex	**46**	**4.1**
9th pillar: Economic impacts	45	3.5
10th pillar: Social impacts	46	4.6



The Networked Readiness Index in detail

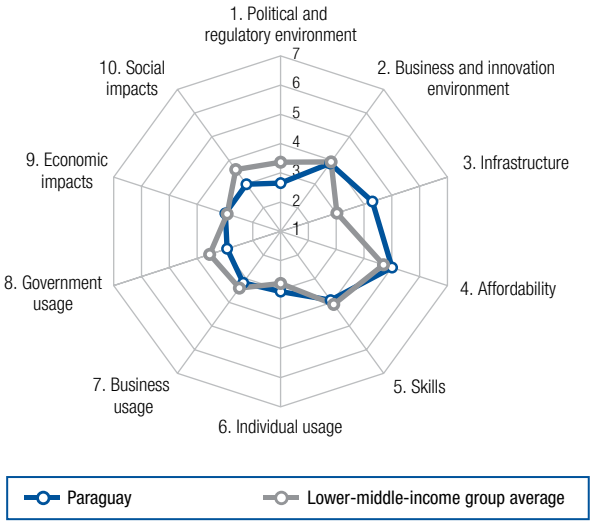
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	117	2.8
1.02	Laws relating to ICTs*	42	4.5
1.03	Judicial independence*	115	2.7
1.04	Efficiency of legal system in settling disputes*	74	3.6
1.05	Efficiency of legal system in challenging regs*	69	3.4
1.06	Intellectual property protection*	38	4.4
1.07	Software piracy rate, % software installed	71	72
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	105	686
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	36	5.6
2.02	Venture capital availability*	16	3.6
2.03	Total tax rate, % profits	70	37.2
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	67	5.1
2.07	Tertiary education gross enrollment rate, %	64	41.8
2.08	Quality of management schools*	71	4.2
2.09	Gov't procurement of advanced tech*	11	4.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	79	2,100.6
3.02	Mobile network coverage, % pop.	97	96.0
3.03	Int'l Internet bandwidth, kb/s per user	50	54.3
3.04	Secure Internet servers/million pop.	50	89.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	56	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	17	18.80
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	83	3.5
5.02	Quality of math & science education*	107	3.3
5.03	Secondary education gross enrollment rate, %	88	84.0
5.04	Adult literacy rate, %	49	95.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	11	163.0
6.02	Individuals using Internet, %	81	42.9
6.03	Households w/ personal computer, %	78	39.3
6.04	Households w/ Internet access, %	79	31.5
6.05	Fixed broadband Internet subs/100 pop.	72	7.7
6.06	Mobile broadband subs/100 pop.	76	25.2
6.07	Use of virtual social networks*	40	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	35	5.3
7.02	Capacity for innovation*	42	4.2
7.03	PCT patents, applications/million pop.	57	2.1
7.04	Business-to-business Internet use*	56	5.0
7.05	Business-to-consumer Internet use*	35	5.1
7.06	Extent of staff training*	47	4.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	28	4.6
8.02	Government Online Service Index, 0–1 (best)	84	0.37
8.03	Gov't success in ICT promotion*	35	4.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	35	4.9
9.02	ICT PCT patents, applications/million pop.	42	1.7
9.03	Impact of ICTs on new organizational models*	43	4.6
9.04	Knowledge-intensive jobs, % workforce	60	24.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	43	4.7
10.02	Internet access in schools*	40	5.1
10.03	ICT use & gov't efficiency*	42	4.6
10.04	E-Participation Index, 0–1 (best)	64	0.49

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Paraguay

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**105**	**3.4**
Networked Readiness Index 2014 (out of 148)	102	3.5
Networked Readiness Index 2013 (out of 144)	104	3.4
A. Environment subindex	**126**	**3.3**
1st pillar: Political and regulatory environment	133	2.6
2nd pillar: Business and innovation environment	98	3.9
B. Readiness subindex	**89**	**4.4**
3rd pillar: Infrastructure	64	4.3
4th pillar: Affordability	81	5.0
5th pillar: Skills	105	3.9
C. Usage subindex	**109**	**3.1**
6th pillar: Individual usage	93	3.1
7th pillar: Business usage	111	3.2
8th pillar: Government usage	125	2.9
D. Impact subindex	**115**	**3.0**
9th pillar: Economic impacts	95	3.0
10th pillar: Social impacts	124	3.0



The Networked Readiness Index in detail

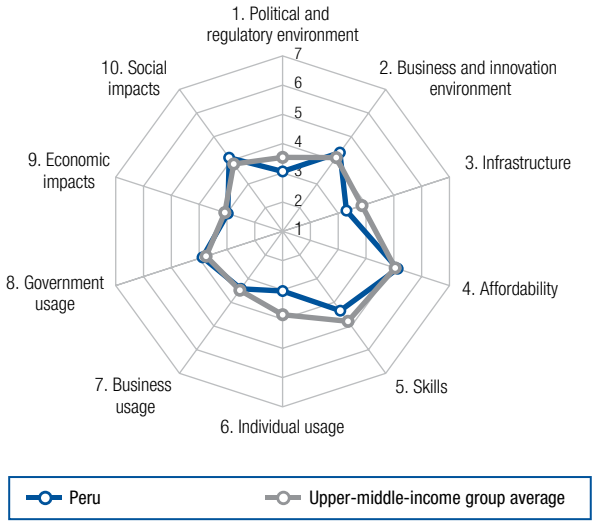
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	136	2.0
1.02	Laws relating to ICTs*	112	3.1
1.03	Judicial independence*	141	1.6
1.04	Efficiency of legal system in settling disputes*	135	2.4
1.05	Efficiency of legal system in challenging regs*	85	3.2
1.06	Intellectual property protection*	131	2.5
1.07	Software piracy rate, % software installed	93	84
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	85	591
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	118	4.0
2.02	Venture capital availability*	113	2.2
2.03	Total tax rate, % profits	61	35.0
2.04	No. days to start a business	123	35
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	68	5.1
2.07	Tertiary education gross enrollment rate, %	74	34.5
2.08	Quality of management schools*	128	3.1
2.09	Gov't procurement of advanced tech*	123	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	19	8,766.9
3.02	Mobile network coverage, % pop.	55	99.7
3.03	Int'l Internet bandwidth, kb/s per user	92	12.7
3.04	Secure Internet servers/million pop.	84	15.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	96	0.34
4.02	Fixed broadband Internet tariffs, PPP $/month	89	40.05
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	138	2.3
5.02	Quality of math & science education*	137	2.3
5.03	Secondary education gross enrollment rate, %	100	69.6
5.04	Adult literacy rate, %	46	95.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	88	103.7
6.02	Individuals using Internet, %	92	36.9
6.03	Households w/ personal computer, %	84	31.8
6.04	Households w/ Internet access, %	82	26.6
6.05	Fixed broadband Internet subs/100 pop.	99	1.7
6.06	Mobile broadband subs/100 pop.	110	4.9
6.07	Use of virtual social networks*	100	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	114	4.1
7.02	Capacity for innovation*	119	3.1
7.03	PCT patents, applications/million pop.	108	0.0
7.04	Business-to-business Internet use*	120	3.9
7.05	Business-to-consumer Internet use*	90	4.1
7.06	Extent of staff training*	105	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	124	3.0
8.02	Government Online Service Index, 0–1 (best)	112	0.23
8.03	Gov't success in ICT promotion*	123	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	85	4.1
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	90	3.9
9.04	Knowledge-intensive jobs, % workforce	82	18.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	107	3.6
10.02	Internet access in schools*	122	2.9
10.03	ICT use & gov't efficiency*	128	3.0
10.04	E-Participation Index, 0–1 (best)	106	0.25

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Peru

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**90**	**3.7**
Networked Readiness Index 2014 (out of 148)	90	3.7
Networked Readiness Index 2013 (out of 144)	103	3.4
A. Environment subindex	**96**	**3.7**
1st pillar: Political and regulatory environment	117	3.0
2nd pillar: Business and innovation environment	67	4.3
B. Readiness subindex	**93**	**4.3**
3rd pillar: Infrastructure	90	3.3
4th pillar: Affordability	78	5.1
5th pillar: Skills	96	4.3
C. Usage subindex	**91**	**3.4**
6th pillar: Individual usage	94	3.0
7th pillar: Business usage	90	3.4
8th pillar: Government usage	70	3.9
D. Impact subindex	**79**	**3.5**
9th pillar: Economic impacts	96	3.0
10th pillar: Social impacts	70	4.1



The Networked Readiness Index in detail

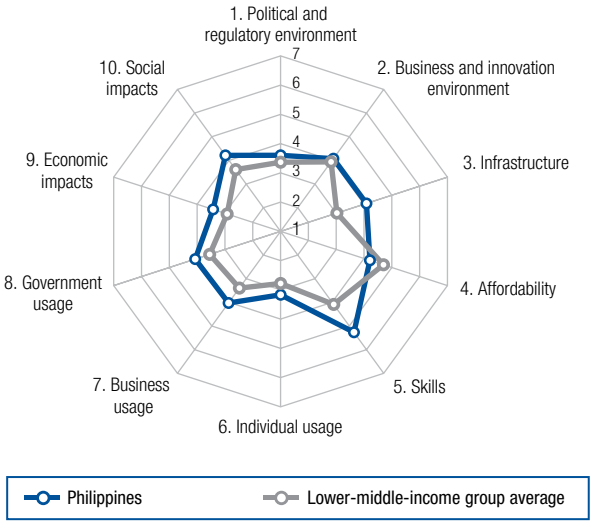
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	140	2.0
1.02	Laws relating to ICTs*	93	3.6
1.03	Judicial independence*	123	2.5
1.04	Efficiency of legal system in settling disputes*	111	3.1
1.05	Efficiency of legal system in challenging regs*	109	2.8
1.06	Intellectual property protection*	118	2.8
1.07	Software piracy rate, % software installed	62	65
1.08	No. procedures to enforce a contract	109	41
1.09	No. days to enforce a contract	39	426
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	80	4.6
2.02	Venture capital availability*	54	2.9
2.03	Total tax rate, % profits	66	36.0
2.04	No. days to start a business	107	26
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	70	5.1
2.07	Tertiary education gross enrollment rate, %	63	42.6
2.08	Quality of management schools*	77	4.2
2.09	Gov't procurement of advanced tech*	104	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	91	1,324.4
3.02	Mobile network coverage, % pop.	95	97.0
3.03	Int'l Internet bandwidth, kb/s per user	86	18.1
3.04	Secure Internet servers/million pop.	77	21.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	89	0.32
4.02	Fixed broadband Internet tariffs, PPP $/month	87	39.00
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	133	2.5
5.02	Quality of math & science education*	138	2.3
5.03	Secondary education gross enrollment rate, %	68	89.8
5.04	Adult literacy rate, %	55	94.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	97	98.1
6.02	Individuals using Internet, %	84	39.2
6.03	Households w/ personal computer, %	83	32.0
6.04	Households w/ Internet access, %	89	22.1
6.05	Fixed broadband Internet subs/100 pop.	80	5.2
6.06	Mobile broadband subs/100 pop.	116	2.9
6.07	Use of virtual social networks*	102	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	78	4.5
7.02	Capacity for innovation*	100	3.4
7.03	PCT patents, applications/million pop.	87	0.3
7.04	Business-to-business Internet use*	78	4.7
7.05	Business-to-consumer Internet use*	79	4.3
7.06	Extent of staff training*	93	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	110	3.3
8.02	Government Online Service Index, 0–1 (best)	41	0.63
8.03	Gov't success in ICT promotion*	111	3.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	76	4.2
9.02	ICT PCT patents, applications/million pop.	83	0.1
9.03	Impact of ICTs on new organizational models*	73	4.1
9.04	Knowledge-intensive jobs, % workforce	96	15.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	80	4.0
10.02	Internet access in schools*	94	3.7
10.03	ICT use & gov't efficiency*	99	3.6
10.04	E-Participation Index, 0–1 (best)	24	0.71

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Philippines

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**76**	**4.0**
Networked Readiness Index 2014 (out of 148)	78	3.9
Networked Readiness Index 2013 (out of 144)	86	3.7
A. Environment subindex	**84**	**3.8**
1st pillar: Political and regulatory environment	75	3.6
2nd pillar: Business and innovation environment	85	4.1
B. Readiness subindex	**85**	**4.5**
3rd pillar: Infrastructure	73	4.1
4th pillar: Affordability	103	4.2
5th pillar: Skills	61	5.3
C. Usage subindex	**74**	**3.8**
6th pillar: Individual usage	89	3.2
7th pillar: Business usage	38	4.0
8th pillar: Government usage	61	4.1
D. Impact subindex	**62**	**3.8**
9th pillar: Economic impacts	55	3.4
10th pillar: Social impacts	67	4.2



The Networked Readiness Index in detail

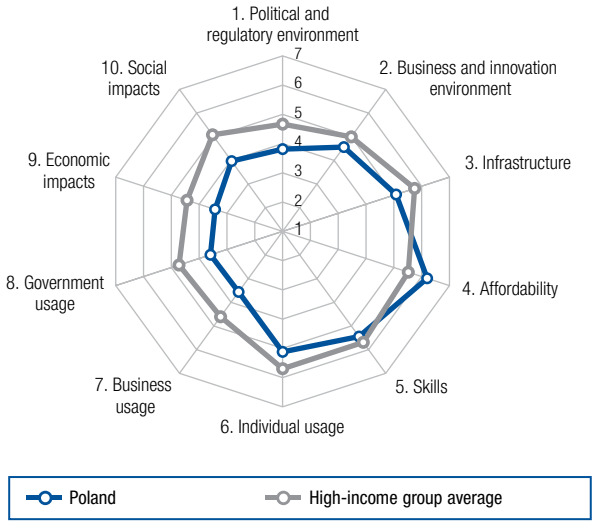
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	73	3.6
1.02	Laws relating to ICTs*	78	3.8
1.03	Judicial independence*	77	3.6
1.04	Efficiency of legal system in settling disputes*	68	3.7
1.05	Efficiency of legal system in challenging regs*	56	3.5
1.06	Intellectual property protection*	66	3.7
1.07	Software piracy rate, % software installed	66	69
1.08	No. procedures to enforce a contract	70	37
1.09	No. days to enforce a contract	119	842
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	58	5.1
2.02	Venture capital availability*	31	3.3
2.03	Total tax rate, % profits	92	42.5
2.04	No. days to start a business	120	34
2.05	No. procedures to start a business	142	16
2.06	Intensity of local competition*	61	5.2
2.07	Tertiary education gross enrollment rate, %	82	28.2
2.08	Quality of management schools*	40	4.7
2.09	Gov't procurement of advanced tech*	53	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	103	727.8
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	47	57.6
3.04	Secure Internet servers/million pop.	99	8.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	100	0.36
4.02	Fixed broadband Internet tariffs, PPP $/month	108	55.63
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	29	4.5
5.02	Quality of math & science education*	70	4.1
5.03	Secondary education gross enrollment rate, %	87	84.6
5.04	Adult literacy rate, %	40	96.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	86	104.5
6.02	Individuals using Internet, %	91	37.0
6.03	Households w/ personal computer, %	102	18.7
6.04	Households w/ Internet access, %	86	22.9
6.05	Fixed broadband Internet subs/100 pop.	68	9.1
6.06	Mobile broadband subs/100 pop.	132	0.0
6.07	Use of virtual social networks*	25	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	41	5.1
7.02	Capacity for innovation*	30	4.5
7.03	PCT patents, applications/million pop.	85	0.4
7.04	Business-to-business Internet use*	52	5.1
7.05	Business-to-consumer Internet use*	58	4.7
7.06	Extent of staff training*	27	4.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	69	3.9
8.02	Government Online Service Index, 0–1 (best)	66	0.48
8.03	Gov't success in ICT promotion*	53	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	50	4.6
9.02	ICT PCT patents, applications/million pop.	80	0.1
9.03	Impact of ICTs on new organizational models*	40	4.6
9.04	Knowledge-intensive jobs, % workforce	65	23.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	77	4.0
10.02	Internet access in schools*	66	4.3
10.03	ICT use & gov't efficiency*	69	4.1
10.04	E-Participation Index, 0–1 (best)	51	0.57

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Poland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**50**	**4.4**
Networked Readiness Index 2014 (out of 148)	54	4.2
Networked Readiness Index 2013 (out of 144)	49	4.2
A. Environment subindex	**53**	**4.2**
1st pillar: Political and regulatory environment	65	3.8
2nd pillar: Business and innovation environment	54	4.6
B. Readiness subindex	**30**	**5.6**
3rd pillar: Infrastructure	36	5.1
4th pillar: Affordability	26	6.2
5th pillar: Skills	43	5.4
C. Usage subindex	**54**	**4.1**
6th pillar: Individual usage	44	5.1
7th pillar: Business usage	71	3.6
8th pillar: Government usage	86	3.6
D. Impact subindex	**69**	**3.7**
9th pillar: Economic impacts	54	3.4
10th pillar: Social impacts	78	4.0



The Networked Readiness Index in detail

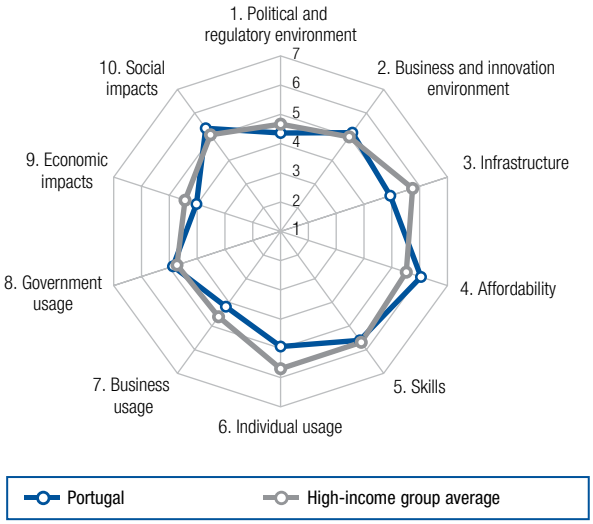
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	84	3.4
1.02	Laws relating to ICTs*	75	3.9
1.03	Judicial independence*	54	4.1
1.04	Efficiency of legal system in settling disputes*	117	2.9
1.05	Efficiency of legal system in challenging regs*	110	2.8
1.06	Intellectual property protection*	63	3.7
1.07	Software piracy rate, % software installed	41	51
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	104	685
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	90	4.5
2.02	Venture capital availability*	99	2.3
2.03	Total tax rate, % profits	73	38.7
2.04	No. days to start a business	113	30
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	51	5.3
2.07	Tertiary education gross enrollment rate, %	23	73.2
2.08	Quality of management schools*	84	4.0
2.09	Gov't procurement of advanced tech*	89	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	54	4,193.5
3.02	Mobile network coverage, % pop.	59	99.5
3.03	Int'l Internet bandwidth, kb/s per user	37	73.0
3.04	Secure Internet servers/million pop.	30	309.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	51	0.21
4.02	Fixed broadband Internet tariffs, PPP $/month	26	21.39
4.03	Internet & telephony competition, 0–2 (best)	83	1.77
	5th pillar: Skills		
5.01	Quality of educational system*	79	3.6
5.02	Quality of math & science education*	50	4.4
5.03	Secondary education gross enrollment rate, %	43	97.7
5.04	Adult literacy rate, %	5	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	25	149.1
6.02	Individuals using Internet, %	47	62.8
6.03	Households w/ personal computer, %	35	74.7
6.04	Households w/ Internet access, %	34	71.9
6.05	Fixed broadband Internet subs/100 pop.	45	15.7
6.06	Mobile broadband subs/100 pop.	38	54.9
6.07	Use of virtual social networks*	95	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	101	4.2
7.02	Capacity for innovation*	67	3.8
7.03	PCT patents, applications/million pop.	40	8.3
7.04	Business-to-business Internet use*	98	4.3
7.05	Business-to-consumer Internet use*	52	4.9
7.06	Extent of staff training*	72	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	118	3.1
8.02	Government Online Service Index, 0–1 (best)	57	0.54
8.03	Gov't success in ICT promotion*	122	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	98	4.0
9.02	ICT PCT patents, applications/million pop.	43	1.6
9.03	Impact of ICTs on new organizational models*	92	3.9
9.04	Knowledge-intensive jobs, % workforce	32	35.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	96	3.7
10.02	Internet access in schools*	50	4.9
10.03	ICT use & gov't efficiency*	113	3.4
10.04	E-Participation Index, 0–1 (best)	64	0.49

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Portugal

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**28**	**4.9**
Networked Readiness Index 2014 (out of 148)	33	4.7
Networked Readiness Index 2013 (out of 144)	33	4.7
A. Environment subindex	**30**	**4.8**
1st pillar: Political and regulatory environment	33	4.4
2nd pillar: Business and innovation environment	20	5.2
B. Readiness subindex	**33**	**5.5**
3rd pillar: Infrastructure	41	4.9
4th pillar: Affordability	35	6.0
5th pillar: Skills	34	5.6
C. Usage subindex	**34**	**4.7**
6th pillar: Individual usage	46	4.9
7th pillar: Business usage	33	4.2
8th pillar: Government usage	26	4.9
D. Impact subindex	**28**	**4.7**
9th pillar: Economic impacts	30	4.0
10th pillar: Social impacts	22	5.4



The Networked Readiness Index in detail

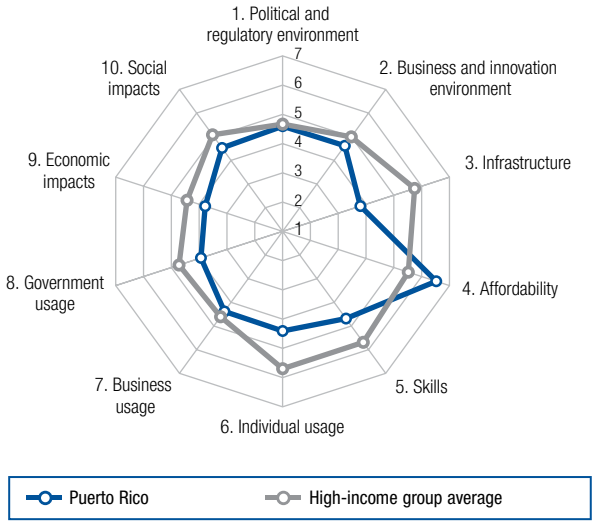
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	66	3.6
1.02	Laws relating to ICTs*	20	5.1
1.03	Judicial independence*	44	4.5
1.04	Efficiency of legal system in settling disputes*	110	3.1
1.05	Efficiency of legal system in challenging regs*	77	3.3
1.06	Intellectual property protection*	35	4.6
1.07	Software piracy rate, % software installed	28	40
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	74	547
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	11	6.3
2.02	Venture capital availability*	84	2.5
2.03	Total tax rate, % profits	91	42.4
2.04	No. days to start a business	4	3
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	63	5.1
2.07	Tertiary education gross enrollment rate, %	29	68.9
2.08	Quality of management schools*	4	5.9
2.09	Gov't procurement of advanced tech*	42	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	51	4,330.6
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	14	181.1
3.04	Secure Internet servers/million pop.	37	218.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	30	0.13
4.02	Fixed broadband Internet tariffs, PPP $/month	77	34.46
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	40	4.3
5.02	Quality of math & science education*	43	4.5
5.03	Secondary education gross enrollment rate, %	8	112.9
5.04	Adult literacy rate, %	43	95.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	70	113.0
6.02	Individuals using Internet, %	48	62.1
6.03	Households w/ personal computer, %	47	66.7
6.04	Households w/ Internet access, %	48	62.3
6.05	Fixed broadband Internet subs/100 pop.	31	23.8
6.06	Mobile broadband subs/100 pop.	61	36.7
6.07	Use of virtual social networks*	49	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	22	5.6
7.02	Capacity for innovation*	37	4.3
7.03	PCT patents, applications/million pop.	33	13.4
7.04	Business-to-business Internet use*	24	5.6
7.05	Business-to-consumer Internet use*	30	5.3
7.06	Extent of staff training*	54	4.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	24	4.7
8.02	Government Online Service Index, 0–1 (best)	39	0.64
8.03	Gov't success in ICT promotion*	16	5.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	17	5.3
9.02	ICT PCT patents, applications/million pop.	34	3.4
9.03	Impact of ICTs on new organizational models*	19	5.1
9.04	Knowledge-intensive jobs, % workforce	40	32.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	19	5.4
10.02	Internet access in schools*	28	5.7
10.03	ICT use & gov't efficiency*	8	5.4
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Puerto Rico

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**44**	**4.5**
Networked Readiness Index 2014 (out of 148)	41	4.5
Networked Readiness Index 2013 (out of 144)	36	4.6
A. Environment subindex	**35**	**4.6**
1st pillar: Political and regulatory environment	29	4.6
2nd pillar: Business and innovation environment	49	4.6
B. Readiness subindex	**57**	**5.0**
3rd pillar: Infrastructure	80	3.8
4th pillar: Affordability	14	6.5
5th pillar: Skills	87	4.7
C. Usage subindex	**47**	**4.2**
6th pillar: Individual usage	63	4.4
7th pillar: Business usage	29	4.4
8th pillar: Government usage	68	3.9
D. Impact subindex	**40**	**4.2**
9th pillar: Economic impacts	37	3.8
10th pillar: Social impacts	51	4.5



The Networked Readiness Index in detail

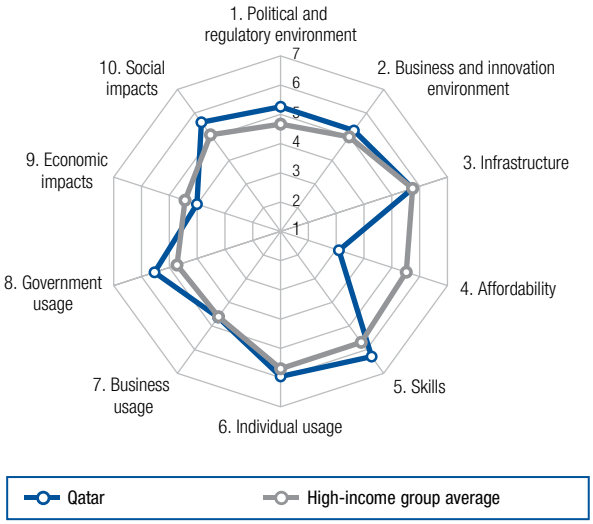
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	87	3.3
1.02	Laws relating to ICTs*	29	4.9
1.03	Judicial independence*	43	4.5
1.04	Efficiency of legal system in settling disputes*	19	5.1
1.05	Efficiency of legal system in challenging regs*	20	4.4
1.06	Intellectual property protection*	9	5.9
1.07	Software piracy rate, % software installed	29	42
1.08	No. procedures to enforce a contract	91	39
1.09	No. days to enforce a contract	94	620
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	20	6.1
2.02	Venture capital availability*	51	2.9
2.03	Total tax rate, % profits	134	66.0
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	7	6.0
2.07	Tertiary education gross enrollment rate, %	5	86.5
2.08	Quality of management schools*	45	4.6
2.09	Gov't procurement of advanced tech*	99	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	39	5,430.5
3.02	Mobile network coverage, % pop.	134	68.4
3.03	Int'l Internet bandwidth, kb/s per user	18	136.9
3.04	Secure Internet servers/million pop.	47	109.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	29	0.13
4.02	Fixed broadband Internet tariffs, PPP $/month	36	24.30
4.03	Internet & telephony competition, 0–2 (best)	n/a	n/a
	5th pillar: Skills		
5.01	Quality of educational system*	85	3.5
5.02	Quality of math & science education*	91	3.8
5.03	Secondary education gross enrollment rate, %	93	78.3
5.04	Adult literacy rate, %	61	93.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	113	83.6
6.02	Individuals using Internet, %	32	73.9
6.03	Households w/ personal computer, %	55	60.0
6.04	Households w/ Internet access, %	50	60.7
6.05	Fixed broadband Internet subs/100 pop.	44	16.3
6.06	Mobile broadband subs/100 pop.	87	15.8
6.07	Use of virtual social networks*	11	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	18	5.6
7.02	Capacity for innovation*	20	4.9
7.03	PCT patents, applications/million pop.	56	2.2
7.04	Business-to-business Internet use*	33	5.5
7.05	Business-to-consumer Internet use*	32	5.2
7.06	Extent of staff training*	16	4.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	79	3.8
8.02	Government Online Service Index, 0–1 (best)	n/a	n/a
8.03	Gov't success in ICT promotion*	79	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	34	4.9
9.02	ICT PCT patents, applications/million pop.	52	1.0
9.03	Impact of ICTs on new organizational models*	25	4.9
9.04	Knowledge-intensive jobs, % workforce	43	31.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	48	4.6
10.02	Internet access in schools*	54	4.8
10.03	ICT use & gov't efficiency*	62	4.2
10.04	E-Participation Index, 0–1 (best)	n/a	n/a

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Qatar

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**27**	**5.1**
Networked Readiness Index 2014 (out of 148)	23	5.2
Networked Readiness Index 2013 (out of 144)	23	5.1
A. Environment subindex	**15**	**5.3**
1st pillar: Political and regulatory environment	17	5.3
2nd pillar: Business and innovation environment	16	5.3
B. Readiness subindex	**56**	**5.0**
3rd pillar: Infrastructure	29	5.7
4th pillar: Affordability	126	3.1
5th pillar: Skills	5	6.3
C. Usage subindex	**17**	**5.4**
6th pillar: Individual usage	19	6.0
7th pillar: Business usage	25	4.6
8th pillar: Government usage	5	5.5
D. Impact subindex	**27**	**4.8**
9th pillar: Economic impacts	32	4.0
10th pillar: Social impacts	10	5.6



The Networked Readiness Index in detail

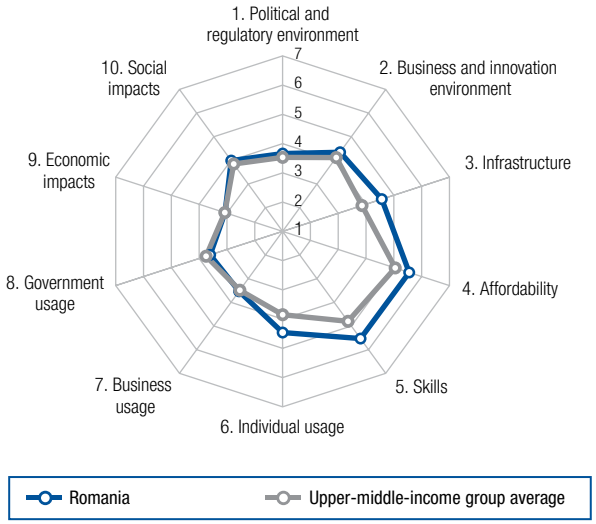
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	3	5.8
1.02	Laws relating to ICTs*	5	5.6
1.03	Judicial independence*	13	6.0
1.04	Efficiency of legal system in settling disputes*	6	5.7
1.05	Efficiency of legal system in challenging regs*	4	5.3
1.06	Intellectual property protection*	5	6.0
1.07	Software piracy rate, % software installed	38	49
1.08	No. procedures to enforce a contract	118	43
1.09	No. days to enforce a contract	79	570
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	25	5.9
2.02	Venture capital availability*	1	4.8
2.03	Total tax rate, % profits	3	11.3
2.04	No. days to start a business	49	9
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	18	5.7
2.07	Tertiary education gross enrollment rate, %	107	12.1
2.08	Quality of management schools*	10	5.6
2.09	Gov't procurement of advanced tech*	1	5.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	6	16,081.4
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	55	48.7
3.04	Secure Internet servers/million pop.	42	161.9
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	54	0.22
4.02	Fixed broadband Internet tariffs, PPP $/month	123	80.47
4.03	Internet & telephony competition, 0–2 (best)	126	0.93
	5th pillar: Skills		
5.01	Quality of educational system*	3	5.8
5.02	Quality of math & science education*	6	5.5
5.03	Secondary education gross enrollment rate, %	9	111.6
5.04	Adult literacy rate, %	35	97.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	23	152.6
6.02	Individuals using Internet, %	14	85.3
6.03	Households w/ personal computer, %	1	97.2
6.04	Households w/ Internet access, %	3	96.4
6.05	Fixed broadband Internet subs/100 pop.	65	9.9
6.06	Mobile broadband subs/100 pop.	18	76.8
6.07	Use of virtual social networks*	22	6.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	12	5.8
7.02	Capacity for innovation*	12	5.2
7.03	PCT patents, applications/million pop.	30	17.6
7.04	Business-to-business Internet use*	14	5.7
7.05	Business-to-consumer Internet use*	39	5.1
7.06	Extent of staff training*	6	5.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	3	5.8
8.02	Government Online Service Index, 0–1 (best)	37	0.65
8.03	Gov't success in ICT promotion*	5	5.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	4	5.6
9.02	ICT PCT patents, applications/million pop.	24	12.3
9.03	Impact of ICTs on new organizational models*	7	5.5
9.04	Knowledge-intensive jobs, % workforce	84	18.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	2	6.0
10.02	Internet access in schools*	25	5.9
10.03	ICT use & gov't efficiency*	3	5.9
10.04	E-Participation Index, 0–1 (best)	45	0.61

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Romania

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**63**	**4.2**
Networked Readiness Index 2014 (out of 148)	75	3.9
Networked Readiness Index 2013 (out of 144)	75	3.9
A. Environment subindex	**64**	**4.0**
1st pillar: Political and regulatory environment	72	3.7
2nd pillar: Business and innovation environment	66	4.3
B. Readiness subindex	**47**	**5.2**
3rd pillar: Infrastructure	52	4.6
4th pillar: Affordability	59	5.5
5th pillar: Skills	38	5.5
C. Usage subindex	**66**	**3.9**
6th pillar: Individual usage	61	4.5
7th pillar: Business usage	76	3.5
8th pillar: Government usage	85	3.6
D. Impact subindex	**80**	**3.5**
9th pillar: Economic impacts	85	3.1
10th pillar: Social impacts	77	4.0



The Networked Readiness Index in detail

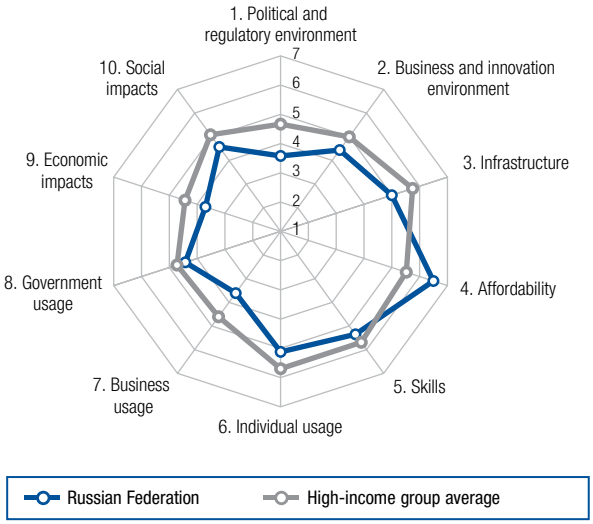
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	99	3.1
1.02	Laws relating to ICTs*	56	4.2
1.03	Judicial independence*	84	3.5
1.04	Efficiency of legal system in settling disputes*	105	3.2
1.05	Efficiency of legal system in challenging regs*	93	3.1
1.06	Intellectual property protection*	88	3.4
1.07	Software piracy rate, % software installed	57	62
1.08	No. procedures to enforce a contract	42	34
1.09	No. days to enforce a contract	62	512
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	81	4.6
2.02	Venture capital availability*	78	2.6
2.03	Total tax rate, % profits	95	43.2
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	119	4.4
2.07	Tertiary education gross enrollment rate, %	52	51.6
2.08	Quality of management schools*	74	4.2
2.09	Gov't procurement of advanced tech*	75	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	66	3,077.3
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	19	136.6
3.04	Secure Internet servers/million pop.	54	69.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	119	0.48
4.02	Fixed broadband Internet tariffs, PPP $/month	14	17.41
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	61	3.8
5.02	Quality of math & science education*	31	4.7
5.03	Secondary education gross enrollment rate, %	55	95.0
5.04	Adult literacy rate, %	20	98.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	85	105.6
6.02	Individuals using Internet, %	67	49.8
6.03	Households w/ personal computer, %	54	61.2
6.04	Households w/ Internet access, %	51	58.1
6.05	Fixed broadband Internet subs/100 pop.	40	17.3
6.06	Mobile broadband subs/100 pop.	60	37.6
6.07	Use of virtual social networks*	77	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	81	4.4
7.02	Capacity for innovation*	68	3.7
7.03	PCT patents, applications/million pop.	55	2.7
7.04	Business-to-business Internet use*	85	4.6
7.05	Business-to-consumer Internet use*	41	5.1
7.06	Extent of staff training*	110	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	99	3.4
8.02	Government Online Service Index, 0–1 (best)	72	0.44
8.03	Gov't success in ICT promotion*	101	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	86	4.1
9.02	ICT PCT patents, applications/million pop.	50	1.2
9.03	Impact of ICTs on new organizational models*	87	3.9
9.04	Knowledge-intensive jobs, % workforce	71	21.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	95	3.7
10.02	Internet access in schools*	53	4.8
10.03	ICT use & gov't efficiency*	98	3.6
10.04	E-Participation Index, 0–1 (best)	69	0.47

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Russian Federation

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**41**	**4.5**
Networked Readiness Index 2014 (out of 148)	50	4.3
Networked Readiness Index 2013 (out of 144)	54	4.1
A. Environment subindex	**63**	**4.0**
1st pillar: Political and regulatory environment	79	3.6
2nd pillar: Business and innovation environment	63	4.4
B. Readiness subindex	**27**	**5.6**
3rd pillar: Infrastructure	39	5.0
4th pillar: Affordability	15	6.5
5th pillar: Skills	52	5.3
C. Usage subindex	**39**	**4.4**
6th pillar: Individual usage	43	5.1
7th pillar: Business usage	66	3.6
8th pillar: Government usage	47	4.4
D. Impact subindex	**42**	**4.1**
9th pillar: Economic impacts	39	3.7
10th pillar: Social impacts	48	4.6



The Networked Readiness Index in detail

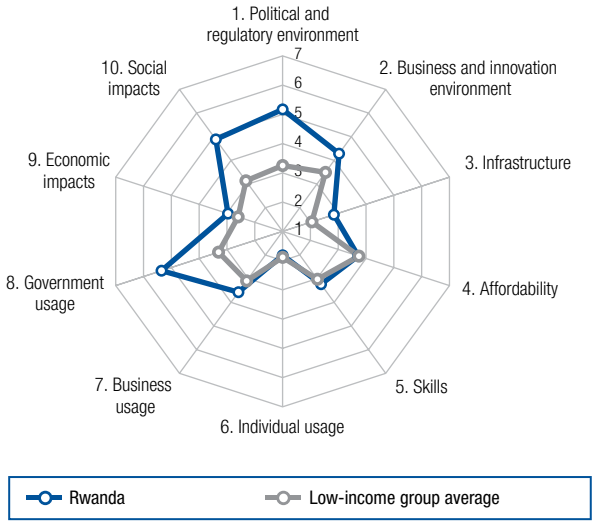
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	72	3.6
1.02	Laws relating to ICTs*	80	3.8
1.03	Judicial independence*	109	2.9
1.04	Efficiency of legal system in settling disputes*	109	3.2
1.05	Efficiency of legal system in challenging regs*	99	2.9
1.06	Intellectual property protection*	106	3.0
1.07	Software piracy rate, % software installed	57	62
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	7	267
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	108	4.2
2.02	Venture capital availability*	61	2.7
2.03	Total tax rate, % profits	111	48.9
2.04	No. days to start a business	66	11
2.05	No. procedures to start a business	37	4
2.06	Intensity of local competition*	74	5.0
2.07	Tertiary education gross enrollment rate, %	19	76.1
2.08	Quality of management schools*	104	3.7
2.09	Gov't procurement of advanced tech*	81	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	28	7,365.9
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	60	41.2
3.04	Secure Internet servers/million pop.	59	51.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	25	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	10	16.23
4.03	Internet & telephony competition, 0–2 (best)	99	1.50
	5th pillar: Skills		
5.01	Quality of educational system*	84	3.5
5.02	Quality of math & science education*	59	4.3
5.03	Secondary education gross enrollment rate, %	54	95.3
5.04	Adult literacy rate, %	10	99.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	22	152.8
6.02	Individuals using Internet, %	49	61.4
6.03	Households w/ personal computer, %	43	69.7
6.04	Households w/ Internet access, %	41	67.2
6.05	Fixed broadband Internet subs/100 pop.	43	16.6
6.06	Mobile broadband subs/100 pop.	31	60.1
6.07	Use of virtual social networks*	74	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	98	4.2
7.02	Capacity for innovation*	66	3.8
7.03	PCT patents, applications/million pop.	43	7.4
7.04	Business-to-business Internet use*	66	4.8
7.05	Business-to-consumer Internet use*	36	5.1
7.06	Extent of staff training*	89	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	74	3.8
8.02	Government Online Service Index, 0–1 (best)	27	0.71
8.03	Gov't success in ICT promotion*	69	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	93	4.0
9.02	ICT PCT patents, applications/million pop.	38	2.4
9.03	Impact of ICTs on new organizational models*	78	4.0
9.04	Knowledge-intensive jobs, % workforce	16	43.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	85	3.9
10.02	Internet access in schools*	41	5.1
10.03	ICT use & gov't efficiency*	67	4.1
10.04	E-Participation Index, 0–1 (best)	30	0.69

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Rwanda

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**83**	**3.9**
Networked Readiness Index 2014 (out of 148)	85	3.8
Networked Readiness Index 2013 (out of 144)	88	3.7
A. Environment subindex	**32**	**4.7**
1st pillar: Political and regulatory environment	19	5.2
2nd pillar: Business and innovation environment	71	4.3
B. Readiness subindex	**115**	**3.3**
3rd pillar: Infrastructure	106	2.8
4th pillar: Affordability	111	3.7
5th pillar: Skills	121	3.2
C. Usage subindex	**85**	**3.6**
6th pillar: Individual usage	132	1.8
7th pillar: Business usage	70	3.6
8th pillar: Government usage	12	5.4
D. Impact subindex	**56**	**3.9**
9th pillar: Economic impacts	98	3.0
10th pillar: Social impacts	39	4.9



The Networked Readiness Index in detail

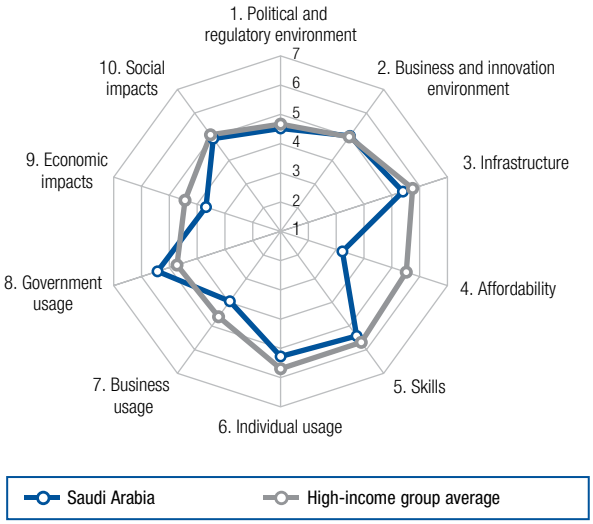
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	8	5.3
1.02	Laws relating to ICTs*	33	4.7
1.03	Judicial independence*	34	4.9
1.04	Efficiency of legal system in settling disputes*	16	5.2
1.05	Efficiency of legal system in challenging regs*	24	4.3
1.06	Intellectual property protection*	32	4.6
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	3	23
1.09	No. days to enforce a contract	4	230
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	46	5.3
2.02	Venture capital availability*	39	3.1
2.03	Total tax rate, % profits	56	33.5
2.04	No. days to start a business	36	7
2.05	No. procedures to start a business	94	8
2.06	Intensity of local competition*	78	4.9
2.07	Tertiary education gross enrollment rate, %	124	7.2
2.08	Quality of management schools*	99	3.8
2.09	Gov't procurement of advanced tech*	5	4.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	141	25.9
3.02	Mobile network coverage, % pop.	62	99.3
3.03	Int'l Internet bandwidth, kb/s per user	103	9.8
3.04	Secure Internet servers/million pop.	113	2.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	46	0.17
4.02	Fixed broadband Internet tariffs, PPP $/month	138	760.62
4.03	Internet & telephony competition, 0–2 (best)	66	1.93
	5th pillar: Skills		
5.01	Quality of educational system*	50	4.0
5.02	Quality of math & science education*	71	4.1
5.03	Secondary education gross enrollment rate, %	132	31.8
5.04	Adult literacy rate, %	97	70.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	134	56.8
6.02	Individuals using Internet, %	125	8.7
6.03	Households w/ personal computer, %	136	2.9
6.04	Households w/ Internet access, %	136	2.9
6.05	Fixed broadband Internet subs/100 pop.	138	0.0
6.06	Mobile broadband subs/100 pop.	106	5.8
6.07	Use of virtual social networks*	104	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	49	5.0
7.02	Capacity for innovation*	86	3.5
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	81	4.6
7.05	Business-to-consumer Internet use*	100	4.0
7.06	Extent of staff training*	66	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	4	5.8
8.02	Government Online Service Index, 0–1 (best)	63	0.51
8.03	Gov't success in ICT promotion*	1	6.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	28	5.0
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	47	4.5
9.04	Knowledge-intensive jobs, % workforce	115	3.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	20	5.3
10.02	Internet access in schools*	70	4.3
10.03	ICT use & gov't efficiency*	4	5.8
10.04	E-Participation Index, 0–1 (best)	63	0.51

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Saudi Arabia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**35**	**4.7**
Networked Readiness Index 2014 (out of 148)	32	4.8
Networked Readiness Index 2013 (out of 144)	31	4.8
A. Environment subindex	**29**	**4.8**
1st pillar: Political and regulatory environment	32	4.5
2nd pillar: Business and innovation environment	26	5.0
B. Readiness subindex	**75**	**4.7**
3rd pillar: Infrastructure	32	5.4
4th pillar: Affordability	122	3.2
5th pillar: Skills	45	5.4
C. Usage subindex	**29**	**4.9**
6th pillar: Individual usage	36	5.3
7th pillar: Business usage	42	4.0
8th pillar: Government usage	8	5.4
D. Impact subindex	**38**	**4.3**
9th pillar: Economic impacts	41	3.7
10th pillar: Social impacts	37	4.9



The Networked Readiness Index in detail

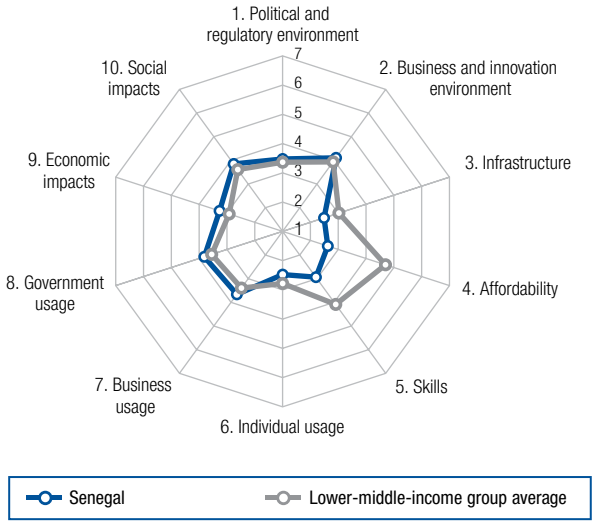
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	34	4.3
1.02	Laws relating to ICTs*	31	4.8
1.03	Judicial independence*	26	5.2
1.04	Efficiency of legal system in settling disputes*	34	4.4
1.05	Efficiency of legal system in challenging regs*	27	4.1
1.06	Intellectual property protection*	28	4.9
1.07	Software piracy rate, % software installed	39	50
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	98	635
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	38	5.5
2.02	Venture capital availability*	27	3.4
2.03	Total tax rate, % profits	7	14.5
2.04	No. days to start a business	101	21
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	40	5.4
2.07	Tertiary education gross enrollment rate, %	54	50.9
2.08	Quality of management schools*	78	4.2
2.09	Gov't procurement of advanced tech*	7	4.6
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	17	9,008.0
3.02	Mobile network coverage, % pop.	53	99.7
3.03	Int'l Internet bandwidth, kb/s per user	32	81.1
3.04	Secure Internet servers/million pop.	67	34.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	87	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	124	82.45
4.03	Internet & telephony competition, 0–2 (best)	64	1.93
	5th pillar: Skills		
5.01	Quality of educational system*	47	4.1
5.02	Quality of math & science education*	73	4.1
5.03	Secondary education gross enrollment rate, %	7	116.2
5.04	Adult literacy rate, %	52	94.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	6	184.2
6.02	Individuals using Internet, %	51	60.5
6.03	Households w/ personal computer, %	39	72.6
6.04	Households w/ Internet access, %	32	72.7
6.05	Fixed broadband Internet subs/100 pop.	74	7.4
6.06	Mobile broadband subs/100 pop.	14	85.1
6.07	Use of virtual social networks*	35	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	31	5.4
7.02	Capacity for innovation*	55	4.0
7.03	PCT patents, applications/million pop.	44	7.3
7.04	Business-to-business Internet use*	34	5.5
7.05	Business-to-consumer Internet use*	63	4.6
7.06	Extent of staff training*	60	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	8	5.2
8.02	Government Online Service Index, 0–1 (best)	18	0.77
8.03	Gov't success in ICT promotion*	9	5.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	30	5.0
9.02	ICT PCT patents, applications/million pop.	39	2.1
9.03	Impact of ICTs on new organizational models*	26	4.8
9.04	Knowledge-intensive jobs, % workforce	54	26.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	25	5.3
10.02	Internet access in schools*	63	4.6
10.03	ICT use & gov't efficiency*	7	5.4
10.04	E-Participation Index, 0–1 (best)	51	0.57

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Senegal

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**106**	**3.3**
Networked Readiness Index 2014 (out of 148)	114	3.3
Networked Readiness Index 2013 (out of 144)	107	3.3
A. Environment subindex	**87**	**3.8**
1st pillar: Political and regulatory environment	92	3.5
2nd pillar: Business and innovation environment	82	4.1
B. Readiness subindex	**129**	**2.7**
3rd pillar: Infrastructure	120	2.5
4th pillar: Affordability	130	2.6
5th pillar: Skills	128	2.9
C. Usage subindex	**98**	**3.3**
6th pillar: Individual usage	111	2.5
7th pillar: Business usage	62	3.7
8th pillar: Government usage	73	3.8
D. Impact subindex	**78**	**3.6**
9th pillar: Economic impacts	66	3.3
10th pillar: Social impacts	81	3.8



The Networked Readiness Index in detail

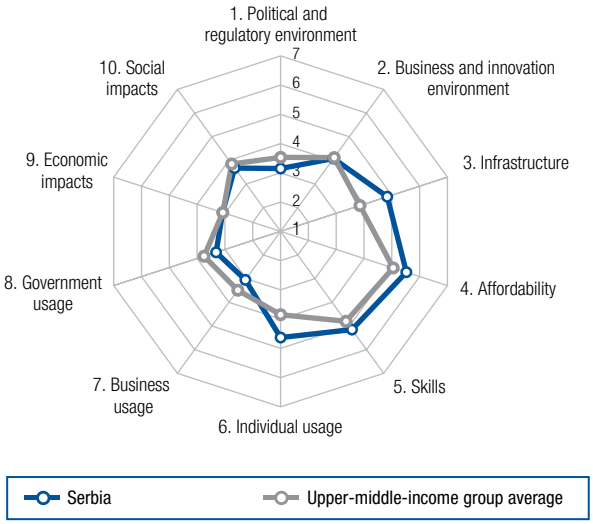
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	58	3.8
1.02	Laws relating to ICTs*	81	3.8
1.03	Judicial independence*	80	3.5
1.04	Efficiency of legal system in settling disputes*	58	3.8
1.05	Efficiency of legal system in challenging regs*	46	3.7
1.06	Intellectual property protection*	86	3.4
1.07	Software piracy rate, % software installed	78	77
1.08	No. procedures to enforce a contract	118	43
1.09	No. days to enforce a contract	113	740
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	68	4.9
2.02	Venture capital availability*	53	2.9
2.03	Total tax rate, % profits	101	45.1
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	81	4.9
2.07	Tertiary education gross enrollment rate, %	120	7.6
2.08	Quality of management schools*	51	4.6
2.09	Gov't procurement of advanced tech*	27	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	121	226.1
3.02	Mobile network coverage, % pop.	114	91.6
3.03	Int'l Internet bandwidth, kb/s per user	107	7.3
3.04	Secure Internet servers/million pop.	115	2.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	121	0.49
4.02	Fixed broadband Internet tariffs, PPP $/month	122	78.05
4.03	Internet & telephony competition, 0–2 (best)	85	1.76
	5th pillar: Skills		
5.01	Quality of educational system*	66	3.8
5.02	Quality of math & science education*	77	4.0
5.03	Secondary education gross enrollment rate, %	126	41.0
5.04	Adult literacy rate, %	111	57.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	106	92.9
6.02	Individuals using Internet, %	101	20.9
6.03	Households w/ personal computer, %	113	10.3
6.04	Households w/ Internet access, %	115	6.3
6.05	Fixed broadband Internet subs/100 pop.	111	0.8
6.06	Mobile broadband subs/100 pop.	90	14.1
6.07	Use of virtual social networks*	86	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	43	5.0
7.02	Capacity for innovation*	56	3.9
7.03	PCT patents, applications/million pop.	106	0.0
7.04	Business-to-business Internet use*	90	4.5
7.05	Business-to-consumer Internet use*	78	4.3
7.06	Extent of staff training*	78	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	61	4.0
8.02	Government Online Service Index, 0–1 (best)	97	0.31
8.03	Gov't success in ICT promotion*	44	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	53	4.6
9.02	ICT PCT patents, applications/million pop.	93	0.0
9.03	Impact of ICTs on new organizational models*	64	4.2
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	64	4.3
10.02	Internet access in schools*	85	3.9
10.03	ICT use & gov't efficiency*	63	4.1
10.04	E-Participation Index, 0–1 (best)	85	0.35

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Serbia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**77**	**4.0**
Networked Readiness Index 2014 (out of 148)	80	3.9
Networked Readiness Index 2013 (out of 144)	87	3.7
A. Environment subindex	**100**	**3.6**
1st pillar: Political and regulatory environment	110	3.1
2nd pillar: Business and innovation environment	84	4.1
B. Readiness subindex	**48**	**5.2**
3rd pillar: Infrastructure	42	4.8
4th pillar: Affordability	61	5.5
5th pillar: Skills	66	5.1
C. Usage subindex	**80**	**3.7**
6th pillar: Individual usage	55	4.6
7th pillar: Business usage	126	3.0
8th pillar: Government usage	111	3.3
D. Impact subindex	**89**	**3.4**
9th pillar: Economic impacts	80	3.1
10th pillar: Social impacts	90	3.7



The Networked Readiness Index in detail

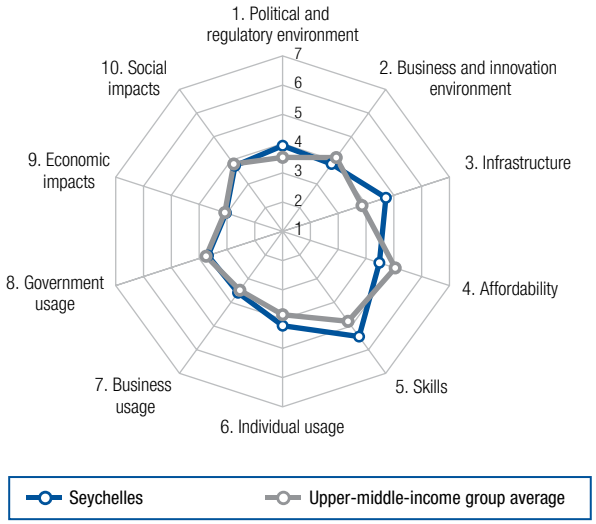
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	91	3.3
1.02	Laws relating to ICTs*	101	3.4
1.03	Judicial independence*	117	2.6
1.04	Efficiency of legal system in settling disputes*	127	2.7
1.05	Efficiency of legal system in challenging regs*	129	2.3
1.06	Intellectual property protection*	112	2.9
1.07	Software piracy rate, % software installed	66	69
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	98	635
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	106	4.2
2.02	Venture capital availability*	132	1.9
2.03	Total tax rate, % profits	72	38.6
2.04	No. days to start a business	69	12
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	127	4.2
2.07	Tertiary education gross enrollment rate, %	51	52.4
2.08	Quality of management schools*	114	3.6
2.09	Gov't procurement of advanced tech*	121	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	41	5,256.2
3.02	Mobile network coverage, % pop.	54	99.7
3.03	Int'l Internet bandwidth, kb/s per user	27	108.9
3.04	Secure Internet servers/million pop.	66	34.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	65	0.24
4.02	Fixed broadband Internet tariffs, PPP $/month	83	37.27
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	106	3.1
5.02	Quality of math & science education*	53	4.3
5.03	Secondary education gross enrollment rate, %	64	91.7
5.04	Adult literacy rate, %	26	98.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	58	119.4
6.02	Individuals using Internet, %	65	51.5
6.03	Households w/ personal computer, %	53	62.7
6.04	Households w/ Internet access, %	62	48.0
6.05	Fixed broadband Internet subs/100 pop.	50	14.2
6.06	Mobile broadband subs/100 pop.	39	53.7
6.07	Use of virtual social networks*	67	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	127	3.8
7.02	Capacity for innovation*	129	3.0
7.03	PCT patents, applications/million pop.	53	3.0
7.04	Business-to-business Internet use*	89	4.5
7.05	Business-to-consumer Internet use*	96	4.0
7.06	Extent of staff training*	133	3.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	114	3.2
8.02	Government Online Service Index, 0–1 (best)	80	0.39
8.03	Gov't success in ICT promotion*	124	3.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	109	3.8
9.02	ICT PCT patents, applications/million pop.	47	1.3
9.03	Impact of ICTs on new organizational models*	109	3.6
9.04	Knowledge-intensive jobs, % workforce	50	28.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	110	3.5
10.02	Internet access in schools*	72	4.2
10.03	ICT use & gov't efficiency*	109	3.4
10.04	E-Participation Index, 0–1 (best)	77	0.41

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Seychelles

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**74**	**4.0**
Networked Readiness Index 2014 (out of 148)	66	4.0
Networked Readiness Index 2013 (out of 144)	79	3.8
A. Environment subindex	**79**	**3.9**
1st pillar: Political and regulatory environment	56	3.9
2nd pillar: Business and innovation environment	101	3.8
B. Readiness subindex	**61**	**4.9**
3rd pillar: Infrastructure	44	4.7
4th pillar: Affordability	93	4.5
5th pillar: Skills	42	5.4
C. Usage subindex	**70**	**3.8**
6th pillar: Individual usage	65	4.2
7th pillar: Business usage	68	3.6
8th pillar: Government usage	79	3.7
D. Impact subindex	**85**	**3.4**
9th pillar: Economic impacts	90	3.0
10th pillar: Social impacts	85	3.8



The Networked Readiness Index in detail

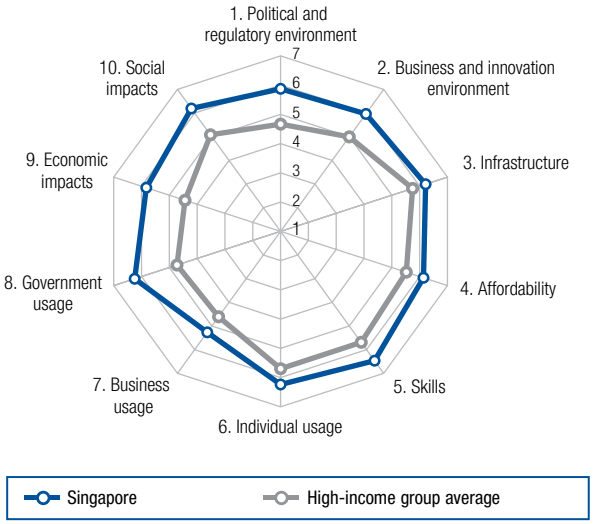
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	48	4.0
1.02	Laws relating to ICTs*	69	3.9
1.03	Judicial independence*	53	4.1
1.04	Efficiency of legal system in settling disputes*	52	4.0
1.05	Efficiency of legal system in challenging regs*	70	3.4
1.06	Intellectual property protection*	60	3.8
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	124	915
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	65	4.9
2.02	Venture capital availability*	62	2.7
2.03	Total tax rate, % profits	44	31.7
2.04	No. days to start a business	125	38
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	126	4.2
2.07	Tertiary education gross enrollment rate, %	138	1.4
2.08	Quality of management schools*	63	4.3
2.09	Gov't procurement of advanced tech*	46	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	65	3,152.5
3.02	Mobile network coverage, % pop.	85	98.0
3.03	Int'l Internet bandwidth, kb/s per user	77	23.7
3.04	Secure Internet servers/million pop.	24	616.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	124	0.51
4.02	Fixed broadband Internet tariffs, PPP $/month	43	25.35
4.03	Internet & telephony competition, 0–2 (best)	122	1.08
	5th pillar: Skills		
5.01	Quality of educational system*	37	4.3
5.02	Quality of math & science education*	57	4.3
5.03	Secondary education gross enrollment rate, %	28	101.3
5.04	Adult literacy rate, %	65	91.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	27	147.3
6.02	Individuals using Internet, %	66	50.4
6.03	Households w/ personal computer, %	57	59.3
6.04	Households w/ Internet access, %	59	50.6
6.05	Fixed broadband Internet subs/100 pop.	55	12.9
6.06	Mobile broadband subs/100 pop.	99	9.9
6.07	Use of virtual social networks*	81	5.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	63	4.7
7.02	Capacity for innovation*	59	3.9
7.03	PCT patents, applications/million pop.	48	5.7
7.04	Business-to-business Internet use*	100	4.3
7.05	Business-to-consumer Internet use*	97	4.0
7.06	Extent of staff training*	67	4.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	59	4.0
8.02	Government Online Service Index, 0–1 (best)	90	0.33
8.03	Gov't success in ICT promotion*	82	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	103	3.9
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	108	3.6
9.04	Knowledge-intensive jobs, % workforce	55	26.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	78	4.0
10.02	Internet access in schools*	74	4.2
10.03	ICT use & gov't efficiency*	55	4.3
10.04	E-Participation Index, 0–1 (best)	106	0.25

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Singapore

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**1**	**6.0**
Networked Readiness Index 2014 (out of 148)	2	6.0
Networked Readiness Index 2013 (out of 144)	2	6.0
A. Environment subindex	**1**	**5.9**
1st pillar: Political and regulatory environment	2	5.9
2nd pillar: Business and innovation environment	1	6.0
B. Readiness subindex	**8**	**6.3**
3rd pillar: Infrastructure	19	6.2
4th pillar: Affordability	30	6.1
5th pillar: Skills	2	6.5
C. Usage subindex	**2**	**5.9**
6th pillar: Individual usage	11	6.2
7th pillar: Business usage	14	5.3
8th pillar: Government usage	1	6.2
D. Impact subindex	**1**	**6.0**
9th pillar: Economic impacts	4	5.8
10th pillar: Social impacts	1	6.2



The Networked Readiness Index in detail

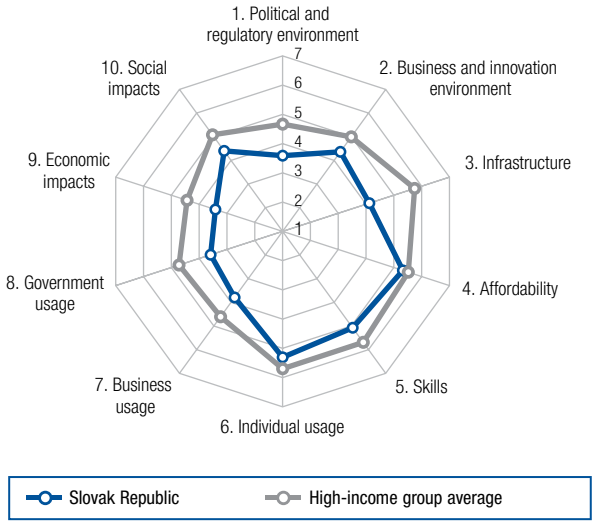
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	1	6.2
1.02	Laws relating to ICTs*	3	5.7
1.03	Judicial independence*	20	5.7
1.04	Efficiency of legal system in settling disputes*	1	6.2
1.05	Efficiency of legal system in challenging regs*	21	4.4
1.06	Intellectual property protection*	2	6.2
1.07	Software piracy rate, % software installed	18	32
1.08	No. procedures to enforce a contract	1	21
1.09	No. days to enforce a contract	1	150
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	15	6.2
2.02	Venture capital availability*	7	4.3
2.03	Total tax rate, % profits	11	18.4
2.04	No. days to start a business	4	3
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	20	5.7
2.07	Tertiary education gross enrollment rate, %	10	81.3
2.08	Quality of management schools*	6	5.8
2.09	Gov't procurement of advanced tech*	4	5.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	18	8,873.8
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	4	580.8
3.04	Secure Internet servers/million pop.	25	609.3
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	48	0.18
4.02	Fixed broadband Internet tariffs, PPP $/month	53	28.43
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	4	5.8
5.02	Quality of math & science education*	1	6.3
5.03	Secondary education gross enrollment rate, %	16	107.1
5.04	Adult literacy rate, %	36	96.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	19	155.9
6.02	Individuals using Internet, %	33	73.0
6.03	Households w/ personal computer, %	15	86.0
6.04	Households w/ Internet access, %	14	86.0
6.05	Fixed broadband Internet subs/100 pop.	23	26.0
6.06	Mobile broadband subs/100 pop.	1	149.3
6.07	Use of virtual social networks*	10	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	16	5.7
7.02	Capacity for innovation*	18	5.0
7.03	PCT patents, applications/million pop.	14	126.4
7.04	Business-to-business Internet use*	13	5.7
7.05	Business-to-consumer Internet use*	26	5.4
7.06	Extent of staff training*	7	5.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	2	5.9
8.02	Government Online Service Index, 0–1 (best)	2	0.99
8.03	Gov't success in ICT promotion*	3	5.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	9	5.5
9.02	ICT PCT patents, applications/million pop.	10	57.2
9.03	Impact of ICTs on new organizational models*	11	5.3
9.04	Knowledge-intensive jobs, % workforce	2	52.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	3	5.9
10.02	Internet access in schools*	6	6.4
10.03	ICT use & gov't efficiency*	2	6.0
10.04	E-Participation Index, 0–1 (best)	10	0.90

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Slovak Republic

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**59**	**4.2**
Networked Readiness Index 2014 (out of 148)	59	4.1
Networked Readiness Index 2013 (out of 144)	61	4.0
A. Environment subindex	**67**	**4.0**
1st pillar: Political and regulatory environment	78	3.6
2nd pillar: Business and innovation environment	64	4.4
B. Readiness subindex	**65**	**4.8**
3rd pillar: Infrastructure	71	4.1
4th pillar: Affordability	69	5.3
5th pillar: Skills	69	5.1
C. Usage subindex	**48**	**4.2**
6th pillar: Individual usage	35	5.3
7th pillar: Business usage	55	3.8
8th pillar: Government usage	88	3.6
D. Impact subindex	**58**	**3.9**
9th pillar: Economic impacts	57	3.4
10th pillar: Social impacts	57	4.4



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	108	3.0
1.02	Laws relating to ICTs*	71	3.9
1.03	Judicial independence*	129	2.3
1.04	Efficiency of legal system in settling disputes*	136	2.4
1.05	Efficiency of legal system in challenging regs*	135	2.2
1.06	Intellectual property protection*	61	3.8
1.07	Software piracy rate, % software installed	24	37
1.08	No. procedures to enforce a contract	34	33
1.09	No. days to enforce a contract	72	545
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	50	5.2
2.02	Venture capital availability*	57	2.8
2.03	Total tax rate, % profits	108	48.6
2.04	No. days to start a business	67	12
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	32	5.5
2.07	Tertiary education gross enrollment rate, %	50	55.1
2.08	Quality of management schools*	102	3.8
2.09	Gov't procurement of advanced tech*	116	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	42	5,234.3
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	93	11.8
3.04	Secure Internet servers/million pop.	34	262.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	63	0.24
4.02	Fixed broadband Internet tariffs, PPP $/month	88	39.11
4.03	Internet & telephony competition, 0–2 (best)	79	1.82
	5th pillar: Skills		
5.01	Quality of educational system*	124	2.8
5.02	Quality of math & science education*	75	4.0
5.03	Secondary education gross enrollment rate, %	56	93.9
5.04	Adult literacy rate, %	n/a	n/a[1]

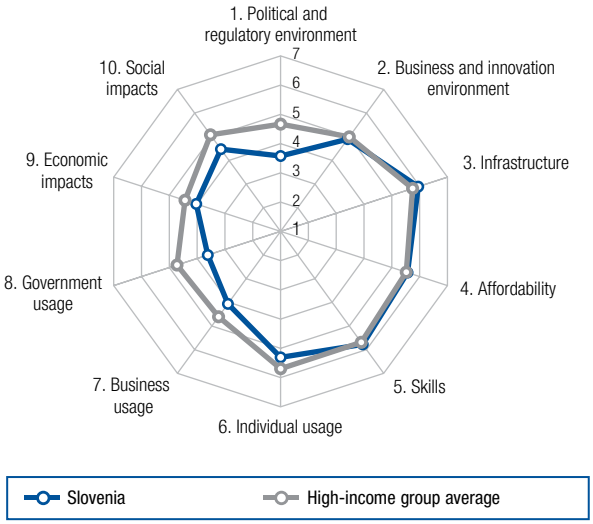
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	68	113.9
6.02	Individuals using Internet, %	26	77.9
6.03	Households w/ personal computer, %	28	80.1
6.04	Households w/ Internet access, %	26	77.9
6.05	Fixed broadband Internet subs/100 pop.	46	15.5
6.06	Mobile broadband subs/100 pop.	44	50.1
6.07	Use of virtual social networks*	56	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	57	4.8
7.02	Capacity for innovation*	89	3.5
7.03	PCT patents, applications/million pop.	38	9.1
7.04	Business-to-business Internet use*	26	5.6
7.05	Business-to-consumer Internet use*	25	5.5
7.06	Extent of staff training*	90	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	109	3.3
8.02	Government Online Service Index, 0–1 (best)	65	0.49
8.03	Gov't success in ICT promotion*	112	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	83	4.1
9.02	ICT PCT patents, applications/million pop.	46	1.5
9.03	Impact of ICTs on new organizational models*	74	4.1
9.04	Knowledge-intensive jobs, % workforce	45	31.8
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	86	3.9
10.02	Internet access in schools*	31	5.5
10.03	ICT use & gov't efficiency*	111	3.4
10.04	E-Participation Index, 0–1 (best)	40	0.63

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Slovenia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**37**	**4.6**
Networked Readiness Index 2014 (out of 148)	36	4.6
Networked Readiness Index 2013 (out of 144)	37	4.5
A. Environment subindex	**51**	**4.2**
1st pillar: Political and regulatory environment	81	3.6
2nd pillar: Business and innovation environment	34	4.9
B. Readiness subindex	**23**	**5.8**
3rd pillar: Infrastructure	25	5.9
4th pillar: Affordability	58	5.6
5th pillar: Skills	24	5.8
C. Usage subindex	**42**	**4.3**
6th pillar: Individual usage	34	5.3
7th pillar: Business usage	36	4.1
8th pillar: Government usage	84	3.6
D. Impact subindex	**39**	**4.3**
9th pillar: Economic impacts	29	4.0
10th pillar: Social impacts	53	4.5



The Networked Readiness Index in detail

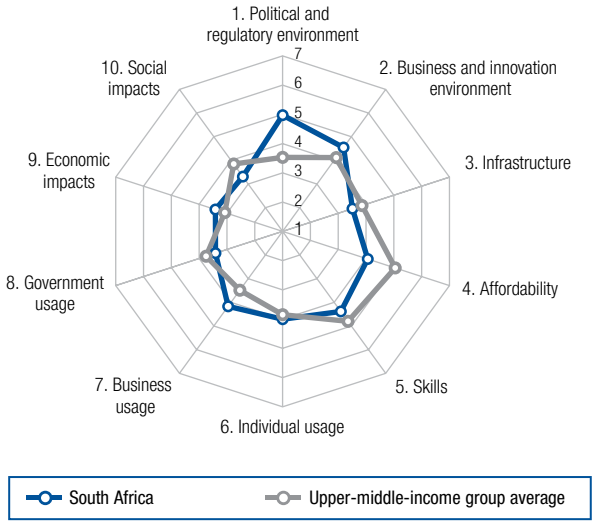
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	122	2.6
1.02	Laws relating to ICTs*	44	4.5
1.03	Judicial independence*	91	3.4
1.04	Efficiency of legal system in settling disputes*	130	2.6
1.05	Efficiency of legal system in challenging regs*	132	2.3
1.06	Intellectual property protection*	47	4.1
1.07	Software piracy rate, % software installed	32	45
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	132	1,270
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	40	5.5
2.02	Venture capital availability*	125	2.0
2.03	Total tax rate, % profits	46	32.0
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	3	2
2.06	Intensity of local competition*	66	5.1
2.07	Tertiary education gross enrollment rate, %	7	86.0
2.08	Quality of management schools*	62	4.4
2.09	Gov't procurement of advanced tech*	107	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	27	7,547.8
3.02	Mobile network coverage, % pop.	55	99.7
3.03	Int'l Internet bandwidth, kb/s per user	16	152.7
3.04	Secure Internet servers/million pop.	27	547.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	84	0.30
4.02	Fixed broadband Internet tariffs, PPP $/month	65	31.54
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	48	4.1
5.02	Quality of math & science education*	15	5.2
5.03	Secondary education gross enrollment rate, %	45	97.6
5.04	Adult literacy rate, %	11	99.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	75	110.2
6.02	Individuals using Internet, %	34	72.7
6.03	Households w/ personal computer, %	33	76.4
6.04	Households w/ Internet access, %	30	75.6
6.05	Fixed broadband Internet subs/100 pop.	27	25.0
6.06	Mobile broadband subs/100 pop.	54	41.8
6.07	Use of virtual social networks*	42	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	51	4.9
7.02	Capacity for innovation*	75	3.7
7.03	PCT patents, applications/million pop.	24	60.8
7.04	Business-to-business Internet use*	38	5.3
7.05	Business-to-consumer Internet use*	47	4.9
7.06	Extent of staff training*	98	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	100	3.4
8.02	Government Online Service Index, 0–1 (best)	75	0.43
8.03	Gov't success in ICT promotion*	95	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	66	4.4
9.02	ICT PCT patents, applications/million pop.	25	10.3
9.03	Impact of ICTs on new organizational models*	56	4.4
9.04	Knowledge-intensive jobs, % workforce	20	42.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	50	4.6
10.02	Internet access in schools*	20	6.0
10.03	ICT use & gov't efficiency*	72	4.0
10.04	E-Participation Index, 0–1 (best)	80	0.39

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

South Africa

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**75**	**4.0**
Networked Readiness Index 2014 (out of 148)	70	4.0
Networked Readiness Index 2013 (out of 144)	70	3.9
A. Environment subindex	**31**	**4.8**
1st pillar: Political and regulatory environment	24	5.0
2nd pillar: Business and innovation environment	55	4.5
B. Readiness subindex	**102**	**4.0**
3rd pillar: Infrastructure	85	3.5
4th pillar: Affordability	107	4.1
5th pillar: Skills	95	4.4
C. Usage subindex	**67**	**3.9**
6th pillar: Individual usage	68	4.0
7th pillar: Business usage	34	4.2
8th pillar: Government usage	105	3.4
D. Impact subindex	**92**	**3.4**
9th pillar: Economic impacts	58	3.4
10th pillar: Social impacts	110	3.3



The Networked Readiness Index in detail

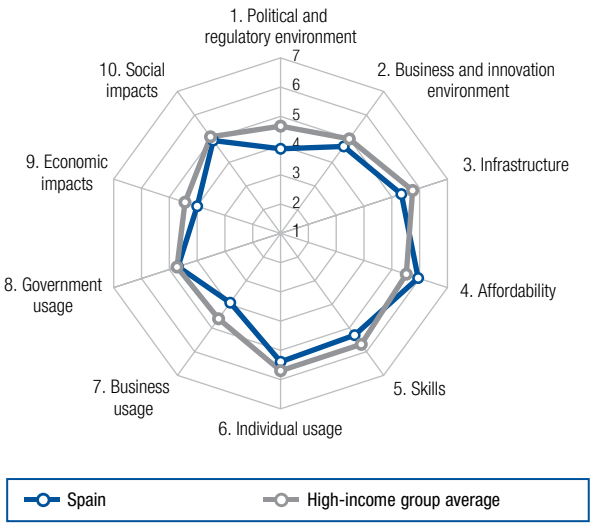
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	39	4.1
1.02	Laws relating to ICTs*	40	4.6
1.03	Judicial independence*	24	5.4
1.04	Efficiency of legal system in settling disputes*	15	5.2
1.05	Efficiency of legal system in challenging regs*	9	4.9
1.06	Intellectual property protection*	22	5.3
1.07	Software piracy rate, % software installed	20	34
1.08	No. procedures to enforce a contract	14	29
1.09	No. days to enforce a contract	88	600
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	39	5.5
2.02	Venture capital availability*	37	3.2
2.03	Total tax rate, % profits	33	28.8
2.04	No. days to start a business	95	19
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	36	5.5
2.07	Tertiary education gross enrollment rate, %	93	19.2
2.08	Quality of management schools*	24	5.2
2.09	Gov't procurement of advanced tech*	111	3.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	46	5,032.5
3.02	Mobile network coverage, % pop.	52	99.8
3.03	Int'l Internet bandwidth, kb/s per user	128	3.7
3.04	Secure Internet servers/million pop.	51	86.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	126	0.55
4.02	Fixed broadband Internet tariffs, PPP $/month	69	32.28
4.03	Internet & telephony competition, 0–2 (best)	123	1.07
	5th pillar: Skills		
5.01	Quality of educational system*	139	2.2
5.02	Quality of math & science education*	143	1.9
5.03	Secondary education gross enrollment rate, %	24	101.9
5.04	Adult literacy rate, %	57	94.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	29	145.6
6.02	Individuals using Internet, %	69	48.9
6.03	Households w/ personal computer, %	90	25.8
6.04	Households w/ Internet access, %	72	39.4
6.05	Fixed broadband Internet subs/100 pop.	90	3.1
6.06	Mobile broadband subs/100 pop.	32	58.5
6.07	Use of virtual social networks*	76	5.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	29	5.4
7.02	Capacity for innovation*	35	4.3
7.03	PCT patents, applications/million pop.	46	6.8
7.04	Business-to-business Internet use*	37	5.3
7.05	Business-to-consumer Internet use*	65	4.6
7.06	Extent of staff training*	18	4.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	113	3.2
8.02	Government Online Service Index, 0–1 (best)	82	0.39
8.03	Gov't success in ICT promotion*	103	3.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	58	4.5
9.02	ICT PCT patents, applications/million pop.	45	1.6
9.03	Impact of ICTs on new organizational models*	59	4.4
9.04	Knowledge-intensive jobs, % workforce	56	25.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	101	3.6
10.02	Internet access in schools*	117	3.2
10.03	ICT use & gov't efficiency*	112	3.4
10.04	E-Participation Index, 0–1 (best)	88	0.33

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Spain

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**34**	**4.7**
Networked Readiness Index 2014 (out of 148)	34	4.7
Networked Readiness Index 2013 (out of 144)	38	4.5
A. Environment subindex	**50**	**4.3**
1st pillar: Political and regulatory environment	60	3.9
2nd pillar: Business and innovation environment	47	4.7
B. Readiness subindex	**34**	**5.5**
3rd pillar: Infrastructure	33	5.3
4th pillar: Affordability	40	5.9
5th pillar: Skills	56	5.3
C. Usage subindex	**33**	**4.7**
6th pillar: Individual usage	31	5.4
7th pillar: Business usage	45	3.9
8th pillar: Government usage	37	4.7
D. Impact subindex	**34**	**4.5**
9th pillar: Economic impacts	34	4.0
10th pillar: Social impacts	36	4.9



The Networked Readiness Index in detail

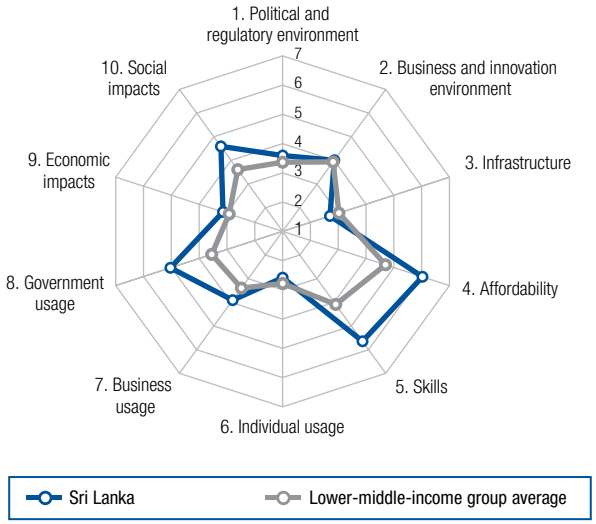
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	63	3.7
1.02	Laws relating to ICTs*	36	4.7
1.03	Judicial independence*	97	3.2
1.04	Efficiency of legal system in settling disputes*	90	3.4
1.05	Efficiency of legal system in challenging regs*	86	3.2
1.06	Intellectual property protection*	77	3.6
1.07	Software piracy rate, % software installed	32	45
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	59	510
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	37	5.6
2.02	Venture capital availability*	100	2.3
2.03	Total tax rate, % profits	125	58.2
2.04	No. days to start a business	73	13
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	35	5.5
2.07	Tertiary education gross enrollment rate, %	8	84.6
2.08	Quality of management schools*	3	5.9
2.09	Gov't procurement of advanced tech*	101	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	33	6,276.6
3.02	Mobile network coverage, % pop.	49	99.8
3.03	Int'l Internet bandwidth, kb/s per user	28	102.4
3.04	Secure Internet servers/million pop.	33	269.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	39	0.15
4.02	Fixed broadband Internet tariffs, PPP $/month	80	35.40
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	88	3.4
5.02	Quality of math & science education*	85	3.9
5.03	Secondary education gross enrollment rate, %	2	130.8
5.04	Adult literacy rate, %	27	98.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	80	106.9
6.02	Individuals using Internet, %	36	71.6
6.03	Households w/ personal computer, %	37	73.4
6.04	Households w/ Internet access, %	39	69.8
6.05	Fixed broadband Internet subs/100 pop.	25	25.8
6.06	Mobile broadband subs/100 pop.	24	66.8
6.07	Use of virtual social networks*	60	5.9
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	52	4.9
7.02	Capacity for innovation*	60	3.8
7.03	PCT patents, applications/million pop.	26	37.9
7.04	Business-to-business Internet use*	46	5.1
7.05	Business-to-consumer Internet use*	48	4.9
7.06	Extent of staff training*	96	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	89	3.6
8.02	Government Online Service Index, 0–1 (best)	4	0.94
8.03	Gov't success in ICT promotion*	99	3.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	26	5.0
9.02	ICT PCT patents, applications/million pop.	26	10.0
9.03	Impact of ICTs on new organizational models*	36	4.7
9.04	Knowledge-intensive jobs, % workforce	39	33.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	41	4.8
10.02	Internet access in schools*	51	4.8
10.03	ICT use & gov't efficiency*	56	4.3
10.04	E-Participation Index, 0–1 (best)	19	0.78

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Sri Lanka

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**65**	**4.1**
Networked Readiness Index 2014 (out of 148)	76	3.9
Networked Readiness Index 2013 (out of 144)	69	3.9
A. Environment subindex	**86**	**3.8**
1st pillar: Political and regulatory environment	77	3.6
2nd pillar: Business and innovation environment	92	4.0
B. Readiness subindex	**70**	**4.8**
3rd pillar: Infrastructure	110	2.7
4th pillar: Affordability	38	6.0
5th pillar: Skills	30	5.6
C. Usage subindex	**69**	**3.8**
6th pillar: Individual usage	106	2.6
7th pillar: Business usage	48	3.9
8th pillar: Government usage	25	5.0
D. Impact subindex	**60**	**3.9**
9th pillar: Economic impacts	75	3.1
10th pillar: Social impacts	47	4.6



The Networked Readiness Index in detail

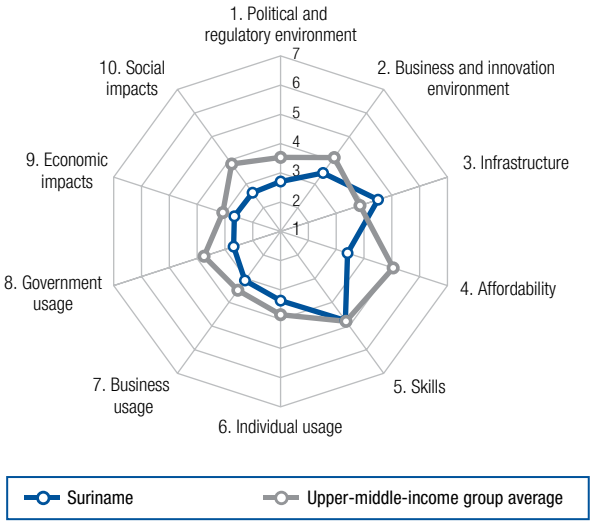
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	20	4.8
1.02	Laws relating to ICTs*	63	4.0
1.03	Judicial independence*	72	3.6
1.04	Efficiency of legal system in settling disputes*	28	4.6
1.05	Efficiency of legal system in challenging regs*	79	3.3
1.06	Intellectual property protection*	54	3.9
1.07	Software piracy rate, % software installed	91	83
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	136	1,318
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	70	4.9
2.02	Venture capital availability*	66	2.7
2.03	Total tax rate, % profits	122	55.6
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	16	5.8
2.07	Tertiary education gross enrollment rate, %	98	17.0
2.08	Quality of management schools*	35	4.8
2.09	Gov't procurement of advanced tech*	37	3.8
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	111	558.1
3.02	Mobile network coverage, % pop.	85	98.0
3.03	Int'l Internet bandwidth, kb/s per user	119	5.0
3.04	Secure Internet servers/million pop.	93	9.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	3	0.05
4.02	Fixed broadband Internet tariffs, PPP $/month	3	12.88
4.03	Internet & telephony competition, 0–2 (best)	128	0.88
	5th pillar: Skills		
5.01	Quality of educational system*	22	4.6
5.02	Quality of math & science education*	29	4.8
5.03	Secondary education gross enrollment rate, %	36	99.3
5.04	Adult literacy rate, %	63	92.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	103	95.5
6.02	Individuals using Internet, %	100	21.9
6.03	Households w/ personal computer, %	103	16.4
6.04	Households w/ Internet access, %	103	12.7
6.05	Fixed broadband Internet subs/100 pop.	98	2.0
6.06	Mobile broadband subs/100 pop.	102	7.8
6.07	Use of virtual social networks*	99	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	53	4.9
7.02	Capacity for innovation*	29	4.6
7.03	PCT patents, applications/million pop.	79	0.6
7.04	Business-to-business Internet use*	57	5.0
7.05	Business-to-consumer Internet use*	56	4.8
7.06	Extent of staff training*	56	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	16	4.9
8.02	Government Online Service Index, 0–1 (best)	37	0.65
8.03	Gov't success in ICT promotion*	13	5.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	63	4.5
9.02	ICT PCT patents, applications/million pop.	77	0.2
9.03	Impact of ICTs on new organizational models*	51	4.5
9.04	Knowledge-intensive jobs, % workforce	94	15.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	38	4.9
10.02	Internet access in schools*	101	3.6
10.03	ICT use & gov't efficiency*	20	5.0
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Suriname

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**113**	**3.2**
Networked Readiness Index 2014 (out of 148)	113	3.3
Networked Readiness Index 2013 (out of 144)	117	3.1
A. Environment subindex	**132**	**3.1**
1st pillar: Political and regulatory environment	130	2.7
2nd pillar: Business and innovation environment	127	3.5
B. Readiness subindex	**95**	**4.2**
3rd pillar: Infrastructure	55	4.5
4th pillar: Affordability	119	3.4
5th pillar: Skills	81	4.8
C. Usage subindex	**110**	**3.0**
6th pillar: Individual usage	83	3.4
7th pillar: Business usage	122	3.1
8th pillar: Government usage	133	2.7
D. Impact subindex	**129**	**2.6**
9th pillar: Economic impacts	118	2.7
10th pillar: Social impacts	133	2.6



The Networked Readiness Index in detail

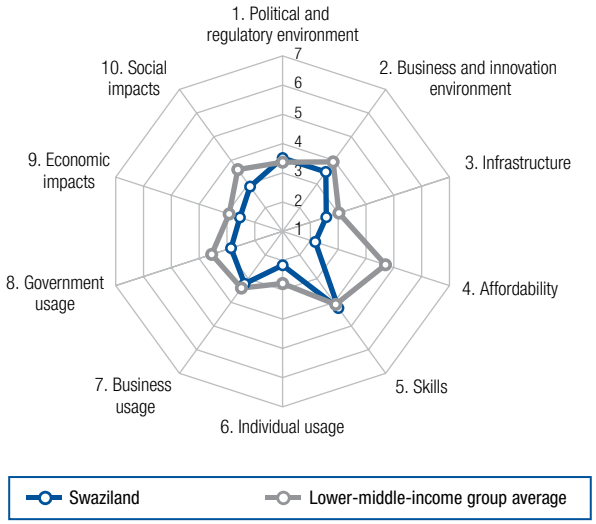
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	120	2.7
1.02	Laws relating to ICTs*	136	2.3
1.03	Judicial independence*	64	3.8
1.04	Efficiency of legal system in settling disputes*	114	3.0
1.05	Efficiency of legal system in challenging regs*	103	2.9
1.06	Intellectual property protection*	127	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	123	44
1.09	No. days to enforce a contract	143	1,715
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	109	4.2
2.02	Venture capital availability*	126	2.0
2.03	Total tax rate, % profits	30	27.9
2.04	No. days to start a business	138	84
2.05	No. procedures to start a business	137	13
2.06	Intensity of local competition*	98	4.7
2.07	Tertiary education gross enrollment rate, %	108	12.1
2.08	Quality of management schools*	83	4.0
2.09	Gov't procurement of advanced tech*	115	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	68	2,990.7
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	12	201.6
3.04	Secure Internet servers/million pop.	69	33.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	90	0.32
4.02	Fixed broadband Internet tariffs, PPP $/month	115	67.85
4.03	Internet & telephony competition, 0–2 (best)	116	1.20
	5th pillar: Skills		
5.01	Quality of educational system*	117	2.9
5.02	Quality of math & science education*	89	3.8
5.03	Secondary education gross enrollment rate, %	86	85.4
5.04	Adult literacy rate, %	45	95.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	13	161.1
6.02	Individuals using Internet, %	90	37.4
6.03	Households w/ personal computer, %	82	33.8
6.04	Households w/ Internet access, %	91	19.0
6.05	Fixed broadband Internet subs/100 pop.	76	6.9
6.06	Mobile broadband subs/100 pop.	93	13.1
6.07	Use of virtual social networks*	111	5.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	116	4.0
7.02	Capacity for innovation*	124	3.1
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	129	3.7
7.05	Business-to-consumer Internet use*	123	3.4
7.06	Extent of staff training*	101	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	128	2.9
8.02	Government Online Service Index, 0–1 (best)	125	0.14
8.03	Gov't success in ICT promotion*	129	3.3
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	122	3.5
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	118	3.4
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	133	3.0
10.02	Internet access in schools*	125	2.7
10.03	ICT use & gov't efficiency*	130	3.0
10.04	E-Participation Index, 0–1 (best)	126	0.14

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Swaziland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**125**	**3.0**
Networked Readiness Index 2014 (out of 148)	126	3.0
Networked Readiness Index 2013 (out of 144)	136	2.7
A. Environment subindex	**110**	**3.5**
1st pillar: Political and regulatory environment	88	3.5
2nd pillar: Business and innovation environment	125	3.5
B. Readiness subindex	**122**	**3.0**
3rd pillar: Infrastructure	116	2.6
4th pillar: Affordability	136	2.2
5th pillar: Skills	98	4.2
C. Usage subindex	**123**	**2.7**
6th pillar: Individual usage	118	2.2
7th pillar: Business usage	109	3.2
8th pillar: Government usage	127	2.9
D. Impact subindex	**126**	**2.7**
9th pillar: Economic impacts	123	2.5
10th pillar: Social impacts	126	2.9



The Networked Readiness Index in detail

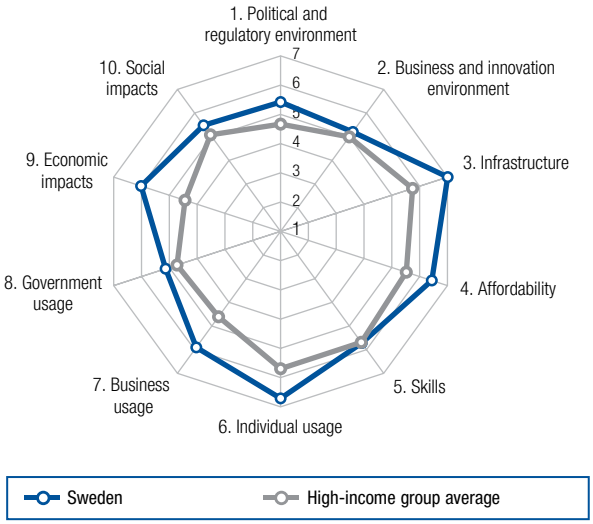
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	69	3.6
1.02	Laws relating to ICTs*	124	2.9
1.03	Judicial independence*	83	3.5
1.04	Efficiency of legal system in settling disputes*	55	3.9
1.05	Efficiency of legal system in challenging regs*	59	3.5
1.06	Intellectual property protection*	59	3.8
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	126	956
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	121	3.9
2.02	Venture capital availability*	74	2.7
2.03	Total tax rate, % profits	65	35.6
2.04	No. days to start a business	113	30
2.05	No. procedures to start a business	133	12
2.06	Intensity of local competition*	115	4.5
2.07	Tertiary education gross enrollment rate, %	125	6.0
2.08	Quality of management schools*	122	3.4
2.09	Gov't procurement of advanced tech*	87	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	115	415.7
3.02	Mobile network coverage, % pop.	96	96.8
3.03	Int'l Internet bandwidth, kb/s per user	132	3.2
3.04	Secure Internet servers/million pop.	95	8.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	108	0.41
4.02	Fixed broadband Internet tariffs, PPP $/month	130	125.45
4.03	Internet & telephony competition, 0–2 (best)	135	0.08
	5th pillar: Skills		
5.01	Quality of educational system*	64	3.8
5.02	Quality of math & science education*	78	4.0
5.03	Secondary education gross enrollment rate, %	112	59.9
5.04	Adult literacy rate, %	76	87.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	122	71.5
6.02	Individuals using Internet, %	97	24.7
6.03	Households w/ personal computer, %	108	12.5
6.04	Households w/ Internet access, %	101	13.4
6.05	Fixed broadband Internet subs/100 pop.	115	0.3
6.06	Mobile broadband subs/100 pop.	127	0.7
6.07	Use of virtual social networks*	122	4.7
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	119	3.9
7.02	Capacity for innovation*	93	3.5
7.03	PCT patents, applications/million pop.	81	0.5
7.04	Business-to-business Internet use*	118	4.0
7.05	Business-to-consumer Internet use*	126	3.3
7.06	Extent of staff training*	79	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	108	3.3
8.02	Government Online Service Index, 0–1 (best)	128	0.13
8.03	Gov't success in ICT promotion*	117	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	128	3.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	127	3.3
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	122	3.2
10.02	Internet access in schools*	119	3.1
10.03	ICT use & gov't efficiency*	117	3.3
10.04	E-Participation Index, 0–1 (best)	123	0.16

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Sweden

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**3**	**5.8**
Networked Readiness Index 2014 (out of 148)	3	5.9
Networked Readiness Index 2013 (out of 144)	3	5.9
A. Environment subindex	**13**	**5.3**
1st pillar: Political and regulatory environment	10	5.4
2nd pillar: Business and innovation environment	19	5.2
B. Readiness subindex	**4**	**6.4**
3rd pillar: Infrastructure	3	7.0
4th pillar: Affordability	18	6.4
5th pillar: Skills	28	5.7
C. Usage subindex	**1**	**5.9**
6th pillar: Individual usage	2	6.7
7th pillar: Business usage	3	5.9
8th pillar: Government usage	20	5.1
D. Impact subindex	**4**	**5.7**
9th pillar: Economic impacts	2	6.0
10th pillar: Social impacts	16	5.5



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	10	5.3
1.02	Laws relating to ICTs*	17	5.1
1.03	Judicial independence*	17	5.7
1.04	Efficiency of legal system in settling disputes*	13	5.4
1.05	Efficiency of legal system in challenging regs*	14	4.7
1.06	Intellectual property protection*	19	5.5
1.07	Software piracy rate, % software installed	7	23
1.08	No. procedures to enforce a contract	22	31
1.09	No. days to enforce a contract	13	321
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	7	6.4
2.02	Venture capital availability*	11	4.2
2.03	Total tax rate, % profits	114	49.4
2.04	No. days to start a business	87	16
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	41	5.4
2.07	Tertiary education gross enrollment rate, %	27	70.0
2.08	Quality of management schools*	23	5.2
2.09	Gov't procurement of advanced tech*	26	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	5	17,378.2
3.02	Mobile network coverage, % pop.	34	100.0
3.03	Int'l Internet bandwidth, kb/s per user	6	374.8
3.04	Secure Internet servers/million pop.	10	1,439.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	9	0.08
4.02	Fixed broadband Internet tariffs, PPP $/month	54	28.58
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	26	4.6
5.02	Quality of math & science education*	49	4.4
5.03	Secondary education gross enrollment rate, %	38	98.4
5.04	Adult literacy rate, %	n/a	n/a[1]

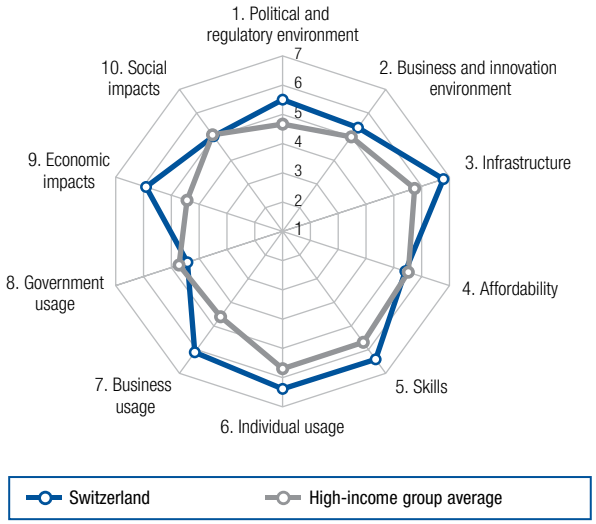
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	51	124.4
6.02	Individuals using Internet, %	3	94.8
6.03	Households w/ personal computer, %	8	91.9
6.04	Households w/ Internet access, %	8	92.6
6.05	Fixed broadband Internet subs/100 pop.	14	32.6
6.06	Mobile broadband subs/100 pop.	6	108.7
6.07	Use of virtual social networks*	9	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	9	6.0
7.02	Capacity for innovation*	6	5.5
7.03	PCT patents, applications/million pop.	3	312.8
7.04	Business-to-business Internet use*	10	5.9
7.05	Business-to-consumer Internet use*	5	6.0
7.06	Extent of staff training*	10	5.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	14	5.0
8.02	Government Online Service Index, 0–1 (best)	28	0.70
8.03	Gov't success in ICT promotion*	14	5.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	6	5.6
9.02	ICT PCT patents, applications/million pop.	2	152.5
9.03	Impact of ICTs on new organizational models*	10	5.4
9.04	Knowledge-intensive jobs, % workforce	5	48.5
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	8	5.7
10.02	Internet access in schools*	8	6.3
10.03	ICT use & gov't efficiency*	14	5.2
10.04	E-Participation Index, 0–1 (best)	45	0.61

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Switzerland

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**6**	**5.7**
Networked Readiness Index 2014 (out of 148)	6	5.6
Networked Readiness Index 2013 (out of 144)	6	5.7
A. Environment subindex	**9**	**5.4**
1st pillar: Political and regulatory environment	9	5.5
2nd pillar: Business and innovation environment	10	5.4
B. Readiness subindex	**10**	**6.2**
3rd pillar: Infrastructure	10	6.8
4th pillar: Affordability	65	5.4
5th pillar: Skills	3	6.4
C. Usage subindex	**11**	**5.6**
6th pillar: Individual usage	10	6.4
7th pillar: Business usage	1	6.1
8th pillar: Government usage	48	4.4
D. Impact subindex	**8**	**5.5**
9th pillar: Economic impacts	3	5.9
10th pillar: Social impacts	34	5.0



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	15	5.0
1.02	Laws relating to ICTs*	19	5.1
1.03	Judicial independence*	11	6.1
1.04	Efficiency of legal system in settling disputes*	8	5.6
1.05	Efficiency of legal system in challenging regs*	8	4.9
1.06	Intellectual property protection*	4	6.0
1.07	Software piracy rate, % software installed	9	24
1.08	No. procedures to enforce a contract	27	32
1.09	No. days to enforce a contract	23	390
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	6	6.4
2.02	Venture capital availability*	25	3.4
2.03	Total tax rate, % profits	34	29.0
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	19	5.7
2.07	Tertiary education gross enrollment rate, %	46	55.6
2.08	Quality of management schools*	1	6.2
2.09	Gov't procurement of advanced tech*	31	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	20	8,501.5
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	8	314.1
3.04	Secure Internet servers/million pop.	3	2,212.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	112	0.43
4.02	Fixed broadband Internet tariffs, PPP $/month	38	24.38
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	1	6.0
5.02	Quality of math & science education*	4	5.9
5.03	Secondary education gross enrollment rate, %	48	96.3
5.04	Adult literacy rate, %	n/a	n/a[1]

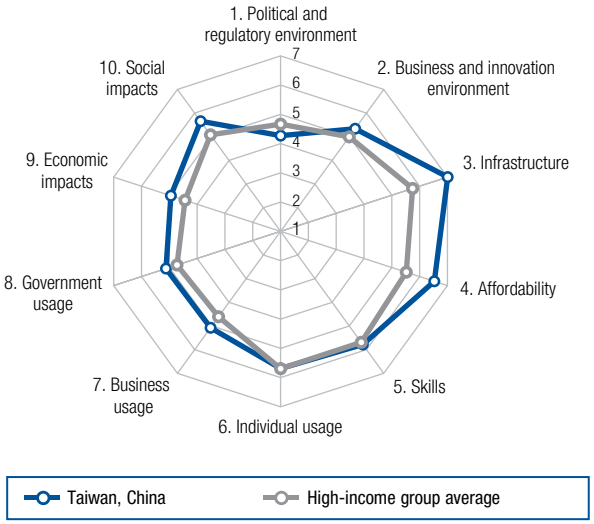
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	37	136.8
6.02	Individuals using Internet, %	11	86.7
6.03	Households w/ personal computer, %	14	86.6
6.04	Households w/ Internet access, %	9	91.8
6.05	Fixed broadband Internet subs/100 pop.	1	42.5
6.06	Mobile broadband subs/100 pop.	27	63.4
6.07	Use of virtual social networks*	27	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	6	6.0
7.02	Capacity for innovation*	1	5.9
7.03	PCT patents, applications/million pop.	2	322.8
7.04	Business-to-business Internet use*	6	6.0
7.05	Business-to-consumer Internet use*	10	5.8
7.06	Extent of staff training*	1	5.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	38	4.4
8.02	Government Online Service Index, 0–1 (best)	64	0.50
8.03	Gov't success in ICT promotion*	28	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	13	5.4
9.02	ICT PCT patents, applications/million pop.	7	76.7
9.03	Impact of ICTs on new organizational models*	27	4.8
9.04	Knowledge-intensive jobs, % workforce	3	51.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	10	5.7
10.02	Internet access in schools*	13	6.1
10.03	ICT use & gov't efficiency*	19	5.0
10.04	E-Participation Index, 0–1 (best)	84	0.37

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Taiwan, China

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**18**	**5.5**
Networked Readiness Index 2014 (out of 148)	14	5.5
Networked Readiness Index 2013 (out of 144)	10	5.5
A. Environment subindex	**28**	**4.8**
1st pillar: Political and regulatory environment	38	4.3
2nd pillar: Business and innovation environment	12	5.3
B. Readiness subindex	**2**	**6.4**
3rd pillar: Infrastructure	1	7.0
4th pillar: Affordability	13	6.5
5th pillar: Skills	23	5.8
C. Usage subindex	**22**	**5.3**
6th pillar: Individual usage	26	5.7
7th pillar: Business usage	17	5.1
8th pillar: Government usage	21	5.1
D. Impact subindex	**15**	**5.3**
9th pillar: Economic impacts	17	4.9
10th pillar: Social impacts	8	5.7



The Networked Readiness Index in detail

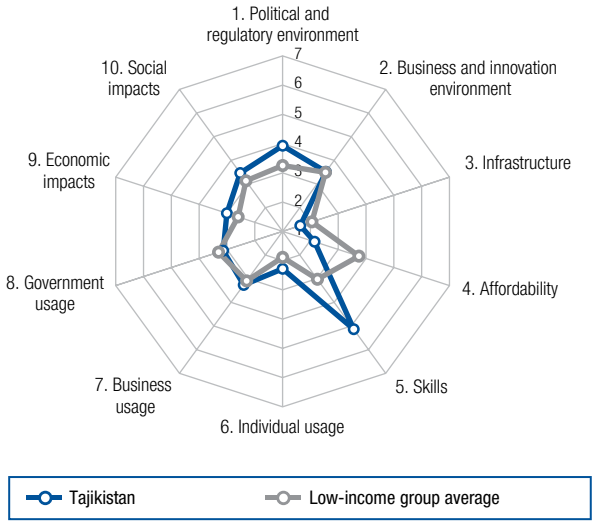
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	96	3.2
1.02	Laws relating to ICTs*	24	5.0
1.03	Judicial independence*	49	4.2
1.04	Efficiency of legal system in settling disputes*	48	4.1
1.05	Efficiency of legal system in challenging regs*	75	3.3
1.06	Intellectual property protection*	26	5.1
1.07	Software piracy rate, % software installed	25	38
1.08	No. procedures to enforce a contract	127	45
1.09	No. days to enforce a contract	59	510
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	49	5.2
2.02	Venture capital availability*	15	3.9
2.03	Total tax rate, % profits	58	34.2
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	9	3
2.06	Intensity of local competition*	2	6.1
2.07	Tertiary education gross enrollment rate, %	9	83.9
2.08	Quality of management schools*	36	4.8
2.09	Gov't procurement of advanced tech*	24	4.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	11	10,859.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	42	65.1
3.04	Secure Internet servers/million pop.	n/a	n/a
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	59	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	8	15.65
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	56	3.9
5.02	Quality of math & science education*	14	5.3
5.03	Secondary education gross enrollment rate, %	35	100.3
5.04	Adult literacy rate, %	23	98.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	47	127.5
6.02	Individuals using Internet, %	24	80.0
6.03	Households w/ personal computer, %	32	76.6
6.04	Households w/ Internet access, %	31	74.9
6.05	Fixed broadband Internet subs/100 pop.	30	24.2
6.06	Mobile broadband subs/100 pop.	35	57.1
6.07	Use of virtual social networks*	17	6.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	26	5.5
7.02	Capacity for innovation*	23	4.8
7.03	PCT patents, applications/million pop.	n/a	n/a
7.04	Business-to-business Internet use*	20	5.6
7.05	Business-to-consumer Internet use*	14	5.7
7.06	Extent of staff training*	41	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	13	5.0
8.02	Government Online Service Index, 0–1 (best)	n/a	n/a
8.03	Gov't success in ICT promotion*	15	5.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	20	5.1
9.02	ICT PCT patents, applications/million pop.	n/a	n/a
9.03	Impact of ICTs on new organizational models*	14	5.2
9.04	Knowledge-intensive jobs, % workforce	38	33.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	9	5.7
10.02	Internet access in schools*	12	6.1
10.03	ICT use & gov't efficiency*	15	5.1
10.04	E-Participation Index, 0–1 (best)	n/a	n/a

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Tajikistan

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**117**	**3.2**
Networked Readiness Index 2014 (out of 148)	n/a	n/a
Networked Readiness Index 2013 (out of 144)	112	3.3
A. Environment subindex	**92**	**3.7**
1st pillar: Political and regulatory environment	57	3.9
2nd pillar: Business and innovation environment	123	3.5
B. Readiness subindex	**124**	**3.0**
3rd pillar: Infrastructure	136	1.6
4th pillar: Affordability	137	2.1
5th pillar: Skills	67	5.1
C. Usage subindex	**121**	**2.9**
6th pillar: Individual usage	116	2.3
7th pillar: Business usage	107	3.3
8th pillar: Government usage	116	3.1
D. Impact subindex	**99**	**3.2**
9th pillar: Economic impacts	93	3.0
10th pillar: Social impacts	103	3.5



The Networked Readiness Index in detail

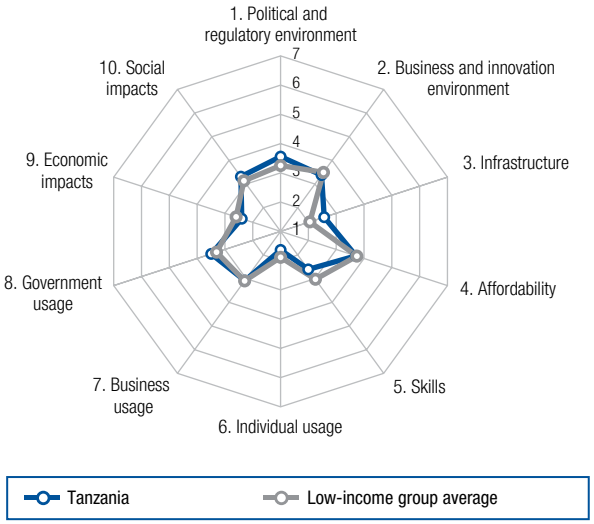
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	49	3.9
1.02	Laws relating to ICTs*	94	3.5
1.03	Judicial independence*	74	3.6
1.04	Efficiency of legal system in settling disputes*	54	3.9
1.05	Efficiency of legal system in challenging regs*	55	3.5
1.06	Intellectual property protection*	67	3.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	40	430
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	111	4.1
2.02	Venture capital availability*	38	3.2
2.03	Total tax rate, % profits	141	80.9
2.04	No. days to start a business	127	39
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	121	4.3
2.07	Tertiary education gross enrollment rate, %	89	22.5
2.08	Quality of management schools*	108	3.6
2.09	Gov't procurement of advanced tech*	33	3.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	81	2,075.4
3.02	Mobile network coverage, % pop.	n/a	n/a
3.03	Int'l Internet bandwidth, kb/s per user	122	4.6
3.04	Secure Internet servers/million pop.	125	1.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	107	0.41
4.02	Fixed broadband Internet tariffs, PPP $/month	139	814.65
4.03	Internet & telephony competition, 0–2 (best)	136	0.00
	5th pillar: Skills		
5.01	Quality of educational system*	58	3.8
5.02	Quality of math & science education*	92	3.8
5.03	Secondary education gross enrollment rate, %	76	87.0
5.04	Adult literacy rate, %	7	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	107	91.8
6.02	Individuals using Internet, %	111	16.0
6.03	Households w/ personal computer, %	130	4.5
6.04	Households w/ Internet access, %	128	4.3
6.05	Fixed broadband Internet subs/100 pop.	132	0.1
6.06	Mobile broadband subs/100 pop.	n/a	n/a
6.07	Use of virtual social networks*	129	4.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	117	4.0
7.02	Capacity for innovation*	62	3.8
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	116	4.0
7.05	Business-to-consumer Internet use*	111	3.7
7.06	Extent of staff training*	103	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	68	3.9
8.02	Government Online Service Index, 0–1 (best)	134	0.06
8.03	Gov't success in ICT promotion*	77	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	90	4.1
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	84	3.9
9.04	Knowledge-intensive jobs, % workforce	n/a	n/a
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	83	3.9
10.02	Internet access in schools*	78	4.1
10.03	ICT use & gov't efficiency*	65	4.1
10.04	E-Participation Index, 0–1 (best)	130	0.12

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Tanzania

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**123**	**3.0**
Networked Readiness Index 2014 (out of 148)	125	3.0
Networked Readiness Index 2013 (out of 144)	127	2.9
A. Environment subindex	**114**	**3.5**
1st pillar: Political and regulatory environment	83	3.6
2nd pillar: Business and innovation environment	130	3.4
B. Readiness subindex	**125**	**3.0**
3rd pillar: Infrastructure	117	2.6
4th pillar: Affordability	112	3.7
5th pillar: Skills	132	2.6
C. Usage subindex	**124**	**2.7**
6th pillar: Individual usage	137	1.6
7th pillar: Business usage	121	3.1
8th pillar: Government usage	100	3.5
D. Impact subindex	**122**	**2.9**
9th pillar: Economic impacts	132	2.4
10th pillar: Social impacts	111	3.3



The Networked Readiness Index in detail

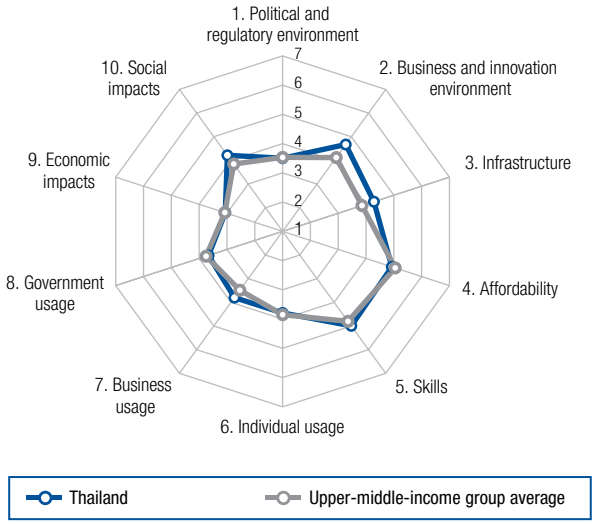
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	77	3.5
1.02	Laws relating to ICTs*	106	3.3
1.03	Judicial independence*	96	3.2
1.04	Efficiency of legal system in settling disputes*	64	3.7
1.05	Efficiency of legal system in challenging regs*	78	3.3
1.06	Intellectual property protection*	91	3.3
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	64	515
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	126	3.8
2.02	Venture capital availability*	81	2.6
2.03	Total tax rate, % profits	99	44.3
2.04	No. days to start a business	107	26
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	122	4.3
2.07	Tertiary education gross enrollment rate, %	134	3.9
2.08	Quality of management schools*	126	3.2
2.09	Gov't procurement of advanced tech*	84	3.3
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	131	114.4
3.02	Mobile network coverage, % pop.	103	95.0
3.03	Int'l Internet bandwidth, kb/s per user	114	6.5
3.04	Secure Internet servers/million pop.	127	1.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	128	0.59
4.02	Fixed broadband Internet tariffs, PPP $/month	100	47.89
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	109	3.0
5.02	Quality of math & science education*	136	2.4
5.03	Secondary education gross enrollment rate, %	130	35.0
5.04	Adult literacy rate, %	96	70.6

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	135	55.7
6.02	Individuals using Internet, %	133	4.4
6.03	Households w/ personal computer, %	135	3.4
6.04	Households w/ Internet access, %	131	3.7
6.05	Fixed broadband Internet subs/100 pop.	127	0.1
6.06	Mobile broadband subs/100 pop.	117	2.7
6.07	Use of virtual social networks*	137	4.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	129	3.8
7.02	Capacity for innovation*	102	3.4
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	117	4.0
7.05	Business-to-consumer Internet use*	121	3.5
7.06	Extent of staff training*	115	3.5
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	91	3.6
8.02	Government Online Service Index, 0–1 (best)	102	0.30
8.03	Gov't success in ICT promotion*	80	4.1
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	113	3.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	102	3.7
9.04	Knowledge-intensive jobs, % workforce	117	2.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	120	3.3
10.02	Internet access in schools*	124	2.8
10.03	ICT use & gov't efficiency*	92	3.7
10.04	E-Participation Index, 0–1 (best)	80	0.39

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Thailand

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**67**	**4.0**
Networked Readiness Index 2014 (out of 148)	67	4.0
Networked Readiness Index 2013 (out of 144)	74	3.9
A. Environment subindex	**60**	**4.1**
1st pillar: Political and regulatory environment	89	3.5
2nd pillar: Business and innovation environment	48	4.7
B. Readiness subindex	**73**	**4.7**
3rd pillar: Infrastructure	66	4.3
4th pillar: Affordability	84	4.9
5th pillar: Skills	73	5.0
C. Usage subindex	**75**	**3.7**
6th pillar: Individual usage	75	3.8
7th pillar: Business usage	54	3.8
8th pillar: Government usage	80	3.7
D. Impact subindex	**70**	**3.6**
9th pillar: Economic impacts	86	3.1
10th pillar: Social impacts	66	4.2



The Networked Readiness Index in detail

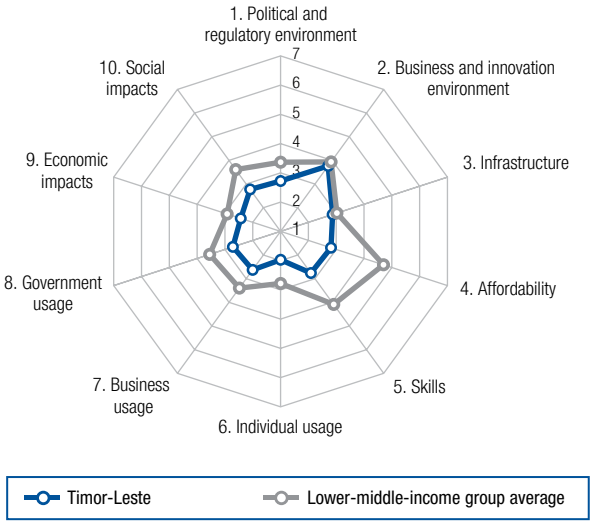
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	113	2.9
1.02	Laws relating to ICTs*	98	3.5
1.03	Judicial independence*	68	3.8
1.04	Efficiency of legal system in settling disputes*	62	3.8
1.05	Efficiency of legal system in challenging regs*	72	3.3
1.06	Intellectual property protection*	103	3.1
1.07	Software piracy rate, % software installed	69	71
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	43	440
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	74	4.7
2.02	Venture capital availability*	44	3.0
2.03	Total tax rate, % profits	28	26.9
2.04	No. days to start a business	110	28
2.05	No. procedures to start a business	23	4
2.06	Intensity of local competition*	38	5.4
2.07	Tertiary education gross enrollment rate, %	53	51.2
2.08	Quality of management schools*	81	4.1
2.09	Gov't procurement of advanced tech*	113	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	76	2,343.0
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	64	37.4
3.04	Secure Internet servers/million pop.	82	18.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	16	0.10
4.02	Fixed broadband Internet tariffs, PPP $/month	109	55.92
4.03	Internet & telephony competition, 0–2 (best)	91	1.65
	5th pillar: Skills		
5.01	Quality of educational system*	87	3.4
5.02	Quality of math & science education*	81	3.9
5.03	Secondary education gross enrollment rate, %	77	87.0
5.04	Adult literacy rate, %	37	96.7

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	35	140.1
6.02	Individuals using Internet, %	96	28.9
6.03	Households w/ personal computer, %	88	28.7
6.04	Households w/ Internet access, %	88	22.7
6.05	Fixed broadband Internet subs/100 pop.	73	7.4
6.06	Mobile broadband subs/100 pop.	42	52.3
6.07	Use of virtual social networks*	29	6.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	55	4.9
7.02	Capacity for innovation*	70	3.7
7.03	PCT patents, applications/million pop.	65	1.3
7.04	Business-to-business Internet use*	59	4.9
7.05	Business-to-consumer Internet use*	49	4.9
7.06	Extent of staff training*	37	4.4
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	96	3.5
8.02	Government Online Service Index, 0–1 (best)	72	0.44
8.03	Gov't success in ICT promotion*	96	3.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	46	4.7
9.02	ICT PCT patents, applications/million pop.	76	0.2
9.03	Impact of ICTs on new organizational models*	68	4.2
9.04	Knowledge-intensive jobs, % workforce	99	13.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	69	4.2
10.02	Internet access in schools*	61	4.6
10.03	ICT use & gov't efficiency*	86	3.8
10.04	E-Participation Index, 0–1 (best)	54	0.55

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Timor-Leste

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**134**	**2.8**
Networked Readiness Index 2014 (out of 148)	141	2.7
Networked Readiness Index 2013 (out of 144)	134	2.7
A. Environment subindex	**127**	**3.2**
1st pillar: Political and regulatory environment	129	2.7
2nd pillar: Business and innovation environment	109	3.8
B. Readiness subindex	**126**	**2.8**
3rd pillar: Infrastructure	105	2.9
4th pillar: Affordability	129	2.8
5th pillar: Skills	130	2.8
C. Usage subindex	**137**	**2.4**
6th pillar: Individual usage	125	2.0
7th pillar: Business usage	138	2.6
8th pillar: Government usage	131	2.7
D. Impact subindex	**132**	**2.6**
9th pillar: Economic impacts	131	2.4
10th pillar: Social impacts	130	2.8



The Networked Readiness Index in detail

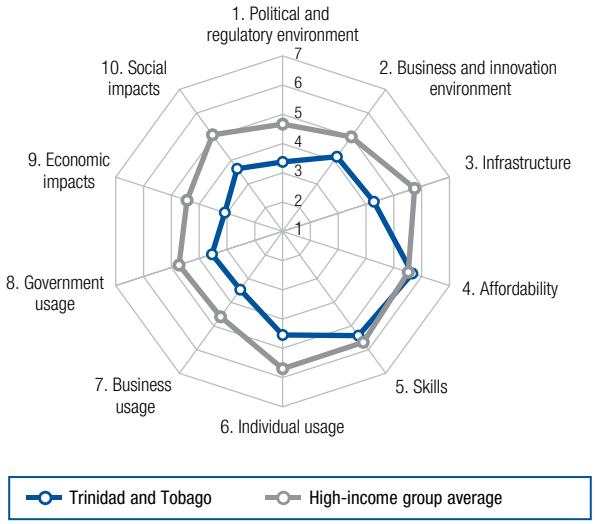
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	93	3.2
1.02	Laws relating to ICTs*	132	2.6
1.03	Judicial independence*	93	3.3
1.04	Efficiency of legal system in settling disputes*	112	3.1
1.05	Efficiency of legal system in challenging regs*	111	2.8
1.06	Intellectual property protection*	134	2.5
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	142	51
1.09	No. days to enforce a contract	133	1,285
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	141	3.0
2.02	Venture capital availability*	76	2.6
2.03	Total tax rate, % profits	2	11.0
2.04	No. days to start a business	53	10
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	137	3.8
2.07	Tertiary education gross enrollment rate, %	97	17.7
2.08	Quality of management schools*	142	2.1
2.09	Gov't procurement of advanced tech*	90	3.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	130	114.6
3.02	Mobile network coverage, % pop.	112	92.0
3.03	Int'l Internet bandwidth, kb/s per user	88	17.5
3.04	Secure Internet servers/million pop.	132	0.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	110	0.42
4.02	Fixed broadband Internet tariffs, PPP $/month	136	185.97
4.03	Internet & telephony competition, 0–2 (best)	n/a	n/a
	5th pillar: Skills		
5.01	Quality of educational system*	135	2.4
5.02	Quality of math & science education*	140	2.1
5.03	Secondary education gross enrollment rate, %	114	56.6
5.04	Adult literacy rate, %	100	67.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	133	57.4
6.02	Individuals using Internet, %	143	1.1
6.03	Households w/ personal computer, %	n/a	n/a
6.04	Households w/ Internet access, %	n/a	n/a
6.05	Fixed broadband Internet subs/100 pop.	134	0.1
6.06	Mobile broadband subs/100 pop.	129	0.4
6.07	Use of virtual social networks*	128	4.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	138	3.3
7.02	Capacity for innovation*	132	2.9
7.03	PCT patents, applications/million pop.	90	0.3
7.04	Business-to-business Internet use*	140	3.1
7.05	Business-to-consumer Internet use*	139	2.7
7.06	Extent of staff training*	135	3.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	123	3.0
8.02	Government Online Service Index, 0–1 (best)	114	0.20
8.03	Gov't success in ICT promotion*	138	2.9
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	139	2.8
9.02	ICT PCT patents, applications/million pop.	67	0.3
9.03	Impact of ICTs on new organizational models*	134	2.9
9.04	Knowledge-intensive jobs, % workforce	78	19.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	138	2.8
10.02	Internet access in schools*	130	2.5
10.03	ICT use & gov't efficiency*	127	3.0
10.04	E-Participation Index, 0–1 (best)	100	0.29

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Trinidad and Tobago

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**70**	**4.0**
Networked Readiness Index 2014 (out of 148)	71	4.0
Networked Readiness Index 2013 (out of 144)	72	3.9
A. Environment subindex	**89**	**3.8**
1st pillar: Political and regulatory environment	99	3.4
2nd pillar: Business and innovation environment	76	4.2
B. Readiness subindex	**52**	**5.1**
3rd pillar: Infrastructure	67	4.3
4th pillar: Affordability	52	5.7
5th pillar: Skills	46	5.4
C. Usage subindex	**68**	**3.8**
6th pillar: Individual usage	58	4.5
7th pillar: Business usage	86	3.5
8th pillar: Government usage	96	3.5
D. Impact subindex	**93**	**3.4**
9th pillar: Economic impacts	84	3.1
10th pillar: Social impacts	92	3.6



The Networked Readiness Index in detail

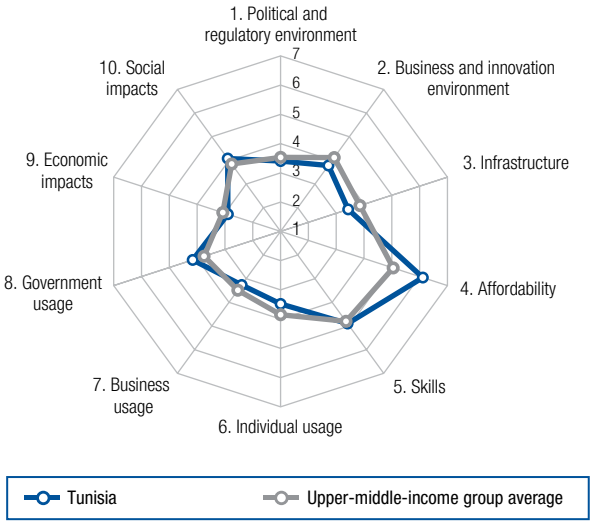
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	80	3.5
1.02	Laws relating to ICTs*	116	3.0
1.03	Judicial independence*	41	4.6
1.04	Efficiency of legal system in settling disputes*	83	3.5
1.05	Efficiency of legal system in challenging regs*	90	3.1
1.06	Intellectual property protection*	93	3.2
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	113	42
1.09	No. days to enforce a contract	137	1,340
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	52	5.2
2.02	Venture capital availability*	109	2.2
2.03	Total tax rate, % profits	46	32.0
2.04	No. days to start a business	67	12
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	62	5.2
2.07	Tertiary education gross enrollment rate, %	109	12.0
2.08	Quality of management schools*	33	4.8
2.09	Gov't procurement of advanced tech*	117	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	32	6,651.5
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	89	17.2
3.04	Secure Internet servers/million pop.	49	93.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	103	0.37
4.02	Fixed broadband Internet tariffs, PPP $/month	22	20.33
4.03	Internet & telephony competition, 0–2 (best)	81	1.79
	5th pillar: Skills		
5.01	Quality of educational system*	44	4.2
5.02	Quality of math & science education*	35	4.7
5.03	Secondary education gross enrollment rate, %	84	85.5
5.04	Adult literacy rate, %	19	99.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	31	144.9
6.02	Individuals using Internet, %	46	63.8
6.03	Households w/ personal computer, %	51	65.0
6.04	Households w/ Internet access, %	66	45.0
6.05	Fixed broadband Internet subs/100 pop.	48	14.6
6.06	Mobile broadband subs/100 pop.	82	18.9
6.07	Use of virtual social networks*	46	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	71	4.6
7.02	Capacity for innovation*	105	3.3
7.03	PCT patents, applications/million pop.	68	1.0
7.04	Business-to-business Internet use*	95	4.4
7.05	Business-to-consumer Internet use*	103	3.9
7.06	Extent of staff training*	51	4.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	88	3.6
8.02	Government Online Service Index, 0–1 (best)	90	0.33
8.03	Gov't success in ICT promotion*	84	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	116	3.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	94	3.8
9.04	Knowledge-intensive jobs, % workforce	52	27.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	98	3.7
10.02	Internet access in schools*	64	4.5
10.03	ICT use & gov't efficiency*	101	3.5
10.04	E-Participation Index, 0–1 (best)	97	0.31

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Tunisia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**81**	**3.9**
Networked Readiness Index 2014 (out of 148)	87	3.8
Networked Readiness Index 2013 (out of 144)	n/a	n/a
A. Environment subindex	**103**	**3.6**
1st pillar: Political and regulatory environment	96	3.4
2nd pillar: Business and innovation environment	108	3.8
B. Readiness subindex	**69**	**4.8**
3rd pillar: Infrastructure	86	3.4
4th pillar: Affordability	32	6.1
5th pillar: Skills	76	4.9
C. Usage subindex	**81**	**3.6**
6th pillar: Individual usage	81	3.5
7th pillar: Business usage	106	3.3
8th pillar: Government usage	58	4.2
D. Impact subindex	**81**	**3.5**
9th pillar: Economic impacts	103	2.9
10th pillar: Social impacts	71	4.1



The Networked Readiness Index in detail

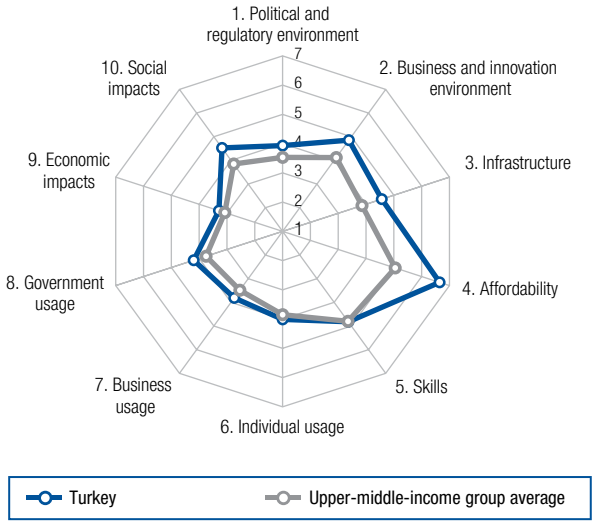
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	97	3.2
1.02	Laws relating to ICTs*	92	3.6
1.03	Judicial independence*	75	3.6
1.04	Efficiency of legal system in settling disputes*	75	3.6
1.05	Efficiency of legal system in challenging regs*	63	3.4
1.06	Intellectual property protection*	101	3.1
1.07	Software piracy rate, % software installed	75	75
1.08	No. procedures to enforce a contract	91	39
1.09	No. days to enforce a contract	76	565
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	79	4.7
2.02	Venture capital availability*	68	2.7
2.03	Total tax rate, % profits	127	62.4
2.04	No. days to start a business	60	11
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	92	4.8
2.07	Tertiary education gross enrollment rate, %	73	35.2
2.08	Quality of management schools*	61	4.4
2.09	Gov't procurement of advanced tech*	102	3.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	87	1,511.2
3.02	Mobile network coverage, % pop.	66	99.0
3.03	Int'l Internet bandwidth, kb/s per user	84	19.1
3.04	Secure Internet servers/million pop.	83	17.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	36	0.14
4.02	Fixed broadband Internet tariffs, PPP $/month	9	15.75
4.03	Internet & telephony competition, 0–2 (best)	120	1.14
	5th pillar: Skills		
5.01	Quality of educational system*	68	3.7
5.02	Quality of math & science education*	32	4.7
5.03	Secondary education gross enrollment rate, %	65	91.1
5.04	Adult literacy rate, %	83	81.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	65	115.6
6.02	Individuals using Internet, %	78	43.8
6.03	Households w/ personal computer, %	91	25.4
6.04	Households w/ Internet access, %	93	18.2
6.05	Fixed broadband Internet subs/100 pop.	83	4.9
6.06	Mobile broadband subs/100 pop.	70	30.9
6.07	Use of virtual social networks*	65	5.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	79	4.5
7.02	Capacity for innovation*	107	3.3
7.03	PCT patents, applications/million pop.	72	0.8
7.04	Business-to-business Internet use*	115	4.0
7.05	Business-to-consumer Internet use*	112	3.6
7.06	Extent of staff training*	99	3.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	86	3.7
8.02	Government Online Service Index, 0–1 (best)	39	0.64
8.03	Gov't success in ICT promotion*	86	4.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	106	3.8
9.02	ICT PCT patents, applications/million pop.	69	0.2
9.03	Impact of ICTs on new organizational models*	105	3.6
9.04	Knowledge-intensive jobs, % workforce	73	20.9
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	79	4.0
10.02	Internet access in schools*	96	3.6
10.03	ICT use & gov't efficiency*	88	3.8
10.04	E-Participation Index, 0–1 (best)	33	0.65

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Turkey

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**48**	**4.4**
Networked Readiness Index 2014 (out of 148)	51	4.3
Networked Readiness Index 2013 (out of 144)	45	4.2
A. Environment subindex	**44**	**4.4**
1st pillar: Political and regulatory environment	54	3.9
2nd pillar: Business and innovation environment	37	4.9
B. Readiness subindex	**41**	**5.3**
3rd pillar: Infrastructure	53	4.6
4th pillar: Affordability	8	6.6
5th pillar: Skills	80	4.8
C. Usage subindex	**62**	**4.0**
6th pillar: Individual usage	67	4.0
7th pillar: Business usage	53	3.8
8th pillar: Government usage	55	4.2
D. Impact subindex	**59**	**3.9**
9th pillar: Economic impacts	63	3.3
10th pillar: Social impacts	50	4.5



The Networked Readiness Index in detail

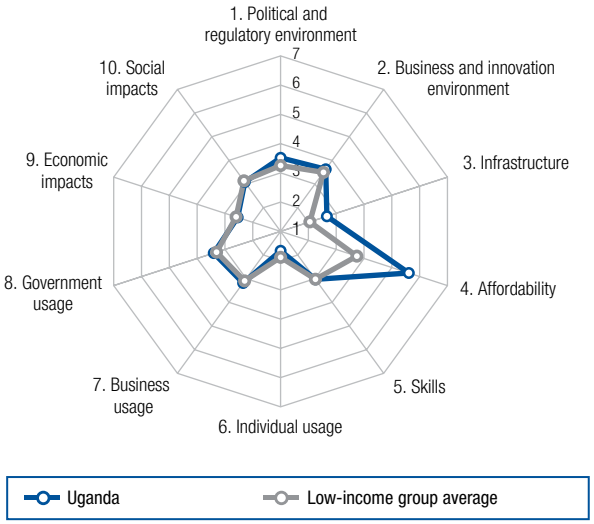
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	28	4.5
1.02	Laws relating to ICTs*	58	4.1
1.03	Judicial independence*	101	3.1
1.04	Efficiency of legal system in settling disputes*	56	3.8
1.05	Efficiency of legal system in challenging regs*	52	3.5
1.06	Intellectual property protection*	72	3.7
1.07	Software piracy rate, % software installed	54	60
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	34	420
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	45	5.3
2.02	Venture capital availability*	90	2.5
2.03	Total tax rate, % profits	83	40.1
2.04	No. days to start a business	36	7
2.05	No. procedures to start a business	78	7
2.06	Intensity of local competition*	11	5.9
2.07	Tertiary education gross enrollment rate, %	28	69.4
2.08	Quality of management schools*	100	3.8
2.09	Gov't procurement of advanced tech*	17	4.2
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	62	3,236.6
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	41	65.5
3.04	Secure Internet servers/million pop.	60	50.4
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	41	0.15
4.02	Fixed broadband Internet tariffs, PPP $/month	21	19.98
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	89	3.4
5.02	Quality of math & science education*	98	3.5
5.03	Secondary education gross enrollment rate, %	82	86.1
5.04	Adult literacy rate, %	50	95.0

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	105	93.0
6.02	Individuals using Internet, %	72	46.3
6.03	Households w/ personal computer, %	63	52.9
6.04	Households w/ Internet access, %	61	49.1
6.05	Fixed broadband Internet subs/100 pop.	59	11.2
6.06	Mobile broadband subs/100 pop.	65	32.3
6.07	Use of virtual social networks*	45	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	37	5.2
7.02	Capacity for innovation*	77	3.7
7.03	PCT patents, applications/million pop.	41	7.6
7.04	Business-to-business Internet use*	41	5.3
7.05	Business-to-consumer Internet use*	53	4.9
7.06	Extent of staff training*	91	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	57	4.0
8.02	Government Online Service Index, 0–1 (best)	53	0.56
8.03	Gov't success in ICT promotion*	68	4.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	44	4.7
9.02	ICT PCT patents, applications/million pop.	49	1.2
9.03	Impact of ICTs on new organizational models*	58	4.4
9.04	Knowledge-intensive jobs, % workforce	80	19.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	40	4.8
10.02	Internet access in schools*	58	4.7
10.03	ICT use & gov't efficiency*	40	4.7
10.04	E-Participation Index, 0–1 (best)	64	0.49

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Uganda

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**116**	**3.2**
Networked Readiness Index 2014 (out of 148)	115	3.3
Networked Readiness Index 2013 (out of 144)	110	3.3
A. Environment subindex	**106**	**3.6**
1st pillar: Political and regulatory environment	86	3.5
2nd pillar: Business and innovation environment	117	3.6
B. Readiness subindex	**108**	**3.8**
3rd pillar: Infrastructure	112	2.7
4th pillar: Affordability	54	5.6
5th pillar: Skills	126	3.0
C. Usage subindex	**122**	**2.7**
6th pillar: Individual usage	135	1.7
7th pillar: Business usage	110	3.2
8th pillar: Government usage	107	3.4
D. Impact subindex	**123**	**2.8**
9th pillar: Economic impacts	122	2.5
10th pillar: Social impacts	122	3.1



The Networked Readiness Index in detail

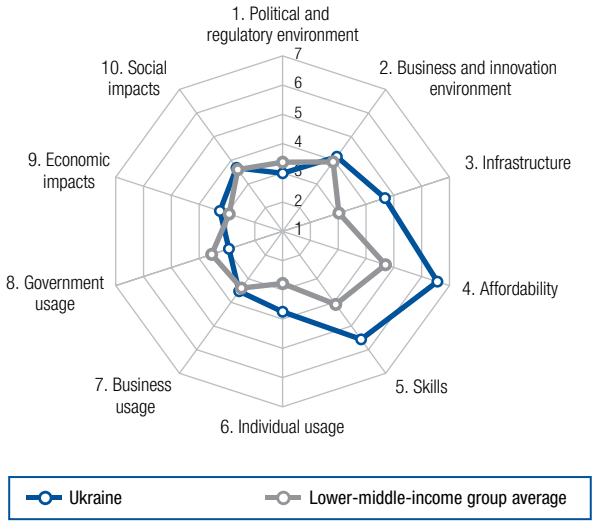
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	46	4.0
1.02	Laws relating to ICTs*	108	3.2
1.03	Judicial independence*	106	3.0
1.04	Efficiency of legal system in settling disputes*	61	3.8
1.05	Efficiency of legal system in challenging regs*	84	3.2
1.06	Intellectual property protection*	123	2.7
1.07	Software piracy rate, % software installed	n/a	n/a
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	54	490
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	98	4.3
2.02	Venture capital availability*	106	2.2
2.03	Total tax rate, % profits	67	36.5
2.04	No. days to start a business	119	32
2.05	No. procedures to start a business	140	15
2.06	Intensity of local competition*	55	5.2
2.07	Tertiary education gross enrollment rate, %	118	9.1
2.08	Quality of management schools*	96	3.8
2.09	Gov't procurement of advanced tech*	72	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	136	70.8
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	124	4.2
3.04	Secure Internet servers/million pop.	126	1.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	72	0.26
4.02	Fixed broadband Internet tariffs, PPP $/month	73	33.81
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	78	3.6
5.02	Quality of math & science education*	117	3.1
5.03	Secondary education gross enrollment rate, %	136	27.6
5.04	Adult literacy rate, %	88	78.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	137	44.1
6.02	Individuals using Internet, %	110	16.2
6.03	Households w/ personal computer, %	129	4.9
6.04	Households w/ Internet access, %	121	5.2
6.05	Fixed broadband Internet subs/100 pop.	125	0.1
6.06	Mobile broadband subs/100 pop.	103	7.4
6.07	Use of virtual social networks*	133	4.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	110	4.1
7.02	Capacity for innovation*	90	3.5
7.03	PCT patents, applications/million pop.	110	0.0
7.04	Business-to-business Internet use*	114	4.0
7.05	Business-to-consumer Internet use*	125	3.4
7.06	Extent of staff training*	109	3.6
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	70	3.9
8.02	Government Online Service Index, 0–1 (best)	123	0.15
8.03	Gov't success in ICT promotion*	54	4.4
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	95	4.0
9.02	ICT PCT patents, applications/million pop.	97	0.0
9.03	Impact of ICTs on new organizational models*	99	3.8
9.04	Knowledge-intensive jobs, % workforce	111	4.4
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	113	3.4
10.02	Internet access in schools*	116	3.2
10.03	ICT use & gov't efficiency*	83	3.9
10.04	E-Participation Index, 0–1 (best)	126	0.14

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Ukraine

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**71**	**4.0**
Networked Readiness Index 2014 (out of 148)	81	3.9
Networked Readiness Index 2013 (out of 144)	73	3.9
A. Environment subindex	**104**	**3.6**
1st pillar: Political and regulatory environment	122	3.0
2nd pillar: Business and innovation environment	77	4.2
B. Readiness subindex	**28**	**5.6**
3rd pillar: Infrastructure	46	4.7
4th pillar: Affordability	10	6.6
5th pillar: Skills	36	5.6
C. Usage subindex	**94**	**3.4**
6th pillar: Individual usage	78	3.7
7th pillar: Business usage	78	3.5
8th pillar: Government usage	124	2.9
D. Impact subindex	**82**	**3.5**
9th pillar: Economic impacts	67	3.3
10th pillar: Social impacts	89	3.7



The Networked Readiness Index in detail

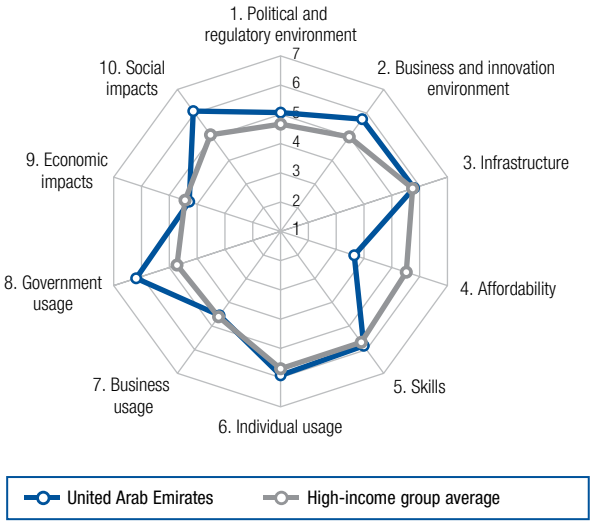
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	125	2.5
1.02	Laws relating to ICTs*	97	3.5
1.03	Judicial independence*	139	2.0
1.04	Efficiency of legal system in settling disputes*	128	2.6
1.05	Efficiency of legal system in challenging regs*	131	2.3
1.06	Intellectual property protection*	128	2.7
1.07	Software piracy rate, % software installed	91	83
1.08	No. procedures to enforce a contract	18	30
1.09	No. days to enforce a contract	21	378
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	113	4.1
2.02	Venture capital availability*	97	2.3
2.03	Total tax rate, % profits	121	52.9
2.04	No. days to start a business	102	21
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	101	4.7
2.07	Tertiary education gross enrollment rate, %	13	79.7
2.08	Quality of management schools*	88	3.9
2.09	Gov't procurement of advanced tech*	122	2.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	53	4,265.2
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	51	52.9
3.04	Secure Internet servers/million pop.	72	26.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	49	0.19
4.02	Fixed broadband Internet tariffs, PPP $/month	6	14.10
4.03	Internet & telephony competition, 0–2 (best)	77	1.86
	5th pillar: Skills		
5.01	Quality of educational system*	72	3.7
5.02	Quality of math & science education*	30	4.8
5.03	Secondary education gross enrollment rate, %	39	97.8
5.04	Adult literacy rate, %	8	99.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	36	138.1
6.02	Individuals using Internet, %	82	41.8
6.03	Households w/ personal computer, %	75	40.5
6.04	Households w/ Internet access, %	70	43.7
6.05	Fixed broadband Internet subs/100 pop.	69	8.8
6.06	Mobile broadband subs/100 pop.	107	5.4
6.07	Use of virtual social networks*	89	5.4
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	100	4.2
7.02	Capacity for innovation*	82	3.6
7.03	PCT patents, applications/million pop.	52	3.3
7.04	Business-to-business Internet use*	72	4.7
7.05	Business-to-consumer Internet use*	40	5.1
7.06	Extent of staff training*	92	3.8
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	136	2.7
8.02	Government Online Service Index, 0–1 (best)	106	0.27
8.03	Gov't success in ICT promotion*	115	3.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	111	3.8
9.02	ICT PCT patents, applications/million pop.	51	1.1
9.03	Impact of ICTs on new organizational models*	101	3.7
9.04	Knowledge-intensive jobs, % workforce	37	33.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	109	3.6
10.02	Internet access in schools*	67	4.3
10.03	ICT use & gov't efficiency*	118	3.3
10.04	E-Participation Index, 0–1 (best)	74	0.43

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

United Arab Emirates

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**23**	**5.3**
Networked Readiness Index 2014 (out of 148)	24	5.2
Networked Readiness Index 2013 (out of 144)	25	5.1
A. Environment subindex	**11**	**5.4**
1st pillar: Political and regulatory environment	20	5.1
2nd pillar: Business and innovation environment	2	5.7
B. Readiness subindex	**54**	**5.1**
3rd pillar: Infrastructure	27	5.8
4th pillar: Affordability	114	3.6
5th pillar: Skills	21	5.8
C. Usage subindex	**13**	**5.6**
6th pillar: Individual usage	20	5.9
7th pillar: Business usage	27	4.5
8th pillar: Government usage	2	6.2
D. Impact subindex	**18**	**5.2**
9th pillar: Economic impacts	27	4.3
10th pillar: Social impacts	2	6.1



The Networked Readiness Index in detail

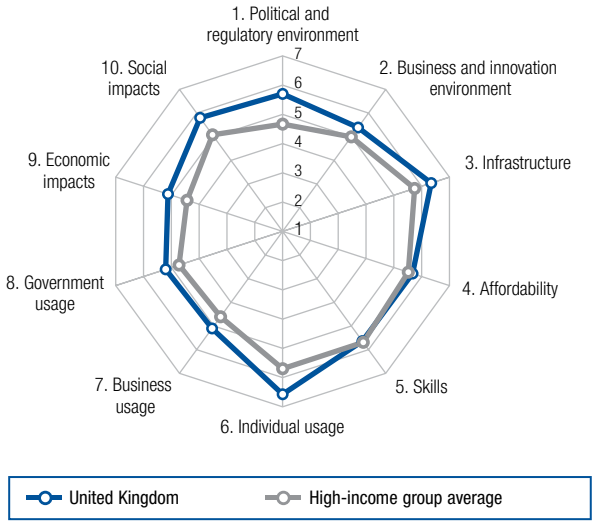
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	9	5.3
1.02	Laws relating to ICTs*	4	5.7
1.03	Judicial independence*	22	5.6
1.04	Efficiency of legal system in settling disputes*	17	5.2
1.05	Efficiency of legal system in challenging regs*	15	4.7
1.06	Intellectual property protection*	18	5.5
1.07	Software piracy rate, % software installed	22	36
1.08	No. procedures to enforce a contract	137	49
1.09	No. days to enforce a contract	67	524
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	8	6.3
2.02	Venture capital availability*	4	4.4
2.03	Total tax rate, % profits	8	14.8
2.04	No. days to start a business	42	8
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	9	6.0
2.07	Tertiary education gross enrollment rate, %	n/a	n/a
2.08	Quality of management schools*	18	5.3
2.09	Gov't procurement of advanced tech*	2	5.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	9	11,107.7
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	52	52.3
3.04	Secure Internet servers/million pop.	39	194.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	21	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	120	76.90
4.03	Internet & telephony competition, 0–2 (best)	124	1.06
	5th pillar: Skills		
5.01	Quality of educational system*	9	5.3
5.02	Quality of math & science education*	11	5.3
5.03	Secondary education gross enrollment rate, %	62	92.3
5.04	Adult literacy rate, %	60	93.8

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	7	171.9
6.02	Individuals using Internet, %	10	88.0
6.03	Households w/ personal computer, %	9	90.2
6.04	Households w/ Internet access, %	29	76.1
6.05	Fixed broadband Internet subs/100 pop.	60	11.1
6.06	Mobile broadband subs/100 pop.	11	89.0
6.07	Use of virtual social networks*	8	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	7	6.0
7.02	Capacity for innovation*	25	4.7
7.03	PCT patents, applications/million pop.	49	4.8
7.04	Business-to-business Internet use*	7	6.0
7.05	Business-to-consumer Internet use*	20	5.5
7.06	Extent of staff training*	11	5.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	1	6.1
8.02	Government Online Service Index, 0–1 (best)	12	0.88
8.03	Gov't success in ICT promotion*	2	6.2
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	2	5.7
9.02	ICT PCT patents, applications/million pop.	44	1.6
9.03	Impact of ICTs on new organizational models*	5	5.5
9.04	Knowledge-intensive jobs, % workforce	31	36.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	1	6.1
10.02	Internet access in schools*	18	6.0
10.03	ICT use & gov't efficiency*	1	6.1
10.04	E-Participation Index, 0–1 (best)	13	0.84

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

United Kingdom

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**8**	**5.6**
Networked Readiness Index 2014 (out of 148)	9	5.5
Networked Readiness Index 2013 (out of 144)	7	5.6
A. Environment subindex	**4**	**5.5**
1st pillar: Political and regulatory environment	5	5.7
2nd pillar: Business and innovation environment	9	5.4
B. Readiness subindex	**21**	**5.9**
3rd pillar: Infrastructure	15	6.3
4th pillar: Affordability	51	5.7
5th pillar: Skills	31	5.6
C. Usage subindex	**12**	**5.6**
6th pillar: Individual usage	4	6.6
7th pillar: Business usage	16	5.1
8th pillar: Government usage	16	5.2
D. Impact subindex	**9**	**5.5**
9th pillar: Economic impacts	13	5.1
10th pillar: Social impacts	6	5.8



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	5	5.6
1.02	Laws relating to ICTs*	7	5.5
1.03	Judicial independence*	7	6.2
1.04	Efficiency of legal system in settling disputes*	5	5.7
1.05	Efficiency of legal system in challenging regs*	7	5.1
1.06	Intellectual property protection*	8	5.9
1.07	Software piracy rate, % software installed	9	24
1.08	No. procedures to enforce a contract	14	29
1.09	No. days to enforce a contract	42	437
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	4	6.5
2.02	Venture capital availability*	19	3.6
2.03	Total tax rate, % profits	57	33.7
2.04	No. days to start a business	27	6
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	5	6.1
2.07	Tertiary education gross enrollment rate, %	36	61.9
2.08	Quality of management schools*	5	5.8
2.09	Gov't procurement of advanced tech*	44	3.7
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	36	5,655.3
3.02	Mobile network coverage, % pop.	55	99.7
3.03	Int'l Internet bandwidth, kb/s per user	7	352.6
3.04	Secure Internet servers/million pop.	13	1,193.5
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	113	0.43
4.02	Fixed broadband Internet tariffs, PPP $/month	7	14.38
4.03	Internet & telephony competition, 0–2 (best)	78	1.85
	5th pillar: Skills		
5.01	Quality of educational system*	23	4.6
5.02	Quality of math & science education*	63	4.3
5.03	Secondary education gross enrollment rate, %	52	95.4
5.04	Adult literacy rate, %	n/a	n/a[1]

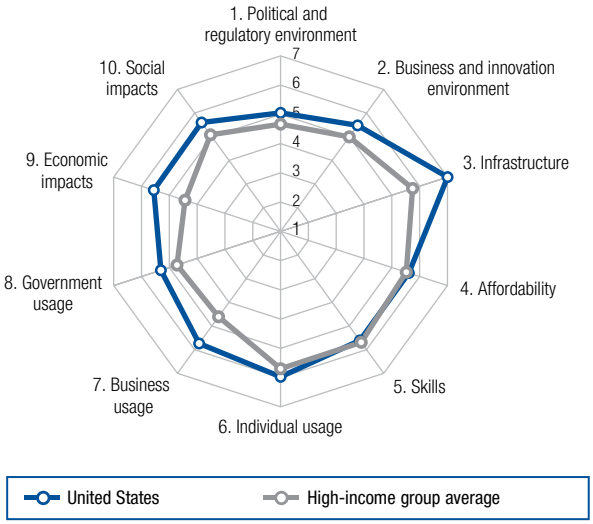
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	50	124.6
6.02	Individuals using Internet, %	9	89.8
6.03	Households w/ personal computer, %	12	88.2
6.04	Households w/ Internet access, %	11	88.4
6.05	Fixed broadband Internet subs/100 pop.	7	35.8
6.06	Mobile broadband subs/100 pop.	12	87.2
6.07	Use of virtual social networks*	3	6.6
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	14	5.7
7.02	Capacity for innovation*	10	5.3
7.03	PCT patents, applications/million pop.	18	88.3
7.04	Business-to-business Internet use*	3	6.1
7.05	Business-to-consumer Internet use*	1	6.3
7.06	Extent of staff training*	23	4.7
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	29	4.6
8.02	Government Online Service Index, 0–1 (best)	11	0.90
8.03	Gov't success in ICT promotion*	37	4.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	8	5.5
9.02	ICT PCT patents, applications/million pop.	20	28.9
9.03	Impact of ICTs on new organizational models*	8	5.5
9.04	Knowledge-intensive jobs, % workforce	6	47.7
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	26	5.2
10.02	Internet access in schools*	7	6.3
10.03	ICT use & gov't efficiency*	32	4.8
10.04	E-Participation Index, 0–1 (best)	4	0.96

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

United States

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**7**	**5.6**
Networked Readiness Index 2014 (out of 148)	7	5.6
Networked Readiness Index 2013 (out of 144)	9	5.6
A. Environment subindex	**14**	**5.3**
1st pillar: Political and regulatory environment	21	5.0
2nd pillar: Business and innovation environment	5	5.5
B. Readiness subindex	**12**	**6.1**
3rd pillar: Infrastructure	4	7.0
4th pillar: Affordability	53	5.6
5th pillar: Skills	33	5.6
C. Usage subindex	**10**	**5.7**
6th pillar: Individual usage	18	6.0
7th pillar: Business usage	7	5.7
8th pillar: Government usage	14	5.3
D. Impact subindex	**6**	**5.6**
9th pillar: Economic impacts	7	5.6
10th pillar: Social impacts	11	5.6



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	55	3.8
1.02	Laws relating to ICTs*	13	5.2
1.03	Judicial independence*	30	5.1
1.04	Efficiency of legal system in settling disputes*	23	4.9
1.05	Efficiency of legal system in challenging regs*	18	4.4
1.06	Intellectual property protection*	20	5.4
1.07	Software piracy rate, % software installed	1	18
1.08	No. procedures to enforce a contract	41	34
1.09	No. days to enforce a contract	34	420
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	2	6.5
2.02	Venture capital availability*	3	4.4
2.03	Total tax rate, % profits	97	43.8
2.04	No. days to start a business	26	6
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	10	5.9
2.07	Tertiary education gross enrollment rate, %	3	94.3
2.08	Quality of management schools*	11	5.6
2.09	Gov't procurement of advanced tech*	8	4.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	7	13,641.5
3.02	Mobile network coverage, % pop.	39	99.9
3.03	Int'l Internet bandwidth, kb/s per user	43	64.1
3.04	Secure Internet servers/million pop.	11	1,306.0
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	76	0.27
4.02	Fixed broadband Internet tariffs, PPP $/month	71	32.65
4.03	Internet & telephony competition, 0–2 (best)	1	2.00
	5th pillar: Skills		
5.01	Quality of educational system*	27	4.6
5.02	Quality of math & science education*	51	4.4
5.03	Secondary education gross enrollment rate, %	57	93.7
5.04	Adult literacy rate, %	n/a	n/a[1]

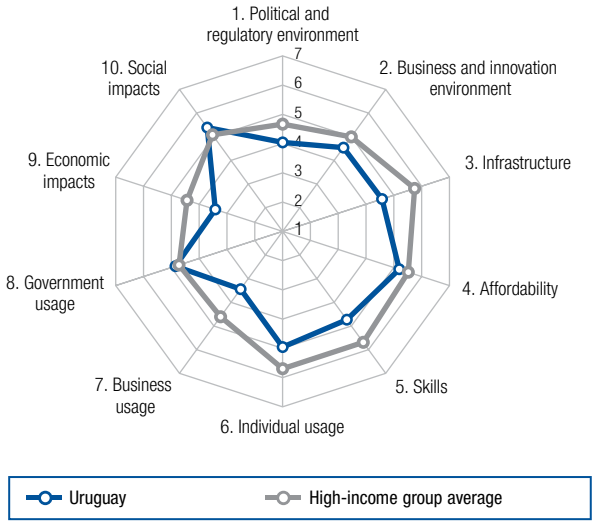
	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	102	95.5
6.02	Individuals using Internet, %	16	84.2
6.03	Households w/ personal computer, %	30	80.0
6.04	Households w/ Internet access, %	27	77.3
6.05	Fixed broadband Internet subs/100 pop.	17	29.3
6.06	Mobile broadband subs/100 pop.	9	98.0
6.07	Use of virtual social networks*	5	6.5
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	3	6.1
7.02	Capacity for innovation*	2	5.9
7.03	PCT patents, applications/million pop.	11	159.5
7.04	Business-to-business Internet use*	17	5.6
7.05	Business-to-consumer Internet use*	2	6.3
7.06	Extent of staff training*	14	5.0
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	39	4.4
8.02	Government Online Service Index, 0–1 (best)	4	0.94
8.03	Gov't success in ICT promotion*	26	4.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	18	5.3
9.02	ICT PCT patents, applications/million pop.	8	64.8
9.03	Impact of ICTs on new organizational models*	9	5.4
9.04	Knowledge-intensive jobs, % workforce	26	38.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	30	5.2
10.02	Internet access in schools*	15	6.1
10.03	ICT use & gov't efficiency*	45	4.6
10.04	E-Participation Index, 0–1 (best)	9	0.92

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

[1] See the "Technical Notes and Sources" section.

Uruguay

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**46**	**4.5**
Networked Readiness Index 2014 (out of 148)	56	4.2
Networked Readiness Index 2013 (out of 144)	52	4.2
A. Environment subindex	**49**	**4.3**
1st pillar: Political and regulatory environment	51	4.0
2nd pillar: Business and innovation environment	56	4.5
B. Readiness subindex	**67**	**4.8**
3rd pillar: Infrastructure	51	4.6
4th pillar: Affordability	74	5.2
5th pillar: Skills	84	4.7
C. Usage subindex	**38**	**4.4**
6th pillar: Individual usage	45	5.0
7th pillar: Business usage	89	3.4
8th pillar: Government usage	27	4.8
D. Impact subindex	**36**	**4.4**
9th pillar: Economic impacts	56	3.4
10th pillar: Social impacts	21	5.4



The Networked Readiness Index in detail

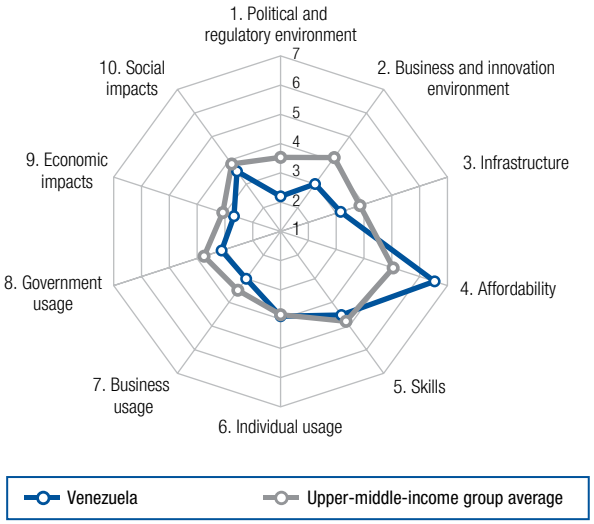
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	59	3.8
1.02	Laws relating to ICTs*	66	3.9
1.03	Judicial independence*	21	5.6
1.04	Efficiency of legal system in settling disputes*	50	4.0
1.05	Efficiency of legal system in challenging regs*	40	3.8
1.06	Intellectual property protection*	44	4.1
1.07	Software piracy rate, % software installed	65	68
1.08	No. procedures to enforce a contract	96	40
1.09	No. days to enforce a contract	110	725
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	83	4.6
2.02	Venture capital availability*	77	2.6
2.03	Total tax rate, % profits	90	41.8
2.04	No. days to start a business	36	7
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	103	4.7
2.07	Tertiary education gross enrollment rate, %	33	63.2
2.08	Quality of management schools*	65	4.3
2.09	Gov't procurement of advanced tech*	79	3.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	67	3,057.2
3.02	Mobile network coverage, % pop.	1	100.0
3.03	Int'l Internet bandwidth, kb/s per user	45	59.9
3.04	Secure Internet servers/million pop.	53	75.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	104	0.38
4.02	Fixed broadband Internet tariffs, PPP $/month	12	16.85
4.03	Internet & telephony competition, 0–2 (best)	125	1.00
	5th pillar: Skills		
5.01	Quality of educational system*	116	2.9
5.02	Quality of math & science education*	122	2.9
5.03	Secondary education gross enrollment rate, %	67	90.3
5.04	Adult literacy rate, %	22	98.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	21	154.6
6.02	Individuals using Internet, %	57	58.1
6.03	Households w/ personal computer, %	46	67.6
6.04	Households w/ Internet access, %	57	52.7
6.05	Fixed broadband Internet subs/100 pop.	37	21.1
6.06	Mobile broadband subs/100 pop.	49	45.5
6.07	Use of virtual social networks*	43	6.0
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	93	4.3
7.02	Capacity for innovation*	87	3.5
7.03	PCT patents, applications/million pop.	54	2.8
7.04	Business-to-business Internet use*	96	4.4
7.05	Business-to-consumer Internet use*	76	4.3
7.06	Extent of staff training*	80	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	65	4.0
8.02	Government Online Service Index, 0–1 (best)	14	0.85
8.03	Gov't success in ICT promotion*	50	4.5
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	48	4.7
9.02	ICT PCT patents, applications/million pop.	56	0.8
9.03	Impact of ICTs on new organizational models*	45	4.6
9.04	Knowledge-intensive jobs, % workforce	68	23.1
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	45	4.7
10.02	Internet access in schools*	17	6.0
10.03	ICT use & gov't efficiency*	78	3.9
10.04	E-Participation Index, 0–1 (best)	3	0.98

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Venezuela

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**103**	**3.4**
Networked Readiness Index 2014 (out of 148)	106	3.4
Networked Readiness Index 2013 (out of 144)	108	3.3
A. Environment subindex	**141**	**2.6**
1st pillar: Political and regulatory environment	143	2.2
2nd pillar: Business and innovation environment	138	3.0
B. Readiness subindex	**72**	**4.7**
3rd pillar: Infrastructure	93	3.2
4th pillar: Affordability	12	6.5
5th pillar: Skills	90	4.5
C. Usage subindex	**97**	**3.3**
6th pillar: Individual usage	71	3.9
7th pillar: Business usage	128	3.0
8th pillar: Government usage	117	3.1
D. Impact subindex	**108**	**3.1**
9th pillar: Economic impacts	116	2.7
10th pillar: Social impacts	97	3.5



The Networked Readiness Index in detail

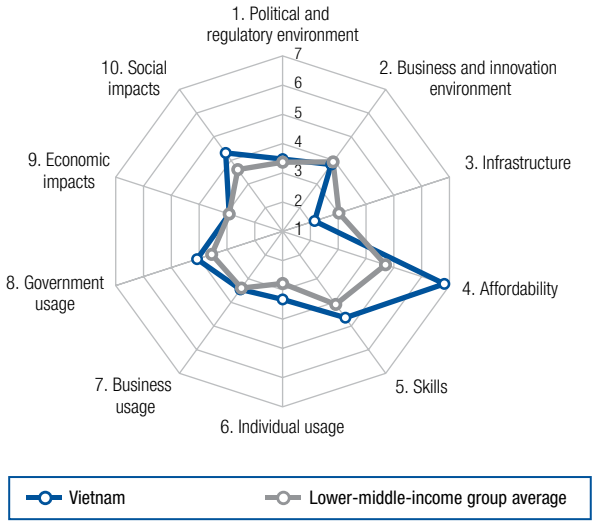
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	143	1.4
1.02	Laws relating to ICTs*	122	2.9
1.03	Judicial independence*	143	1.1
1.04	Efficiency of legal system in settling disputes*	143	1.5
1.05	Efficiency of legal system in challenging regs*	143	1.2
1.06	Intellectual property protection*	143	1.6
1.07	Software piracy rate, % software installed	101	88
1.08	No. procedures to enforce a contract	18	30
1.09	No. days to enforce a contract	90	610
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	130	3.8
2.02	Venture capital availability*	122	2.1
2.03	Total tax rate, % profits	132	65.5
2.04	No. days to start a business	143	144
2.05	No. procedures to start a business	143	17
2.06	Intensity of local competition*	142	2.9
2.07	Tertiary education gross enrollment rate, %	16	78.1
2.08	Quality of management schools*	82	4.1
2.09	Gov't procurement of advanced tech*	143	1.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	55	4,137.5
3.02	Mobile network coverage, % pop.	117	90.0
3.03	Int'l Internet bandwidth, kb/s per user	97	10.6
3.04	Secure Internet servers/million pop.	87	11.1
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	57	0.23
4.02	Fixed broadband Internet tariffs, PPP $/month	5	13.77
4.03	Internet & telephony competition, 0–2 (best)	n/a	n/a
	5th pillar: Skills		
5.01	Quality of educational system*	130	2.6
5.02	Quality of math & science education*	118	3.1
5.03	Secondary education gross enrollment rate, %	85	85.4
5.04	Adult literacy rate, %	39	96.3

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	92	101.6
6.02	Individuals using Internet, %	60	54.9
6.03	Households w/ personal computer, %	74	41.0
6.04	Households w/ Internet access, %	79	31.5
6.05	Fixed broadband Internet subs/100 pop.	75	7.3
6.06	Mobile broadband subs/100 pop.	56	40.9
6.07	Use of virtual social networks*	38	6.1
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	122	3.9
7.02	Capacity for innovation*	137	2.8
7.03	PCT patents, applications/million pop.	89	0.3
7.04	Business-to-business Internet use*	121	3.9
7.05	Business-to-consumer Internet use*	99	4.0
7.06	Extent of staff training*	123	3.3
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	141	2.4
8.02	Government Online Service Index, 0–1 (best)	55	0.55
8.03	Gov't success in ICT promotion*	142	2.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	132	3.3
9.02	ICT PCT patents, applications/million pop.	92	0.0
9.03	Impact of ICTs on new organizational models*	117	3.5
9.04	Knowledge-intensive jobs, % workforce	79	19.2
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	114	3.4
10.02	Internet access in schools*	103	3.5
10.03	ICT use & gov't efficiency*	135	2.8
10.04	E-Participation Index, 0–1 (best)	51	0.57

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Vietnam

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**85**	**3.9**
Networked Readiness Index 2014 (out of 148)	84	3.8
Networked Readiness Index 2013 (out of 144)	84	3.7
A. Environment subindex	**98**	**3.6**
1st pillar: Political and regulatory environment	93	3.5
2nd pillar: Business and innovation environment	105	3.8
B. Readiness subindex	**84**	**4.5**
3rd pillar: Infrastructure	127	2.1
4th pillar: Affordability	2	6.8
5th pillar: Skills	88	4.6
C. Usage subindex	**82**	**3.6**
6th pillar: Individual usage	86	3.3
7th pillar: Business usage	87	3.5
8th pillar: Government usage	60	4.1
D. Impact subindex	**71**	**3.6**
9th pillar: Economic impacts	101	2.9
10th pillar: Social impacts	62	4.3



The Networked Readiness Index in detail

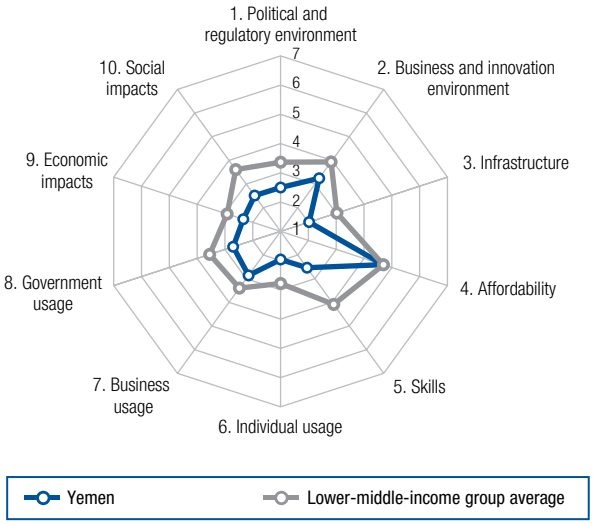
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	70	3.6
1.02	Laws relating to ICTs*	89	3.7
1.03	Judicial independence*	88	3.4
1.04	Efficiency of legal system in settling disputes*	89	3.4
1.05	Efficiency of legal system in challenging regs*	80	3.2
1.06	Intellectual property protection*	104	3.1
1.07	Software piracy rate, % software installed	86	81
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	29	400
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	123	3.9
2.02	Venture capital availability*	71	2.7
2.03	Total tax rate, % profits	87	40.8
2.04	No. days to start a business	120	34
2.05	No. procedures to start a business	119	10
2.06	Intensity of local competition*	65	5.1
2.07	Tertiary education gross enrollment rate, %	88	24.6
2.08	Quality of management schools*	119	3.4
2.09	Gov't procurement of advanced tech*	34	3.9
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	94	1,129.1
3.02	Mobile network coverage, % pop.	132	70.0
3.03	Int'l Internet bandwidth, kb/s per user	90	15.9
3.04	Secure Internet servers/million pop.	98	8.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	24	0.12
4.02	Fixed broadband Internet tariffs, PPP $/month	1	2.65
4.03	Internet & telephony competition, 0–2 (best)	73	1.87
	5th pillar: Skills		
5.01	Quality of educational system*	94	3.3
5.02	Quality of math & science education*	82	3.9
5.03	Secondary education gross enrollment rate, %	96	75.2
5.04	Adult literacy rate, %	54	94.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	42	130.9
6.02	Individuals using Internet, %	77	43.9
6.03	Households w/ personal computer, %	101	19.0
6.04	Households w/ Internet access, %	94	17.1
6.05	Fixed broadband Internet subs/100 pop.	78	5.6
6.06	Mobile broadband subs/100 pop.	83	18.8
6.07	Use of virtual social networks*	105	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	121	3.9
7.02	Capacity for innovation*	95	3.5
7.03	PCT patents, applications/million pop.	91	0.2
7.04	Business-to-business Internet use*	49	5.1
7.05	Business-to-consumer Internet use*	54	4.9
7.06	Extent of staff training*	85	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	55	4.1
8.02	Government Online Service Index, 0–1 (best)	77	0.42
8.03	Gov't success in ICT promotion*	43	4.6
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	54	4.6
9.02	ICT PCT patents, applications/million pop.	89	0.0
9.03	Impact of ICTs on new organizational models*	71	4.1
9.04	Knowledge-intensive jobs, % workforce	103	10.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	66	4.3
10.02	Internet access in schools*	47	5.0
10.03	ICT use & gov't efficiency*	66	4.1
10.04	E-Participation Index, 0–1 (best)	64	0.49

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Yemen

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**136**	**2.7**
Networked Readiness Index 2014 (out of 148)	140	2.7
Networked Readiness Index 2013 (out of 144)	139	2.6
A. Environment subindex	**135**	**2.9**
1st pillar: Political and regulatory environment	140	2.5
2nd pillar: Business and innovation environment	133	3.2
B. Readiness subindex	**120**	**3.1**
3rd pillar: Infrastructure	129	2.0
4th pillar: Affordability	88	4.7
5th pillar: Skills	134	2.5
C. Usage subindex	**135**	**2.5**
6th pillar: Individual usage	127	2.0
7th pillar: Business usage	133	2.9
8th pillar: Government usage	132	2.7
D. Impact subindex	**138**	**2.4**
9th pillar: Economic impacts	133	2.3
10th pillar: Social impacts	137	2.5



The Networked Readiness Index in detail

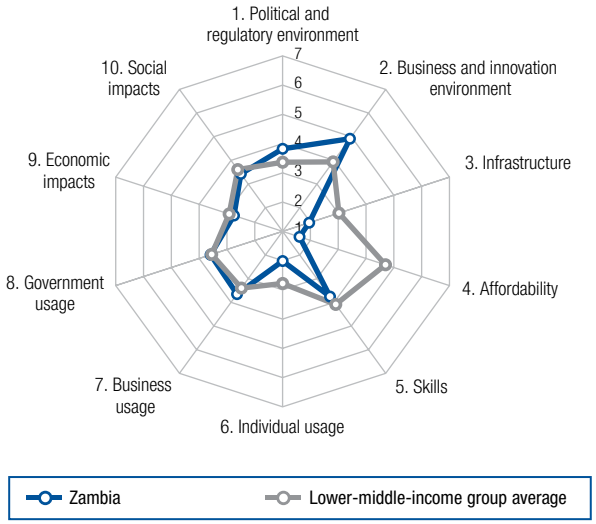
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	137	2.0
1.02	Laws relating to ICTs*	140	2.1
1.03	Judicial independence*	127	2.3
1.04	Efficiency of legal system in settling disputes*	140	2.3
1.05	Efficiency of legal system in challenging regs*	123	2.5
1.06	Intellectual property protection*	136	2.3
1.07	Software piracy rate, % software installed	99	87
1.08	No. procedures to enforce a contract	58	36
1.09	No. days to enforce a contract	101	645
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	137	3.2
2.02	Venture capital availability*	138	1.7
2.03	Total tax rate, % profits	54	33.3
2.04	No. days to start a business	128	40
2.05	No. procedures to start a business	58	6
2.06	Intensity of local competition*	124	4.3
2.07	Tertiary education gross enrollment rate, %	113	10.3
2.08	Quality of management schools*	134	2.9
2.09	Gov't procurement of advanced tech*	140	2.1
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	120	266.3
3.02	Mobile network coverage, % pop.	123	84.0
3.03	Int'l Internet bandwidth, kb/s per user	140	2.5
3.04	Secure Internet servers/million pop.	135	0.7
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	68	0.25
4.02	Fixed broadband Internet tariffs, PPP $/month	52	28.14
4.03	Internet & telephony competition, 0–2 (best)	133	0.36
	5th pillar: Skills		
5.01	Quality of educational system*	142	1.9
5.02	Quality of math & science education*	139	2.3
5.03	Secondary education gross enrollment rate, %	121	46.9
5.04	Adult literacy rate, %	98	70.1

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	128	69.0
6.02	Individuals using Internet, %	102	20.0
6.03	Households w/ personal computer, %	128	5.6
6.04	Households w/ Internet access, %	124	4.7
6.05	Fixed broadband Internet subs/100 pop.	107	1.1
6.06	Mobile broadband subs/100 pop.	130	0.2
6.07	Use of virtual social networks*	117	4.8
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	134	3.7
7.02	Capacity for innovation*	134	2.9
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	104	4.2
7.05	Business-to-consumer Internet use*	136	3.0
7.06	Extent of staff training*	131	3.2
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	142	2.3
8.02	Government Online Service Index, 0–1 (best)	97	0.31
8.03	Gov't success in ICT promotion*	137	3.0
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	141	2.7
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	135	2.9
9.04	Knowledge-intensive jobs, % workforce	89	17.0
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	136	2.9
10.02	Internet access in schools*	140	1.7
10.03	ICT use & gov't efficiency*	138	2.8
10.04	E-Participation Index, 0–1 (best)	105	0.27

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Zambia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**114**	**3.2**
Networked Readiness Index 2014 (out of 148)	110	3.3
Networked Readiness Index 2013 (out of 144)	115	3.2
A. Environment subindex	**45**	**4.4**
1st pillar: Political and regulatory environment	64	3.8
2nd pillar: Business and innovation environment	32	4.9
B. Readiness subindex	**137**	**2.4**
3rd pillar: Infrastructure	132	2.0
4th pillar: Affordability	138	1.6
5th pillar: Skills	109	3.8
C. Usage subindex	**107**	**3.1**
6th pillar: Individual usage	122	2.0
7th pillar: Business usage	65	3.7
8th pillar: Government usage	87	3.6
D. Impact subindex	**112**	**3.1**
9th pillar: Economic impacts	109	2.7
10th pillar: Social impacts	104	3.4



The Networked Readiness Index in detail

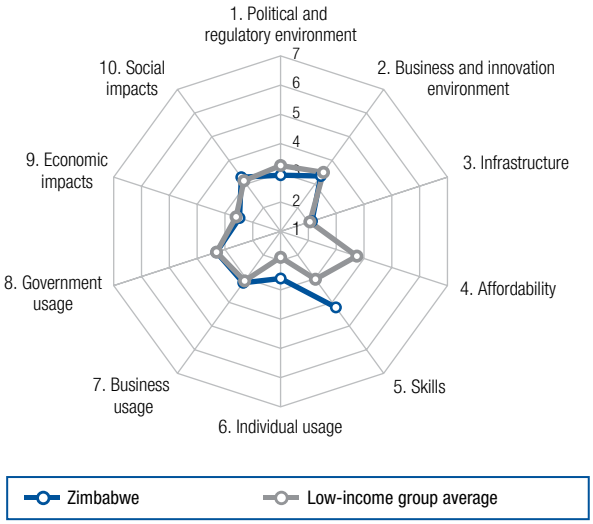
	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	31	4.4
1.02	Laws relating to ICTs*	72	3.9
1.03	Judicial independence*	69	3.7
1.04	Efficiency of legal system in settling disputes*	33	4.4
1.05	Efficiency of legal system in challenging regs*	71	3.3
1.06	Intellectual property protection*	50	4.0
1.07	Software piracy rate, % software installed	86	81
1.08	No. procedures to enforce a contract	48	35
1.09	No. days to enforce a contract	91	611
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	82	4.6
2.02	Venture capital availability*	95	2.4
2.03	Total tax rate, % profits	8	14.8
2.04	No. days to start a business	36	7
2.05	No. procedures to start a business	38	5
2.06	Intensity of local competition*	25	5.6
2.07	Tertiary education gross enrollment rate, %	n/a	n/a
2.08	Quality of management schools*	42	4.7
2.09	Gov't procurement of advanced tech*	25	4.0
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	100	840.1
3.02	Mobile network coverage, % pop.	130	78.0
3.03	Int'l Internet bandwidth, kb/s per user	125	4.2
3.04	Secure Internet servers/million pop.	111	2.8
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	135	0.73
4.02	Fixed broadband Internet tariffs, PPP $/month	134	157.62
4.03	Internet & telephony competition, 0–2 (best)	94	1.64
	5th pillar: Skills		
5.01	Quality of educational system*	36	4.3
5.02	Quality of math & science education*	62	4.3
5.03	Secondary education gross enrollment rate, %	n/a	n/a
5.04	Adult literacy rate, %	105	63.4

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	121	71.5
6.02	Individuals using Internet, %	114	15.4
6.03	Households w/ personal computer, %	126	5.9
6.04	Households w/ Internet access, %	117	5.9
6.05	Fixed broadband Internet subs/100 pop.	129	0.1
6.06	Mobile broadband subs/100 pop.	126	0.7
6.07	Use of virtual social networks*	97	5.3
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	67	4.7
7.02	Capacity for innovation*	45	4.1
7.03	PCT patents, applications/million pop.	120	0.0
7.04	Business-to-business Internet use*	69	4.8
7.05	Business-to-consumer Internet use*	86	4.2
7.06	Extent of staff training*	63	4.1
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	50	4.2
8.02	Government Online Service Index, 0–1 (best)	125	0.14
8.03	Gov't success in ICT promotion*	33	4.7
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	72	4.3
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	81	4.0
9.04	Knowledge-intensive jobs, % workforce	107	7.3
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	90	3.8
10.02	Internet access in schools*	97	3.6
10.03	ICT use & gov't efficiency*	60	4.2
10.04	E-Participation Index, 0–1 (best)	120	0.18

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

Zimbabwe

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2015	**121**	**3.1**
Networked Readiness Index 2014 (out of 148)	117	3.2
Networked Readiness Index 2013 (out of 144)	116	3.2
A. Environment subindex	**131**	**3.1**
1st pillar: Political and regulatory environment	125	2.9
2nd pillar: Business and innovation environment	132	3.3
B. Readiness subindex	**119**	**3.2**
3rd pillar: Infrastructure	128	2.1
4th pillar: Affordability	n/a	n/a
5th pillar: Skills	99	4.2
C. Usage subindex	**111**	**3.0**
6th pillar: Individual usage	104	2.6
7th pillar: Business usage	112	3.2
8th pillar: Government usage	112	3.3
D. Impact subindex	**120**	**2.9**
9th pillar: Economic impacts	128	2.5
10th pillar: Social impacts	113	3.3



The Networked Readiness Index in detail

	INDICATOR	RANK/143	VALUE
	1st pillar: Political and regulatory environment		
1.01	Effectiveness of law-making bodies*	101	3.1
1.02	Laws relating to ICTs*	128	2.7
1.03	Judicial independence*	119	2.5
1.04	Efficiency of legal system in settling disputes*	92	3.4
1.05	Efficiency of legal system in challenging regs*	120	2.5
1.06	Intellectual property protection*	115	2.9
1.07	Software piracy rate, % software installed	105	91
1.08	No. procedures to enforce a contract	77	38
1.09	No. days to enforce a contract	31	410
	2nd pillar: Business and innovation environment		
2.01	Availability of latest technologies*	101	4.3
2.02	Venture capital availability*	139	1.6
2.03	Total tax rate, % profits	53	32.8
2.04	No. days to start a business	139	90
2.05	No. procedures to start a business	107	9
2.06	Intensity of local competition*	77	4.9
2.07	Tertiary education gross enrollment rate, %	126	5.9
2.08	Quality of management schools*	80	4.1
2.09	Gov't procurement of advanced tech*	139	2.4
	3rd pillar: Infrastructure		
3.01	Electricity production, kWh/capita	106	668.1
3.02	Mobile network coverage, % pop.	123	84.0
3.03	Int'l Internet bandwidth, kb/s per user	129	3.5
3.04	Secure Internet servers/million pop.	110	3.2
	4th pillar: Affordability		
4.01	Prepaid mobile cellular tariffs, PPP $/min.	n/a	n/a
4.02	Fixed broadband Internet tariffs, PPP $/month	n/a	n/a
4.03	Internet & telephony competition, 0–2 (best)	81	1.79
	5th pillar: Skills		
5.01	Quality of educational system*	43	4.2
5.02	Quality of math & science education*	66	4.2
5.03	Secondary education gross enrollment rate, %	118	51.9
5.04	Adult literacy rate, %	78	86.5

	INDICATOR	RANK/143	VALUE
	6th pillar: Individual usage		
6.01	Mobile phone subscriptions/100 pop.	100	96.3
6.02	Individuals using Internet, %	105	18.5
6.03	Households w/ personal computer, %	123	7.0
6.04	Households w/ Internet access, %	120	5.3
6.05	Fixed broadband Internet subs/100 pop.	112	0.7
6.06	Mobile broadband subs/100 pop.	59	37.8
6.07	Use of virtual social networks*	106	5.2
	7th pillar: Business usage		
7.01	Firm-level technology absorption*	111	4.1
7.02	Capacity for innovation*	120	3.1
7.03	PCT patents, applications/million pop.	100	0.1
7.04	Business-to-business Internet use*	107	4.1
7.05	Business-to-consumer Internet use*	124	3.4
7.06	Extent of staff training*	84	3.9
	8th pillar: Government usage		
8.01	Importance of ICTs to gov't vision*	112	3.2
8.02	Government Online Service Index, 0–1 (best)	97	0.31
8.03	Gov't success in ICT promotion*	97	3.8
	9th pillar: Economic impacts		
9.01	Impact of ICTs on new services & products*	105	3.8
9.02	ICT PCT patents, applications/million pop.	99	0.0
9.03	Impact of ICTs on new organizational models*	116	3.5
9.04	Knowledge-intensive jobs, % workforce	110	6.6
	10th pillar: Social impacts		
10.01	Impact of ICTs on access to basic services*	116	3.4
10.02	Internet access in schools*	118	3.1
10.03	ICT use & gov't efficiency*	133	2.9
10.04	E-Participation Index, 0–1 (best)	72	0.45

Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 115.

2.2

Data Tables

How to Read the Data Tables

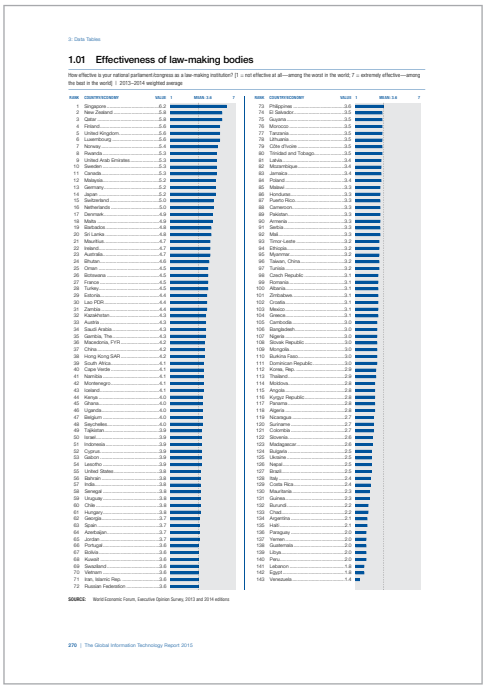
The following pages provide detailed data for all 143 economies included in *The Global Information Technology Report 2015.* The data tables are organized into 10 sections, which correspond to the 10 pillars of the Networked Readiness Index (NRI).

Environment subindex
1st pillar: Political and regulatory environment
2nd pillar: Business and innovation environment

Readiness subindex
3rd pillar: Infrastructure
4th pillar: Affordability
5th pillar: Skills

Usage subindex
6th pillar: Individual usage
7th pillar: Business usage
8th pillar: Government usage

Impact subindex
9th pillar: Economic impacts
10th pillar: Social impacts


3 | Data Tables

1.01 Effectiveness of law-making bodies

How effective is your national parliament/congress as a law-making institution? [1 = not effective at all—among the worst in the world; 7 = extremely effective—among the best in the world] | 2013–2014 weighted average

SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

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EXECUTIVE OPINION SURVEY INDICATORS

In the tables, indicators derived from the World Economic Forum's Executive Opinion Survey (the Survey) have scores represented by blue-colored bar graphs. Survey questions asked for responses on a scale of 1 to 7, where an answer of 1 or 7 always corresponds to the worst or best possible outcome, respectively. In the tables, the Survey question and the two extreme answers are shown above the rankings. Scores are reported with a precision of one decimal point, although exact figures are used to determine rankings. The sample mean is represented by a dotted line running across the bar graphs. For more information on the Executive Opinion Survey and a detailed explanation of how scores are computed, refer to Chapter 1.3 of *The Global Competitiveness Report 2014–2015,* available for free on the World Economic Forum website at www.weforum.org/gcr.

OTHER INDICATORS

Indicators not derived from the Executive Opinion Survey are presented in black bar graphs. For each indicator, a short description appears at the top of the page. The base period (i.e., the period to which the majority of the data corresponds) follows the description. When the period differs from the base period for a particular economy, this is indicated in a footnote. A detailed description for each indicator can be found in the Technical Notes and Sources section at the end of the *Report.* When data are not available or are too outdated, "n/a" is used in lieu of the rank and the value.

Because of the nature of data, ties between two or more economies are possible. In such cases, shared rankings are indicated accordingly. For example, it takes the same number of procedures—21—in Ireland and Singapore to enforce a contract. As a result, in Table 1.08, both countries are ranked 1st and listed alphabetically.

ONLINE DATA PORTAL

To complement the analysis presented in this *Report,* the GITR's portal—available at www.weforum.org/gitr—offers additional analysis and a number of analytical tools and visualizations, including sortable rankings and maps. The portal also offers the option of downloading portions of the NRI dataset.

Index of Data Tables

Environment subindex

Readiness subindex

Usage subindex

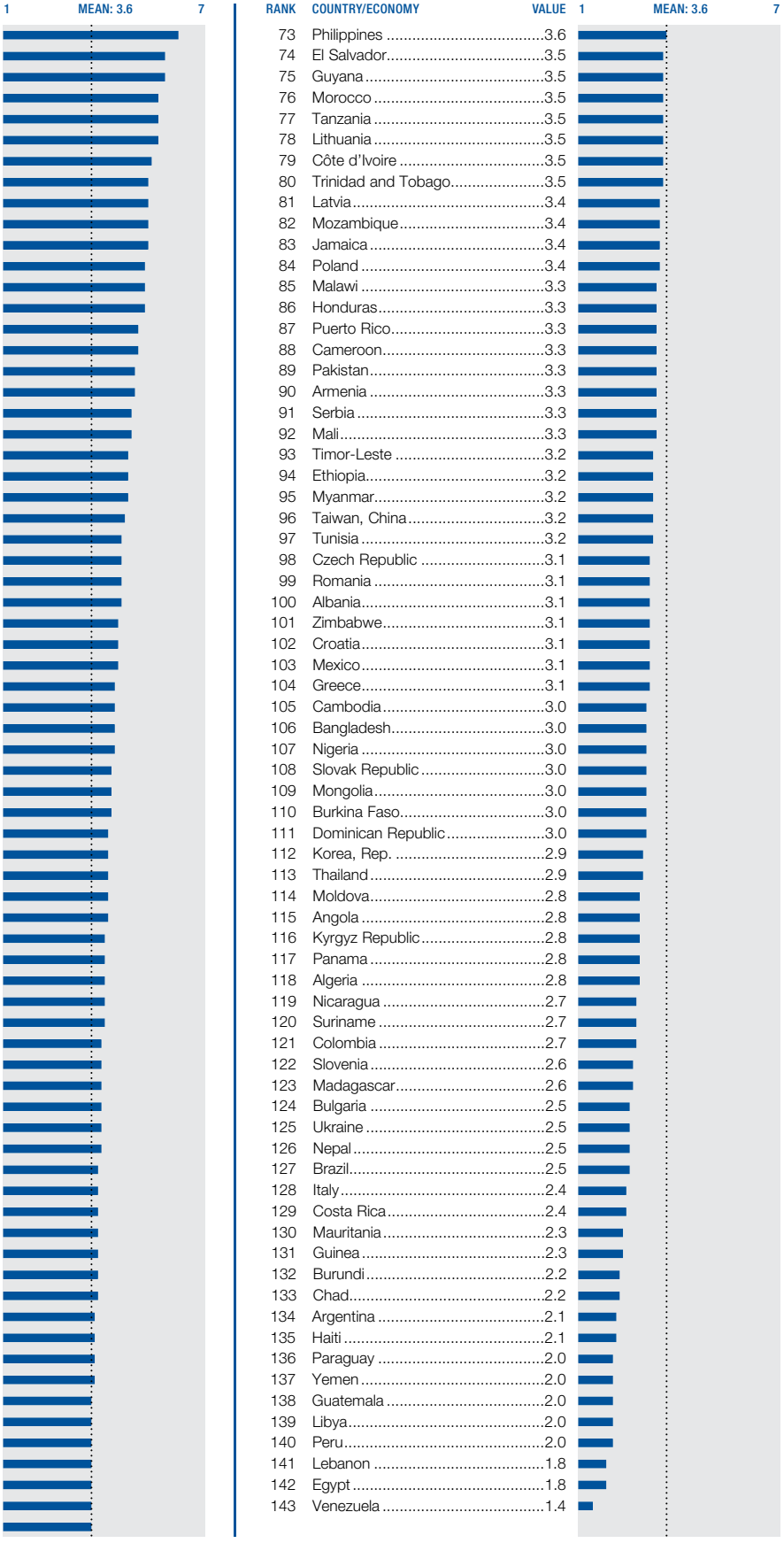
Impact subindex

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 = not effective at all—among the worst in the world; 7 = extremely effective—among the best in the world] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Singapore	6.2
2	New Zealand	5.8
3	Qatar	5.8
4	Finland	5.6
5	United Kingdom	5.6
6	Luxembourg	5.6
7	Norway	5.4
8	Rwanda	5.3
9	United Arab Emirates	5.3
10	Sweden	5.3
11	Canada	5.3
12	Malaysia	5.2
13	Germany	5.2
14	Japan	5.2
15	Switzerland	5.0
16	Netherlands	5.0
17	Denmark	4.9
18	Malta	4.9
19	Barbados	4.8
20	Sri Lanka	4.8
21	Mauritius	4.7
22	Ireland	4.7
23	Australia	4.7
24	Bhutan	4.6
25	Oman	4.5
26	Botswana	4.5
27	France	4.5
28	Turkey	4.5
29	Estonia	4.4
30	Lao PDR	4.4
31	Zambia	4.4
32	Kazakhstan	4.3
33	Austria	4.3
34	Saudi Arabia	4.3
35	Gambia, The	4.3
36	Macedonia, FYR	4.2
37	China	4.2
38	Hong Kong SAR	4.2
39	South Africa	4.1
40	Cape Verde	4.1
41	Namibia	4.1
42	Montenegro	4.1
43	Iceland	4.1
44	Kenya	4.0
45	Ghana	4.0
46	Uganda	4.0
47	Belgium	4.0
48	Seychelles	4.0
49	Tajikistan	3.9
50	Israel	3.9
51	Indonesia	3.9
52	Cyprus	3.9
53	Gabon	3.9
54	Lesotho	3.9
55	United States	3.8
56	Bahrain	3.8
57	India	3.8
58	Senegal	3.8
59	Uruguay	3.8
60	Chile	3.8
61	Hungary	3.8
62	Georgia	3.7
63	Spain	3.7
64	Azerbaijan	3.7
65	Jordan	3.7
66	Portugal	3.6
67	Bolivia	3.6
68	Kuwait	3.6
69	Swaziland	3.6
70	Vietnam	3.6
71	Iran, Islamic Rep.	3.6
72	Russian Federation	3.6
73	Philippines	3.6
74	El Salvador	3.5
75	Guyana	3.5
76	Morocco	3.5
77	Tanzania	3.5
78	Lithuania	3.5
79	Côte d'Ivoire	3.5
80	Trinidad and Tobago	3.5
81	Latvia	3.4
82	Mozambique	3.4
83	Jamaica	3.4
84	Poland	3.4
85	Malawi	3.3
86	Honduras	3.3
87	Puerto Rico	3.3
88	Cameroon	3.3
89	Pakistan	3.3
90	Armenia	3.3
91	Serbia	3.3
92	Mali	3.3
93	Timor-Leste	3.2
94	Ethiopia	3.2
95	Myanmar	3.2
96	Taiwan, China	3.2
97	Tunisia	3.2
98	Czech Republic	3.1
99	Romania	3.1
100	Albania	3.1
101	Zimbabwe	3.1
102	Croatia	3.1
103	Mexico	3.1
104	Greece	3.1
105	Cambodia	3.0
106	Bangladesh	3.0
107	Nigeria	3.0
108	Slovak Republic	3.0
109	Mongolia	3.0
110	Burkina Faso	3.0
111	Dominican Republic	3.0
112	Korea, Rep.	2.9
113	Thailand	2.9
114	Moldova	2.8
115	Angola	2.8
116	Kyrgyz Republic	2.8
117	Panama	2.8
118	Algeria	2.8
119	Nicaragua	2.7
120	Suriname	2.7
121	Colombia	2.7
122	Slovenia	2.6
123	Madagascar	2.6
124	Bulgaria	2.5
125	Ukraine	2.5
126	Nepal	2.5
127	Brazil	2.5
128	Italy	2.4
129	Costa Rica	2.4
130	Mauritania	2.3
131	Guinea	2.3
132	Burundi	2.2
133	Chad	2.2
134	Argentina	2.1
135	Haiti	2.1
136	Paraguay	2.0
137	Yemen	2.0
138	Guatemala	2.0
139	Libya	2.0
140	Peru	2.0
141	Lebanon	1.8
142	Egypt	1.8
143	Venezuela	1.4

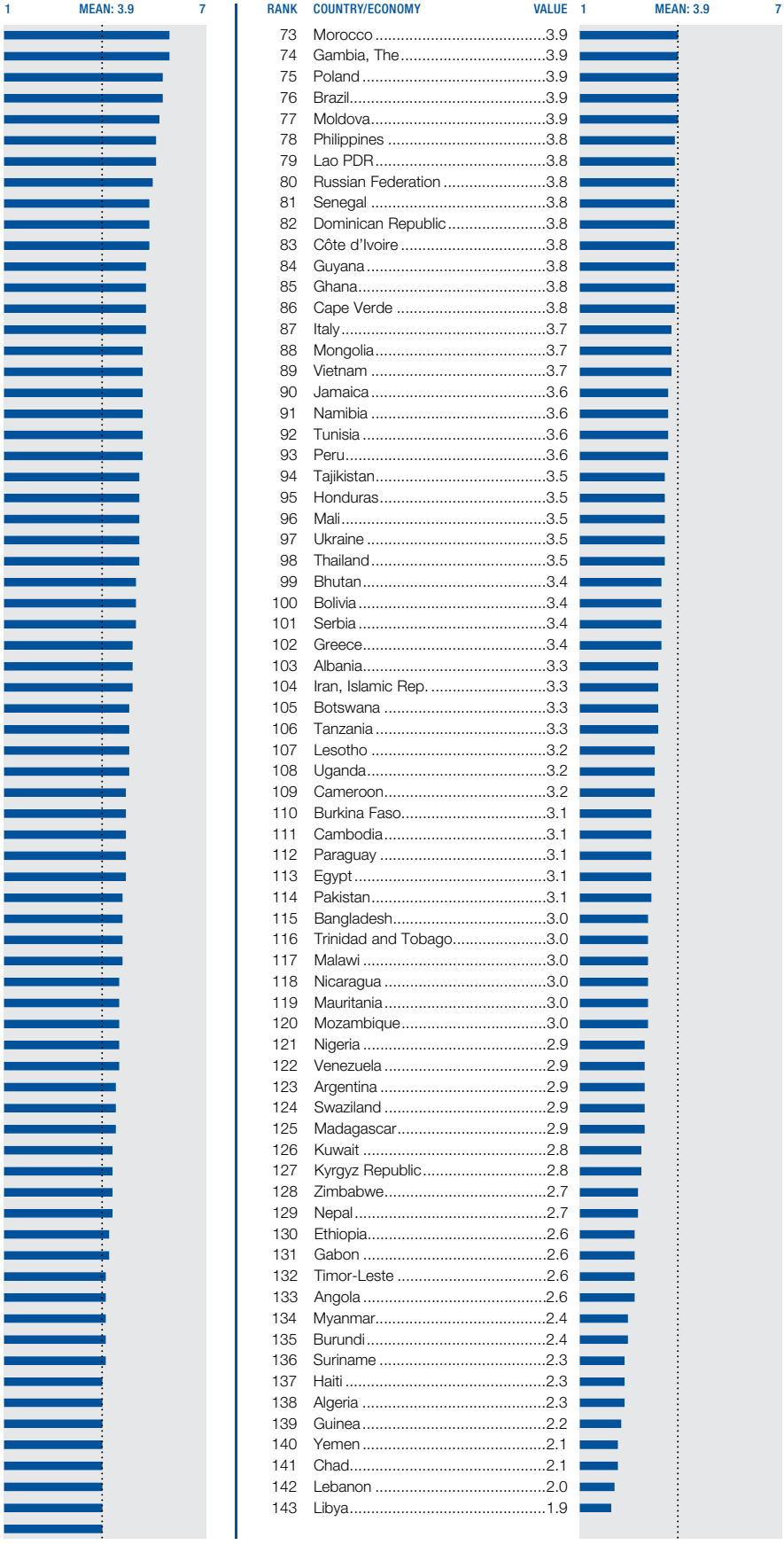


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.02 Laws relating to ICTs

How developed are your country's laws related to the use of ICTs (e.g., electronic commerce, digital signatures, consumer protection)? [1 = not developed at all; 7 = extremely well developed] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Estonia	5.9
2	Luxembourg	5.9
3	Singapore	5.7
4	United Arab Emirates	5.7
5	Qatar	5.6
6	Norway	5.5
7	United Kingdom	5.5
8	Malaysia	5.4
9	Finland	5.3
10	Canada	5.3
11	New Zealand	5.3
12	Korea, Rep.	5.2
13	United States	5.2
14	Hong Kong SAR	5.2
15	Netherlands	5.2
16	Austria	5.1
17	Sweden	5.1
18	Japan	5.1
19	Switzerland	5.1
20	Portugal	5.1
21	Iceland	5.1
22	Denmark	5.0
23	Ireland	5.0
24	Taiwan, China	5.0
25	France	5.0
26	Azerbaijan	5.0
27	Malta	4.9
28	Australia	4.9
29	Puerto Rico	4.9
30	Germany	4.8
31	Saudi Arabia	4.8
32	Israel	4.8
33	Rwanda	4.7
34	Lithuania	4.7
35	Belgium	4.7
36	Spain	4.7
37	Chile	4.6
38	Oman	4.6
39	Jordan	4.6
40	South Africa	4.6
41	Bahrain	4.6
42	Panama	4.5
43	Macedonia, FYR	4.5
44	Slovenia	4.5
45	Indonesia	4.5
46	Mauritius	4.4
47	Armenia	4.4
48	Kazakhstan	4.4
49	China	4.4
50	Latvia	4.4
51	Czech Republic	4.3
52	Cyprus	4.3
53	Hungary	4.3
54	Costa Rica	4.2
55	Colombia	4.2
56	Romania	4.2
57	Kenya	4.2
58	Turkey	4.1
59	Montenegro	4.1
60	Bulgaria	4.0
61	Croatia	4.0
62	Mexico	4.0
63	Sri Lanka	4.0
64	El Salvador	4.0
65	Barbados	3.9
66	Uruguay	3.9
67	India	3.9
68	Georgia	3.9
69	Seychelles	3.9
70	Guatemala	3.9
71	Slovak Republic	3.9
72	Zambia	3.9
73	Morocco	3.9
74	Gambia, The	3.9
75	Poland	3.9
76	Brazil	3.9
77	Moldova	3.9
78	Philippines	3.8
79	Lao PDR	3.8
80	Russian Federation	3.8
81	Senegal	3.8
82	Dominican Republic	3.8
83	Côte d'Ivoire	3.8
84	Guyana	3.8
85	Ghana	3.8
86	Cape Verde	3.8
87	Italy	3.7
88	Mongolia	3.7
89	Vietnam	3.7
90	Jamaica	3.6
91	Namibia	3.6
92	Tunisia	3.6
93	Peru	3.6
94	Tajikistan	3.5
95	Honduras	3.5
96	Mali	3.5
97	Ukraine	3.5
98	Thailand	3.5
99	Bhutan	3.4
100	Bolivia	3.4
101	Serbia	3.4
102	Greece	3.4
103	Albania	3.3
104	Iran, Islamic Rep.	3.3
105	Botswana	3.3
106	Tanzania	3.3
107	Lesotho	3.2
108	Uganda	3.2
109	Cameroon	3.2
110	Burkina Faso	3.1
111	Cambodia	3.1
112	Paraguay	3.1
113	Egypt	3.1
114	Pakistan	3.1
115	Bangladesh	3.0
116	Trinidad and Tobago	3.0
117	Malawi	3.0
118	Nicaragua	3.0
119	Mauritania	3.0
120	Mozambique	3.0
121	Nigeria	2.9
122	Venezuela	2.9
123	Argentina	2.9
124	Swaziland	2.9
125	Madagascar	2.9
126	Kuwait	2.8
127	Kyrgyz Republic	2.8
128	Zimbabwe	2.7
129	Nepal	2.7
130	Ethiopia	2.6
131	Gabon	2.6
132	Timor-Leste	2.6
133	Angola	2.6
134	Myanmar	2.4
135	Burundi	2.4
136	Suriname	2.3
137	Haiti	2.3
138	Algeria	2.3
139	Guinea	2.2
140	Yemen	2.1
141	Chad	2.1
142	Lebanon	2.0
143	Libya	1.9

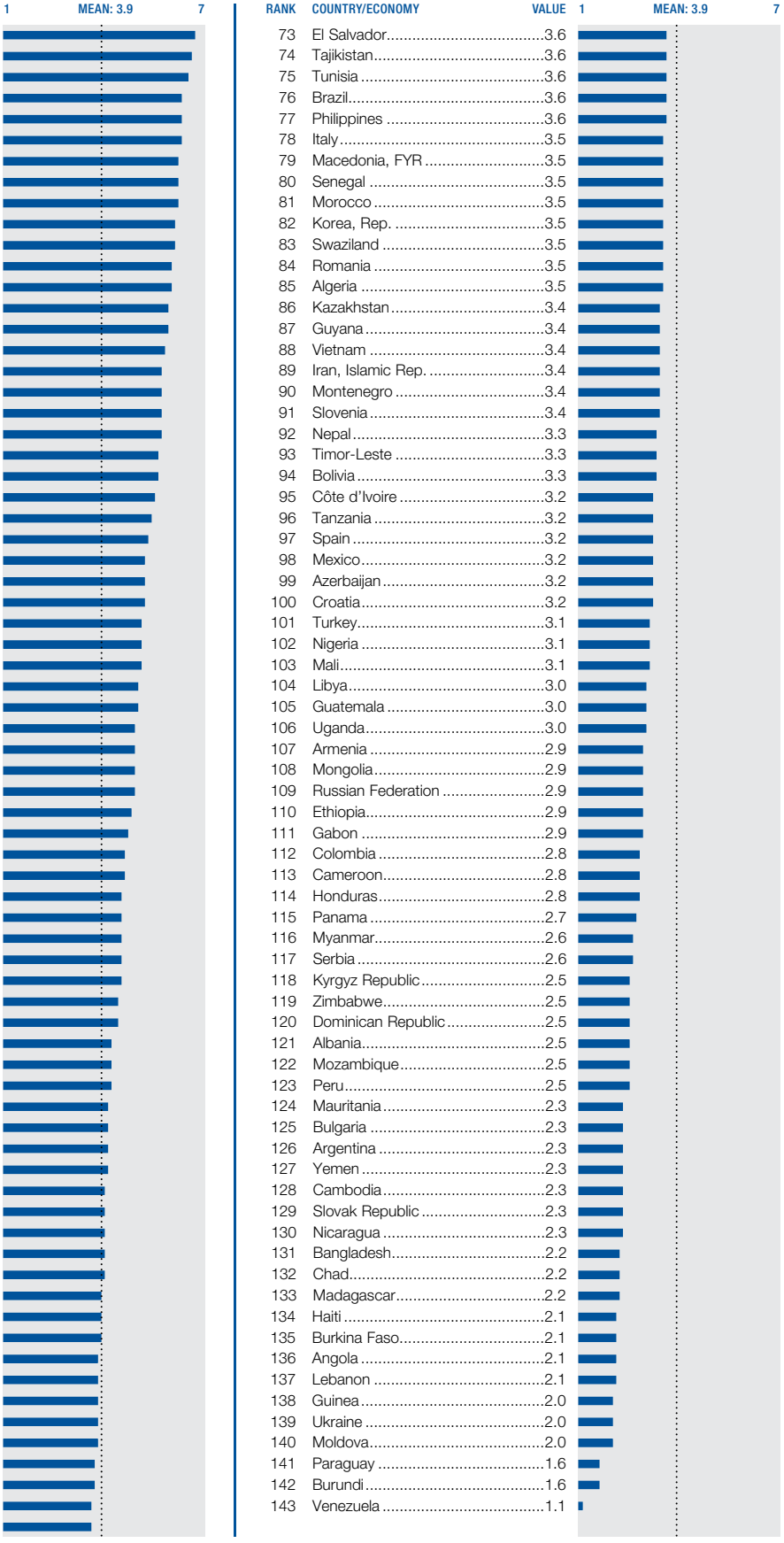


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.03 Judicial independence

In your country, to what extent is the judiciary independent from influences of members of government, citizens, or firms? [1 = heavily influenced; 7 = entirely independent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	New Zealand	6.7
2	Finland	6.6
3	Denmark	6.5
4	Norway	6.3
5	Hong Kong SAR	6.3
6	Ireland	6.3
7	United Kingdom	6.2
8	Japan	6.2
9	Canada	6.2
10	Netherlands	6.1
11	Switzerland	6.1
12	Luxembourg	6.0
13	Qatar	6.0
14	Australia	5.9
15	Germany	5.9
16	Israel	5.8
17	Sweden	5.7
18	Belgium	5.7
19	Estonia	5.7
20	Singapore	5.7
21	Uruguay	5.6
22	United Arab Emirates	5.6
23	Iceland	5.5
24	South Africa	5.4
25	Barbados	5.3
26	Saudi Arabia	5.2
27	Chile	5.2
28	Austria	5.2
29	Oman	5.1
30	United States	5.1
31	Mauritius	5.1
32	Costa Rica	5.0
33	France	5.0
34	Rwanda	4.9
35	Botswana	4.9
36	Malaysia	4.9
37	Kuwait	4.9
38	Bhutan	4.8
39	Namibia	4.7
40	Malta	4.6
41	Trinidad and Tobago	4.6
42	Jamaica	4.5
43	Puerto Rico	4.5
44	Portugal	4.5
45	Cyprus	4.5
46	Jordan	4.5
47	Bahrain	4.4
48	Ghana	4.4
49	Taiwan, China	4.2
50	India	4.2
51	Cape Verde	4.2
52	Kenya	4.1
53	Seychelles	4.1
54	Poland	4.1
55	Lesotho	4.1
56	Hungary	4.0
57	Egypt	4.0
58	Latvia	4.0
59	Malawi	4.0
60	China	4.0
61	Lao PDR	3.9
62	Czech Republic	3.9
63	Indonesia	3.9
64	Suriname	3.8
65	Georgia	3.8
66	Gambia, The	3.8
67	Pakistan	3.8
68	Thailand	3.8
69	Zambia	3.7
70	Greece	3.7
71	Lithuania	3.6
72	Sri Lanka	3.6
73	El Salvador	3.6
74	Tajikistan	3.6
75	Tunisia	3.6
76	Brazil	3.6
77	Philippines	3.6
78	Italy	3.5
79	Macedonia, FYR	3.5
80	Senegal	3.5
81	Morocco	3.5
82	Korea, Rep.	3.5
83	Swaziland	3.5
84	Romania	3.5
85	Algeria	3.5
86	Kazakhstan	3.4
87	Guyana	3.4
88	Vietnam	3.4
89	Iran, Islamic Rep.	3.4
90	Montenegro	3.4
91	Slovenia	3.4
92	Nepal	3.3
93	Timor-Leste	3.3
94	Bolivia	3.3
95	Côte d'Ivoire	3.2
96	Tanzania	3.2
97	Spain	3.2
98	Mexico	3.2
99	Azerbaijan	3.2
100	Croatia	3.2
101	Turkey	3.1
102	Nigeria	3.1
103	Mali	3.1
104	Libya	3.0
105	Guatemala	3.0
106	Uganda	3.0
107	Armenia	2.9
108	Mongolia	2.9
109	Russian Federation	2.9
110	Ethiopia	2.9
111	Gabon	2.9
112	Colombia	2.8
113	Cameroon	2.8
114	Honduras	2.8
115	Panama	2.7
116	Myanmar	2.6
117	Serbia	2.6
118	Kyrgyz Republic	2.5
119	Zimbabwe	2.5
120	Dominican Republic	2.5
121	Albania	2.5
122	Mozambique	2.5
123	Peru	2.5
124	Mauritania	2.3
125	Bulgaria	2.3
126	Argentina	2.3
127	Yemen	2.3
128	Cambodia	2.3
129	Slovak Republic	2.3
130	Nicaragua	2.3
131	Bangladesh	2.2
132	Chad	2.2
133	Madagascar	2.2
134	Haiti	2.1
135	Burkina Faso	2.1
136	Angola	2.1
137	Lebanon	2.1
138	Guinea	2.0
139	Ukraine	2.0
140	Moldova	2.0
141	Paraguay	1.6
142	Burundi	1.6
143	Venezuela	1.1

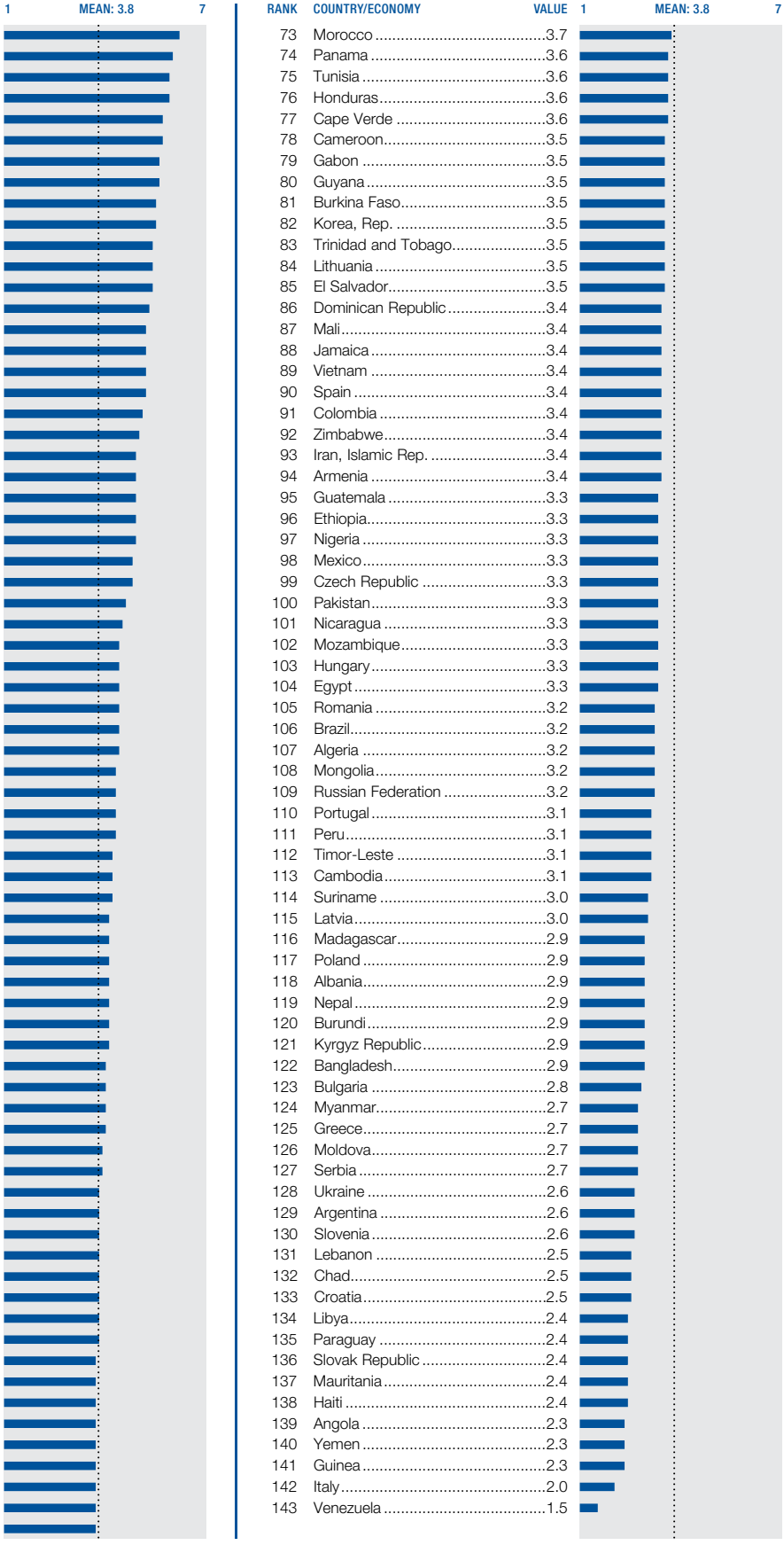


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.04 Efficiency of legal framework in settling disputes

In your country, how efficient is the legal framework for private businesses in settling disputes? [1 = extremely inefficient; 7 = extremely efficient] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Singapore	6.2
2	Finland	6.0
3	Hong Kong SAR	5.9
4	New Zealand	5.9
5	United Kingdom	5.7
6	Qatar	5.7
7	Norway	5.6
8	Switzerland	5.6
9	Netherlands	5.5
10	Canada	5.5
11	Germany	5.4
12	Luxembourg	5.4
13	Sweden	5.4
14	Malaysia	5.3
15	South Africa	5.2
16	Rwanda	5.2
17	United Arab Emirates	5.2
18	Japan	5.2
19	Puerto Rico	5.1
20	Denmark	5.0
21	Ireland	4.9
22	Mauritius	4.9
23	United States	4.9
24	Austria	4.9
25	Iceland	4.9
26	Australia	4.8
27	Oman	4.8
28	Sri Lanka	4.6
29	Namibia	4.5
30	Chile	4.4
31	Jordan	4.4
32	Botswana	4.4
33	Zambia	4.4
34	Saudi Arabia	4.4
35	Gambia, The	4.4
36	Barbados	4.3
37	Malta	4.3
38	Lao PDR	4.3
39	Estonia	4.3
40	Bahrain	4.2
41	France	4.2
42	Belgium	4.2
43	Indonesia	4.1
44	Bhutan	4.1
45	Ghana	4.1
46	Israel	4.1
47	Kenya	4.1
48	Taiwan, China	4.1
49	China	4.1
50	Uruguay	4.0
51	Cyprus	4.0
52	Seychelles	4.0
53	Macedonia, FYR	4.0
54	Tajikistan	3.9
55	Swaziland	3.9
56	Turkey	3.8
57	India	3.8
58	Senegal	3.8
59	Kazakhstan	3.8
60	Azerbaijan	3.8
61	Uganda	3.8
62	Thailand	3.8
63	Costa Rica	3.8
64	Tanzania	3.7
65	Kuwait	3.7
66	Bolivia	3.7
67	Côte d'Ivoire	3.7
68	Philippines	3.7
69	Montenegro	3.7
70	Lesotho	3.7
71	Georgia	3.7
72	Malawi	3.7
73	Morocco	3.7
74	Panama	3.6
75	Tunisia	3.6
76	Honduras	3.6
77	Cape Verde	3.6
78	Cameroon	3.5
79	Gabon	3.5
80	Guyana	3.5
81	Burkina Faso	3.5
82	Korea, Rep.	3.5
83	Trinidad and Tobago	3.5
84	Lithuania	3.5
85	El Salvador	3.5
86	Dominican Republic	3.4
87	Mali	3.4
88	Jamaica	3.4
89	Vietnam	3.4
90	Spain	3.4
91	Colombia	3.4
92	Zimbabwe	3.4
93	Iran, Islamic Rep.	3.4
94	Armenia	3.4
95	Guatemala	3.3
96	Ethiopia	3.3
97	Nigeria	3.3
98	Mexico	3.3
99	Czech Republic	3.3
100	Pakistan	3.3
101	Nicaragua	3.3
102	Mozambique	3.3
103	Hungary	3.3
104	Egypt	3.3
105	Romania	3.2
106	Brazil	3.2
107	Algeria	3.2
108	Mongolia	3.2
109	Russian Federation	3.2
110	Portugal	3.1
111	Peru	3.1
112	Timor-Leste	3.1
113	Cambodia	3.1
114	Suriname	3.0
115	Latvia	3.0
116	Madagascar	2.9
117	Poland	2.9
118	Albania	2.9
119	Nepal	2.9
120	Burundi	2.9
121	Kyrgyz Republic	2.9
122	Bangladesh	2.9
123	Bulgaria	2.8
124	Myanmar	2.7
125	Greece	2.7
126	Moldova	2.7
127	Serbia	2.7
128	Ukraine	2.6
129	Argentina	2.6
130	Slovenia	2.6
131	Lebanon	2.5
132	Chad	2.5
133	Croatia	2.5
134	Libya	2.4
135	Paraguay	2.4
136	Slovak Republic	2.4
137	Mauritania	2.4
138	Haiti	2.4
139	Angola	2.3
140	Yemen	2.3
141	Guinea	2.3
142	Italy	2.0
143	Venezuela	1.5

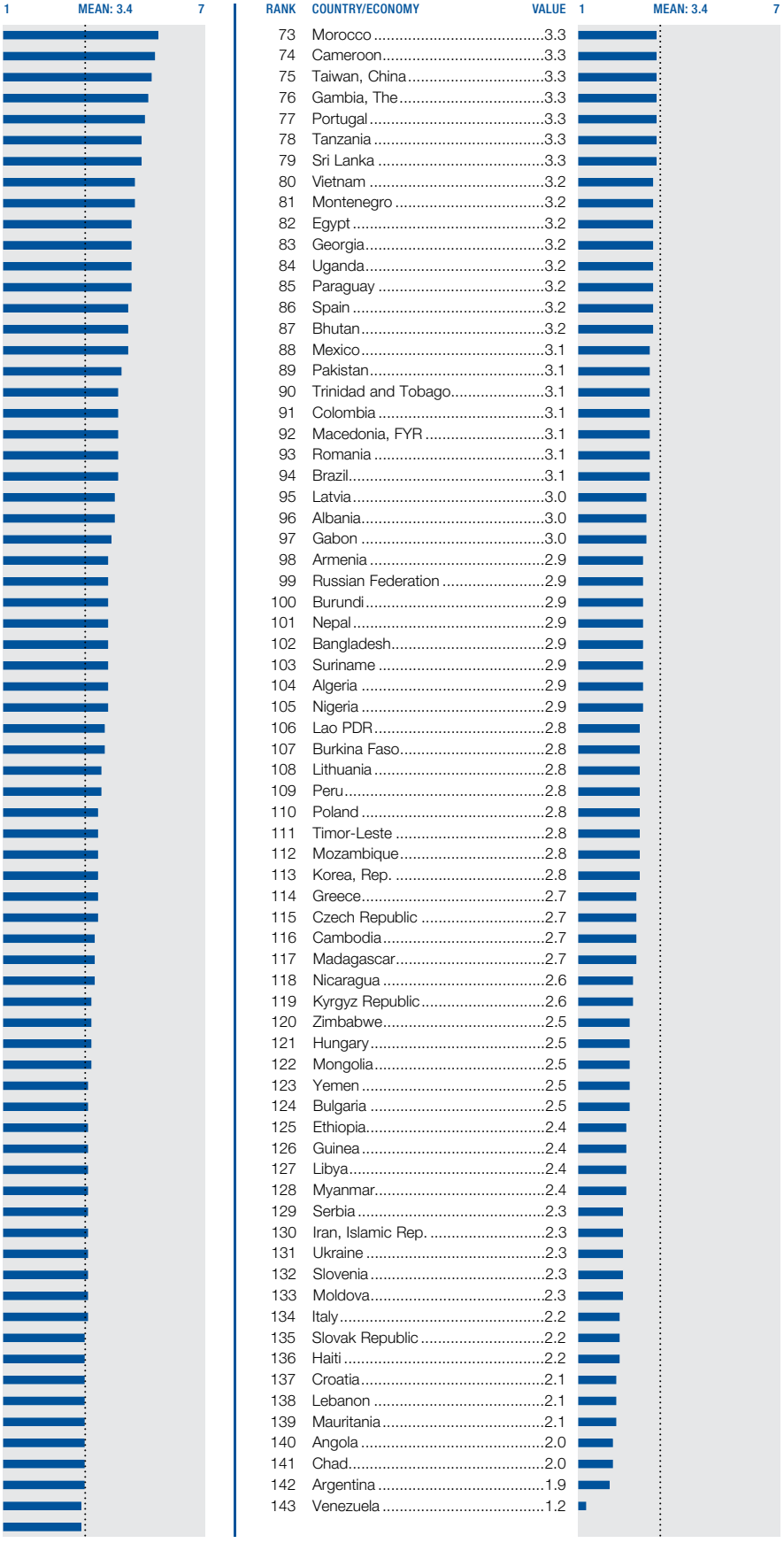


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.05 Efficiency of legal framework in challenging regulations

In your country, how easy is it for private businesses to challenge government actions and/or regulations through the legal system? [1 = extremely difficult; 7 = extremely easy] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Finland	5.6
2	New Zealand	5.5
3	Hong Kong SAR	5.4
4	Qatar	5.3
5	Netherlands	5.2
6	Luxembourg	5.1
7	United Kingdom	5.1
8	Switzerland	4.9
9	South Africa	4.9
10	Norway	4.8
11	Canada	4.8
12	Germany	4.8
13	Malaysia	4.8
14	Sweden	4.7
15	United Arab Emirates	4.7
16	Ireland	4.7
17	Iceland	4.5
18	United States	4.4
19	Japan	4.4
20	Puerto Rico	4.4
21	Singapore	4.4
22	Jordan	4.4
23	Estonia	4.3
24	Rwanda	4.3
25	France	4.2
26	Australia	4.1
27	Saudi Arabia	4.1
28	Costa Rica	4.1
29	Austria	4.1
30	Mauritius	4.1
31	Cyprus	4.1
32	Belgium	4.1
33	Chile	4.1
34	Barbados	4.0
35	Israel	4.0
36	Namibia	3.9
37	Oman	3.9
38	Indonesia	3.8
39	Bahrain	3.8
40	Uruguay	3.8
41	Botswana	3.8
42	Kenya	3.8
43	India	3.8
44	Denmark	3.7
45	Kuwait	3.7
46	Senegal	3.7
47	China	3.6
48	Côte d'Ivoire	3.6
49	Malawi	3.6
50	Malta	3.6
51	Azerbaijan	3.5
52	Turkey	3.5
53	Jamaica	3.5
54	Guatemala	3.5
55	Tajikistan	3.5
56	Philippines	3.5
57	Guyana	3.5
58	Mali	3.5
59	Swaziland	3.5
60	Kazakhstan	3.5
61	Honduras	3.5
62	Lesotho	3.5
63	Tunisia	3.4
64	Ghana	3.4
65	Dominican Republic	3.4
66	Cape Verde	3.4
67	Bolivia	3.4
68	El Salvador	3.4
69	Panama	3.4
70	Seychelles	3.4
71	Zambia	3.3
72	Thailand	3.3
73	Morocco	3.3
74	Cameroon	3.3
75	Taiwan, China	3.3
76	Gambia, The	3.3
77	Portugal	3.3
78	Tanzania	3.3
79	Sri Lanka	3.3
80	Vietnam	3.2
81	Montenegro	3.2
82	Egypt	3.2
83	Georgia	3.2
84	Uganda	3.2
85	Paraguay	3.2
86	Spain	3.2
87	Bhutan	3.2
88	Mexico	3.1
89	Pakistan	3.1
90	Trinidad and Tobago	3.1
91	Colombia	3.1
92	Macedonia, FYR	3.1
93	Romania	3.1
94	Brazil	3.1
95	Latvia	3.0
96	Albania	3.0
97	Gabon	3.0
98	Armenia	2.9
99	Russian Federation	2.9
100	Burundi	2.9
101	Nepal	2.9
102	Bangladesh	2.9
103	Suriname	2.9
104	Algeria	2.9
105	Nigeria	2.9
106	Lao PDR	2.8
107	Burkina Faso	2.8
108	Lithuania	2.8
109	Peru	2.8
110	Poland	2.8
111	Timor-Leste	2.8
112	Mozambique	2.8
113	Korea, Rep.	2.8
114	Greece	2.7
115	Czech Republic	2.7
116	Cambodia	2.7
117	Madagascar	2.7
118	Nicaragua	2.6
119	Kyrgyz Republic	2.6
120	Zimbabwe	2.5
121	Hungary	2.5
122	Mongolia	2.5
123	Yemen	2.5
124	Bulgaria	2.5
125	Ethiopia	2.4
126	Guinea	2.4
127	Libya	2.4
128	Myanmar	2.4
129	Serbia	2.3
130	Iran, Islamic Rep.	2.3
131	Ukraine	2.3
132	Slovenia	2.3
133	Moldova	2.3
134	Italy	2.2
135	Slovak Republic	2.2
136	Haiti	2.2
137	Croatia	2.1
138	Lebanon	2.1
139	Mauritania	2.1
140	Angola	2.0
141	Chad	2.0
142	Argentina	1.9
143	Venezuela	1.2

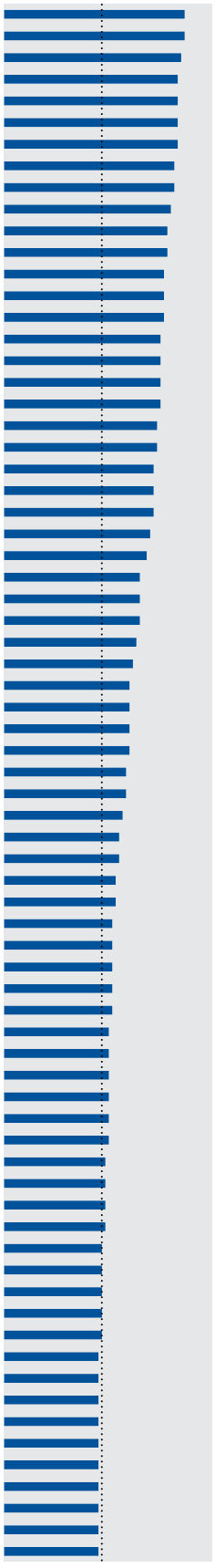


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.06 Intellectual property protection

In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures? [1 = extremely weak; 7 = extremely strong] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Finland	6.2
2	Singapore	6.2
3	Luxembourg	6.1
4	Switzerland	6.0
5	Qatar	6.0
6	New Zealand	6.0
7	Japan	6.0
8	United Kingdom	5.9
9	Puerto Rico	5.9
10	Hong Kong SAR	5.8
11	Netherlands	5.7
12	Canada	5.7
13	France	5.6
14	Ireland	5.6
15	Norway	5.6
16	Austria	5.5
17	Australia	5.5
18	United Arab Emirates	5.5
19	Sweden	5.5
20	United States	5.4
21	Germany	5.4
22	South Africa	5.3
23	Belgium	5.3
24	Denmark	5.3
25	Malaysia	5.2
26	Taiwan, China	5.1
27	Estonia	4.9
28	Saudi Arabia	4.9
29	Oman	4.9
30	Iceland	4.8
31	Bahrain	4.7
32	Rwanda	4.6
33	Israel	4.6
34	Jordan	4.6
35	Portugal	4.6
36	Malta	4.5
37	Barbados	4.5
38	Panama	4.4
39	Cyprus	4.3
40	Namibia	4.3
41	Mauritius	4.2
42	Botswana	4.2
43	Indonesia	4.1
44	Uruguay	4.1
45	Ghana	4.1
46	Gambia, The	4.1
47	Slovenia	4.1
48	Macedonia, FYR	4.0
49	Costa Rica	4.0
50	Zambia	4.0
51	Latvia	4.0
52	Bhutan	4.0
53	China	4.0
54	Sri Lanka	3.9
55	Czech Republic	3.9
56	Chile	3.9
57	Greece	3.9
58	Lithuania	3.8
59	Swaziland	3.8
60	Seychelles	3.8
61	Slovak Republic	3.8
62	Jamaica	3.8
63	Poland	3.7
64	Morocco	3.7
65	India	3.7
66	Philippines	3.7
67	Tajikistan	3.7
68	Korea, Rep.	3.7
69	Kenya	3.7
70	Italy	3.7
71	Hungary	3.7
72	Turkey	3.7
73	Montenegro	3.7
74	Kazakhstan	3.7
75	Croatia	3.6
76	Lao PDR	3.6
77	Spain	3.6
78	El Salvador	3.5
79	Honduras	3.5
80	Azerbaijan	3.5
81	Lesotho	3.5
82	Mexico	3.5
83	Kuwait	3.5
84	Armenia	3.5
85	Burkina Faso	3.4
86	Senegal	3.4
87	Cameroon	3.4
88	Romania	3.4
89	Bolivia	3.3
90	Guyana	3.3
91	Tanzania	3.3
92	Brazil	3.3
93	Trinidad and Tobago	3.2
94	Dominican Republic	3.2
95	Colombia	3.2
96	Cape Verde	3.2
97	Ethiopia	3.1
98	Côte d'Ivoire	3.1
99	Malawi	3.1
100	Nicaragua	3.1
101	Tunisia	3.1
102	Guatemala	3.1
103	Thailand	3.1
104	Vietnam	3.1
105	Georgia	3.0
106	Russian Federation	3.0
107	Bulgaria	3.0
108	Mali	3.0
109	Egypt	2.9
110	Nepal	2.9
111	Albania	2.9
112	Serbia	2.9
113	Algeria	2.9
114	Madagascar	2.9
115	Zimbabwe	2.9
116	Pakistan	2.9
117	Moldova	2.8
118	Peru	2.8
119	Cambodia	2.8
120	Gabon	2.8
121	Mozambique	2.7
122	Myanmar	2.7
123	Uganda	2.7
124	Mongolia	2.7
125	Nigeria	2.7
126	Iran, Islamic Rep.	2.7
127	Suriname	2.7
128	Ukraine	2.7
129	Kyrgyz Republic	2.6
130	Burundi	2.6
131	Paraguay	2.5
132	Bangladesh	2.5
133	Chad	2.5
134	Timor-Leste	2.5
135	Argentina	2.4
136	Yemen	2.3
137	Angola	2.3
138	Lebanon	2.2
139	Guinea	2.2
140	Mauritania	2.2
141	Haiti	2.2
142	Libya	1.8
143	Venezuela	1.6



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.07 Software piracy rate

Unlicensed software units as a percentage of total software units installed | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	United States	18
2	Japan	19
3	Luxembourg	20
3	New Zealand	20
5	Australia	21
6	Austria	22
7	Denmark	23
7	Sweden	23
9	Belgium	24
9	Finland	24
9	Germany	24
9	Switzerland	24
9	United Kingdom	24
14	Canada	25
14	Netherlands	25
14	Norway	25
17	Israel	30
18	Singapore	32
19	Ireland	33
20	Czech Republic	34
20	South Africa	34
22	France	36
22	United Arab Emirates	36
24	Slovak Republic	37
25	Korea, Rep.	38
25	Taiwan, China	38
27	Hungary	39
28	Portugal	40
29	Puerto Rico	42
30	Hong Kong SAR	43
31	Malta	44
32	Slovenia	45
32	Spain	45
34	Cyprus	47
34	Estonia	47
34	Italy	47
37	Iceland	48
38	Qatar	49
39	Brazil	50
39	Saudi Arabia	50
41	Poland	51
42	Colombia	52
42	Croatia	52
44	Bahrain	53
44	Latvia	53
44	Lithuania	53
47	Malaysia	54
47	Mexico	54
49	Mauritius	55
50	Jordan	57
51	Kuwait	58
52	Chile	59
52	Costa Rica	59
54	India	60
54	Oman	60
54	Turkey	60
57	Egypt	62
57	Greece	62
57	Romania	62
57	Russian Federation	62
61	Bulgaria	63
62	Macedonia, FYR	65
62	Peru	65
64	Morocco	66
65	Uruguay	68
66	Argentina	69
66	Philippines	69
66	Serbia	69
69	Lebanon	71
69	Thailand	71
71	Panama	72
72	China	74
72	Honduras	74
72	Kazakhstan	74
75	Albania	75
75	Dominican Republic	75
75	Tunisia	75
78	Senegal	77
79	Kenya	78
79	Montenegro	78
81	Bolivia	79
81	Botswana	79
81	Guatemala	79
84	Côte d'Ivoire	80
84	El Salvador	80
86	Nigeria	81
86	Vietnam	81
86	Zambia	81
89	Cameroon	82
89	Nicaragua	82
91	Sri Lanka	83
91	Ukraine	83
93	Indonesia	84
93	Paraguay	84
95	Algeria	85
95	Azerbaijan	85
95	Pakistan	85
98	Armenia	86
99	Bangladesh	87
99	Yemen	87
101	Venezuela	88
102	Libya	89
103	Georgia	90
103	Moldova	90
105	Zimbabwe	91
n/a	Angola	n/a
n/a	Barbados	n/a
n/a	Bhutan	n/a
n/a	Burkina Faso	n/a
n/a	Burundi	n/a
n/a	Cambodia	n/a
n/a	Cape Verde	n/a
n/a	Chad	n/a
n/a	Ethiopia	n/a
n/a	Gabon	n/a
n/a	Gambia, The	n/a
n/a	Ghana	n/a
n/a	Guinea	n/a
n/a	Guyana	n/a
n/a	Haiti	n/a
n/a	Iran, Islamic Rep.	n/a
n/a	Jamaica	n/a
n/a	Kyrgyz Republic	n/a
n/a	Lao PDR	n/a
n/a	Lesotho	n/a
n/a	Madagascar	n/a
n/a	Malawi	n/a
n/a	Mali	n/a
n/a	Mauritania	n/a
n/a	Mongolia	n/a
n/a	Mozambique	n/a
n/a	Myanmar	n/a
n/a	Namibia	n/a
n/a	Nepal	n/a
n/a	Rwanda	n/a
n/a	Seychelles	n/a
n/a	Suriname	n/a
n/a	Swaziland	n/a
n/a	Tajikistan	n/a
n/a	Tanzania	n/a
n/a	Timor-Leste	n/a
n/a	Trinidad and Tobago	n/a
n/a	Uganda	n/a

SOURCE: The Software Alliance (BSA), *The Compliance Gap: BSA Global Software Survey* (June 2014)

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 | 2014

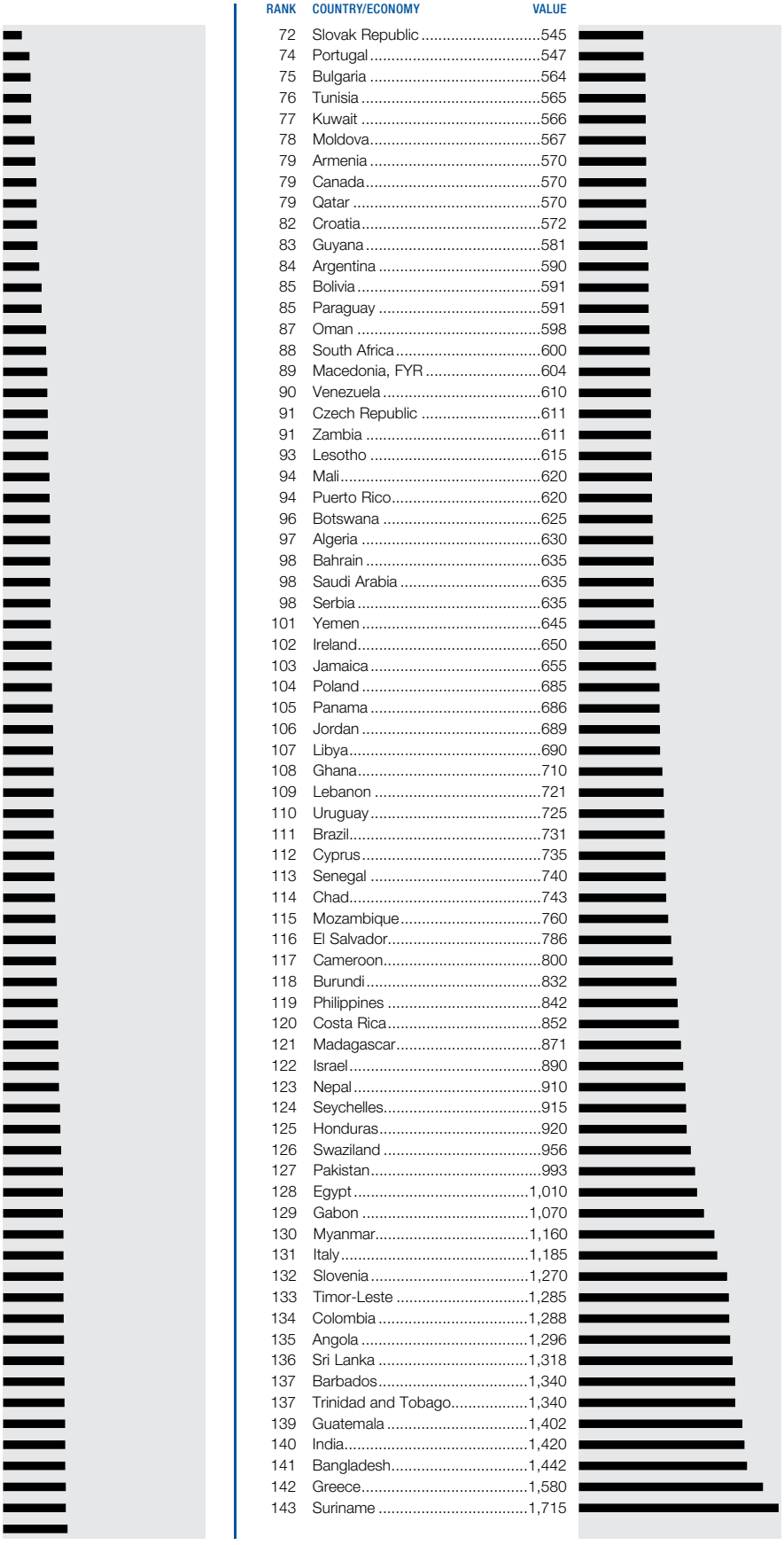
RANK	COUNTRY/ECONOMY	VALUE
1	Ireland	21
1	Singapore	21
3	Rwanda	23
4	Austria	25
5	Belgium	26
5	Hong Kong SAR	26
5	Luxembourg	26
5	Netherlands	26
9	Czech Republic	27
9	Iceland	27
9	Latvia	27
12	Australia	28
12	Botswana	28
14	France	29
14	Malaysia	29
14	South Africa	29
14	United Kingdom	29
18	Mozambique	30
18	New Zealand	30
18	Ukraine	30
18	Venezuela	30
22	Germany	31
22	Guatemala	31
22	Lithuania	31
22	Moldova	31
22	Sweden	31
27	Côte d'Ivoire	32
27	Japan	32
27	Korea, Rep.	32
27	Mongolia	32
27	Panama	32
27	Slovenia	32
27	Switzerland	32
34	Colombia	33
34	Finland	33
34	Gambia, The	33
34	Georgia	33
34	Namibia	33
34	Poland	33
34	Slovak Republic	33
41	United States	34
42	Dominican Republic	34
42	Hungary	34
42	Mauritius	34
42	Norway	34
42	Portugal	34
42	Romania	34
48	Denmark	35
48	El Salvador	35
48	Estonia	35
48	Haiti	35
48	Israel	35
48	Jamaica	35
48	Russian Federation	35
48	Tajikistan	35
48	Turkey	35
48	Zambia	35
58	Argentina	36
58	Canada	36
58	Chile	36
58	Guyana	36
58	Kazakhstan	36
58	Mali	36
58	Serbia	36
58	Seychelles	36
58	Thailand	36
58	Vietnam	36
58	Yemen	36
69	Mexico	37
70	Burkina Faso	37
70	Cape Verde	37
70	China	37
70	Italy	37
70	Lebanon	37
70	Nicaragua	37
70	Philippines	37
77	Barbados	38
77	Bulgaria	38
77	Croatia	38
77	Ethiopia	38
77	Gabon	38
77	Ghana	38
77	Greece	38
77	Kyrgyz Republic	38
77	Macedonia, FYR	38
77	Madagascar	38
77	Paraguay	38
77	Tanzania	38
77	Uganda	38
77	Zimbabwe	38
91	Albania	39
91	Jordan	39
91	Nepal	39
91	Puerto Rico	39
91	Tunisia	39
96	Azerbaijan	40
96	Bolivia	40
96	Costa Rica	40
96	Indonesia	40
96	Iran, Islamic Rep.	40
96	Malta	40
96	Morocco	40
96	Saudi Arabia	40
96	Spain	40
96	Sri Lanka	40
96	Swaziland	40
96	Uruguay	40
108	Nigeria	40
109	Bangladesh	41
109	Chad	41
109	Lesotho	41
109	Peru	41
113	Cameroon	42
113	Egypt	42
113	Lao PDR	42
113	Malawi	42
113	Trinidad and Tobago	42
118	Cyprus	43
118	Libya	43
118	Qatar	43
118	Senegal	43
122	Brazil	44
123	Burundi	44
123	Cambodia	44
123	Kenya	44
123	Suriname	44
127	Algeria	45
127	Myanmar	45
127	Taiwan, China	45
130	Angola	46
130	India	46
130	Mauritania	46
130	Pakistan	46
134	Bhutan	47
134	Honduras	47
136	Bahrain	48
137	Armenia	49
137	Guinea	49
137	Montenegro	49
137	United Arab Emirates	49
141	Kuwait	50
142	Oman	51
142	Timor-Leste	51

SOURCE: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

1.09 Time required 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 | 2014

RANK	COUNTRY/ECONOMY	VALUE
1	Singapore	150
2	New Zealand	216
3	Bhutan	225
4	Korea, Rep.	230
4	Rwanda	230
6	Kyrgyz Republic	260
7	Russian Federation	267
8	Guinea	276
9	Azerbaijan	277
10	Norway	280
11	Georgia	285
12	Lithuania	300
13	Luxembourg	321
13	Sweden	321
15	Hong Kong SAR	360
15	Japan	360
17	Kazakhstan	370
17	Mauritania	370
19	Mongolia	374
20	Finland	375
21	Ukraine	378
22	Mexico	389
23	Switzerland	390
24	Germany	394
25	Australia	395
25	France	395
25	Hungary	395
28	Austria	397
29	Vietnam	400
30	Gambia, The	407
31	Denmark	410
31	Zimbabwe	410
33	Iceland	417
34	Turkey	420
34	United States	420
36	Cape Verde	425
36	Estonia	425
36	Malaysia	425
39	Peru	426
40	Tajikistan	430
41	Malawi	432
42	United Kingdom	437
43	Thailand	440
44	Lao PDR	443
45	Burkina Faso	446
46	China	453
47	Dominican Republic	460
47	Namibia	460
49	Kenya	465
50	Latvia	469
51	Indonesia	471
52	Chile	480
53	Cambodia	483
54	Uganda	490
55	Belgium	505
55	Iran, Islamic Rep.	505
55	Malta	505
58	Nigeria	510
59	Morocco	510
59	Spain	510
59	Taiwan, China	510
62	Romania	512
63	Netherlands	514
64	Tanzania	515
65	Mauritius	519
65	Nicaragua	519
67	United Arab Emirates	524
68	Albania	525
68	Côte d'Ivoire	525
70	Ethiopia	530
70	Haiti	530
72	Montenegro	545
72	Slovak Republic	545
74	Portugal	547
75	Bulgaria	564
76	Tunisia	565
77	Kuwait	566
78	Moldova	567
79	Armenia	570
79	Canada	570
79	Qatar	570
82	Croatia	572
83	Guyana	581
84	Argentina	590
85	Bolivia	591
85	Paraguay	591
87	Oman	598
88	South Africa	600
89	Macedonia, FYR	604
90	Venezuela	610
91	Czech Republic	611
91	Zambia	611
93	Lesotho	615
94	Mali	620
94	Puerto Rico	620
96	Botswana	625
97	Algeria	630
98	Bahrain	635
98	Saudi Arabia	635
98	Serbia	635
101	Yemen	645
102	Ireland	650
103	Jamaica	655
104	Poland	685
105	Panama	686
106	Jordan	689
107	Libya	690
108	Ghana	710
109	Lebanon	721
110	Uruguay	725
111	Brazil	731
112	Cyprus	735
113	Senegal	740
114	Chad	743
115	Mozambique	760
116	El Salvador	786
117	Cameroon	800
118	Burundi	832
119	Philippines	842
120	Costa Rica	852
121	Madagascar	871
122	Israel	890
123	Nepal	910
124	Seychelles	915
125	Honduras	920
126	Swaziland	956
127	Pakistan	993
128	Egypt	1,010
129	Gabon	1,070
130	Myanmar	1,160
131	Italy	1,185
132	Slovenia	1,270
133	Timor-Leste	1,285
134	Colombia	1,288
135	Angola	1,296
136	Sri Lanka	1,318
137	Barbados	1,340
137	Trinidad and Tobago	1,340
139	Guatemala	1,402
140	India	1,420
141	Bangladesh	1,442
142	Greece	1,580
143	Suriname	1,715



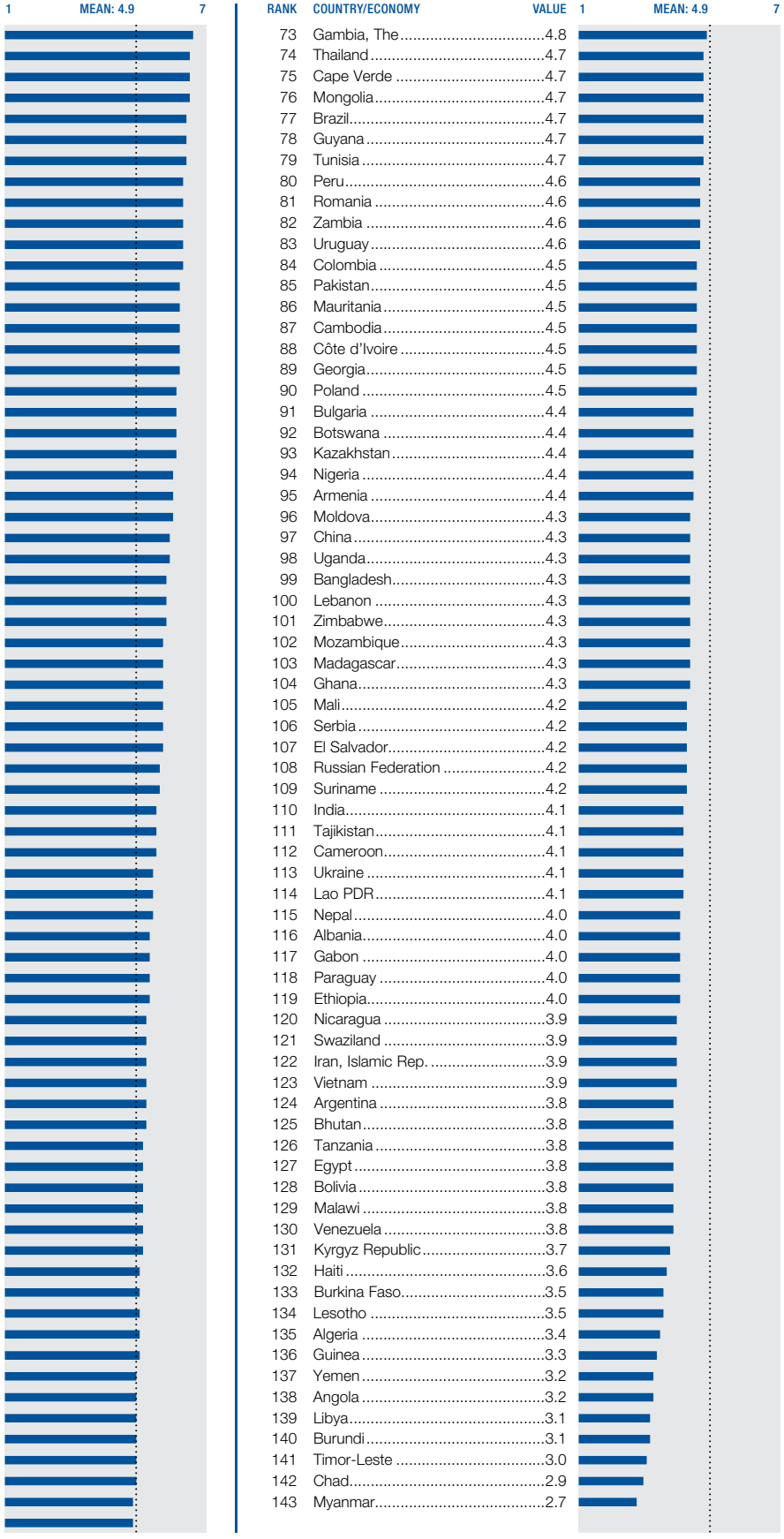
SOURCE: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2nd pillar
Business and innovation environment

2.01 Availability of latest technologies

In your country, to what extent are the latest technologies available? [1 = not available at all; 7 = widely available] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Finland	6.6
2	United States	6.5
3	Norway	6.5
4	United Kingdom	6.5
5	Iceland	6.4
6	Switzerland	6.4
7	Sweden	6.4
8	United Arab Emirates	6.3
9	Netherlands	6.3
10	Israel	6.3
11	Portugal	6.3
12	Belgium	6.3
13	Luxembourg	6.2
14	Japan	6.2
15	Singapore	6.2
16	Canada	6.2
17	Germany	6.2
18	Hong Kong SAR	6.1
19	France	6.1
20	Puerto Rico	6.1
21	New Zealand	6.1
22	Ireland	6.0
23	Austria	6.0
24	Australia	6.0
25	Qatar	5.9
26	Bahrain	5.9
27	Estonia	5.8
28	Denmark	5.8
29	Barbados	5.8
30	Korea, Rep.	5.7
31	Chile	5.7
32	Lithuania	5.7
33	Malaysia	5.7
34	Malta	5.7
35	Latvia	5.7
36	Panama	5.6
37	Spain	5.6
38	Saudi Arabia	5.5
39	South Africa	5.5
40	Slovenia	5.5
41	Jordan	5.4
42	Cyprus	5.4
43	Jamaica	5.4
44	Hungary	5.3
45	Turkey	5.3
46	Rwanda	5.3
47	Guatemala	5.3
48	Mauritius	5.2
49	Taiwan, China	5.2
50	Slovak Republic	5.2
51	Czech Republic	5.2
52	Trinidad and Tobago	5.2
53	Indonesia	5.2
54	Namibia	5.1
55	Kenya	5.1
56	Oman	5.1
57	Morocco	5.1
58	Philippines	5.1
59	Croatia	5.1
60	Dominican Republic	5.0
61	Greece	5.0
62	Costa Rica	5.0
63	Azerbaijan	5.0
64	Italy	5.0
65	Seychelles	4.9
66	Mexico	4.9
67	Kuwait	4.9
68	Senegal	4.9
69	Macedonia, FYR	4.9
70	Sri Lanka	4.9
71	Montenegro	4.8
72	Honduras	4.8
73	Gambia, The	4.8
74	Thailand	4.7
75	Cape Verde	4.7
76	Mongolia	4.7
77	Brazil	4.7
78	Guyana	4.7
79	Tunisia	4.7
80	Peru	4.6
81	Romania	4.6
82	Zambia	4.6
83	Uruguay	4.6
84	Colombia	4.5
85	Pakistan	4.5
86	Mauritania	4.5
87	Cambodia	4.5
88	Côte d'Ivoire	4.5
89	Georgia	4.5
90	Poland	4.5
91	Bulgaria	4.4
92	Botswana	4.4
93	Kazakhstan	4.4
94	Nigeria	4.4
95	Armenia	4.4
96	Moldova	4.3
97	China	4.3
98	Uganda	4.3
99	Bangladesh	4.3
100	Lebanon	4.3
101	Zimbabwe	4.3
102	Mozambique	4.3
103	Madagascar	4.3
104	Ghana	4.3
105	Mali	4.2
106	Serbia	4.2
107	El Salvador	4.2
108	Russian Federation	4.2
109	Suriname	4.2
110	India	4.1
111	Tajikistan	4.1
112	Cameroon	4.1
113	Ukraine	4.1
114	Lao PDR	4.1
115	Nepal	4.0
116	Albania	4.0
117	Gabon	4.0
118	Paraguay	4.0
119	Ethiopia	4.0
120	Nicaragua	3.9
121	Swaziland	3.9
122	Iran, Islamic Rep.	3.9
123	Vietnam	3.9
124	Argentina	3.8
125	Bhutan	3.8
126	Tanzania	3.8
127	Egypt	3.8
128	Bolivia	3.8
129	Malawi	3.8
130	Venezuela	3.8
131	Kyrgyz Republic	3.7
132	Haiti	3.6
133	Burkina Faso	3.5
134	Lesotho	3.5
135	Algeria	3.4
136	Guinea	3.3
137	Yemen	3.2
138	Angola	3.2
139	Libya	3.1
140	Burundi	3.1
141	Timor-Leste	3.0
142	Chad	2.9
143	Myanmar	2.7

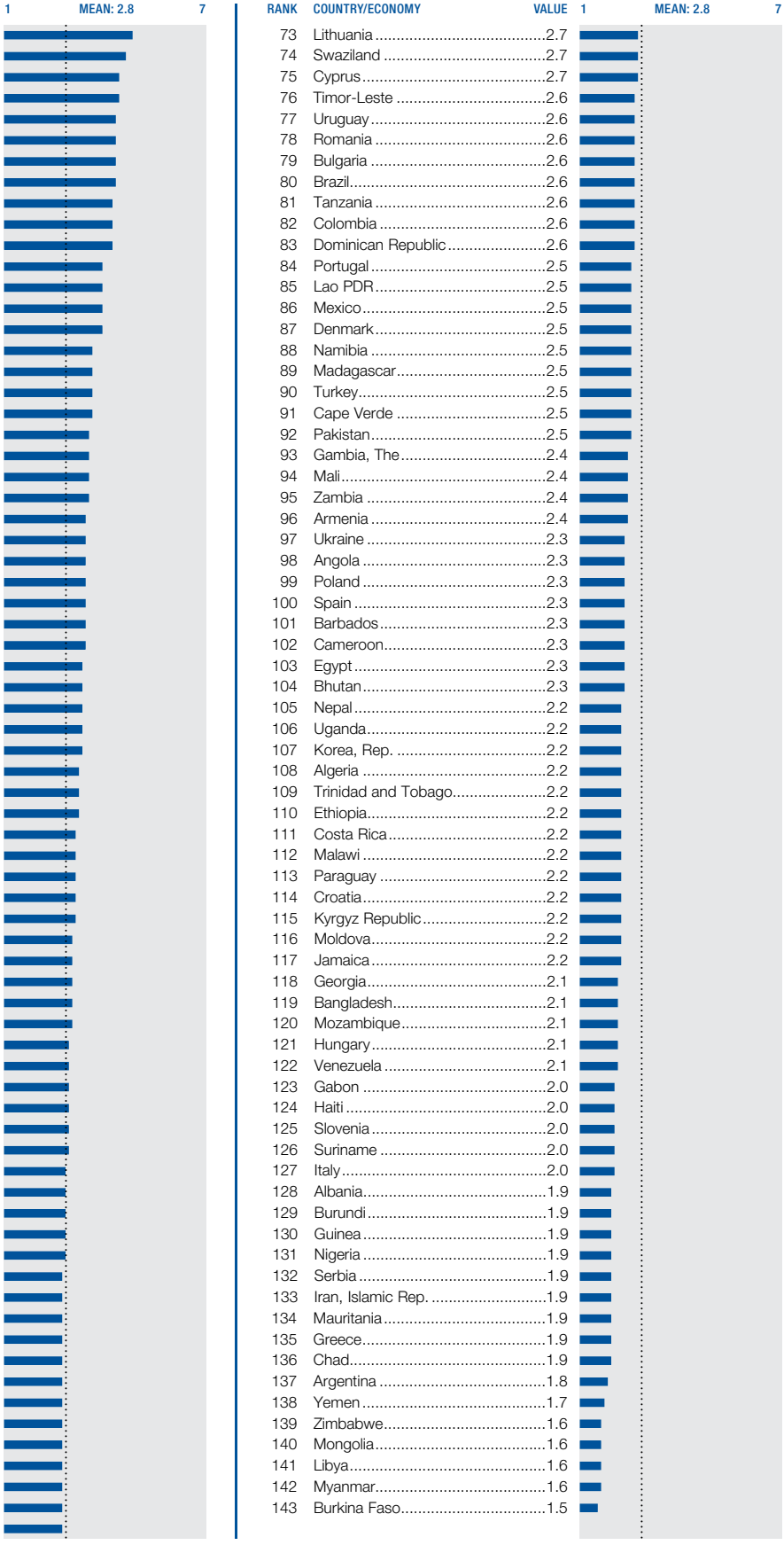


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

2.02 Venture capital availability

In your country, how easy is it for entrepreneurs with innovative but risky projects to find venture capital? [1 = extremely difficult; 7 = extremely easy] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Qatar	4.8
2	Malaysia	4.6
3	United States	4.4
4	United Arab Emirates	4.4
5	Hong Kong SAR	4.3
6	Norway	4.3
7	Singapore	4.3
8	Finland	4.3
9	Israel	4.2
10	Luxembourg	4.2
11	Sweden	4.2
12	New Zealand	3.9
13	China	3.9
14	Indonesia	3.9
15	Taiwan, China	3.9
16	Panama	3.6
17	Canada	3.6
18	Bahrain	3.6
19	United Kingdom	3.6
20	India	3.5
21	Oman	3.5
22	Netherlands	3.5
23	Jordan	3.5
24	Japan	3.4
25	Switzerland	3.4
26	Estonia	3.4
27	Saudi Arabia	3.4
28	Germany	3.4
29	Australia	3.4
30	Bolivia	3.4
31	Philippines	3.3
32	Chile	3.3
33	Belgium	3.3
34	Guyana	3.3
35	France	3.3
36	Ghana	3.2
37	South Africa	3.2
38	Tajikistan	3.2
39	Rwanda	3.1
40	Malta	3.1
41	Mauritius	3.1
42	Czech Republic	3.1
43	Kenya	3.1
44	Thailand	3.0
45	El Salvador	3.0
46	Ireland	3.0
47	Kazakhstan	3.0
48	Latvia	3.0
49	Morocco	2.9
50	Montenegro	2.9
51	Puerto Rico	2.9
52	Macedonia, FYR	2.9
53	Senegal	2.9
54	Peru	2.9
55	Côte d'Ivoire	2.8
56	Honduras	2.8
57	Slovak Republic	2.8
58	Iceland	2.8
59	Lebanon	2.8
60	Cambodia	2.7
61	Russian Federation	2.7
62	Seychelles	2.7
63	Guatemala	2.7
64	Azerbaijan	2.7
65	Nicaragua	2.7
66	Sri Lanka	2.7
67	Botswana	2.7
68	Tunisia	2.7
69	Kuwait	2.7
70	Austria	2.7
71	Vietnam	2.7
72	Lesotho	2.7
73	Lithuania	2.7
74	Swaziland	2.7
75	Cyprus	2.7
76	Timor-Leste	2.6
77	Uruguay	2.6
78	Romania	2.6
79	Bulgaria	2.6
80	Brazil	2.6
81	Tanzania	2.6
82	Colombia	2.6
83	Dominican Republic	2.6
84	Portugal	2.5
85	Lao PDR	2.5
86	Mexico	2.5
87	Denmark	2.5
88	Namibia	2.5
89	Madagascar	2.5
90	Turkey	2.5
91	Cape Verde	2.5
92	Pakistan	2.5
93	Gambia, The	2.4
94	Mali	2.4
95	Zambia	2.4
96	Armenia	2.4
97	Ukraine	2.3
98	Angola	2.3
99	Poland	2.3
100	Spain	2.3
101	Barbados	2.3
102	Cameroon	2.3
103	Egypt	2.3
104	Bhutan	2.3
105	Nepal	2.2
106	Uganda	2.2
107	Korea, Rep.	2.2
108	Algeria	2.2
109	Trinidad and Tobago	2.2
110	Ethiopia	2.2
111	Costa Rica	2.2
112	Malawi	2.2
113	Paraguay	2.2
114	Croatia	2.2
115	Kyrgyz Republic	2.2
116	Moldova	2.2
117	Jamaica	2.2
118	Georgia	2.1
119	Bangladesh	2.1
120	Mozambique	2.1
121	Hungary	2.1
122	Venezuela	2.1
123	Gabon	2.0
124	Haiti	2.0
125	Slovenia	2.0
126	Suriname	2.0
127	Italy	2.0
128	Albania	1.9
129	Burundi	1.9
130	Guinea	1.9
131	Nigeria	1.9
132	Serbia	1.9
133	Iran, Islamic Rep.	1.9
134	Mauritania	1.9
135	Greece	1.9
136	Chad	1.9
137	Argentina	1.8
138	Yemen	1.7
139	Zimbabwe	1.6
140	Mongolia	1.6
141	Libya	1.6
142	Myanmar	1.6
143	Burkina Faso	1.5



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	Macedonia, FYR	7.4
2	Timor-Leste	11.0
3	Qatar	11.3
4	Kuwait	12.8
5	Bahrain	13.5
6	Lesotho	13.6
7	Saudi Arabia	14.5
8	United Arab Emirates	14.8
8	Zambia	14.8
10	Georgia	16.4
11	Singapore	18.4
12	Croatia	18.8
13	Luxembourg	20.2
14	Armenia	20.4
15	Namibia	20.7
16	Cambodia	21.0
16	Canada	21.0
18	Montenegro	22.3
19	Hong Kong SAR	22.8
20	Oman	23.0
21	Cyprus	23.2
22	Mongolia	24.4
23	Mauritius	24.5
24	Botswana	25.3
25	Lao PDR	25.8
26	Ireland	25.9
27	Denmark	26.0
28	Thailand	26.9
29	Bulgaria	27.0
30	Chile	27.9
30	Suriname	27.9
32	Kazakhstan	28.6
33	South Africa	28.8
34	Jordan	29.0
34	Kyrgyz Republic	29.0
34	Switzerland	29.0
37	Nepal	29.5
38	Iceland	29.7
39	Lebanon	29.9
40	Israel	30.1
41	Albania	30.7
42	Indonesia	31.4
43	Libya	31.5
44	Seychelles	31.7
45	Ethiopia	31.8
46	Slovenia	32.0
46	Trinidad and Tobago	32.0
48	Guyana	32.3
49	Korea, Rep.	32.4
50	Bangladesh	32.5
51	Pakistan	32.6
52	Nigeria	32.7
53	Zimbabwe	32.8
54	Ghana	33.3
54	Yemen	33.3
56	Rwanda	33.5
57	United Kingdom	33.7
58	Taiwan, China	34.2
59	New Zealand	34.4
60	Barbados	34.6
61	Latvia	35.0
61	Paraguay	35.0
63	Madagascar	35.1
64	Malawi	35.5
65	Swaziland	35.6
66	Peru	36.0
67	Cape Verde	36.5
67	Uganda	36.5
69	Mozambique	36.6
70	Panama	37.2
71	Kenya	38.1
72	Serbia	38.6
73	Bhutan	38.7
73	El Salvador	38.7
73	Poland	38.7
76	Netherlands	39.0
77	Malaysia	39.2
78	Jamaica	39.3
79	Moldova	39.7
80	Azerbaijan	39.8
81	Guatemala	39.9
82	Finland	40.0
83	Turkey	40.1
84	Haiti	40.3
85	Gabon	40.6
86	Norway	40.7
87	Vietnam	40.8
88	Burkina Faso	41.3
89	Malta	41.6
90	Uruguay	41.8
91	Portugal	42.4
92	Philippines	42.5
93	Lithuania	42.6
94	Honduras	43.0
95	Romania	43.2
96	Dominican Republic	43.4
97	United States	43.8
98	Iran, Islamic Rep.	44.1
99	Tanzania	44.3
100	Egypt	45.0
101	Senegal	45.1
102	Burundi	45.7
103	Australia	47.3
104	Myanmar	47.7
105	Hungary	48.0
106	Mali	48.3
107	Czech Republic	48.5
108	Slovak Republic	48.6
109	Cameroon	48.8
109	Germany	48.8
111	Russian Federation	48.9
112	Estonia	49.3
112	Morocco	49.3
114	Sweden	49.4
115	Greece	49.9
116	Japan	51.3
117	Mexico	51.8
118	Côte d'Ivoire	51.9
119	Angola	52.0
119	Austria	52.0
121	Ukraine	52.9
122	Sri Lanka	55.6
123	Belgium	57.8
124	Costa Rica	58.0
125	Spain	58.2
126	India	61.7
127	Tunisia	62.4
128	Gambia, The	63.3
129	Chad	63.5
130	China	64.6
131	Italy	65.4
132	Venezuela	65.5
133	Nicaragua	65.8
134	Puerto Rico	66.0
135	France	66.6
136	Guinea	68.3
137	Brazil	69.0
138	Mauritania	71.3
139	Algeria	72.7
140	Colombia	75.4
141	Tajikistan	80.9
142	Bolivia	83.7
143	Argentina	137.3

SOURCE: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.04 Time required to start a business

Number of days required to start a business | 2014

RANK	COUNTRY/ECONOMY	VALUE
1	New Zealand	1
2	Georgia	2
2	Macedonia, FYR	2
4	Australia	3
4	Hong Kong SAR	3
4	Portugal	3
4	Singapore	3
8	Armenia	3
9	Lithuania	4
10	Belgium	4
10	Iceland	4
10	Korea, Rep.	4
10	Netherlands	4
14	Albania	5
14	Estonia	5
14	France	5
17	Azerbaijan	5
17	Burundi	5
17	Canada	5
17	Hungary	5
17	Italy	5
17	Norway	5
23	Chile	6
23	Denmark	6
23	Malaysia	6
26	United States	6
27	Ireland	6
27	Mauritius	6
27	Moldova	6
27	Panama	6
27	Puerto Rico	6
27	Senegal	6
27	Slovenia	6
27	United Kingdom	6
35	Mexico	6
36	Rwanda	7
36	Turkey	7
36	Uruguay	7
36	Zambia	7
40	Côte d'Ivoire	7
40	Oman	7
42	Cyprus	8
42	Egypt	8
42	Guinea	8
42	Kyrgyz Republic	8
42	Madagascar	8
42	Romania	8
42	United Arab Emirates	8
49	Qatar	9
50	Bahrain	9
50	Lebanon	9
50	Mauritania	9
53	Cape Verde	10
53	Kazakhstan	10
53	Montenegro	10
53	Switzerland	10
53	Taiwan, China	10
53	Timor-Leste	10
59	Japan	11
60	Colombia	11
60	Mali	11
60	Mongolia	11
60	Morocco	11
60	Sri Lanka	11
60	Tunisia	11
66	Russian Federation	11
67	Slovak Republic	12
67	Trinidad and Tobago	12
69	Iran, Islamic Rep.	12
69	Jordan	12
69	Serbia	12
72	Latvia	13
73	Burkina Faso	13
73	Greece	13
73	Israel	13
73	Mozambique	13
73	Nicaragua	13
73	Spain	13
79	Finland	14
79	Ghana	14
79	Honduras	14
82	Germany	15
83	Cameroon	15
83	Croatia	15
83	Ethiopia	15
83	Jamaica	15
87	Sweden	16
88	El Salvador	17
89	Bhutan	17
89	Nepal	17
91	Barbados	18
91	Bulgaria	18
93	Guatemala	19
93	Luxembourg	19
95	Czech Republic	19
95	Guyana	19
95	Pakistan	19
95	South Africa	19
99	Bangladesh	20
99	Dominican Republic	20
101	Saudi Arabia	21
102	Ukraine	21
103	Algeria	22
103	Austria	22
105	Costa Rica	24
106	Argentina	25
107	Gambia, The	26
107	Peru	26
107	Tanzania	26
110	Thailand	28
111	India	28
112	Lesotho	29
113	Kenya	30
113	Poland	30
113	Swaziland	30
116	Nigeria	31
117	Kuwait	31
118	China	31
119	Uganda	32
120	Philippines	34
120	Vietnam	34
122	Malta	35
123	Libya	35
123	Paraguay	35
125	Malawi	38
125	Seychelles	38
127	Tajikistan	39
128	Yemen	40
129	Bolivia	49
130	Gabon	50
131	Indonesia	53
132	Botswana	60
132	Chad	60
134	Angola	66
134	Namibia	66
136	Myanmar	72
137	Brazil	84
138	Suriname	84
139	Zimbabwe	90
140	Lao PDR	92
141	Haiti	97
142	Cambodia	101
143	Venezuela	144

SOURCE: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.05 Number of procedures required to start a business

Number of procedures required to start a business | 2014

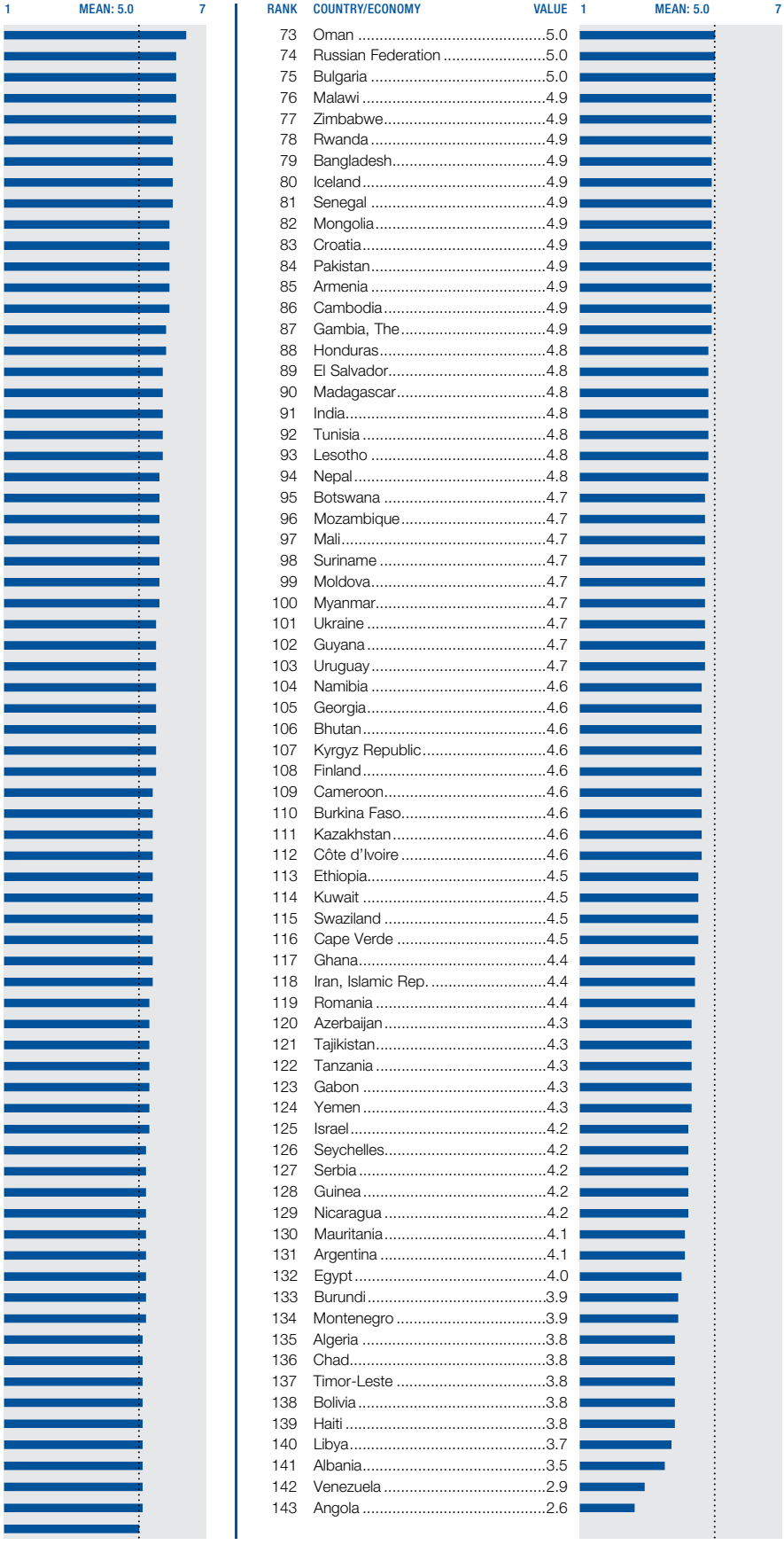
RANK	COUNTRY/ECONOMY	VALUE
1	Canada	1
1	New Zealand	1
3	Armenia	2
3	Georgia	2
3	Jamaica	2
3	Kyrgyz Republic	2
3	Macedonia, FYR	2
3	Slovenia	2
9	Australia	3
9	Azerbaijan	3
9	Belgium	3
9	Burkina Faso	3
9	Burundi	3
9	Finland	3
9	Hong Kong SAR	3
9	Korea, Rep.	3
9	Lithuania	3
9	Malaysia	3
9	Portugal	3
9	Singapore	3
9	Sweden	3
9	Taiwan, China	3
23	Bulgaria	4
23	Côte d'Ivoire	4
23	Denmark	4
23	Estonia	4
23	Hungary	4
23	Ireland	4
23	Latvia	4
23	Madagascar	4
23	Netherlands	4
23	Norway	4
23	Poland	4
23	Senegal	4
23	Tajikistan	4
23	Thailand	4
37	Russian Federation	4
38	Albania	5
38	Cameroon	5
38	France	5
38	Greece	5
38	Iceland	5
38	Israel	5
38	Italy	5
38	Lebanon	5
38	Mali	5
38	Mauritius	5
38	Moldova	5
38	Mongolia	5
38	Morocco	5
38	Oman	5
38	Panama	5
38	Romania	5
38	South Africa	5
38	Timor-Leste	5
38	Uruguay	5
38	Zambia	5
58	Cyprus	6
58	Guatemala	6
58	Guinea	6
58	Iran, Islamic Rep.	6
58	Kazakhstan	6
58	Lao PDR	6
58	Luxembourg	6
58	Mexico	6
58	Montenegro	6
58	Nicaragua	6
58	Peru	6
58	Puerto Rico	6
58	Serbia	6
58	Spain	6
58	Switzerland	6
58	Ukraine	6
58	United Arab Emirates	6
58	United Kingdom	6
58	United States	6
58	Yemen	6
78	Bahrain	7
78	Cape Verde	7
78	Chile	7
78	Croatia	7
78	Dominican Republic	7
78	Egypt	7
78	Gabon	7
78	Gambia, The	7
78	Jordan	7
78	Lesotho	7
78	Mauritania	7
78	Nepal	7
78	Paraguay	7
78	Slovak Republic	7
78	Trinidad and Tobago	7
78	Turkey	7
94	Angola	8
94	Austria	8
94	Barbados	8
94	Bhutan	8
94	Colombia	8
94	El Salvador	8
94	Ghana	8
94	Guyana	8
94	Japan	8
94	Malawi	8
94	Qatar	8
94	Rwanda	8
106	Nigeria	9
107	Bangladesh	9
107	Chad	9
107	Costa Rica	9
107	Czech Republic	9
107	Ethiopia	9
107	Germany	9
107	Mozambique	9
107	Saudi Arabia	9
107	Seychelles	9
107	Sri Lanka	9
107	Tanzania	9
107	Zimbabwe	9
119	Botswana	10
119	Indonesia	10
119	Kenya	10
119	Libya	10
119	Namibia	10
119	Pakistan	10
119	Tunisia	10
119	Vietnam	10
127	Cambodia	11
127	China	11
127	Malta	11
127	Myanmar	11
131	Brazil	12
132	India	12
133	Haiti	12
133	Honduras	12
133	Kuwait	12
133	Swaziland	12
137	Algeria	13
137	Suriname	13
139	Argentina	14
140	Bolivia	15
140	Uganda	15
142	Philippines	16
143	Venezuela	17

SOURCE: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.06 Intensity of local competition

In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Japan	6.4
2	Taiwan, China	6.1
3	Malta	6.1
4	Hong Kong SAR	6.1
5	United Kingdom	6.1
6	Belgium	6.0
7	Puerto Rico	6.0
8	Australia	6.0
9	United Arab Emirates	6.0
10	United States	5.9
11	Turkey	5.9
12	Germany	5.9
13	Korea, Rep.	5.9
14	Netherlands	5.9
15	Austria	5.8
16	Sri Lanka	5.8
17	Czech Republic	5.7
18	Qatar	5.7
19	Switzerland	5.7
20	Singapore	5.7
21	Kenya	5.7
22	Lithuania	5.6
23	Latvia	5.6
24	Mauritius	5.6
25	Zambia	5.6
26	New Zealand	5.6
27	Chile	5.6
28	Barbados	5.6
29	Estonia	5.5
30	Lebanon	5.5
31	France	5.5
32	Slovak Republic	5.5
33	Canada	5.5
34	Malaysia	5.5
35	Spain	5.5
36	South Africa	5.5
37	Cyprus	5.4
38	Thailand	5.4
39	Jamaica	5.4
40	Saudi Arabia	5.4
41	Sweden	5.4
42	Guatemala	5.4
43	Macedonia, FYR	5.4
44	China	5.4
45	Denmark	5.4
46	Bahrain	5.4
47	Hungary	5.3
48	Morocco	5.3
49	Norway	5.3
50	Nigeria	5.3
51	Poland	5.3
52	Brazil	5.3
53	Indonesia	5.3
54	Luxembourg	5.2
55	Uganda	5.2
56	Colombia	5.2
57	Jordan	5.2
58	Italy	5.2
59	Costa Rica	5.2
60	Ireland	5.2
61	Philippines	5.2
62	Trinidad and Tobago	5.2
63	Portugal	5.1
64	Mexico	5.1
65	Vietnam	5.1
66	Slovenia	5.1
67	Panama	5.1
68	Paraguay	5.1
69	Lao PDR	5.1
70	Peru	5.1
71	Greece	5.1
72	Dominican Republic	5.0
73	Oman	5.0
74	Russian Federation	5.0
75	Bulgaria	5.0
76	Malawi	4.9
77	Zimbabwe	4.9
78	Rwanda	4.9
79	Bangladesh	4.9
80	Iceland	4.9
81	Senegal	4.9
82	Mongolia	4.9
83	Croatia	4.9
84	Pakistan	4.9
85	Armenia	4.9
86	Cambodia	4.9
87	Gambia, The	4.9
88	Honduras	4.8
89	El Salvador	4.8
90	Madagascar	4.8
91	India	4.8
92	Tunisia	4.8
93	Lesotho	4.8
94	Nepal	4.8
95	Botswana	4.7
96	Mozambique	4.7
97	Mali	4.7
98	Suriname	4.7
99	Moldova	4.7
100	Myanmar	4.7
101	Ukraine	4.7
102	Guyana	4.7
103	Uruguay	4.7
104	Namibia	4.6
105	Georgia	4.6
106	Bhutan	4.6
107	Kyrgyz Republic	4.6
108	Finland	4.6
109	Cameroon	4.6
110	Burkina Faso	4.6
111	Kazakhstan	4.6
112	Côte d'Ivoire	4.6
113	Ethiopia	4.5
114	Kuwait	4.5
115	Swaziland	4.5
116	Cape Verde	4.5
117	Ghana	4.4
118	Iran, Islamic Rep.	4.4
119	Romania	4.4
120	Azerbaijan	4.3
121	Tajikistan	4.3
122	Tanzania	4.3
123	Gabon	4.3
124	Yemen	4.3
125	Israel	4.2
126	Seychelles	4.2
127	Serbia	4.2
128	Guinea	4.2
129	Nicaragua	4.2
130	Mauritania	4.1
131	Argentina	4.1
132	Egypt	4.0
133	Burundi	3.9
134	Montenegro	3.9
135	Algeria	3.8
136	Chad	3.8
137	Timor-Leste	3.8
138	Bolivia	3.8
139	Haiti	3.8
140	Libya	3.7
141	Albania	3.5
142	Venezuela	2.9
143	Angola	2.6



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

2.07 Tertiary education enrollment rate

Gross tertiary education enrollment rate, gross % | 2012 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Greece[10]	114.0
2	Korea, Rep.	98.4
3	United States	94.3
4	Finland	93.7
5	Puerto Rico[10]	86.5
6	Australia	86.3
7	Slovenia	86.0
8	Spain	84.6
9	Taiwan, China[11]	83.9
10	Singapore	81.3
11	Iceland[10]	80.9
12	New Zealand	79.8
13	Ukraine	79.7
14	Denmark	79.6
15	Argentina[10]	78.6
16	Venezuela[8]	78.1
17	Netherlands	77.3
18	Estonia	76.7
19	Russian Federation	76.1
20	Chile	74.4
21	Norway	74.1
22	Lithuania	73.9
23	Poland	73.2
24	Austria	72.4
25	Ireland	71.2
26	Belgium	70.8
27	Sweden	70.0
28	Turkey	69.4
29	Portugal	68.9
30	Israel[10]	65.8
31	Latvia	65.1
32	Czech Republic	64.2
33	Uruguay[9]	63.2
34	Bulgaria	62.7
35	Italy	62.5
36	United Kingdom	61.9
37	Germany	61.7
38	Croatia	61.6
39	Japan	61.5
40	Mongolia	61.1
41	Libya[2]	60.9
42	Barbados[10]	60.8
43	Hong Kong SAR	59.7
44	Hungary	59.6
45	France	58.3
46	Switzerland	55.6
47	Montenegro[9]	55.5
48	Albania	55.5
49	Iran, Islamic Rep.	55.2
50	Slovak Republic	55.1
51	Serbia	52.4
52	Romania[10]	51.6
53	Thailand[11]	51.2
54	Saudi Arabia	50.9
55	Costa Rica	46.7
56	Jordan	46.6
57	Lebanon	46.3
58	Armenia	46.0
59	Cyprus	45.9
60	Colombia	45.0
61	Brazil	44.9
62	Kazakhstan	44.5
63	Peru[9]	42.6
64	Panama[10]	41.8
65	Kyrgyz Republic[10]	41.3
66	Malta	41.2
67	Kuwait	40.7
68	Mauritius	40.3
69	Moldova	40.1
70	Macedonia, FYR	38.5
71	Bolivia[6]	37.7
72	Malaysia[10]	36.0
73	Tunisia	35.2
74	Paraguay[9]	34.5
75	Dominican Republic[10]	34.1
76	Bahrain	33.5
77	Indonesia	31.5
78	Algeria	31.5
79	Jamaica	30.8
80	Egypt	30.1
81	Mexico	29.0
82	Philippines[8]	28.2
83	Oman[10]	28.1
84	Georgia	27.9
85	China	26.7
86	El Salvador	25.5
87	India	24.8
88	Vietnam	24.6
89	Tajikistan	22.5
90	Cape Verde	20.6
91	Azerbaijan	20.4
92	Honduras	20.4
93	South Africa	19.2
94	Nicaragua[10]	19.0
95	Luxembourg[9]	18.2
96	Guatemala[6]	17.9
97	Timor-Leste[9]	17.7
98	Sri Lanka	17.0
99	Lao PDR	16.7
100	Morocco[10]	16.2
101	Cambodia[10]	15.8
102	Nepal[10]	14.5
103	Myanmar[10]	13.8
104	Bangladesh[10]	13.2
105	Guyana	12.9
106	Ghana	12.2
107	Qatar	12.1
108	Suriname[1]	12.1
109	Trinidad and Tobago[3]	12.0
110	Cameroon[10]	11.9
111	Lesotho	10.8
112	Nigeria[4]	10.4
113	Yemen[10]	10.3
114	Guinea	9.9
115	Pakistan	9.5
116	Bhutan	9.5
117	Namibia[7]	9.3
118	Uganda[10]	9.1
119	Gabon[2]	8.5
120	Senegal[9]	7.6
121	Angola[10]	7.5
122	Mali	7.5
123	Botswana[5]	7.4
124	Rwanda	7.2
125	Swaziland[10]	6.0
126	Zimbabwe	5.9
127	Ethiopia[10]	5.4
128	Mauritania	5.1
129	Mozambique[10]	4.9
130	Burkina Faso	4.6
131	Côte d'Ivoire	4.5
132	Madagascar	4.2
133	Kenya[8]	4.0
134	Tanzania	3.9
135	Gambia, The[10]	3.4
136	Burundi[9]	3.2
137	Chad[10]	2.3
138	Seychelles	1.4
139	Malawi[10]	0.8
n/a	Canada	n/a
n/a	Haiti	n/a
n/a	United Arab Emirates	n/a
n/a	Zambia	n/a

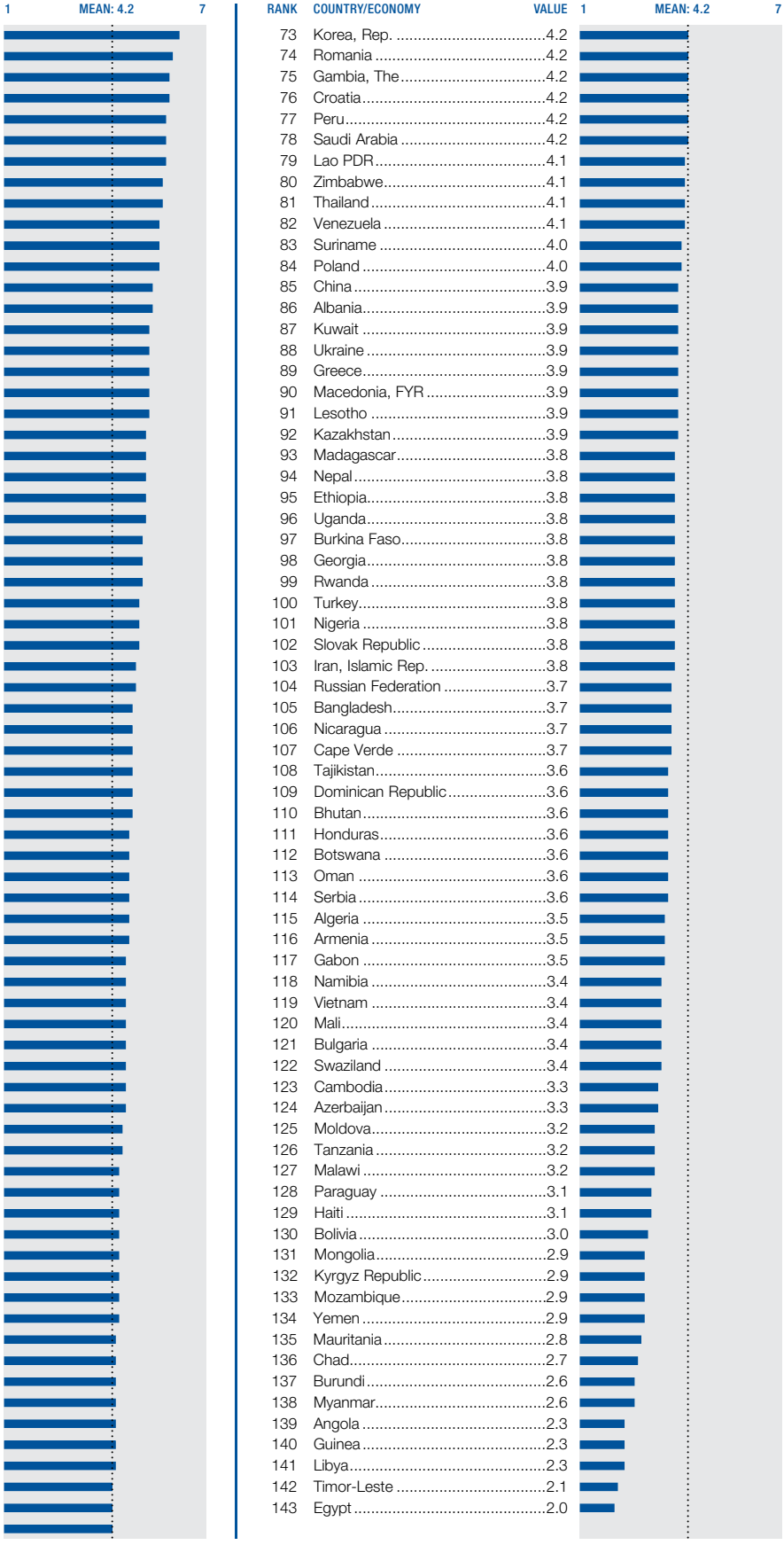
SOURCES: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (retrieved November 26, 2014); Organisation for Economic Co-operation and Development (OECD), *OECD.Stat* (retrieved January 14, 2015); national sources

[1] 2002 [2] 2003 [3] 2004 [4] 2005 [5] 2006 [6] 2007 [7] 2008 [8] 2009 [9] 2010 [10] 2011 [11] 2013

2.08 Quality of management schools

In your country, how would you assess the quality of business schools? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Switzerland	6.2
2	Belgium	6.0
3	Spain	5.9
4	Portugal	5.9
5	United Kingdom	5.8
6	Singapore	5.8
7	Canada	5.8
8	France	5.7
9	Netherlands	5.7
10	Qatar	5.6
11	United States	5.6
12	Finland	5.6
13	Chile	5.4
14	Hong Kong SAR	5.4
15	Ireland	5.3
16	Costa Rica	5.3
17	Lebanon	5.3
18	United Arab Emirates	5.3
19	Norway	5.3
20	Iceland	5.2
21	Denmark	5.2
22	New Zealand	5.2
23	Sweden	5.2
24	South Africa	5.2
25	Malaysia	5.1
26	Italy	5.1
27	Australia	5.1
28	Barbados	5.0
29	Germany	5.0
30	Cyprus	5.0
31	Malta	4.9
32	Israel	4.9
33	Trinidad and Tobago	4.8
34	Argentina	4.8
35	Sri Lanka	4.8
36	Taiwan, China	4.8
37	Côte d'Ivoire	4.8
38	Montenegro	4.8
39	Luxembourg	4.7
40	Philippines	4.7
41	Guatemala	4.7
42	Zambia	4.7
43	Jordan	4.7
44	Kenya	4.7
45	Puerto Rico	4.6
46	Guyana	4.6
47	Austria	4.6
48	Estonia	4.6
49	Indonesia	4.6
50	Ghana	4.6
51	Senegal	4.6
52	Latvia	4.6
53	Brazil	4.5
54	Morocco	4.5
55	Mauritius	4.4
56	India	4.4
57	Jamaica	4.4
58	Cameroon	4.4
59	Bahrain	4.4
60	Lithuania	4.4
61	Tunisia	4.4
62	Slovenia	4.4
63	Seychelles	4.3
64	El Salvador	4.3
65	Uruguay	4.3
66	Hungary	4.3
67	Pakistan	4.3
68	Czech Republic	4.3
69	Colombia	4.3
70	Mexico	4.2
71	Panama	4.2
72	Japan	4.2
73	Korea, Rep.	4.2
74	Romania	4.2
75	Gambia, The	4.2
76	Croatia	4.2
77	Peru	4.2
78	Saudi Arabia	4.2
79	Lao PDR	4.1
80	Zimbabwe	4.1
81	Thailand	4.1
82	Venezuela	4.1
83	Suriname	4.0
84	Poland	4.0
85	China	3.9
86	Albania	3.9
87	Kuwait	3.9
88	Ukraine	3.9
89	Greece	3.9
90	Macedonia, FYR	3.9
91	Lesotho	3.9
92	Kazakhstan	3.9
93	Madagascar	3.8
94	Nepal	3.8
95	Ethiopia	3.8
96	Uganda	3.8
97	Burkina Faso	3.8
98	Georgia	3.8
99	Rwanda	3.8
100	Turkey	3.8
101	Nigeria	3.8
102	Slovak Republic	3.8
103	Iran, Islamic Rep.	3.8
104	Russian Federation	3.7
105	Bangladesh	3.7
106	Nicaragua	3.7
107	Cape Verde	3.7
108	Tajikistan	3.6
109	Dominican Republic	3.6
110	Bhutan	3.6
111	Honduras	3.6
112	Botswana	3.6
113	Oman	3.6
114	Serbia	3.6
115	Algeria	3.5
116	Armenia	3.5
117	Gabon	3.5
118	Namibia	3.4
119	Vietnam	3.4
120	Mali	3.4
121	Bulgaria	3.4
122	Swaziland	3.4
123	Cambodia	3.3
124	Azerbaijan	3.3
125	Moldova	3.2
126	Tanzania	3.2
127	Malawi	3.2
128	Paraguay	3.1
129	Haiti	3.1
130	Bolivia	3.0
131	Mongolia	2.9
132	Kyrgyz Republic	2.9
133	Mozambique	2.9
134	Yemen	2.9
135	Mauritania	2.8
136	Chad	2.7
137	Burundi	2.6
138	Myanmar	2.6
139	Angola	2.3
140	Guinea	2.3
141	Libya	2.3
142	Timor-Leste	2.1
143	Egypt	2.0

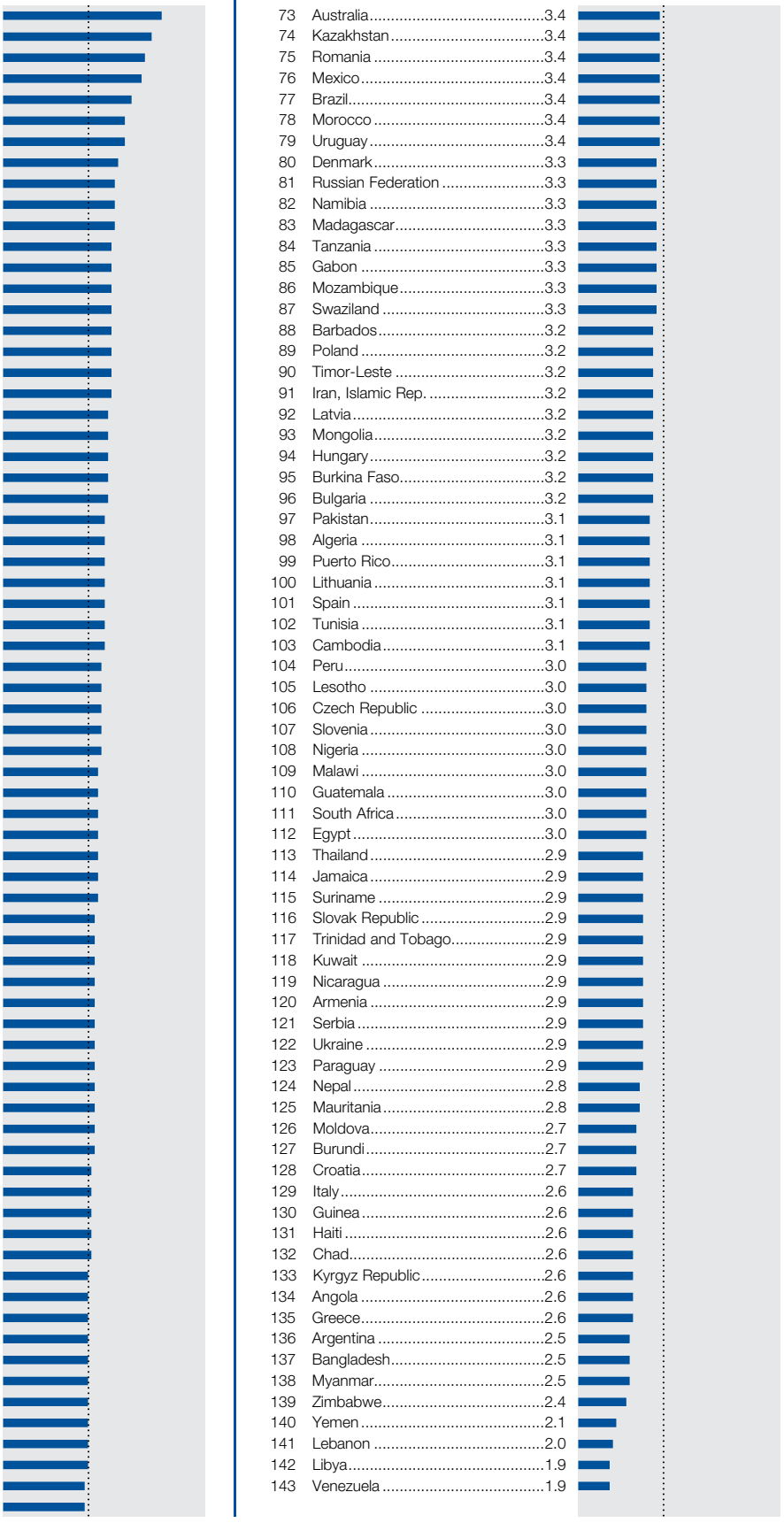


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

2.09 Government procurement of advanced technology products

In your country, to what extent do government purchasing decisions foster innovation? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Qatar	5.7
2	United Arab Emirates	5.4
3	Malaysia	5.2
4	Singapore	5.1
5	Rwanda	4.8
6	Luxembourg	4.6
7	Saudi Arabia	4.6
8	United States	4.4
9	Israel	4.3
10	China	4.3
11	Panama	4.3
12	Oman	4.2
13	Indonesia	4.2
14	Norway	4.2
15	Estonia	4.2
16	Germany	4.2
17	Turkey	4.2
18	Azerbaijan	4.2
19	Malta	4.2
20	Korea, Rep.	4.1
21	Japan	4.1
22	Finland	4.1
23	Bahrain	4.1
24	Taiwan, China	4.1
25	Zambia	4.0
26	Sweden	4.0
27	Senegal	4.0
28	Netherlands	4.0
29	El Salvador	4.0
30	Hong Kong SAR	4.0
31	Switzerland	4.0
32	Gambia, The	3.9
33	Tajikistan	3.9
34	Vietnam	3.9
35	Jordan	3.9
36	Cape Verde	3.9
37	Sri Lanka	3.8
38	Côte d'Ivoire	3.8
39	Guyana	3.8
40	Chile	3.8
41	Cameroon	3.8
42	Portugal	3.8
43	France	3.8
44	United Kingdom	3.7
45	Botswana	3.7
46	Seychelles	3.7
47	Bhutan	3.7
48	Canada	3.7
49	Kenya	3.7
50	Colombia	3.7
51	Lao PDR	3.7
52	Ethiopia	3.7
53	Philippines	3.7
54	Austria	3.7
55	Cyprus	3.7
56	Macedonia, FYR	3.6
57	Montenegro	3.6
58	Mali	3.6
59	Dominican Republic	3.6
60	Iceland	3.6
61	India	3.5
62	Ireland	3.5
63	Belgium	3.5
64	Bolivia	3.5
65	Ghana	3.5
66	Mauritius	3.5
67	Costa Rica	3.5
68	Honduras	3.5
69	Georgia	3.5
70	Albania	3.5
71	New Zealand	3.4
72	Uganda	3.4
73	Australia	3.4
74	Kazakhstan	3.4
75	Romania	3.4
76	Mexico	3.4
77	Brazil	3.4
78	Morocco	3.4
79	Uruguay	3.4
80	Denmark	3.3
81	Russian Federation	3.3
82	Namibia	3.3
83	Madagascar	3.3
84	Tanzania	3.3
85	Gabon	3.3
86	Mozambique	3.3
87	Swaziland	3.3
88	Barbados	3.2
89	Poland	3.2
90	Timor-Leste	3.2
91	Iran, Islamic Rep.	3.2
92	Latvia	3.2
93	Mongolia	3.2
94	Hungary	3.2
95	Burkina Faso	3.2
96	Bulgaria	3.2
97	Pakistan	3.1
98	Algeria	3.1
99	Puerto Rico	3.1
100	Lithuania	3.1
101	Spain	3.1
102	Tunisia	3.1
103	Cambodia	3.1
104	Peru	3.0
105	Lesotho	3.0
106	Czech Republic	3.0
107	Slovenia	3.0
108	Nigeria	3.0
109	Malawi	3.0
110	Guatemala	3.0
111	South Africa	3.0
112	Egypt	3.0
113	Thailand	2.9
114	Jamaica	2.9
115	Suriname	2.9
116	Slovak Republic	2.9
117	Trinidad and Tobago	2.9
118	Kuwait	2.9
119	Nicaragua	2.9
120	Armenia	2.9
121	Serbia	2.9
122	Ukraine	2.9
123	Paraguay	2.9
124	Nepal	2.8
125	Mauritania	2.8
126	Moldova	2.7
127	Burundi	2.7
128	Croatia	2.7
129	Italy	2.6
130	Guinea	2.6
131	Haiti	2.6
132	Chad	2.6
133	Kyrgyz Republic	2.6
134	Angola	2.6
135	Greece	2.6
136	Argentina	2.5
137	Bangladesh	2.5
138	Myanmar	2.5
139	Zimbabwe	2.4
140	Yemen	2.1
141	Lebanon	2.0
142	Libya	1.9
143	Venezuela	1.9



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

3rd pillar
Infrastructure

3.01 Electricity production

Electricity production (kWh) per capita | 2011 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland[2]	54,718.2
2	Norway[2]	29,246.0
3	Canada[2]	18,577.6
4	Kuwait	18,388.0
5	Sweden[2]	17,378.2
6	Qatar	16,081.4
7	United States[2]	13,641.5
8	Finland[2]	12,998.2
9	United Arab Emirates	11,107.7
10	Australia[2]	11,101.1
11	Taiwan, China	10,859.0
12	Bahrain	10,694.9
13	Korea, Rep.[2]	10,567.2
14	Bhutan[1]	10,084.5
15	New Zealand[2]	9,984.7
16	Estonia[2]	9,030.8
17	Saudi Arabia	9,008.0
18	Singapore	8,873.8
19	Paraguay	8,766.9
20	Switzerland[2]	8,501.5
21	France[2]	8,452.4
22	Czech Republic[2]	8,263.4
23	Japan[2]	8,041.6
24	Israel[2]	7,675.1
25	Austria[2]	7,647.6
26	Germany[2]	7,596.4
27	Slovenia[2]	7,547.8
28	Russian Federation	7,365.9
29	Oman	7,231.6
30	Belgium[2]	6,943.8
31	Bulgaria	6,807.4
32	Trinidad and Tobago	6,651.5
33	Spain[2]	6,276.6
34	Netherlands[2]	6,096.8
35	Ireland[2]	5,996.2
36	United Kingdom[2]	5,655.3
37	Hong Kong SAR	5,519.3
38	Denmark[2]	5,437.3
39	Puerto Rico	5,430.5
40	Malta	5,270.6
41	Serbia	5,256.2
42	Slovak Republic[2]	5,234.3
43	Kazakhstan	5,229.7
44	Greece[2]	5,189.4
45	Luxembourg[2]	5,164.4
46	South Africa	5,032.5
47	Italy[2]	4,944.0
48	Libya	4,524.5
49	Malaysia	4,523.5
50	Cyprus	4,414.6
51	Portugal[2]	4,330.6
52	Montenegro	4,279.4
53	Ukraine	4,265.2
54	Poland[2]	4,193.5
55	Venezuela	4,137.5
56	Chile[2]	3,915.6
57	Lebanon	3,733.9
58	Barbados	3,555.7
59	China	3,508.4
60	Hungary[2]	3,468.4
61	Macedonia, FYR	3,268.2
62	Turkey[2]	3,236.6
63	Argentina	3,180.9
64	Iran, Islamic Rep.	3,178.1
65	Seychelles[1]	3,152.5
66	Romania	3,077.3
67	Uruguay	3,057.2
68	Suriname[1]	2,990.7
69	Latvia	2,958.7
70	Kyrgyz Republic	2,748.7
71	Brazil	2,700.2
72	Armenia	2,507.7
73	Croatia	2,500.1
74	Mexico[2]	2,449.5
75	Jordan	2,369.7
76	Thailand	2,343.0
77	Georgia	2,273.7
78	Azerbaijan	2,212.3
79	Panama	2,100.6
80	Costa Rica	2,075.5
81	Tajikistan	2,075.4
82	Mauritius	2,043.5
83	Egypt	1,972.3
84	Jamaica	1,904.2
85	Mongolia	1,725.7
86	Moldova	1,625.3
87	Tunisia	1,511.2
88	Albania	1,470.0
89	Lithuania	1,402.2
90	Algeria	1,356.5
91	Peru	1,324.4
92	Colombia	1,313.2
93	Dominican Republic	1,278.6
94	Vietnam	1,129.1
95	Gabon	1,109.8
96	El Salvador	927.9
97	Honduras	916.3
98	Guyana[1]	890.4
99	India	861.7
100	Zambia	840.1
101	Morocco	775.8
102	Indonesia	748.1
103	Philippines	727.8
104	Bolivia	699.5
105	Mozambique	684.7
106	Zimbabwe	668.1
107	Nicaragua	647.7
108	Namibia	644.8
109	Cape Verde[1]	588.6
110	Lao PDR[1]	567.4
111	Sri Lanka	558.1
112	Guatemala	553.9
113	Pakistan	540.7
114	Ghana	451.2
115	Swaziland[1]	415.7
116	Côte d'Ivoire	314.5
117	Bangladesh	288.2
118	Cameroon	283.4
119	Angola	280.0
120	Yemen	266.3
121	Senegal	226.1
122	Mauritania[1]	194.2
123	Botswana	187.2
124	Kenya	186.8
125	Nigeria	164.6
126	Myanmar	140.0
127	Gambia, The[1]	136.9
128	Malawi[1]	131.4
129	Nepal	122.0
130	Timor-Leste[2]	114.6
131	Tanzania	114.4
132	Lesotho[1]	99.6
133	Guinea[1]	89.1
134	Cambodia	72.1
135	Haiti	71.6
136	Uganda[1]	70.8
137	Ethiopia	57.7
138	Madagascar[1]	57.4
139	Burkina Faso[1]	43.1
140	Mali[1]	37.2
141	Rwanda[1]	25.9
142	Burundi[1]	16.5
143	Chad[1]	8.4

SOURCES: The World Bank, *World Development Indicators* (retrieved November 26, 2014); US Central Intelligence Agency (CIA), *The World Factbook* (retrieved January 8, 2015)

[1] 2010 [2] 2012

3.02 Mobile network coverage rate

Percentage of total population covered by a mobile network signal | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Albania	100.0
1	Armenia	100.0
1	Azerbaijan	100.0
1	Bahrain	100.0
1	Barbados	100.0
1	Bhutan	100.0
1	Bolivia	100.0
1	Colombia	100.0
1	Croatia	100.0
1	Guatemala	100.0
1	Hong Kong SAR	100.0
1	Indonesia[6]	100.0
1	Israel	100.0
1	Italy	100.0
1	Kuwait[5]	100.0
1	Lithuania	100.0
1	Malta	100.0
1	Montenegro[5]	100.0
1	Namibia	100.0
1	Netherlands[7]	100.0
1	Nicaragua[4]	100.0
1	Norway	100.0
1	Qatar	100.0
1	Slovak Republic	100.0
1	Suriname	100.0
1	Switzerland	100.0
1	Taiwan, China	100.0
1	Thailand[6]	100.0
1	Trinidad and Tobago	100.0
1	Turkey[5]	100.0
1	Uganda[7]	100.0
1	United Arab Emirates	100.0
1	Uruguay	100.0
34	Bulgaria	100.0
34	Estonia	100.0
34	Sweden[7]	100.0
37	Brazil	100.0
37	Cyprus	100.0
39	Belgium	99.9
39	Greece	99.9
39	Japan	99.9
39	Korea, Rep.	99.9
39	Luxembourg[5]	99.9
39	Macedonia, FYR[5]	99.9
39	Mexico	99.9
39	Romania	99.9
39	Ukraine	99.9
39	United States[7]	99.9
49	Czech Republic	99.8
49	Egypt	99.8
49	Spain	99.8
52	South Africa[2]	99.8
53	Saudi Arabia	99.7
54	Serbia	99.7
55	Paraguay	99.7
55	Slovenia	99.7
55	United Kingdom	99.7
58	Malawi	99.6
59	Poland	99.5
60	Finland[3]	99.5
61	China[4]	99.5
62	Rwanda	99.3
63	Algeria	99.2
64	Lebanon[7]	99.1
65	Georgia[6]	99.1
66	Australia	99.0
66	Austria	99.0
66	Bangladesh	99.0
66	Cambodia[4]	99.0
66	Canada	99.0
66	France[7]	99.0
66	Germany	99.0
66	Hungary	99.0
66	Iceland	99.0
66	Ireland	99.0
66	Jordan	99.0
66	Mauritius	99.0
66	Moldova	99.0
66	Morocco	99.0
66	Philippines	99.0
66	Portugal	99.0
66	Singapore	99.0
66	Tunisia	99.0
84	Latvia[2]	98.8
85	Libya[4]	98.0
85	Oman	98.0
85	Seychelles	98.0
85	Sri Lanka	98.0
89	Côte d'Ivoire	97.9
90	Kyrgyz Republic	97.6
91	Dominican Republic	97.4
92	Guyana	97.1
93	Denmark[3]	97.0
93	New Zealand[7]	97.0
95	Peru[7]	97.0
96	Swaziland[7]	96.8
97	Botswana[7]	96.0
97	Cape Verde[7]	96.0
97	Iran, Islamic Rep.[7]	96.0
97	Lao PDR	96.0
97	Panama	96.0
102	Malaysia	95.2
103	Chile[7]	95.0
103	El Salvador[2]	95.0
103	Jamaica[2]	95.0
103	Kazakhstan[5]	95.0
103	Russian Federation[1]	95.0
103	Tanzania	95.0
109	Argentina[2]	94.1
110	India	93.5
111	Madagascar	92.2
112	Pakistan[7]	92.0
112	Timor-Leste[7]	92.0
114	Senegal	91.6
115	Mongolia[7]	91.3
116	Nigeria	91.2
117	Angola	90.0
117	Venezuela[2]	90.0
119	Honduras[2]	89.9
120	Kenya	89.1
121	Ghana[7]	87.0
122	Gambia, The[2]	85.0
123	Yemen[5]	84.0
123	Zimbabwe	84.0
125	Burundi[4]	83.0
126	Lesotho[7]	81.0
127	Nepal	80.6
128	Guinea[3]	80.0
129	Gabon[2]	79.0
130	Zambia	78.0
131	Ethiopia[7]	73.0
132	Vietnam[1]	70.0
133	Costa Rica[4]	69.5
134	Puerto Rico[4]	68.4
135	Mauritania[3]	62.0
136	Burkina Faso[1]	61.1
137	Cameroon[1]	58.0
138	Chad	36.1
139	Mali[1]	20.0
140	Myanmar[6]	2.3
n/a	Haiti	n/a
n/a	Mozambique	n/a
n/a	Tajikistan	n/a

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2006 [2] 2007 [3] 2008 [4] 2009 [5] 2010 [6] 2011 [7] 2012

3.03 International Internet bandwidth

International Internet bandwidth (kb/s) per Internet user | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Luxembourg	6,445.8
2	Hong Kong SAR	1,939.5
3	Malta	1,204.6
4	Singapore	580.8
5	Iceland	443.2
6	Sweden	374.8
7	United Kingdom	352.6
8	Switzerland	314.1
9	Denmark	261.2
10	Netherlands	235.0
11	Belgium	201.9
12	Suriname	201.6
13	Norway	195.9
14	Portugal	181.1
15	Finland	172.2
16	Slovenia	152.7
17	France	141.5
18	Puerto Rico[1]	136.9
19	Romania	136.6
20	Ireland	132.3
21	Austria	128.5
22	Bulgaria	128.2
23	Canada	115.9
24	Moldova	115.8
25	Germany	112.4
26	Czech Republic	111.2
27	Serbia	108.9
28	Spain	102.4
29	Israel	100.5
30	Lithuania	99.6
31	Italy	89.8
32	Saudi Arabia	81.1
33	Georgia	77.3
34	Montenegro	76.5
35	Colombia	76.1
36	Costa Rica	73.6
37	Poland	73.0
38	Greece	72.1
39	Latvia	68.1
40	Australia	67.1
41	Turkey	65.5
42	Taiwan, China	65.1
43	United States	64.1
44	Cyprus	63.4
45	Uruguay	59.9
46	Mongolia	59.7
47	Philippines	57.6
48	Armenia	55.1
49	Chile	54.9
50	Panama	54.3
51	Ukraine	52.9
52	United Arab Emirates	52.3
53	Barbados	52.0
54	Kazakhstan	49.8
55	Qatar	48.7
56	New Zealand	45.6
57	Azerbaijan	45.2
58	Argentina	44.3
59	Brazil	42.9
60	Russian Federation	41.2
61	Croatia	40.5
62	El Salvador	40.5
63	Japan	39.2
64	Thailand	37.4
65	Macedonia, FYR	36.4
66	Nicaragua	32.6
67	Jamaica	32.3
68	Korea, Rep.	30.3
69	Malaysia	29.5
70	Estonia	29.1
71	Algeria	26.3
72	Myanmar	26.2
73	Bahrain	25.9
74	Kenya	25.8
75	Hungary	24.9
76	Mauritius	24.6
77	Seychelles	23.7
78	Côte d'Ivoire	22.7
79	Mexico	22.6
80	Morocco	22.3
81	Libya	21.5
82	Albania	21.0
83	Oman	19.5
84	Tunisia	19.1
85	Dominican Republic	18.9
86	Peru	18.1
87	Gabon	18.1
88	Timor-Leste[2]	17.5
89	Trinidad and Tobago	17.2
90	Vietnam	15.9
91	Lebanon	15.4
92	Paraguay	12.7
93	Slovak Republic	11.8
94	Cape Verde	11.6
95	Guatemala	11.5
96	Burundi	11.2
97	Venezuela	10.6
98	Lao PDR	10.6
99	Guyana	10.2
100	Indonesia	10.1
101	Honduras	10.0
102	Kuwait	9.8
103	Rwanda	9.8
104	Cambodia	9.3
105	Bolivia	9.0
106	Namibia	9.0
107	Senegal	7.3
108	Gambia, The	7.2
109	Bangladesh	6.7
110	Ethiopia	6.7
111	Botswana	6.6
112	Pakistan	6.5
113	India	6.5
114	Tanzania	6.5
115	Lesotho	5.9
116	Mali	5.9
117	Egypt	5.3
118	Ghana	5.2
119	Sri Lanka	5.0
120	Malawi	4.7
121	Iran, Islamic Rep.	4.6
122	Tajikistan	4.6
123	China	4.2
124	Uganda	4.2
125	Zambia	4.2
126	Jordan	4.0
127	Kyrgyz Republic	3.9
128	South Africa	3.7
129	Zimbabwe	3.5
130	Nigeria	3.4
131	Angola	3.4
132	Swaziland	3.2
133	Cameroon	3.2
134	Burkina Faso	3.1
135	Nepal	3.0
136	Mozambique	2.9
137	Bhutan	2.8
138	Mauritania	2.6
139	Guinea	2.5
140	Yemen	2.5
141	Chad	0.6
142	Madagascar	0.4
n/a	Haiti	n/a

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2010 [2] 2012

3.04 Secure Internet servers

Secure Internet servers per million population | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland	2,922.6
2	Netherlands	2,382.1
3	Switzerland	2,212.8
4	Luxembourg	2,190.7
5	Denmark	2,103.1
6	Korea, Rep.	1,994.9
7	Norway	1,725.7
8	Finland	1,546.9
9	Malta	1,469.5
10	Sweden	1,439.1
11	United States	1,306.0
12	Australia	1,252.3
13	United Kingdom	1,193.5
14	New Zealand	1,100.9
15	Austria	1,079.3
16	Germany	1,070.9
17	Canada	1,035.3
18	Estonia	748.9
19	Belgium	737.5
20	Japan	736.7
21	Ireland	718.6
22	Hong Kong SAR	623.6
23	Cyprus	621.3
24	Seychelles	616.8
25	Singapore	609.3
26	Czech Republic	563.5
27	Slovenia	547.4
28	France	486.1
29	Barbados	340.8
30	Poland	309.0
31	Latvia	272.2
32	Israel	270.4
33	Spain	269.0
34	Slovak Republic	262.8
35	Lithuania	256.8
36	Hungary	249.5
37	Portugal	218.4
38	Italy	203.2
39	United Arab Emirates	194.2
40	Croatia	193.3
41	Kuwait	184.9
42	Qatar	161.9
43	Bulgaria	145.9
44	Bahrain	141.9
45	Greece	136.2
46	Mauritius	127.3
47	Puerto Rico	109.0
48	Chile	93.6
49	Trinidad and Tobago	93.2
50	Panama	89.8
51	South Africa	86.4
52	Costa Rica	79.0
53	Uruguay	75.1
54	Romania	69.0
55	Malaysia	66.8
56	Oman	62.8
57	Brazil	57.4
58	Macedonia, FYR	51.7
59	Russian Federation	51.1
60	Turkey	50.4
61	Jamaica	44.6
62	Lebanon	43.0
63	Argentina	42.9
64	Armenia	40.3
65	Montenegro	37.0
66	Serbia	34.8
67	Saudi Arabia	34.2
68	Colombia	33.5
69	Suriname	33.4
70	Georgia	28.8
71	Jordan	26.9
72	Ukraine	26.5
73	Mexico	26.5
74	Cape Verde	26.1
75	Moldova	24.7
76	Mongolia	22.2
77	Peru	21.4
78	Dominican Republic	20.4
79	El Salvador	18.8
80	Albania	18.4
81	Namibia	18.2
82	Thailand	18.1
83	Tunisia	17.0
84	Paraguay	15.4
85	Guatemala	13.3
86	Guyana	12.5
87	Venezuela	11.1
88	Botswana	10.4
89	Gabon	9.6
90	Kazakhstan	9.4
91	Bhutan	9.3
92	Honduras	9.1
93	Sri Lanka	9.0
94	Bolivia	8.9
95	Swaziland	8.8
96	Azerbaijan	8.5
97	Nicaragua	8.4
98	Vietnam	8.2
99	Philippines	8.1
100	Kyrgyz Republic	5.4
101	Kenya	4.8
102	Gambia, The	4.3
103	Indonesia	4.1
104	India	3.9
105	China	3.9
106	Angola	3.9
107	Morocco	3.6
108	Egypt	3.5
109	Libya	3.4
110	Zimbabwe	3.2
111	Zambia	2.8
112	Ghana	2.6
113	Rwanda	2.5
114	Nepal	2.4
115	Senegal	2.2
116	Mauritania	2.1
117	Cambodia	2.0
118	Côte d'Ivoire	2.0
119	Nigeria	1.7
120	Mozambique	1.6
121	Algeria	1.5
122	Cameroon	1.5
123	Pakistan	1.3
124	Iran, Islamic Rep.	1.3
125	Tajikistan	1.2
126	Uganda	1.2
127	Tanzania	1.1
128	Haiti	1.1
129	Mali	1.0
130	Lao PDR	1.0
131	Malawi	0.9
132	Timor-Leste	0.8
133	Burkina Faso	0.8
134	Bangladesh	0.8
135	Yemen	0.7
136	Madagascar	0.7
137	Lesotho	0.5
138	Burundi	0.3
139	Ethiopia	0.2
140	Myanmar	0.1
141	Guinea	0.1
n/a	Chad	n/a
n/a	Taiwan, China	n/a

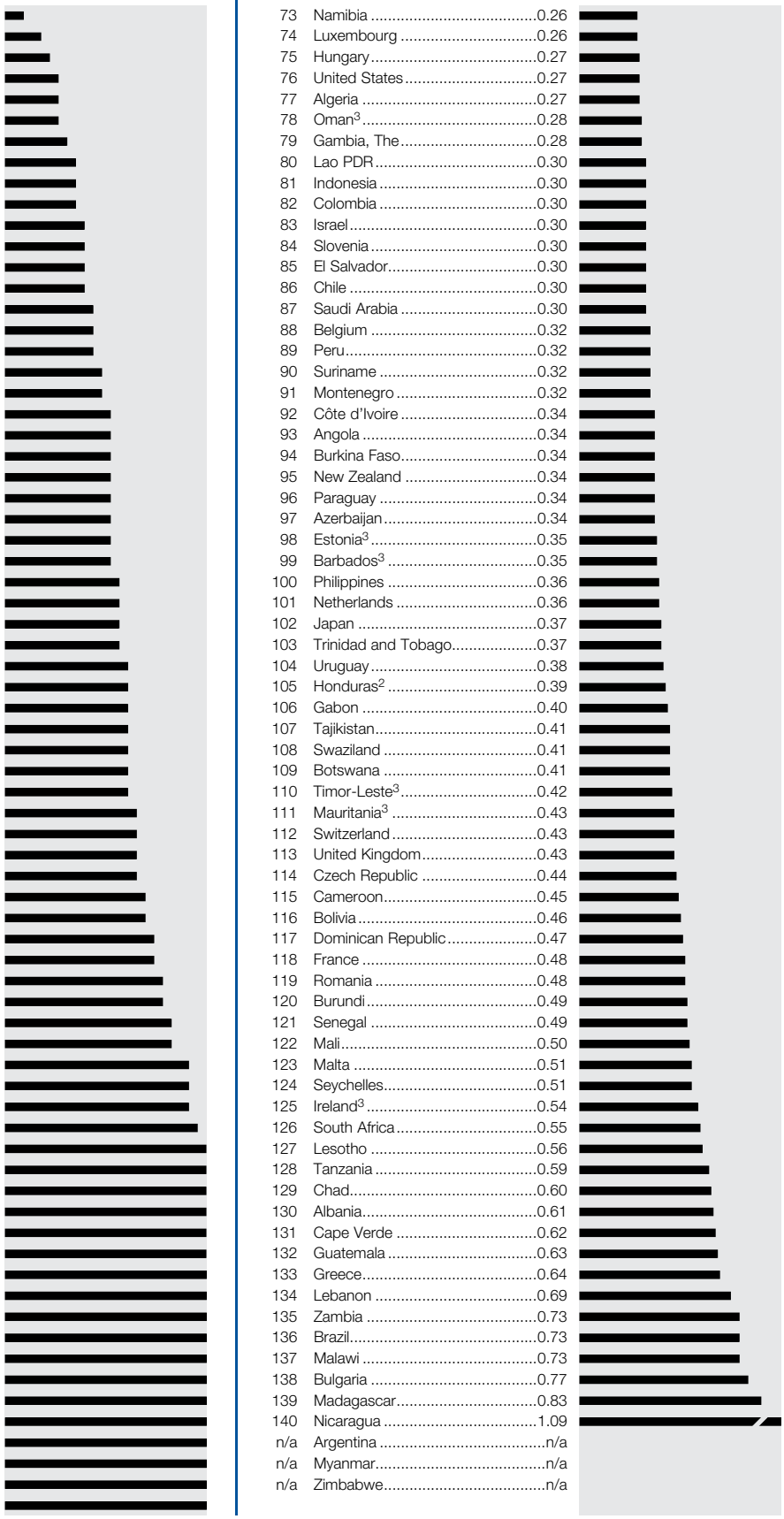
SOURCE: The World Bank, *World Development Indicators* (accessed November 26, 2014)

4th pillar
Affordability

4.01 Prepaid mobile cellular tariffs

Average per-minute cost of different types of mobile cellular calls (PPP $) | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Hong Kong SAR	0.02
2	Bangladesh	0.04
3	Sri Lanka	0.05
4	India	0.06
5	China	0.06
6	Denmark	0.06
7	Egypt	0.07
8	Finland	0.08
9	Sweden	0.08
10	Austria	0.08
11	Nepal	0.09
12	Costa Rica	0.09
13	Georgia	0.09
14	Australia	0.09
15	Pakistan	0.10
16	Thailand	0.10
17	Kenya	0.10
18	Norway	0.11
19	Libya	0.11
20	Germany	0.12
21	United Arab Emirates	0.12
22	Cyprus[3]	0.12
23	Iran, Islamic Rep.	0.12
24	Vietnam	0.12
25	Russian Federation[3]	0.12
26	Mexico	0.12
27	Kazakhstan	0.12
28	Ethiopia[3]	0.13
29	Puerto Rico	0.13
30	Portugal	0.13
31	Ghana	0.13
32	Korea, Rep.	0.14
33	Bahrain	0.14
34	Mongolia	0.14
35	Nigeria	0.14
36	Tunisia	0.14
37	Iceland	0.14
38	Bhutan	0.14
39	Spain	0.15
40	Macedonia, FYR	0.15
41	Turkey	0.15
42	Morocco	0.15
43	Italy	0.16
44	Guinea[1]	0.16
45	Kyrgyz Republic	0.17
46	Rwanda	0.17
47	Mauritius	0.18
48	Singapore	0.18
49	Ukraine	0.19
50	Cambodia	0.19
51	Poland	0.21
52	Jamaica	0.21
53	Jordan	0.21
54	Qatar	0.22
55	Latvia	0.23
56	Panama	0.23
57	Venezuela	0.23
58	Canada	0.23
59	Taiwan, China[4]	0.23
60	Malaysia	0.23
61	Haiti	0.24
62	Moldova	0.24
63	Slovak Republic	0.24
64	Armenia	0.24
65	Serbia	0.24
66	Kuwait[2]	0.25
67	Mozambique	0.25
68	Yemen	0.25
69	Croatia	0.25
70	Lithuania	0.26
71	Guyana	0.26
72	Uganda	0.26
73	Namibia	0.26
74	Luxembourg	0.26
75	Hungary	0.27
76	United States	0.27
77	Algeria	0.27
78	Oman[3]	0.28
79	Gambia, The	0.28
80	Lao PDR	0.30
81	Indonesia	0.30
82	Colombia	0.30
83	Israel	0.30
84	Slovenia	0.30
85	El Salvador	0.30
86	Chile	0.30
87	Saudi Arabia	0.30
88	Belgium	0.32
89	Peru	0.32
90	Suriname	0.32
91	Montenegro	0.32
92	Côte d'Ivoire	0.34
93	Angola	0.34
94	Burkina Faso	0.34
95	New Zealand	0.34
96	Paraguay	0.34
97	Azerbaijan	0.34
98	Estonia[3]	0.35
99	Barbados[3]	0.35
100	Philippines	0.36
101	Netherlands	0.36
102	Japan	0.37
103	Trinidad and Tobago	0.37
104	Uruguay	0.38
105	Honduras[2]	0.39
106	Gabon	0.40
107	Tajikistan	0.41
108	Swaziland	0.41
109	Botswana	0.41
110	Timor-Leste[3]	0.42
111	Mauritania[3]	0.43
112	Switzerland	0.43
113	United Kingdom	0.43
114	Czech Republic	0.44
115	Cameroon	0.45
116	Bolivia	0.46
117	Dominican Republic	0.47
118	France	0.48
119	Romania	0.48
120	Burundi	0.49
121	Senegal	0.49
122	Mali	0.50
123	Malta	0.51
124	Seychelles	0.51
125	Ireland[3]	0.54
126	South Africa	0.55
127	Lesotho	0.56
128	Tanzania	0.59
129	Chad	0.60
130	Albania	0.61
131	Cape Verde	0.62
132	Guatemala	0.63
133	Greece	0.64
134	Lebanon	0.69
135	Zambia	0.73
136	Brazil	0.73
137	Malawi	0.73
138	Bulgaria	0.77
139	Madagascar	0.83
140	Nicaragua	1.09
n/a	Argentina	n/a
n/a	Myanmar	n/a
n/a	Zimbabwe	n/a



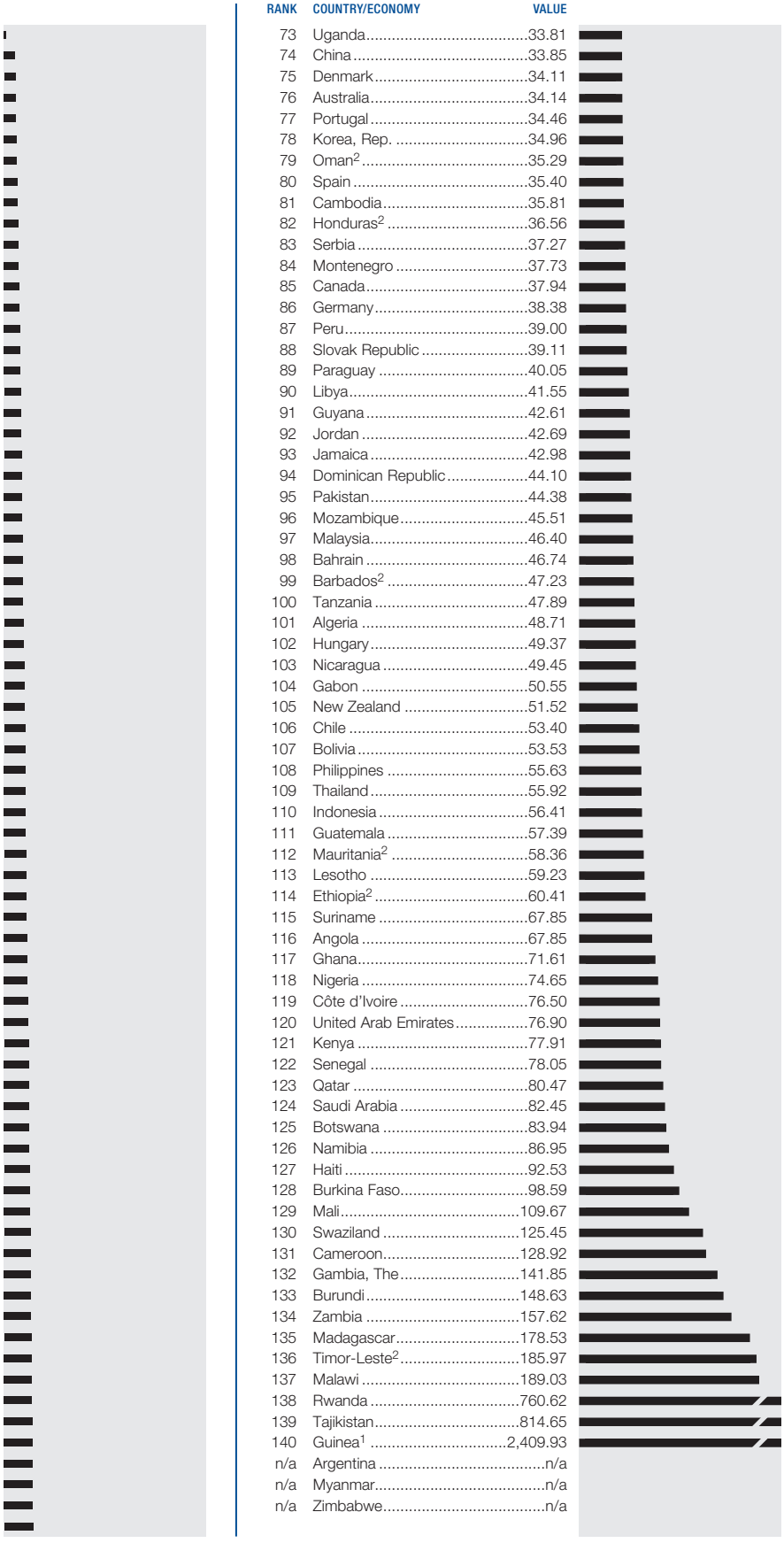
SOURCES: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition); World Bank, *World Development Indicators* (retrieved January 2, 2015); national sources

[1] 2010 [2] 2011 [3] 2012 [4] 2014

4.02 Fixed broadband Internet tariffs

Monthly subscription charge for fixed (wired) broadband Internet service (PPP $) | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Vietnam	2.65
2	Mauritius	12.18
3	Sri Lanka	12.88
4	Bangladesh	13.60
5	Venezuela	13.77
6	Ukraine	14.10
7	United Kingdom	14.38
8	Taiwan, China[3]	15.65
9	Tunisia	15.75
10	Russian Federation[2]	16.23
11	Lao PDR	16.62
12	Uruguay	16.85
13	India	17.29
14	Romania	17.41
15	Cape Verde	18.25
16	Brazil	18.51
17	Panama	18.80
18	Lithuania	18.85
19	Iran, Islamic Rep.	19.55
20	Mongolia	19.84
21	Turkey	19.98
22	Trinidad and Tobago	20.33
23	Japan	20.50
24	Nepal	20.53
25	Mexico	21.14
26	Poland	21.39
27	Costa Rica	21.59
28	Kazakhstan	21.64
29	Egypt	21.92
30	Kuwait[2]	22.37
31	Cyprus[2]	22.86
32	Austria	22.98
33	Malta	23.63
34	Bulgaria	23.98
35	Georgia	23.98
36	Puerto Rico	24.30
37	Armenia	24.37
38	Switzerland	24.38
39	Finland	24.73
40	France	24.95
41	Chad[1]	25.06
42	Albania	25.26
43	Seychelles	25.35
44	Moldova	26.51
45	Bhutan	26.69
46	Italy	26.81
47	Morocco	27.40
48	Greece	27.41
49	Croatia	27.94
50	Iceland	28.13
51	Azerbaijan	28.14
52	Yemen	28.14
53	Singapore	28.43
54	Sweden	28.58
55	Latvia	28.99
56	Estonia[2]	29.28
57	Belgium	29.57
58	Czech Republic	29.93
59	Ireland[2]	30.07
60	Hong Kong SAR	30.22
61	Kyrgyz Republic	30.24
62	Lebanon	30.29
63	Macedonia, FYR	30.98
64	Colombia	31.41
65	Slovenia	31.54
66	Luxembourg	31.58
67	El Salvador	32.08
68	Netherlands	32.21
69	South Africa	32.28
70	Israel	32.58
71	United States	32.65
72	Norway	33.02
73	Uganda	33.81
74	China	33.85
75	Denmark	34.11
76	Australia	34.14
77	Portugal	34.46
78	Korea, Rep.	34.96
79	Oman[2]	35.29
80	Spain	35.40
81	Cambodia	35.81
82	Honduras[2]	36.56
83	Serbia	37.27
84	Montenegro	37.73
85	Canada	37.94
86	Germany	38.38
87	Peru	39.00
88	Slovak Republic	39.11
89	Paraguay	40.05
90	Libya	41.55
91	Guyana	42.61
92	Jordan	42.69
93	Jamaica	42.98
94	Dominican Republic	44.10
95	Pakistan	44.38
96	Mozambique	45.51
97	Malaysia	46.40
98	Bahrain	46.74
99	Barbados[2]	47.23
100	Tanzania	47.89
101	Algeria	48.71
102	Hungary	49.37
103	Nicaragua	49.45
104	Gabon	50.55
105	New Zealand	51.52
106	Chile	53.40
107	Bolivia	53.53
108	Philippines	55.63
109	Thailand	55.92
110	Indonesia	56.41
111	Guatemala	57.39
112	Mauritania[2]	58.36
113	Lesotho	59.23
114	Ethiopia[2]	60.41
115	Suriname	67.85
116	Angola	67.85
117	Ghana	71.61
118	Nigeria	74.65
119	Côte d'Ivoire	76.50
120	United Arab Emirates	76.90
121	Kenya	77.91
122	Senegal	78.05
123	Qatar	80.47
124	Saudi Arabia	82.45
125	Botswana	83.94
126	Namibia	86.95
127	Haiti	92.53
128	Burkina Faso	98.59
129	Mali	109.67
130	Swaziland	125.45
131	Cameroon	128.92
132	Gambia, The	141.85
133	Burundi	148.63
134	Zambia	157.62
135	Madagascar	178.53
136	Timor-Leste[2]	185.97
137	Malawi	189.03
138	Rwanda	760.62
139	Tajikistan	814.65
140	Guinea[1]	2,409.93
n/a	Argentina	n/a
n/a	Myanmar	n/a
n/a	Zimbabwe	n/a



SOURCES: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition); World Bank, *World Development Indicators* (retrieved January 2, 2015); national sources

[1] 2010 [2] 2012 [3] 2014

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 | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Argentina[2]	2.00
1	Armenia	2.00
1	Australia	2.00
1	Austria	2.00
1	Belgium[1]	2.00
1	Brazil	2.00
1	Burkina Faso[1]	2.00
1	Cambodia	2.00
1	Canada	2.00
1	Cape Verde	2.00
1	Chile	2.00
1	Colombia	2.00
1	Croatia	2.00
1	Dominican Republic	2.00
1	Estonia[2]	2.00
1	Finland	2.00
1	France	2.00
1	Georgia	2.00
1	Germany	2.00
1	Guatemala	2.00
1	Haiti[2]	2.00
1	Honduras[2]	2.00
1	Hong Kong SAR	2.00
1	Iceland	2.00
1	India	2.00
1	Ireland	2.00
1	Japan	2.00
1	Kenya[1]	2.00
1	Lesotho[1]	2.00
1	Lithuania	2.00
1	Luxembourg	2.00
1	Macedonia, FYR	2.00
1	Madagascar[2]	2.00
1	Malaysia	2.00
1	Malta	2.00
1	Mauritania[2]	2.00
1	Mauritius	2.00
1	Mexico[2]	2.00
1	Moldova	2.00
1	Montenegro	2.00
1	Morocco	2.00
1	Netherlands[2]	2.00
1	Nigeria[2]	2.00
1	Norway	2.00
1	Pakistan	2.00
1	Panama	2.00
1	Paraguay	2.00
1	Peru	2.00
1	Philippines[2]	2.00
1	Portugal	2.00
1	Romania[2]	2.00
1	Serbia	2.00
1	Singapore	2.00
1	Slovenia	2.00
1	Spain[1]	2.00
1	Sweden	2.00
1	Switzerland	2.00
1	Taiwan, China	2.00
1	Tanzania	2.00
1	Turkey	2.00
1	Uganda[2]	2.00
1	United States	2.00
63	Jordan[2]	1.94
64	Jamaica	1.93
64	Saudi Arabia	1.93
66	Rwanda[2]	1.93
67	Bahrain[2]	1.92
68	Denmark[2]	1.88
68	Nicaragua	1.88
70	Czech Republic	1.88
70	Hungary	1.88
70	Kyrgyz Republic	1.88
73	El Salvador[1]	1.87
73	Kazakhstan[2]	1.87
73	Oman	1.87
73	Vietnam[1]	1.87
77	Ukraine[1]	1.86
78	United Kingdom[2]	1.85
79	Slovak Republic[1]	1.82
80	Greece	1.80
81	Trinidad and Tobago	1.79
81	Zimbabwe	1.79
83	Latvia	1.77
83	Poland[2]	1.77
85	Indonesia[2]	1.76
85	Israel[1]	1.76
85	Korea, Rep.[2]	1.76
85	Senegal[1]	1.76
89	Ghana	1.67
89	Italy[2]	1.67
91	Guinea[2]	1.65
91	Thailand	1.65
93	Albania[2]	1.64
94	Egypt	1.64
94	Zambia[2]	1.64
96	Costa Rica[1]	1.63
97	Burundi[1]	1.57
98	New Zealand[2]	1.53
99	Chad[2]	1.50
99	Russian Federation[2]	1.50
101	Namibia	1.43
102	Nepal[1]	1.41
103	Azerbaijan[2]	1.40
104	Algeria[2]	1.33
104	Angola[2]	1.33
104	Barbados	1.33
104	Bhutan[2]	1.33
104	Bulgaria[1]	1.33
109	Cyprus	1.31
110	Botswana	1.27
111	Bangladesh[1]	1.25
112	Gabon[1]	1.23
113	Cameroon[2]	1.22
113	Côte d'Ivoire[1]	1.22
113	Malawi[2]	1.22
116	China	1.20
116	Mali[2]	1.20
116	Suriname	1.20
119	Mozambique[2]	1.17
120	Tunisia	1.14
121	Gambia, The[2]	1.13
122	Seychelles	1.08
123	South Africa[2]	1.07
124	United Arab Emirates	1.06
125	Uruguay	1.00
126	Qatar	0.93
127	Lao PDR[2]	0.91
128	Sri Lanka[2]	0.88
129	Iran, Islamic Rep.	0.86
130	Bolivia[2]	0.80
131	Lebanon	0.55
132	Guyana[2]	0.50
133	Yemen[2]	0.36
134	Kuwait[2]	0.25
135	Swaziland[1]	0.08
136	Ethiopia[1]	0.00
136	Libya[2]	0.00
136	Myanmar[1]	0.00
136	Tajikistan[2]	0.00
n/a	Mongolia	n/a
n/a	Puerto Rico	n/a
n/a	Timor-Leste	n/a
n/a	Venezuela	n/a

SOURCE: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication Regulatory Database* (retrieved January 2, 2015).

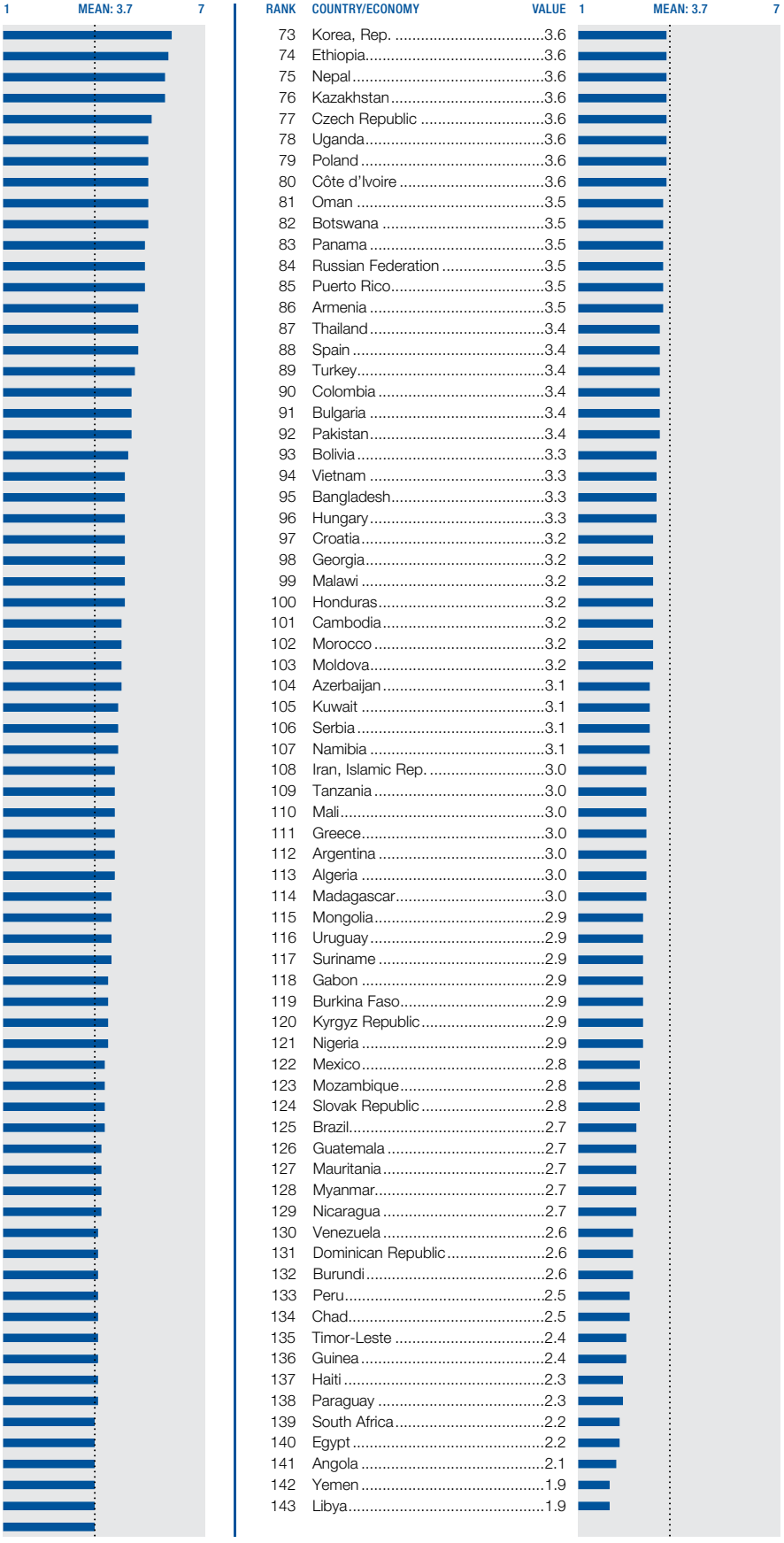
[1] pre-2012 [2] 2012

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 = extremely well] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Switzerland	6.0
2	Finland	5.9
3	Qatar	5.8
4	Singapore	5.8
5	Ireland	5.4
6	Belgium	5.3
7	New Zealand	5.3
8	Netherlands	5.3
9	United Arab Emirates	5.3
10	Malaysia	5.3
11	Canada	5.2
12	Germany	5.2
13	Cyprus	5.2
14	Norway	5.0
15	Barbados	5.0
16	Malta	5.0
17	Iceland	4.9
18	Denmark	4.8
19	Australia	4.8
20	Hong Kong SAR	4.8
21	Costa Rica	4.7
22	Sri Lanka	4.6
23	United Kingdom	4.6
24	Jordan	4.6
25	Luxembourg	4.6
26	Sweden	4.6
27	United States	4.6
28	Lebanon	4.6
29	Philippines	4.5
30	Kenya	4.5
31	Austria	4.5
32	Indonesia	4.5
33	Japan	4.4
34	France	4.4
35	Estonia	4.4
36	Zambia	4.3
37	Seychelles	4.3
38	Bahrain	4.3
39	Gambia, The	4.3
40	Portugal	4.3
41	Montenegro	4.3
42	Mauritius	4.2
43	Zimbabwe	4.2
44	Trinidad and Tobago	4.2
45	India	4.2
46	Albania	4.1
47	Saudi Arabia	4.1
48	Slovenia	4.1
49	Lesotho	4.1
50	Rwanda	4.0
51	Bhutan	4.0
52	China	4.0
53	Macedonia, FYR	4.0
54	Guyana	3.9
55	Lithuania	3.9
56	Taiwan, China	3.9
57	Cape Verde	3.9
58	Tajikistan	3.8
59	Ghana	3.8
60	Lao PDR	3.8
61	Romania	3.8
62	Cameroon	3.8
63	El Salvador	3.8
64	Swaziland	3.8
65	Latvia	3.8
66	Senegal	3.8
67	Italy	3.7
68	Tunisia	3.7
69	Israel	3.7
70	Jamaica	3.7
71	Chile	3.7
72	Ukraine	3.7
73	Korea, Rep.	3.6
74	Ethiopia	3.6
75	Nepal	3.6
76	Kazakhstan	3.6
77	Czech Republic	3.6
78	Uganda	3.6
79	Poland	3.6
80	Côte d'Ivoire	3.6
81	Oman	3.5
82	Botswana	3.5
83	Panama	3.5
84	Russian Federation	3.5
85	Puerto Rico	3.5
86	Armenia	3.5
87	Thailand	3.4
88	Spain	3.4
89	Turkey	3.4
90	Colombia	3.4
91	Bulgaria	3.4
92	Pakistan	3.4
93	Bolivia	3.3
94	Vietnam	3.3
95	Bangladesh	3.3
96	Hungary	3.3
97	Croatia	3.2
98	Georgia	3.2
99	Malawi	3.2
100	Honduras	3.2
101	Cambodia	3.2
102	Morocco	3.2
103	Moldova	3.2
104	Azerbaijan	3.1
105	Kuwait	3.1
106	Serbia	3.1
107	Namibia	3.1
108	Iran, Islamic Rep.	3.0
109	Tanzania	3.0
110	Mali	3.0
111	Greece	3.0
112	Argentina	3.0
113	Algeria	3.0
114	Madagascar	3.0
115	Mongolia	2.9
116	Uruguay	2.9
117	Suriname	2.9
118	Gabon	2.9
119	Burkina Faso	2.9
120	Kyrgyz Republic	2.9
121	Nigeria	2.9
122	Mexico	2.8
123	Mozambique	2.8
124	Slovak Republic	2.8
125	Brazil	2.7
126	Guatemala	2.7
127	Mauritania	2.7
128	Myanmar	2.7
129	Nicaragua	2.7
130	Venezuela	2.6
131	Dominican Republic	2.6
132	Burundi	2.6
133	Peru	2.5
134	Chad	2.5
135	Timor-Leste	2.4
136	Guinea	2.4
137	Haiti	2.3
138	Paraguay	2.3
139	South Africa	2.2
140	Egypt	2.2
141	Angola	2.1
142	Yemen	1.9
143	Libya	1.9

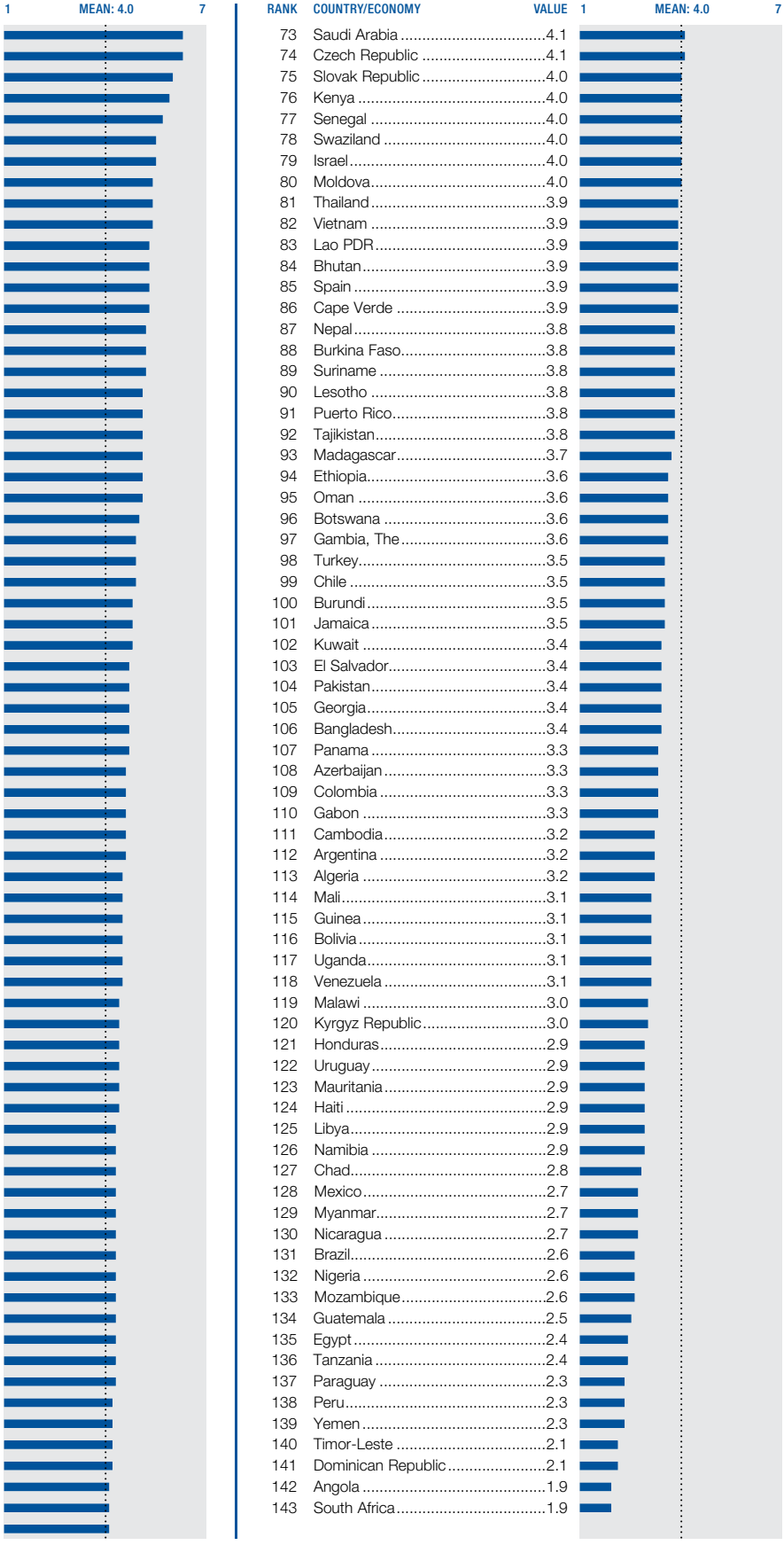


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

5.02 Quality of math and science education

In your country, how would you assess the quality of math and science education in schools? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Singapore	6.3
2	Finland	6.3
3	Belgium	6.0
4	Switzerland	5.9
5	Lebanon	5.7
6	Qatar	5.5
7	Barbados	5.5
8	Netherlands	5.4
9	Hong Kong SAR	5.4
10	Cyprus	5.4
11	United Arab Emirates	5.3
12	New Zealand	5.3
13	Malta	5.3
14	Taiwan, China	5.3
15	Slovenia	5.2
16	Malaysia	5.2
17	France	5.2
18	Estonia	5.1
19	Canada	5.1
20	Germany	5.1
21	Japan	5.1
22	Côte d'Ivoire	5.1
23	Lithuania	5.1
24	Ireland	5.0
25	Montenegro	4.9
26	Croatia	4.9
27	Latvia	4.9
28	Luxembourg	4.8
29	Sri Lanka	4.8
30	Ukraine	4.8
31	Romania	4.7
32	Tunisia	4.7
33	Iceland	4.7
34	Korea, Rep.	4.7
35	Trinidad and Tobago	4.7
36	Indonesia	4.6
37	Austria	4.6
38	Australia	4.6
39	Jordan	4.6
40	Mauritius	4.6
41	Norway	4.5
42	Denmark	4.5
43	Portugal	4.5
44	Iran, Islamic Rep.	4.5
45	Italy	4.5
46	Mongolia	4.5
47	Costa Rica	4.4
48	Macedonia, FYR	4.4
49	Sweden	4.4
50	Poland	4.4
51	United States	4.4
52	Ghana	4.4
53	Serbia	4.3
54	Bulgaria	4.3
55	Guyana	4.3
56	China	4.3
57	Seychelles	4.3
58	Bahrain	4.3
59	Russian Federation	4.3
60	Hungary	4.3
61	Greece	4.3
62	Zambia	4.3
63	United Kingdom	4.3
64	Albania	4.3
65	Cameroon	4.3
66	Zimbabwe	4.2
67	India	4.2
68	Morocco	4.2
69	Armenia	4.2
70	Philippines	4.1
71	Rwanda	4.1
72	Kazakhstan	4.1
73	Saudi Arabia	4.1
74	Czech Republic	4.1
75	Slovak Republic	4.0
76	Kenya	4.0
77	Senegal	4.0
78	Swaziland	4.0
79	Israel	4.0
80	Moldova	4.0
81	Thailand	3.9
82	Vietnam	3.9
83	Lao PDR	3.9
84	Bhutan	3.9
85	Spain	3.9
86	Cape Verde	3.9
87	Nepal	3.8
88	Burkina Faso	3.8
89	Suriname	3.8
90	Lesotho	3.8
91	Puerto Rico	3.8
92	Tajikistan	3.8
93	Madagascar	3.7
94	Ethiopia	3.6
95	Oman	3.6
96	Botswana	3.6
97	Gambia, The	3.6
98	Turkey	3.5
99	Chile	3.5
100	Burundi	3.5
101	Jamaica	3.5
102	Kuwait	3.4
103	El Salvador	3.4
104	Pakistan	3.4
105	Georgia	3.4
106	Bangladesh	3.4
107	Panama	3.3
108	Azerbaijan	3.3
109	Colombia	3.3
110	Gabon	3.3
111	Cambodia	3.2
112	Argentina	3.2
113	Algeria	3.2
114	Mali	3.1
115	Guinea	3.1
116	Bolivia	3.1
117	Uganda	3.1
118	Venezuela	3.1
119	Malawi	3.0
120	Kyrgyz Republic	3.0
121	Honduras	2.9
122	Uruguay	2.9
123	Mauritania	2.9
124	Haiti	2.9
125	Libya	2.9
126	Namibia	2.9
127	Chad	2.8
128	Mexico	2.7
129	Myanmar	2.7
130	Nicaragua	2.7
131	Brazil	2.6
132	Nigeria	2.6
133	Mozambique	2.6
134	Guatemala	2.5
135	Egypt	2.4
136	Tanzania	2.4
137	Paraguay	2.3
138	Peru	2.3
139	Yemen	2.3
140	Timor-Leste	2.1
141	Dominican Republic	2.1
142	Angola	1.9
143	South Africa	1.9



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

5.03 Secondary enrollment rate

Secondary education gross enrollment rate (%) | 2012 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Australia	135.5
2	Spain	130.8
3	Netherlands	129.9
4	Denmark	124.7
5	New Zealand	119.5
6	Ireland	119.1
7	Saudi Arabia[10]	116.2
8	Portugal	112.9
9	Qatar[9]	111.6
10	Norway	111.1
11	France	109.7
12	Iceland[9]	108.6
13	Greece[9]	107.9
14	Finland	107.7
15	Belgium	107.3
16	Singapore	107.1
17	Estonia	107.1
18	Lithuania	105.9
19	Barbados[9]	104.7
20	Libya[4]	104.3
21	Costa Rica	103.6
22	Mongolia	103.5
23	Canada[9]	103.4
24	South Africa	101.9
25	Japan	101.8
26	Israel[9]	101.7
27	Hungary	101.6
28	Seychelles[9]	101.3
29	Germany	101.3
30	Luxembourg[9]	101.0
31	Guyana	101.0
32	Italy[9]	100.7
33	Kuwait[5]	100.3
34	Azerbaijan	100.3
35	Taiwan, China[10]	100.3
36	Sri Lanka	99.3
37	Croatia	98.4
38	Sweden	98.4
39	Ukraine	97.8
40	Kazakhstan	97.7
41	Latvia	97.7
42	Austria	97.7
43	Poland	97.7
44	Algeria[9]	97.6
45	Slovenia	97.6
46	Korea, Rep.	97.2
47	Czech Republic	96.6
48	Switzerland	96.3
49	Armenia	95.9
50	Mauritius	95.9
51	Bahrain	95.5
52	United Kingdom	95.4
53	Cyprus	95.3
54	Russian Federation	95.3
55	Romania	95.0
56	Slovak Republic	93.9
57	United States	93.7
58	Oman	93.5
59	Bulgaria	93.1
60	Colombia	92.8
61	Cape Verde	92.7
62	United Arab Emirates[4]	92.3
63	Argentina[9]	91.9
64	Serbia	91.7
65	Tunisia[9]	91.1
66	Montenegro	90.9
67	Uruguay[8]	90.3
68	Peru	89.8
69	Chile	89.0
70	China	89.0
71	Hong Kong SAR	88.7
72	Jamaica[9]	88.6
73	Moldova	88.2
74	Kyrgyz Republic[9]	88.2
75	Jordan	87.8
76	Tajikistan	87.0
77	Thailand	87.0
78	Georgia[7]	86.8
79	Egypt	86.3
80	Malta	86.3
81	Iran, Islamic Rep.	86.3
82	Turkey	86.1
83	Mexico	85.7
84	Trinidad and Tobago[2]	85.5
85	Venezuela	85.4
86	Suriname[9]	85.4
87	Philippines[7]	84.6
88	Panama	84.0
89	Macedonia, FYR	82.8
90	Indonesia	82.5
91	Albania[6]	82.4
92	Botswana[6]	81.7
93	Puerto Rico[9]	78.3
94	Bolivia[9]	77.3
95	Dominican Republic	75.9
96	Vietnam[3]	75.2
97	Lebanon	74.0
98	Bhutan	73.9
99	Honduras	73.1
100	Paraguay[9]	69.6
101	El Salvador	69.2
102	Nicaragua[8]	68.9
103	Morocco	68.9
104	India[9]	68.5
105	Haiti	68.1
106	Malaysia[9]	67.2
107	Nepal[10]	66.6
108	Guatemala[9]	65.1
109	Namibia[5]	64.8
110	Ghana[10]	61.1
111	Kenya[7]	60.1
112	Swaziland[9]	59.9
113	Gambia, The[8]	57.5
114	Timor-Leste[9]	56.6
115	Gabon[1]	53.9
116	Bangladesh	53.6
117	Lesotho	53.3
118	Zimbabwe	51.9
119	Cameroon	50.4
120	Myanmar[8]	50.2
121	Yemen	46.9
122	Lao PDR	46.5
123	Cambodia[6]	45.0
124	Mali[9]	44.5
125	Nigeria[8]	43.8
126	Senegal[9]	41.0
127	Guinea	38.1
128	Madagascar	38.0
129	Pakistan	36.6
130	Tanzania	35.0
131	Malawi	34.2
132	Rwanda	31.8
133	Angola[9]	31.5
134	Ethiopia[4]	28.9
135	Burundi	28.5
136	Uganda[7]	27.6
137	Mauritania	26.8
138	Burkina Faso	25.9
139	Mozambique	25.9
140	Chad	22.8
n/a	Brazil	n/a
n/a	Côte d'Ivoire	n/a
n/a	Zambia	n/a

SOURCES: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (retrieved November 26, 2014); United Nations Children's Fund (UNICEF), Education Statistics; national sources

[1] 2002 [2] 2004 [3] 2005 [4] 2006 [5] 2007 [6] 2008 [7] 2009 [8] 2010 [9] 2011 [10] 2013

5.04 Adult literacy rate

Adult literacy rate (%) | 2015 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Latvia	99.9
2	Estonia	99.8
3	Azerbaijan	99.8
4	Lithuania	99.8
5	Poland	99.8
6	Kazakhstan	99.8
7	Tajikistan	99.8
8	Ukraine	99.8
9	Georgia	99.8
10	Russian Federation	99.7
11	Slovenia	99.7
12	Armenia	99.7
13	Kyrgyz Republic	99.5
14	Moldova	99.4
15	Croatia	99.3
16	Italy	99.2
17	Cyprus	99.1
18	Hungary	99.1
19	Trinidad and Tobago	99.0
20	Romania	98.8
21	Montenegro	98.7
22	Uruguay	98.5
23	Taiwan, China[3]	98.4
24	Bulgaria	98.4
25	Mongolia	98.4
26	Serbia	98.1
27	Spain	98.1
28	Argentina	98.1
29	Macedonia, FYR	97.8
30	Israel[1]	97.8
31	Costa Rica	97.8
32	Greece	97.7
33	Albania	97.6
34	Chile	97.5
35	Qatar	97.3
36	Singapore	96.8
37	Thailand	96.7
38	China	96.4
39	Venezuela	96.3
40	Philippines	96.3
41	Kuwait	96.3
42	Bahrain	95.7
43	Portugal	95.7
44	Bolivia	95.7
45	Suriname	95.6
46	Paraguay	95.6
47	Jordan	95.4
48	Mexico	95.1
49	Panama	95.0
50	Turkey	95.0
51	Colombia	94.7
52	Saudi Arabia	94.7
53	Malaysia	94.6
54	Vietnam	94.5
55	Peru	94.5
56	Malta	94.4
57	South Africa	94.3
58	Lebanon	93.9
59	Indonesia	93.9
60	United Arab Emirates	93.8
61	Puerto Rico	93.3
62	Myanmar	93.1
63	Sri Lanka	92.6
64	Brazil	92.6
65	Seychelles[2]	91.8
66	Dominican Republic	91.8
67	Oman	91.1
68	Libya	91.0
69	Mauritius	90.6
70	Jamaica	88.7
71	Guyana	88.5
72	Honduras	88.5
73	Botswana	88.5
74	El Salvador	88.0
75	Cape Verde	87.6
76	Swaziland	87.5
77	Iran, Islamic Rep.	86.8
78	Zimbabwe	86.5
79	Burundi	85.6
80	Gabon	83.2
81	Nicaragua	82.8
82	Namibia	81.9
83	Tunisia	81.8
84	Guatemala	81.5
85	Algeria	80.2
86	Lao PDR	79.9
87	Lesotho	79.4
88	Uganda	78.4
89	Kenya	78.0
90	Cambodia	77.2
91	Ghana	76.6
92	Cameroon	75.0
93	Egypt	73.8
94	India	71.2
95	Angola	71.1
96	Tanzania	70.6
97	Rwanda	70.5
98	Yemen	70.1
99	Morocco	68.5
100	Timor-Leste	67.5
101	Malawi	65.8
102	Bhutan	64.9
103	Madagascar	64.7
104	Nepal	63.9
105	Zambia	63.4
106	Bangladesh	61.5
107	Haiti	60.7
108	Nigeria	59.6
109	Mozambique	58.8
110	Pakistan	57.9
111	Senegal	57.7
112	Gambia, The	55.5
113	Mauritania	52.1
114	Ethiopia	49.1
115	Côte d'Ivoire	43.1
116	Chad	40.2
117	Mali	38.7
118	Burkina Faso	36.0
119	Guinea	30.4
n/a	Australia*	n/a
n/a	Austria*	n/a
n/a	Barbados	n/a
n/a	Belgium*	n/a
n/a	Canada*	n/a
n/a	Czech Republic*	n/a
n/a	Denmark*	n/a
n/a	Finland*	n/a
n/a	France*	n/a
n/a	Germany*	n/a
n/a	Hong Kong SAR*	n/a
n/a	Iceland*	n/a
n/a	Ireland*	n/a
n/a	Japan*	n/a
n/a	Korea, Rep.*	n/a
n/a	Luxembourg*	n/a
n/a	Netherlands*	n/a
n/a	New Zealand*	n/a
n/a	Norway*	n/a
n/a	Slovak Republic*	n/a
n/a	Sweden*	n/a
n/a	Switzerland*	n/a
n/a	United Kingdom*	n/a
n/a	United States*	n/a

SOURCES: United Nations Education, Science and Culture Organization (UNESCO), UNESCO Institute for Statistics Data Centre (retrieved November 26, 2014); national sources

[1] 2011 [2] 2012 [3] 2013

* For more details, refer to the Technical Notes and Sources section at the end of the *Report*.

6th pillar
Individual usage

6.01 Mobile telephone subscriptions

Mobile telephone subscriptions (post-paid and pre-paid) per 100 population | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	Hong Kong SAR	237.4
2	Latvia	228.4
3	Gabon	214.8
4	Kuwait	190.3
5	Kazakhstan	184.7
6	Saudi Arabia	184.2
7	United Arab Emirates	171.9
8	Finland	171.6
9	Bahrain	165.9
10	Libya	165.0
11	Panama	163.0
12	Argentina	162.5
13	Suriname	161.1
14	Botswana	160.6
15	Montenegro	159.9
16	Estonia	159.7
17	Italy	158.8
18	Austria	156.2
19	Singapore	155.9
20	Oman	154.6
21	Uruguay	154.6
22	Russian Federation	152.8
23	Qatar	152.6
24	Lithuania	151.3
25	Poland	149.1
26	Luxembourg	148.6
27	Seychelles	147.3
28	Costa Rica	146.0
29	South Africa	145.6
30	Bulgaria	145.2
31	Trinidad and Tobago	144.9
32	Malaysia	144.7
33	Jordan	141.8
34	Guatemala	140.4
35	Thailand	140.1
36	Ukraine	138.1
37	Switzerland	136.8
38	El Salvador	136.2
39	Brazil	135.3
40	Chile	134.3
41	Cambodia	133.9
42	Vietnam	130.9
43	Malta	129.8
44	Mali	129.1
45	Morocco	128.5
46	Czech Republic	127.7
47	Taiwan, China	127.5
48	Denmark	127.1
49	Indonesia	125.4
50	United Kingdom	124.6
51	Sweden	124.4
52	Mongolia	124.2
53	Mauritius	123.2
54	Israel	122.8
55	Egypt	121.5
56	Kyrgyz Republic	121.4
57	Germany	120.9
58	Serbia	119.4
59	Namibia	118.4
60	Japan	117.6
61	Greece	116.8
62	Hungary	116.4
63	Norway	116.3
64	Albania	116.2
65	Tunisia	115.6
66	Georgia	115.0
67	Croatia	114.5
68	Slovak Republic	113.9
69	Netherlands	113.7
70	Portugal	113.0
71	Armenia	112.4
72	Nicaragua	112.0
73	Korea, Rep.	111.0
74	Belgium	110.9
75	Slovenia	110.2
76	Ghana	108.2
77	Iceland	108.1
78	Barbados	108.1
79	Azerbaijan	107.6
80	Spain	106.9
81	Australia	106.8
82	Macedonia, FYR	106.2
83	Moldova	106.0
84	New Zealand	105.8
85	Romania	105.6
86	Philippines	104.5
87	Colombia	104.1
88	Paraguay	103.7
89	Ireland	102.8
90	Mauritania	102.5
91	Jamaica	102.2
92	Venezuela	101.6
93	Algeria	100.8
94	Cape Verde	100.1
95	Gambia, The	100.0
96	France	98.5
97	Peru	98.1
98	Bolivia	97.7
99	Cyprus	96.4
100	Zimbabwe	96.3
101	Honduras	95.9
102	United States	95.5
103	Sri Lanka	95.5
104	Côte d'Ivoire	95.4
105	Turkey	93.0
106	Senegal	92.9
107	Tajikistan	91.8
108	China	88.7
109	Dominican Republic	88.4
110	Lesotho	86.3
111	Mexico	85.8
112	Iran, Islamic Rep.	84.2
113	Puerto Rico	83.6
114	Canada	80.6
115	Lebanon	80.6
116	Nepal	76.8
117	Bangladesh	74.4
118	Nigeria	73.3
119	Bhutan	72.2
120	Kenya	71.8
121	Zambia	71.5
122	Swaziland	71.5
123	India	70.8
124	Cameroon	70.4
125	Pakistan	70.1
126	Guyana	69.4
127	Haiti	69.4
128	Yemen	69.0
129	Lao PDR	68.1
130	Burkina Faso	66.4
131	Guinea	63.3
132	Angola	61.9
133	Timor-Leste	57.4
134	Rwanda	56.8
135	Tanzania	55.7
136	Mozambique	48.0
137	Uganda	44.1
138	Madagascar	36.9
139	Chad	35.6
140	Malawi	32.3
141	Ethiopia	27.3
142	Burundi	25.0
143	Myanmar	12.8

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.02 Internet users

Percentage of individuals using the Internet | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland	96.5
2	Norway	95.1
3	Sweden	94.8
4	Denmark	94.6
5	Netherlands	94.0
6	Luxembourg	93.8
7	Finland	91.5
8	Bahrain	90.0
9	United Kingdom	89.8
10	United Arab Emirates	88.0
11	Switzerland	86.7
12	Japan	86.3
13	Canada	85.8
14	Qatar	85.3
15	Korea, Rep.	84.8
16	United States	84.2
17	Germany	84.0
18	Australia	83.0
19	New Zealand	82.8
20	Belgium	82.2
21	France	81.9
22	Austria	80.6
23	Estonia	80.0
24	Taiwan, China	80.0
25	Ireland	78.2
26	Slovak Republic	77.9
27	Kuwait	75.5
28	Latvia	75.2
29	Barbados	75.0
30	Hong Kong SAR	74.2
31	Czech Republic	74.1
32	Puerto Rico	73.9
33	Singapore	73.0
34	Slovenia	72.7
35	Hungary	72.6
36	Spain	71.6
37	Israel	70.8
38	Lebanon	70.5
39	Malta	68.9
40	Lithuania	68.5
41	Malaysia	67.0
42	Croatia	66.7
43	Chile	66.5
44	Oman	66.5
45	Cyprus	65.5
46	Trinidad and Tobago	63.8
47	Poland	62.8
48	Portugal	62.1
49	Russian Federation	61.4
50	Macedonia, FYR	61.2
51	Saudi Arabia	60.5
52	Albania	60.1
53	Argentina	59.9
54	Greece	59.9
55	Azerbaijan	58.7
56	Italy	58.5
57	Uruguay	58.1
58	Montenegro	56.8
59	Morocco	56.0
60	Venezuela	54.9
61	Kazakhstan	54.0
62	Bulgaria	53.1
63	Colombia	51.7
64	Brazil	51.6
65	Serbia	51.5
66	Seychelles	50.4
67	Romania	49.8
68	Egypt	49.6
69	South Africa	48.9
70	Moldova	48.8
71	Armenia	46.3
72	Turkey	46.3
73	Costa Rica	46.0
74	Dominican Republic	45.9
75	China	45.8
76	Jordan	44.2
77	Vietnam	43.9
78	Tunisia	43.8
79	Mexico	43.5
80	Georgia	43.1
81	Panama	42.9
82	Ukraine	41.8
83	Bolivia	39.5
84	Peru	39.2
85	Kenya	39.0
85	Mauritius	39.0
87	Nigeria	38.0
88	Jamaica	37.8
89	Cape Verde	37.5
90	Suriname	37.4
91	Philippines	37.0
92	Paraguay	36.9
93	Guyana	33.0
94	Iran, Islamic Rep.	31.4
95	Bhutan	29.9
96	Thailand	28.9
97	Swaziland	24.7
98	Kyrgyz Republic	23.4
99	El Salvador	23.1
100	Sri Lanka	21.9
101	Senegal	20.9
102	Yemen	20.0
103	Guatemala	19.7
104	Angola	19.1
105	Zimbabwe	18.5
106	Honduras	17.8
107	Mongolia	17.7
108	Algeria	16.5
108	Libya	16.5
110	Uganda	16.2
111	Tajikistan	16.0
112	Indonesia	15.8
113	Nicaragua	15.5
114	Zambia	15.4
115	India	15.1
116	Botswana	15.0
117	Gambia, The	14.0
118	Namibia	13.9
119	Nepal	13.3
120	Lao PDR	12.5
121	Ghana	12.3
122	Pakistan	10.9
123	Haiti	10.6
124	Gabon	9.2
125	Rwanda	8.7
126	Bangladesh	6.5
127	Cameroon	6.4
128	Mauritania	6.2
129	Cambodia	6.0
130	Malawi	5.4
130	Mozambique	5.4
132	Lesotho	5.0
133	Burkina Faso	4.4
133	Tanzania	4.4
135	Côte d'Ivoire	2.6
136	Chad	2.3
136	Mali	2.3
138	Madagascar	2.2
139	Ethiopia	1.9
140	Guinea	1.6
141	Burundi	1.3
142	Myanmar	1.2
143	Timor-Leste	1.1

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.03 Households with a personal computer

Percentage of households equipped with a personal computer | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Qatar	97.2
2	Iceland	96.7
3	Netherlands	95.2
4	Luxembourg	94.3
5	Norway	93.3
6	Denmark	93.1
7	Bahrain	93.0
8	Sweden	91.9
9	United Arab Emirates	90.2
10	Germany	88.9
11	Finland	88.7
12	United Kingdom	88.2
13	Lebanon	87.9
14	Switzerland	86.6
15	Singapore	86.0
16	Israel	85.0
17	Kuwait	83.9
18	Canada	83.6
19	Ireland	83.6
20	Australia	83.5
21	Oman	82.9
22	Hong Kong SAR	81.9
23	Belgium	81.9
24	France	81.6
25	Austria	80.9
26	Korea, Rep.	80.6
27	Malta	80.3
28	Slovak Republic	80.1
29	Estonia	80.0
30	United States	80.0
31	New Zealand	77.3
32	Taiwan, China	76.6
33	Slovenia	76.4
34	Japan	76.2
35	Poland	74.7
36	Czech Republic	73.9
37	Spain	73.4
38	Hungary	73.1
39	Saudi Arabia	72.6
40	Latvia	71.7
41	Italy	71.1
42	Cyprus	70.3
43	Russian Federation	69.7
44	Barbados	69.1
45	Macedonia, FYR	68.3
46	Uruguay	67.6
47	Portugal	66.7
48	Croatia	66.3
49	Lithuania	65.9
50	Malaysia	65.1
51	Trinidad and Tobago	65.0
52	Kazakhstan	63.0
53	Serbia	62.7
54	Romania	61.2
55	Puerto Rico	60.0
56	Greece	59.5
57	Seychelles	59.3
58	Argentina	59.2
59	Jordan	58.7
60	Chile	57.0
61	Bulgaria	54.9
62	Montenegro	53.8
63	Turkey	52.9
64	Azerbaijan	52.0
65	Costa Rica	51.0
66	Moldova	49.5
67	Brazil	48.8
68	Mauritius	48.5
69	Morocco	47.0
70	Iran, Islamic Rep.	44.6
71	China	43.8
72	Egypt	43.1
73	Colombia	42.2
74	Venezuela	41.0
75	Ukraine	40.5
76	Armenia	40.1
77	Georgia	39.6
78	Panama	39.3
79	Ghana	36.6
80	Mexico	35.8
81	Mongolia	34.3
82	Suriname	33.8
83	Peru	32.0
84	Paraguay	31.8
85	Bolivia	31.7
86	Jamaica	30.5
87	Cape Verde	30.2
88	Thailand	28.7
89	Algeria	26.0
90	South Africa	25.8
91	Tunisia	25.4
92	Dominican Republic	24.5
93	Guyana	22.9
94	El Salvador	22.3
95	Albania	21.7
96	Honduras	20.1
97	Kyrgyz Republic	20.0
98	Guatemala	19.7
99	Bhutan	19.1
99	Libya	19.1
101	Vietnam	19.0
102	Philippines	18.7
103	Sri Lanka	16.4
104	Indonesia	15.6
105	Namibia	15.4
106	Pakistan	14.1
107	Botswana	13.5
108	Swaziland	12.5
109	India	11.9
110	Gabon	11.3
111	Nicaragua	10.9
112	Kenya	10.8
113	Senegal	10.3
114	Lao PDR	9.6
115	Mali	9.3
116	Cambodia	9.3
117	Angola	9.2
118	Cameroon	8.9
119	Nigeria	8.4
120	Haiti	8.0
121	Nepal	7.8
122	Gambia, The	7.4
123	Zimbabwe	7.0
124	Mozambique	6.7
125	Lesotho	6.4
126	Zambia	5.9
127	Bangladesh	5.8
128	Yemen	5.6
129	Uganda	4.9
130	Malawi	4.5
130	Tajikistan	4.5
132	Burkina Faso	4.0
132	Mauritania	4.0
134	Madagascar	3.7
135	Tanzania	3.4
136	Rwanda	2.9
137	Myanmar	2.8
138	Chad	2.5
139	Côte d'Ivoire	2.3
140	Ethiopia	2.1
140	Guinea	2.1
142	Burundi[1]	0.1
n/a	Timor-Leste	n/a

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2009

6.04 Households with Internet access

Percentage of households with Internet access at home | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Korea, Rep.	98.1
2	Iceland	96.4
3	Qatar	96.4
4	Netherlands	94.6
5	Luxembourg	94.5
6	Norway	94.3
7	Denmark	92.7
8	Sweden	92.6
9	Switzerland	91.8
10	Finland	89.2
11	United Kingdom	88.4
12	Germany	87.7
13	Japan	86.2
14	Singapore	86.0
15	Australia	83.0
16	Canada	82.6
17	Ireland	82.4
18	Bahrain	82.0
19	France	81.7
20	Austria	80.9
21	Estonia	80.3
22	Oman	80.1
23	Belgium	80.0
24	Hong Kong SAR	79.9
25	Malta	78.8
26	Slovak Republic	77.9
27	United States	77.3
28	New Zealand	76.8
29	United Arab Emirates	76.1
30	Slovenia	75.6
31	Taiwan, China	74.9
32	Saudi Arabia	72.7
33	Czech Republic	72.6
34	Poland	71.9
35	Latvia	71.6
36	Hungary	71.5
37	Israel	71.1
37	Kuwait	71.1
39	Spain	69.8
40	Italy	68.9
41	Russian Federation	67.2
42	Barbados	66.7
43	Lebanon	66.2
44	Lithuania	64.7
45	Cyprus	64.7
46	Malaysia	64.7
47	Croatia	64.6
48	Portugal	62.3
49	Macedonia, FYR	61.9
50	Puerto Rico	60.7
51	Romania	58.1
52	Greece	56.3
53	Kazakhstan	55.0
53	Montenegro	55.0
55	Argentina	53.9
56	Bulgaria	53.7
57	Uruguay	52.7
58	Azerbaijan	51.5
59	Seychelles	50.6
60	Chile	49.6
61	Turkey	49.1
62	Serbia	48.0
63	Costa Rica	46.7
64	Moldova	46.0
64	Morocco	46.0
66	Trinidad and Tobago	45.0
67	Jordan	44.9
68	Mauritius	44.5
69	China	43.9
70	Ukraine	43.7
71	Brazil	42.4
72	South Africa	39.4
73	Iran, Islamic Rep.	35.8
74	Colombia	35.7
75	Armenia	35.6
76	Georgia	34.6
77	Egypt	34.5
78	Ghana	31.8
79	Panama	31.5
79	Venezuela	31.5
81	Mexico	30.7
82	Paraguay	26.6
83	Albania	24.5
84	Algeria	23.8
85	Jamaica	23.5
86	Philippines	22.9
87	Cape Verde	22.8
88	Thailand	22.7
89	Peru	22.1
90	Guyana	20.6
91	Suriname	19.0
92	Dominican Republic	18.6
93	Tunisia	18.2
94	Vietnam	17.1
95	Honduras	16.4
96	Namibia	16.0
97	Libya	15.9
98	Bhutan	15.5
99	Kenya	14.2
100	Mongolia	14.0
101	Swaziland	13.4
102	India	13.0
103	Sri Lanka	12.7
104	El Salvador	12.7
105	Bolivia	11.5
106	Botswana	10.6
107	Nicaragua	9.4
108	Guatemala	9.3
109	Gabon	8.8
110	Pakistan	8.3
111	Angola	7.9
112	Nigeria	7.8
113	Kyrgyz Republic	7.7
114	Gambia, The	7.6
115	Senegal	6.3
116	Malawi	6.0
117	Zambia	5.9
118	Indonesia	5.7
119	Cambodia	5.5
120	Zimbabwe	5.3
121	Uganda	5.2
122	Lao PDR	5.1
123	Nepal	4.9
124	Yemen	4.7
125	Bangladesh	4.6
125	Mozambique	4.6
127	Cameroon	4.5
128	Lesotho	4.3
128	Mauritania	4.3
128	Tajikistan	4.3
131	Haiti	3.7
131	Tanzania	3.7
133	Madagascar	3.7
134	Burkina Faso	3.2
135	Mali	3.0
136	Rwanda	2.9
137	Chad	2.3
137	Ethiopia	2.3
139	Myanmar	2.2
140	Côte d'Ivoire	1.5
141	Guinea	1.4
142	Burundi[1]	0.1
n/a	Timor-Leste	n/a

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2009

6.05 Fixed broadband Internet subscriptions

Fixed broadband Internet subscriptions per 100 population | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Switzerland	42.5
2	Denmark	40.2
3	Netherlands	40.1
4	France	38.8
5	Norway	38.1
6	Korea, Rep.	38.0
7	United Kingdom	35.8
8	Iceland	35.1
9	Germany	34.6
10	Belgium	34.4
11	Luxembourg	33.3
12	Canada	33.2
13	Malta	32.8
14	Sweden	32.6
15	Finland	30.8
16	Hong Kong SAR	30.8
17	United States	29.3
18	New Zealand	29.2
19	Japan	28.9
20	Estonia	26.5
21	Greece	26.2
22	Austria	26.1
23	Singapore	26.0
24	Israel	25.9
25	Spain	25.8
26	Australia	25.0
27	Slovenia	25.0
28	Hungary	24.9
29	Ireland	24.2
30	Taiwan, China	24.2
31	Portugal	23.8
32	Barbados	23.8
33	Latvia	23.5
34	Italy	22.3
35	Lithuania	22.0
36	Croatia	21.5
37	Uruguay	21.1
38	Cyprus	19.9
39	Bulgaria	19.3
40	Romania	17.3
41	Azerbaijan	17.0
42	Czech Republic	17.0
43	Russian Federation	16.6
44	Puerto Rico	16.3
45	Poland	15.7
46	Slovak Republic	15.5
47	Macedonia, FYR	15.1
48	Trinidad and Tobago	14.6
49	Argentina	14.4
50	Serbia	14.2
51	China	13.6
52	Moldova	13.4
53	Bahrain	13.2
54	Chile	13.0
55	Seychelles	12.9
56	Montenegro	12.8
57	Mauritius	12.5
58	Kazakhstan	11.3
59	Turkey	11.2
60	United Arab Emirates	11.1
61	Mexico	10.9
62	Georgia	10.8
63	Brazil	10.1
64	Lebanon	10.0
65	Qatar	9.9
66	Costa Rica	9.7
67	Colombia	9.3
68	Philippines	9.1
69	Ukraine	8.8
70	Malaysia	8.2
71	Armenia	7.9
72	Panama	7.7
73	Thailand	7.4
74	Saudi Arabia	7.4
75	Venezuela	7.3
76	Suriname	6.9
77	Albania	5.8
78	Vietnam	5.6
79	Iran, Islamic Rep.	5.6
80	Peru	5.2
81	Jamaica	5.1
82	Mongolia	4.9
83	Tunisia	4.9
84	Dominican Republic	4.6
85	Guyana	4.6
86	El Salvador	4.5
87	Cape Verde	4.3
88	Algeria	3.3
89	Egypt	3.3
90	South Africa	3.1
91	Jordan	2.8
92	Bhutan	2.7
93	Oman	2.6
94	Morocco	2.5
95	Kyrgyz Republic	2.4
96	Guatemala	2.3
97	Nicaragua	2.2
98	Sri Lanka	2.0
99	Paraguay	1.7
100	Namibia	1.5
101	Kuwait	1.4
102	Bolivia	1.3
103	Indonesia	1.3
104	India	1.2
105	Nepal	1.1
106	Botswana	1.1
107	Yemen	1.1
108	Libya	1.0
109	Bangladesh	1.0
110	Honduras	0.9
111	Senegal	0.8
112	Zimbabwe	0.7
113	Pakistan	0.6
114	Gabon	0.5
115	Swaziland	0.3
116	Côte d'Ivoire	0.3
117	Ghana	0.3
118	Ethiopia	0.3
119	Cambodia	0.2
120	Mauritania	0.2
121	Myanmar	0.2
122	Lao PDR	0.1
123	Kenya	0.1
124	Chad	0.1
125	Uganda	0.1
126	Lesotho	0.1
127	Tanzania	0.1
128	Angola	0.1
129	Zambia	0.1
130	Burkina Faso	0.1
131	Cameroon	0.1
132	Tajikistan	0.1
133	Mozambique	0.1
134	Timor-Leste	0.1
135	Madagascar	0.1
136	Malawi	0.0
137	Gambia, The	0.0
138	Rwanda	0.0
139	Mali	0.0
140	Nigeria	0.0
141	Guinea	0.0
142	Burundi	0.0
143	Haiti[1]	0.0

SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2008

6.06 Mobile broadband Internet subscriptions

Mobile broadband Internet subscriptions per 100 population | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Singapore	149.3
2	Finland	123.5
3	Japan	120.5
4	Australia	110.5
5	Bahrain	110.0
6	Sweden	108.7
7	Korea, Rep.	105.3
8	Denmark	103.8
9	United States	98.0
10	Hong Kong SAR	94.0
11	United Arab Emirates	89.0
12	United Kingdom	87.2
13	Norway	86.7
14	Saudi Arabia	85.1
15	New Zealand	81.3
16	Luxembourg	80.5
17	Estonia	77.4
18	Qatar	76.8
19	Iceland	74.7
20	Botswana	74.1
21	Costa Rica	72.7
22	Oman	67.3
23	Ireland	67.2
24	Spain	66.8
25	Croatia	65.3
26	Austria	64.3
27	Switzerland	63.4
28	Netherlands	62.3
29	Latvia	62.1
30	Italy	61.4
31	Russian Federation	60.1
32	South Africa	58.5
33	Bulgaria	58.1
34	Kazakhstan	57.2
35	Taiwan, China	57.1
36	France	56.9
37	Malta	56.8
38	Poland	54.9
39	Serbia	53.7
40	Israel[2]	53.0
41	Czech Republic	52.3
42	Thailand	52.3
43	Brazil	51.5
44	Slovak Republic	50.1
45	Canada	50.0
46	Lithuania	48.2
47	Moldova	47.2
48	Belgium	46.0
49	Uruguay	45.5
50	Germany	44.7
51	Azerbaijan	43.9
52	Cape Verde	42.6
53	Lebanon	41.8
54	Slovenia	41.8
55	Barbados	41.5
56	Venezuela	40.9
57	Ghana	39.9
58	Macedonia, FYR	38.0
59	Zimbabwe	37.8
60	Romania	37.6
61	Portugal	36.7
62	Greece	36.1
63	Chile	35.6
64	Namibia	34.2
65	Turkey	32.3
66	Cyprus	32.1
67	Argentina	32.1
68	Egypt	31.1
69	Armenia	31.0
70	Tunisia	30.9
71	Jamaica	30.8
72	Mauritius	28.7
73	Albania	28.2
74	Hungary	26.3
75	Dominican Republic	25.4
76	Panama	25.2
77	Colombia	25.0
78	Indonesia	24.2
79	Montenegro	23.1
80	China	21.4
81	Kyrgyz Republic[2]	19.1
82	Trinidad and Tobago	18.9
83	Vietnam[2]	18.8
84	Mongolia[2]	18.2
85	Georgia	16.4
86	Jordan	16.1
87	Puerto Rico	15.8
88	Bhutan	15.6
89	Morocco	15.0
90	Senegal	14.1
91	Bolivia	13.9
92	Mexico	13.5
93	Suriname	13.1
94	Malaysia	12.5
95	Angola	12.2
96	Honduras	11.7
97	Nepal[2]	10.9
98	Nigeria	10.1
99	Seychelles	9.9
100	Cambodia	9.6
101	Burkina Faso	9.0
102	Sri Lanka	7.8
103	Uganda[2]	7.4
104	Lesotho	7.4
105	El Salvador	6.0
106	Rwanda	5.8
107	Ukraine[2]	5.4
108	Mauritania	5.4
109	Guatemala	4.9
110	Paraguay	4.9
111	Ethiopia	4.8
112	Malawi	3.9
113	India	3.2
114	Madagascar	3.1
115	Kenya	3.0
116	Peru	2.9
117	Tanzania	2.7
118	Lao PDR	2.5
119	Bangladesh	1.9
120	Mali	1.8
121	Mozambique[2]	1.8
122	Nicaragua	1.3
123	Gambia, The[2]	1.2
124	Iran, Islamic Rep.	1.2
125	Myanmar	1.0
126	Zambia	0.7
127	Swaziland[1]	0.7
128	Pakistan	0.5
129	Timor-Leste[1]	0.4
130	Yemen[2]	0.2
131	Burundi[2]	0.0
132	Algeria	0.0
132	Cameroon	0.0
132	Chad	0.0
132	Côte d'Ivoire[1]	0.0
132	Gabon[2]	0.0
132	Guinea[2]	0.0
132	Guyana	0.0
132	Haiti[1]	0.0
132	Philippines	0.0
n/a	Kuwait	n/a
n/a	Libya	n/a
n/a	Tajikistan	n/a

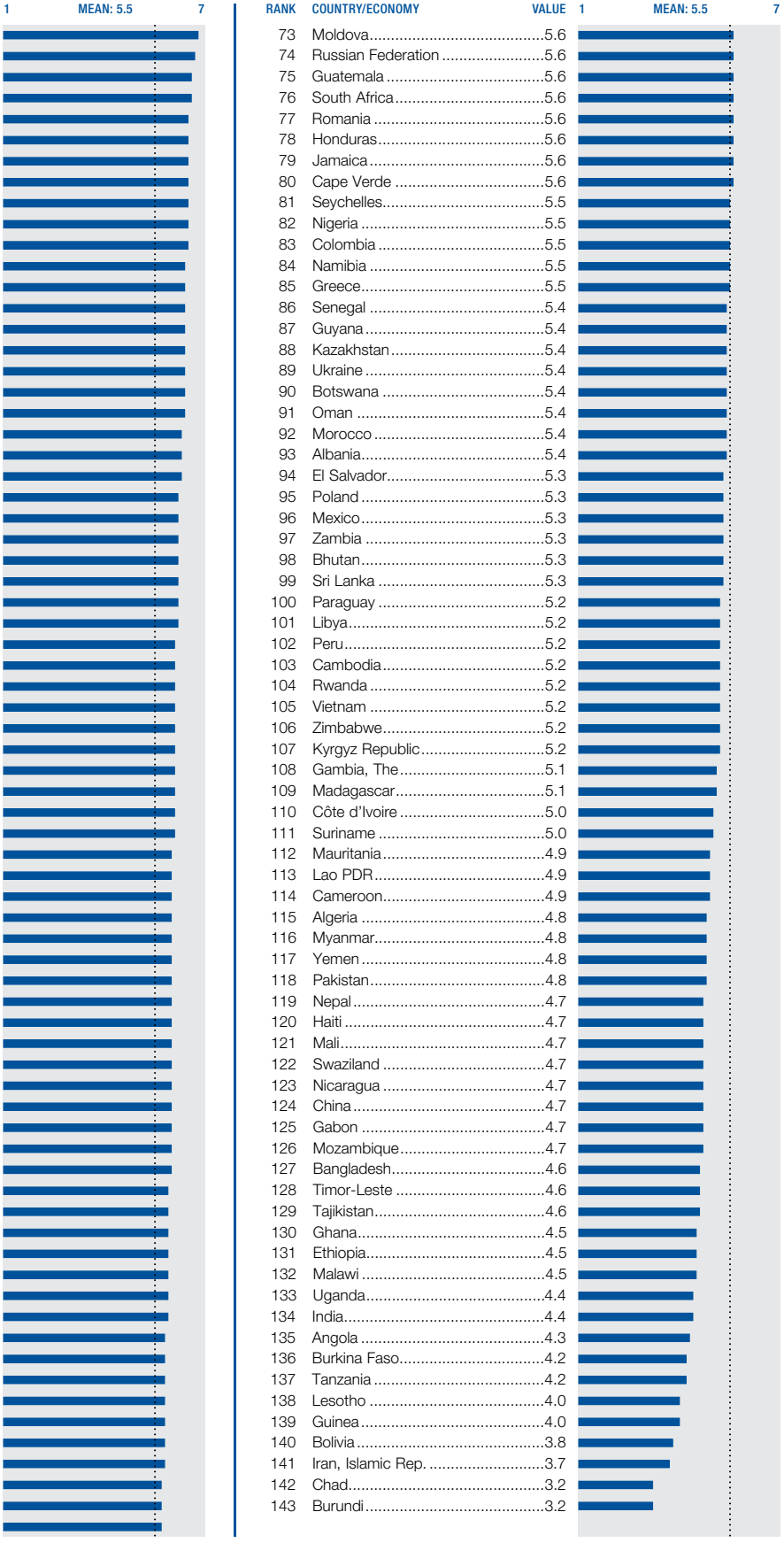
SOURCE: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

[1] 2011 [2] 2012

6.07 Use of virtual social networks

In your country, how widely used are virtual social networks (e.g., Facebook, Twitter, LinkedIn)? [1 = not used at all; 7 = widely used] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland	6.8
2	Norway	6.7
3	United Kingdom	6.6
4	Netherlands	6.6
5	United States	6.5
6	Bahrain	6.5
7	Estonia	6.5
8	United Arab Emirates	6.5
9	Sweden	6.5
10	Singapore	6.5
11	Puerto Rico	6.5
12	Macedonia, FYR	6.4
13	Lithuania	6.4
14	Malta	6.4
15	Canada	6.4
16	Australia	6.4
17	Taiwan, China	6.4
18	Finland	6.4
19	New Zealand	6.4
20	Hong Kong SAR	6.3
21	Barbados	6.3
22	Qatar	6.3
23	Ireland	6.2
24	Austria	6.2
25	Philippines	6.2
26	Belgium	6.2
27	Switzerland	6.2
28	Israel	6.2
29	Thailand	6.2
30	Chile	6.1
31	Montenegro	6.1
32	Latvia	6.1
33	Luxembourg	6.1
34	Azerbaijan	6.1
35	Saudi Arabia	6.1
36	Denmark	6.1
37	Malaysia	6.1
38	Venezuela	6.1
39	Cyprus	6.1
40	Panama	6.0
41	Italy	6.0
42	Slovenia	6.0
43	Uruguay	6.0
44	Mongolia	6.0
45	Turkey	6.0
46	Trinidad and Tobago	6.0
47	Georgia	6.0
48	Brazil	6.0
49	Portugal	6.0
50	Costa Rica	6.0
51	Bulgaria	6.0
52	Argentina	6.0
53	Czech Republic	6.0
54	Korea, Rep.	6.0
55	Indonesia	6.0
56	Slovak Republic	5.9
57	Croatia	5.9
58	Jordan	5.9
59	Germany	5.9
60	Spain	5.9
61	Japan	5.9
62	Kenya	5.9
63	Kuwait	5.8
64	Mauritius	5.8
65	Tunisia	5.8
66	Lebanon	5.8
67	Serbia	5.8
68	France	5.8
69	Hungary	5.8
70	Armenia	5.7
71	Egypt	5.7
72	Dominican Republic	5.7
73	Moldova	5.6
74	Russian Federation	5.6
75	Guatemala	5.6
76	South Africa	5.6
77	Romania	5.6
78	Honduras	5.6
79	Jamaica	5.6
80	Cape Verde	5.6
81	Seychelles	5.5
82	Nigeria	5.5
83	Colombia	5.5
84	Namibia	5.5
85	Greece	5.5
86	Senegal	5.4
87	Guyana	5.4
88	Kazakhstan	5.4
89	Ukraine	5.4
90	Botswana	5.4
91	Oman	5.4
92	Morocco	5.4
93	Albania	5.4
94	El Salvador	5.3
95	Poland	5.3
96	Mexico	5.3
97	Zambia	5.3
98	Bhutan	5.3
99	Sri Lanka	5.3
100	Paraguay	5.2
101	Libya	5.2
102	Peru	5.2
103	Cambodia	5.2
104	Rwanda	5.2
105	Vietnam	5.2
106	Zimbabwe	5.2
107	Kyrgyz Republic	5.2
108	Gambia, The	5.1
109	Madagascar	5.1
110	Côte d'Ivoire	5.0
111	Suriname	5.0
112	Mauritania	4.9
113	Lao PDR	4.9
114	Cameroon	4.9
115	Algeria	4.8
116	Myanmar	4.8
117	Yemen	4.8
118	Pakistan	4.8
119	Nepal	4.7
120	Haiti	4.7
121	Mali	4.7
122	Swaziland	4.7
123	Nicaragua	4.7
124	China	4.7
125	Gabon	4.7
126	Mozambique	4.7
127	Bangladesh	4.6
128	Timor-Leste	4.6
129	Tajikistan	4.6
130	Ghana	4.5
131	Ethiopia	4.5
132	Malawi	4.5
133	Uganda	4.4
134	India	4.4
135	Angola	4.3
136	Burkina Faso	4.2
137	Tanzania	4.2
138	Lesotho	4.0
139	Guinea	4.0
140	Bolivia	3.8
141	Iran, Islamic Rep.	3.7
142	Chad	3.2
143	Burundi	3.2



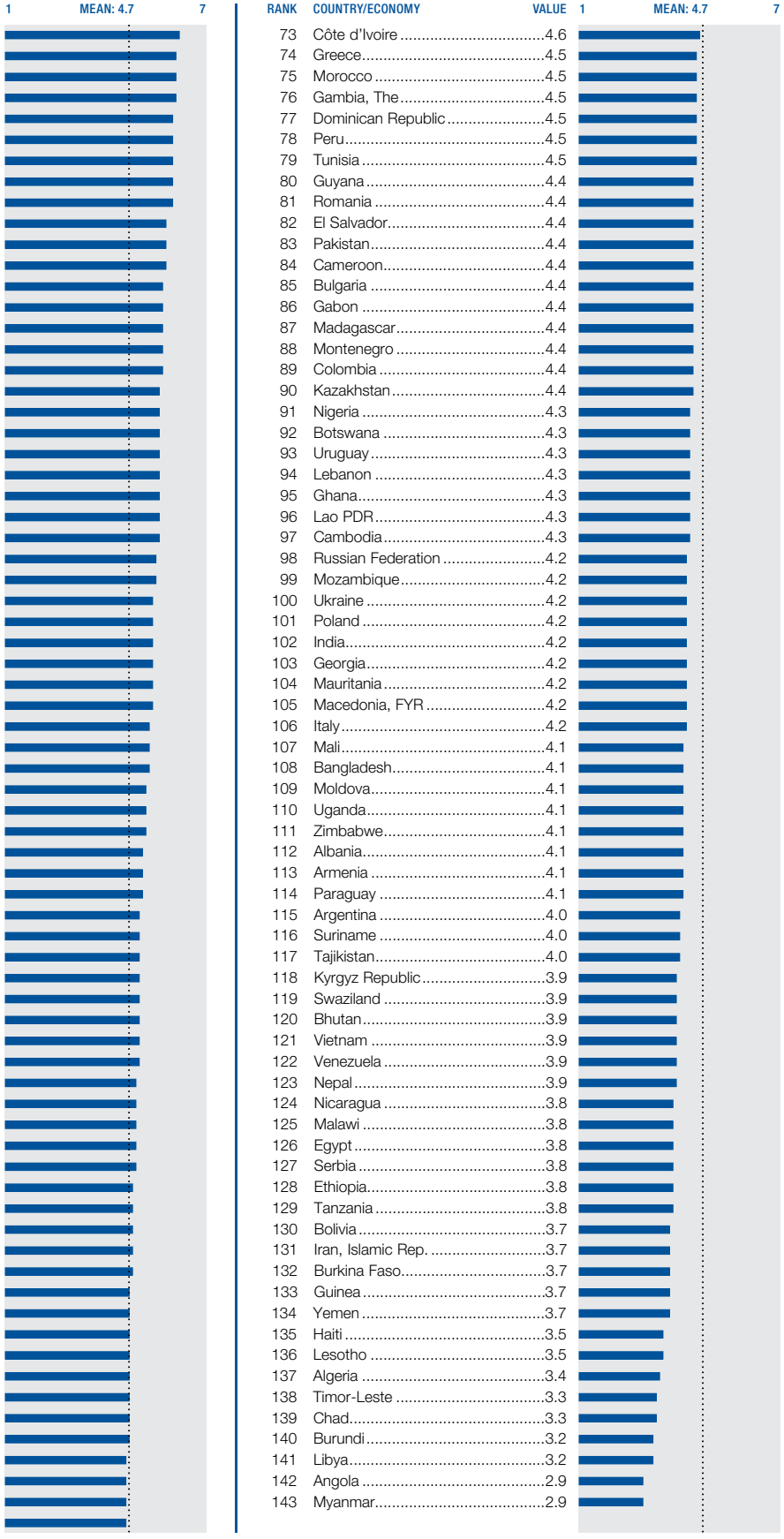
SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7th pillar
Business usage

7.01 Firm-level technology absorption

In your country, to what extent do businesses adopt new technology? [1 = not at all; 7 = adopt extensively] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland	6.2
2	Japan	6.1
3	United States	6.1
4	Norway	6.1
5	Israel	6.0
6	Switzerland	6.0
7	United Arab Emirates	6.0
8	Luxembourg	6.0
9	Sweden	6.0
10	Finland	5.8
11	New Zealand	5.8
12	Qatar	5.8
13	Germany	5.7
14	United Kingdom	5.7
15	Denmark	5.7
16	Singapore	5.7
17	Austria	5.7
18	Puerto Rico	5.6
19	Hong Kong SAR	5.6
20	Belgium	5.6
21	Netherlands	5.6
22	Portugal	5.6
23	Australia	5.6
24	Malaysia	5.6
25	Ireland	5.6
26	Taiwan, China	5.5
27	France	5.5
28	Korea, Rep.	5.4
29	South Africa	5.4
30	Canada	5.4
31	Saudi Arabia	5.4
32	Estonia	5.4
33	Lithuania	5.4
34	Bahrain	5.3
35	Panama	5.3
36	Jordan	5.3
37	Turkey	5.2
38	Malta	5.2
39	Chile	5.2
40	Cyprus	5.1
41	Philippines	5.1
42	Indonesia	5.1
43	Senegal	5.0
44	Mauritius	5.0
45	Costa Rica	5.0
46	Barbados	5.0
47	Guatemala	5.0
48	Latvia	5.0
49	Rwanda	5.0
50	Czech Republic	5.0
51	Slovenia	4.9
52	Spain	4.9
53	Sri Lanka	4.9
54	Namibia	4.9
55	Thailand	4.9
56	Kenya	4.8
57	Slovak Republic	4.8
58	Oman	4.8
59	Brazil	4.8
60	Honduras	4.8
61	Jamaica	4.7
62	Kuwait	4.7
63	Seychelles	4.7
64	Azerbaijan	4.7
65	Hungary	4.7
66	Mongolia	4.7
67	Zambia	4.7
68	China	4.7
69	Cape Verde	4.6
70	Mexico	4.6
71	Trinidad and Tobago	4.6
72	Croatia	4.6
73	Côte d'Ivoire	4.6
74	Greece	4.5
75	Morocco	4.5
76	Gambia, The	4.5
77	Dominican Republic	4.5
78	Peru	4.5
79	Tunisia	4.5
80	Guyana	4.4
81	Romania	4.4
82	El Salvador	4.4
83	Pakistan	4.4
84	Cameroon	4.4
85	Bulgaria	4.4
86	Gabon	4.4
87	Madagascar	4.4
88	Montenegro	4.4
89	Colombia	4.4
90	Kazakhstan	4.4
91	Nigeria	4.3
92	Botswana	4.3
93	Uruguay	4.3
94	Lebanon	4.3
95	Ghana	4.3
96	Lao PDR	4.3
97	Cambodia	4.3
98	Russian Federation	4.2
99	Mozambique	4.2
100	Ukraine	4.2
101	Poland	4.2
102	India	4.2
103	Georgia	4.2
104	Mauritania	4.2
105	Macedonia, FYR	4.2
106	Italy	4.2
107	Mali	4.1
108	Bangladesh	4.1
109	Moldova	4.1
110	Uganda	4.1
111	Zimbabwe	4.1
112	Albania	4.1
113	Armenia	4.1
114	Paraguay	4.1
115	Argentina	4.0
116	Suriname	4.0
117	Tajikistan	4.0
118	Kyrgyz Republic	3.9
119	Swaziland	3.9
120	Bhutan	3.9
121	Vietnam	3.9
122	Venezuela	3.9
123	Nepal	3.9
124	Nicaragua	3.8
125	Malawi	3.8
126	Egypt	3.8
127	Serbia	3.8
128	Ethiopia	3.8
129	Tanzania	3.8
130	Bolivia	3.7
131	Iran, Islamic Rep.	3.7
132	Burkina Faso	3.7
133	Guinea	3.7
134	Yemen	3.7
135	Haiti	3.5
136	Lesotho	3.5
137	Algeria	3.4
138	Timor-Leste	3.3
139	Chad	3.3
140	Burundi	3.2
141	Libya	3.2
142	Angola	2.9
143	Myanmar	2.9

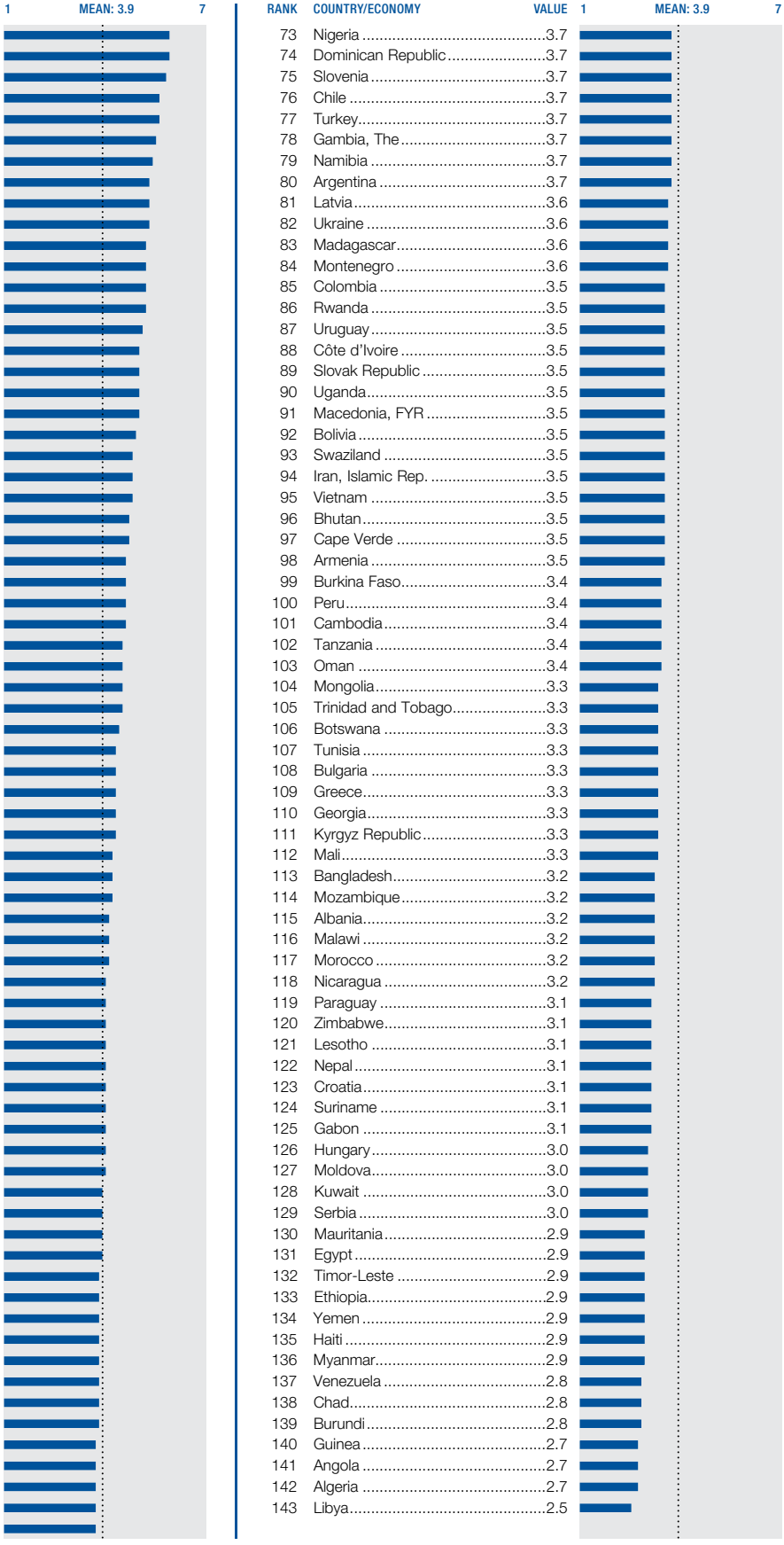


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.02 Capacity for innovation

In your country, to what extent do companies have the capacity to innovate? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Switzerland	5.9
2	United States	5.9
3	Israel	5.8
4	Germany	5.6
5	Finland	5.6
6	Sweden	5.5
7	Japan	5.4
8	Denmark	5.3
9	Luxembourg	5.3
10	United Kingdom	5.3
11	Netherlands	5.2
12	Qatar	5.2
13	Malaysia	5.2
14	Belgium	5.2
15	New Zealand	5.1
16	Norway	5.0
17	Ireland	5.0
18	Singapore	5.0
19	Austria	5.0
20	Puerto Rico	4.9
21	France	4.8
22	Indonesia	4.8
23	Taiwan, China	4.8
24	Korea, Rep.	4.7
25	United Arab Emirates	4.7
26	Canada	4.6
27	Australia	4.6
28	Czech Republic	4.6
29	Sri Lanka	4.6
30	Philippines	4.5
31	Estonia	4.5
32	Hong Kong SAR	4.5
33	Kenya	4.5
34	El Salvador	4.4
35	South Africa	4.3
36	Costa Rica	4.3
37	Portugal	4.3
38	Lithuania	4.3
39	Italy	4.3
40	China	4.2
41	Guatemala	4.2
42	Panama	4.2
43	Azerbaijan	4.1
44	Brazil	4.1
45	Zambia	4.1
46	Iceland	4.0
47	Malta	4.0
48	India	4.0
49	Ghana	4.0
50	Mauritius	4.0
51	Pakistan	4.0
52	Honduras	4.0
53	Jamaica	4.0
54	Lebanon	4.0
55	Saudi Arabia	4.0
56	Senegal	3.9
57	Barbados	3.9
58	Jordan	3.9
59	Seychelles	3.9
60	Spain	3.8
61	Guyana	3.8
62	Tajikistan	3.8
63	Cyprus	3.8
64	Cameroon	3.8
65	Bahrain	3.8
66	Russian Federation	3.8
67	Poland	3.8
68	Romania	3.7
69	Kazakhstan	3.7
70	Thailand	3.7
71	Lao PDR	3.7
72	Mexico	3.7
73	Nigeria	3.7
74	Dominican Republic	3.7
75	Slovenia	3.7
76	Chile	3.7
77	Turkey	3.7
78	Gambia, The	3.7
79	Namibia	3.7
80	Argentina	3.7
81	Latvia	3.6
82	Ukraine	3.6
83	Madagascar	3.6
84	Montenegro	3.6
85	Colombia	3.5
86	Rwanda	3.5
87	Uruguay	3.5
88	Côte d'Ivoire	3.5
89	Slovak Republic	3.5
90	Uganda	3.5
91	Macedonia, FYR	3.5
92	Bolivia	3.5
93	Swaziland	3.5
94	Iran, Islamic Rep.	3.5
95	Vietnam	3.5
96	Bhutan	3.5
97	Cape Verde	3.5
98	Armenia	3.5
99	Burkina Faso	3.4
100	Peru	3.4
101	Cambodia	3.4
102	Tanzania	3.4
103	Oman	3.4
104	Mongolia	3.3
105	Trinidad and Tobago	3.3
106	Botswana	3.3
107	Tunisia	3.3
108	Bulgaria	3.3
109	Greece	3.3
110	Georgia	3.3
111	Kyrgyz Republic	3.3
112	Mali	3.3
113	Bangladesh	3.2
114	Mozambique	3.2
115	Albania	3.2
116	Malawi	3.2
117	Morocco	3.2
118	Nicaragua	3.2
119	Paraguay	3.1
120	Zimbabwe	3.1
121	Lesotho	3.1
122	Nepal	3.1
123	Croatia	3.1
124	Suriname	3.1
125	Gabon	3.1
126	Hungary	3.0
127	Moldova	3.0
128	Kuwait	3.0
129	Serbia	3.0
130	Mauritania	2.9
131	Egypt	2.9
132	Timor-Leste	2.9
133	Ethiopia	2.9
134	Yemen	2.9
135	Haiti	2.9
136	Myanmar	2.9
137	Venezuela	2.8
138	Chad	2.8
139	Burundi	2.8
140	Guinea	2.7
141	Angola	2.7
142	Algeria	2.7
143	Libya	2.5



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.03 PCT patents applications

Number of applications filed under the Patent Cooperation Treaty (PCT) per million population | 2011–2012 average

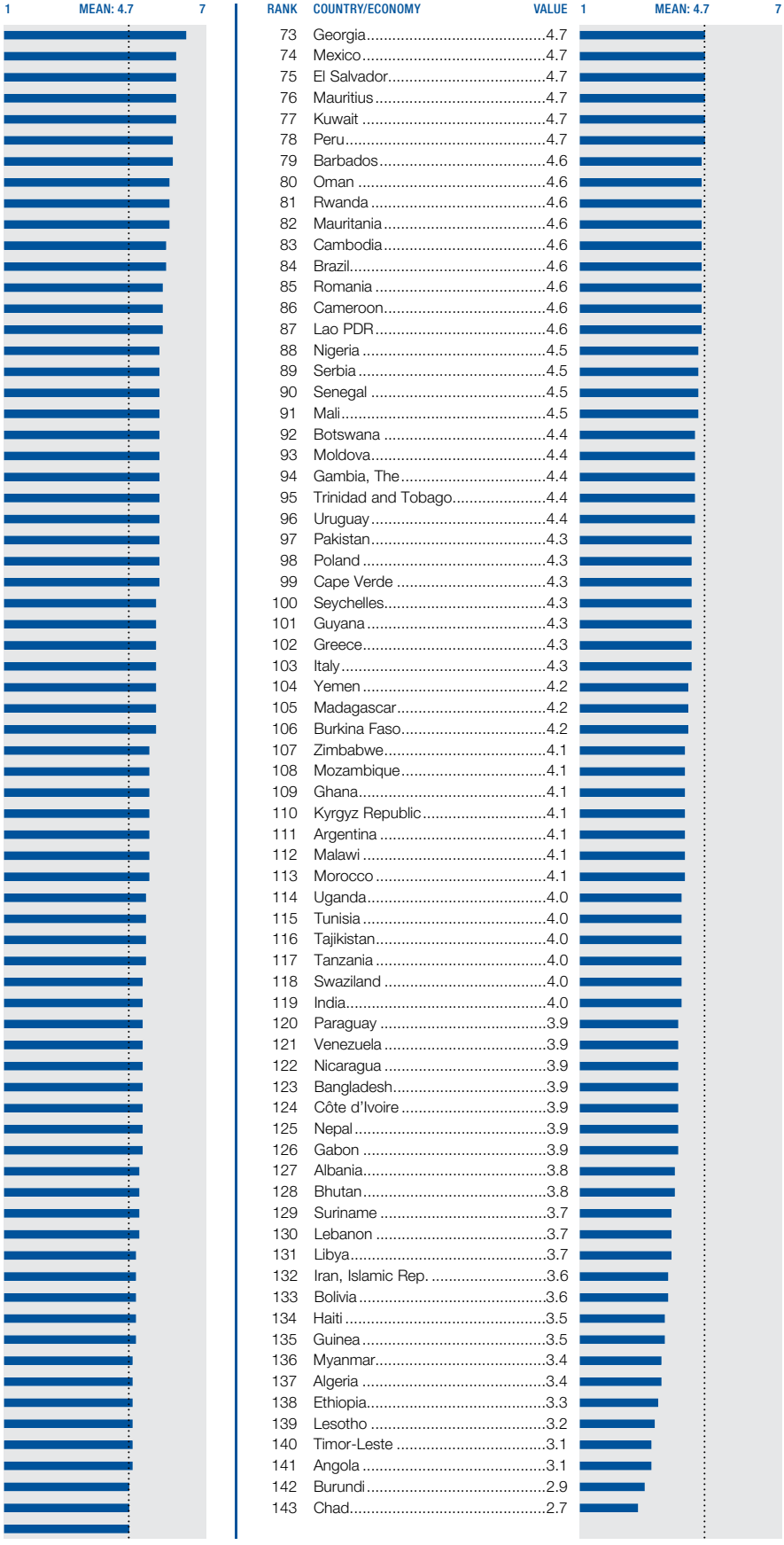
RANK	COUNTRY/ECONOMY	VALUE
1	Japan	334.7
2	Switzerland	322.8
3	Sweden	312.8
4	Finland	292.9
5	Israel	236.2
6	Germany	222.8
7	Korea, Rep.	220.0
8	Denmark	213.3
9	Netherlands	207.2
10	Austria	166.4
11	United States	159.5
12	Norway	136.0
13	Luxembourg	129.6
14	Singapore	126.4
15	France	117.0
16	Belgium	110.3
17	Iceland	97.0
18	United Kingdom	88.3
19	Barbados	88.3
20	Ireland	87.4
21	Canada	86.2
22	Australia	77.1
23	New Zealand	73.4
24	Slovenia	60.8
25	Italy	54.6
26	Spain	37.9
27	Hungary	24.2
28	Estonia	21.3
29	Czech Republic	18.8
30	Qatar	17.6
31	China	13.7
32	Latvia	13.4
33	Portugal	13.4
34	Malaysia	11.5
35	Lithuania	10.4
36	Croatia	9.9
37	Malta	9.8
38	Slovak Republic	9.1
39	Greece	9.0
40	Poland	8.3
41	Turkey	7.6
42	Cyprus	7.5
43	Russian Federation	7.4
44	Saudi Arabia	7.3
45	Chile	6.8
46	South Africa	6.8
47	Bulgaria	6.4
48	Seychelles	5.7
49	United Arab Emirates	4.8
50	Armenia	4.1
51	Brazil	3.5
52	Ukraine	3.3
53	Serbia	3.0
54	Uruguay	2.8
55	Romania	2.7
56	Puerto Rico	2.2
57	Panama	2.1
58	Lebanon	1.8
59	Mexico	1.8
60	Georgia	1.6
61	India	1.5
62	Mauritius	1.5
63	Costa Rica	1.3
64	Colombia	1.3
65	Thailand	1.3
66	Argentina	1.3
67	Moldova	1.2
68	Trinidad and Tobago	1.0
69	Morocco	1.0
70	Kazakhstan	0.9
71	Montenegro	0.8
72	Tunisia	0.8
73	Bahrain	0.8
74	Jordan	0.7
75	Mongolia	0.7
76	Azerbaijan	0.7
77	Oman	0.6
78	Egypt	0.6
79	Sri Lanka	0.6
80	Macedonia, FYR	0.6
81	Swaziland	0.5
82	Kuwait	0.4
83	Jamaica	0.4
84	Dominican Republic	0.4
85	Philippines	0.4
86	Botswana	0.3
87	Peru	0.3
88	Gabon	0.3
89	Venezuela	0.3
90	Timor-Leste	0.3
91	Vietnam	0.2
92	Kenya	0.2
93	Albania	0.2
94	Algeria	0.2
95	Nicaragua	0.2
96	Namibia	0.2
97	Gambia, The	0.1
98	Bolivia	0.1
99	El Salvador	0.1
100	Zimbabwe	0.1
101	Indonesia	0.1
102	Guatemala	0.1
103	Kyrgyz Republic	0.1
104	Ghana	0.1
105	Iran, Islamic Rep.	0.1
106	Senegal	0.0
107	Madagascar	0.0
108	Paraguay	0.0
109	Pakistan	0.0
110	Uganda	0.0
111	Côte d'Ivoire	0.0
112	Bangladesh	0.0
113	Nigeria	0.0
114	Cambodia	0.0
115	Lao PDR	0.0
116	Malawi	0.0
117	Nepal	0.0
118	Ethiopia	0.0
119	Cameroon	0.0
120	Angola	0.0
120	Bhutan	0.0
120	Burkina Faso	0.0
120	Burundi	0.0
120	Cape Verde	0.0
120	Chad	0.0
120	Guinea	0.0
120	Guyana	0.0
120	Haiti	0.0
120	Honduras	0.0
120	Lesotho	0.0
120	Libya	0.0
120	Mali	0.0
120	Mauritania	0.0
120	Mozambique	0.0
120	Myanmar	0.0
120	Rwanda	0.0
120	Suriname	0.0
120	Tajikistan	0.0
120	Tanzania	0.0
120	Yemen	0.0
120	Zambia	0.0
n/a	Hong Kong SAR	n/a
n/a	Taiwan, China	n/a

SOURCES: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2015; World Bank, *World Development Indicators* (retrieved November 26, 2014)

7.04 Business-to-business Internet use

In your country, to what extent do businesses use ICTs for transactions with other businesses? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Lithuania	6.4
2	Estonia	6.1
3	United Kingdom	6.1
4	Japan	6.1
5	Finland	6.1
6	Switzerland	6.0
7	United Arab Emirates	6.0
8	Norway	5.9
9	Netherlands	5.9
10	Sweden	5.9
11	Luxembourg	5.8
12	Iceland	5.8
13	Singapore	5.7
14	Qatar	5.7
15	Austria	5.7
16	New Zealand	5.6
17	United States	5.6
18	Korea, Rep.	5.6
19	Hong Kong SAR	5.6
20	Taiwan, China	5.6
21	Malaysia	5.6
22	Belgium	5.6
23	Canada	5.6
24	Portugal	5.6
25	Czech Republic	5.6
26	Slovak Republic	5.6
27	Denmark	5.6
28	Australia	5.5
29	Germany	5.5
30	Hungary	5.5
31	Israel	5.5
32	Malta	5.5
33	Puerto Rico	5.5
34	Saudi Arabia	5.5
35	Ireland	5.3
36	Chile	5.3
37	South Africa	5.3
38	Slovenia	5.3
39	Jordan	5.3
40	Latvia	5.3
41	Turkey	5.3
42	Bahrain	5.2
43	Azerbaijan	5.2
44	France	5.2
45	Kenya	5.2
46	Spain	5.1
47	Costa Rica	5.1
48	Mongolia	5.1
49	Vietnam	5.1
50	Namibia	5.1
51	Indonesia	5.1
52	Philippines	5.1
53	Croatia	5.1
54	Bulgaria	5.1
55	Macedonia, FYR	5.0
56	Panama	5.0
57	Sri Lanka	5.0
58	Armenia	5.0
59	Thailand	4.9
60	Egypt	4.9
61	China	4.9
62	Honduras	4.9
63	Guatemala	4.9
64	Kazakhstan	4.8
65	Cyprus	4.8
66	Russian Federation	4.8
67	Colombia	4.8
68	Jamaica	4.8
69	Zambia	4.8
70	Dominican Republic	4.7
71	Montenegro	4.7
72	Ukraine	4.7
73	Georgia	4.7
74	Mexico	4.7
75	El Salvador	4.7
76	Mauritius	4.7
77	Kuwait	4.7
78	Peru	4.7
79	Barbados	4.6
80	Oman	4.6
81	Rwanda	4.6
82	Mauritania	4.6
83	Cambodia	4.6
84	Brazil	4.6
85	Romania	4.6
86	Cameroon	4.6
87	Lao PDR	4.6
88	Nigeria	4.5
89	Serbia	4.5
90	Senegal	4.5
91	Mali	4.5
92	Botswana	4.4
93	Moldova	4.4
94	Gambia, The	4.4
95	Trinidad and Tobago	4.4
96	Uruguay	4.4
97	Pakistan	4.3
98	Poland	4.3
99	Cape Verde	4.3
100	Seychelles	4.3
101	Guyana	4.3
102	Greece	4.3
103	Italy	4.3
104	Yemen	4.2
105	Madagascar	4.2
106	Burkina Faso	4.2
107	Zimbabwe	4.1
108	Mozambique	4.1
109	Ghana	4.1
110	Kyrgyz Republic	4.1
111	Argentina	4.1
112	Malawi	4.1
113	Morocco	4.1
114	Uganda	4.0
115	Tunisia	4.0
116	Tajikistan	4.0
117	Tanzania	4.0
118	Swaziland	4.0
119	India	4.0
120	Paraguay	3.9
121	Venezuela	3.9
122	Nicaragua	3.9
123	Bangladesh	3.9
124	Côte d'Ivoire	3.9
125	Nepal	3.9
126	Gabon	3.9
127	Albania	3.8
128	Bhutan	3.8
129	Suriname	3.7
130	Lebanon	3.7
131	Libya	3.7
132	Iran, Islamic Rep.	3.6
133	Bolivia	3.6
134	Haiti	3.5
135	Guinea	3.5
136	Myanmar	3.4
137	Algeria	3.4
138	Ethiopia	3.3
139	Lesotho	3.2
140	Timor-Leste	3.1
141	Angola	3.1
142	Burundi	2.9
143	Chad	2.7

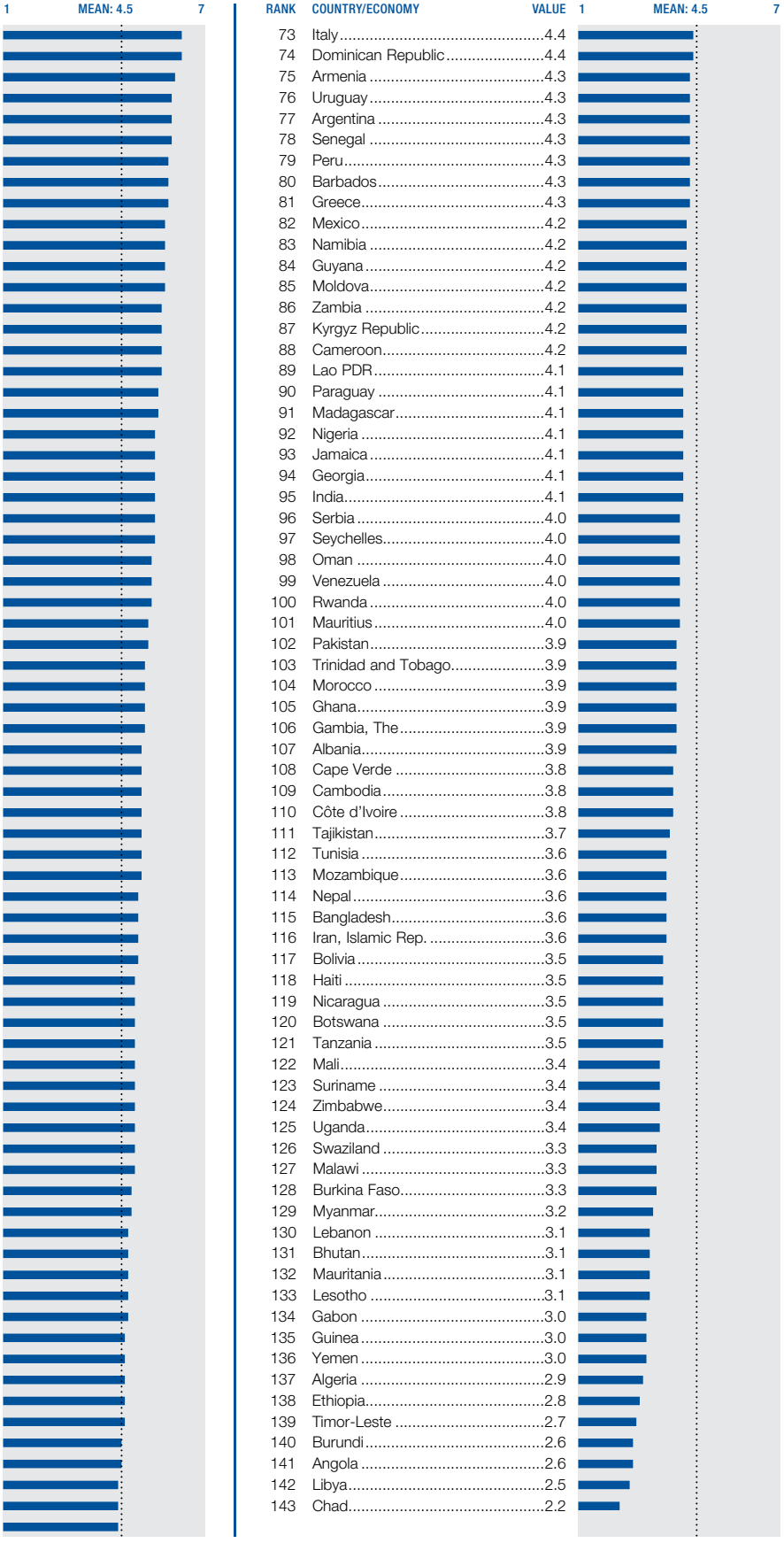


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.05 Business-to-consumer Internet use

In your country, to what extent do businesses use the Internet for selling their goods and services to consumers? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	United Kingdom	6.3
2	United States	6.3
3	Japan	6.1
4	Netherlands	6.0
5	Sweden	6.0
6	Korea, Rep.	6.0
7	Norway	5.9
8	Lithuania	5.9
9	New Zealand	5.9
10	Switzerland	5.8
11	Estonia	5.8
12	Czech Republic	5.8
13	Germany	5.8
14	Taiwan, China	5.7
15	Malaysia	5.7
16	Australia	5.7
17	Canada	5.7
18	Latvia	5.6
19	Luxembourg	5.6
20	United Arab Emirates	5.5
21	Israel	5.5
22	Iceland	5.5
23	Denmark	5.5
24	Austria	5.5
25	Slovak Republic	5.5
26	Singapore	5.4
27	Hong Kong SAR	5.4
28	Indonesia	5.4
29	France	5.3
30	Portugal	5.3
31	Belgium	5.2
32	Puerto Rico	5.2
33	Finland	5.2
34	China	5.2
35	Panama	5.1
36	Russian Federation	5.1
37	Brazil	5.1
38	Chile	5.1
39	Qatar	5.1
40	Ukraine	5.1
41	Romania	5.1
42	Malta	5.0
43	Jordan	5.0
44	Cyprus	5.0
45	Ireland	5.0
46	Hungary	4.9
47	Slovenia	4.9
48	Spain	4.9
49	Thailand	4.9
50	El Salvador	4.9
51	Azerbaijan	4.9
52	Poland	4.9
53	Turkey	4.9
54	Vietnam	4.9
55	Guatemala	4.9
56	Sri Lanka	4.8
57	Costa Rica	4.8
58	Philippines	4.7
59	Kazakhstan	4.7
60	Bulgaria	4.7
61	Kenya	4.7
62	Colombia	4.7
63	Saudi Arabia	4.6
64	Mongolia	4.6
65	South Africa	4.6
66	Croatia	4.6
67	Honduras	4.6
68	Egypt	4.5
69	Montenegro	4.5
70	Bahrain	4.4
71	Macedonia, FYR	4.4
72	Kuwait	4.4
73	Italy	4.4
74	Dominican Republic	4.4
75	Armenia	4.3
76	Uruguay	4.3
77	Argentina	4.3
78	Senegal	4.3
79	Peru	4.3
80	Barbados	4.3
81	Greece	4.3
82	Mexico	4.2
83	Namibia	4.2
84	Guyana	4.2
85	Moldova	4.2
86	Zambia	4.2
87	Kyrgyz Republic	4.2
88	Cameroon	4.2
89	Lao PDR	4.1
90	Paraguay	4.1
91	Madagascar	4.1
92	Nigeria	4.1
93	Jamaica	4.1
94	Georgia	4.1
95	India	4.1
96	Serbia	4.0
97	Seychelles	4.0
98	Oman	4.0
99	Venezuela	4.0
100	Rwanda	4.0
101	Mauritius	4.0
102	Pakistan	3.9
103	Trinidad and Tobago	3.9
104	Morocco	3.9
105	Ghana	3.9
106	Gambia, The	3.9
107	Albania	3.9
108	Cape Verde	3.8
109	Cambodia	3.8
110	Côte d'Ivoire	3.8
111	Tajikistan	3.7
112	Tunisia	3.6
113	Mozambique	3.6
114	Nepal	3.6
115	Bangladesh	3.6
116	Iran, Islamic Rep.	3.6
117	Bolivia	3.5
118	Haiti	3.5
119	Nicaragua	3.5
120	Botswana	3.5
121	Tanzania	3.5
122	Mali	3.4
123	Suriname	3.4
124	Zimbabwe	3.4
125	Uganda	3.4
126	Swaziland	3.3
127	Malawi	3.3
128	Burkina Faso	3.3
129	Myanmar	3.2
130	Lebanon	3.1
131	Bhutan	3.1
132	Mauritania	3.1
133	Lesotho	3.1
134	Gabon	3.0
135	Guinea	3.0
136	Yemen	3.0
137	Algeria	2.9
138	Ethiopia	2.8
139	Timor-Leste	2.7
140	Burundi	2.6
141	Angola	2.6
142	Libya	2.5
143	Chad	2.2

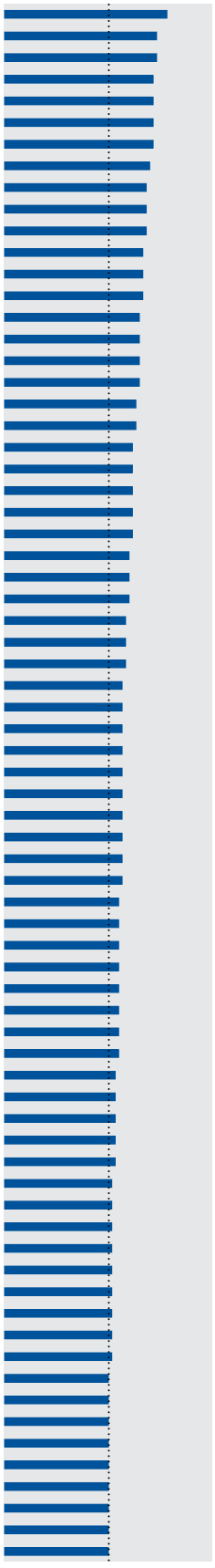


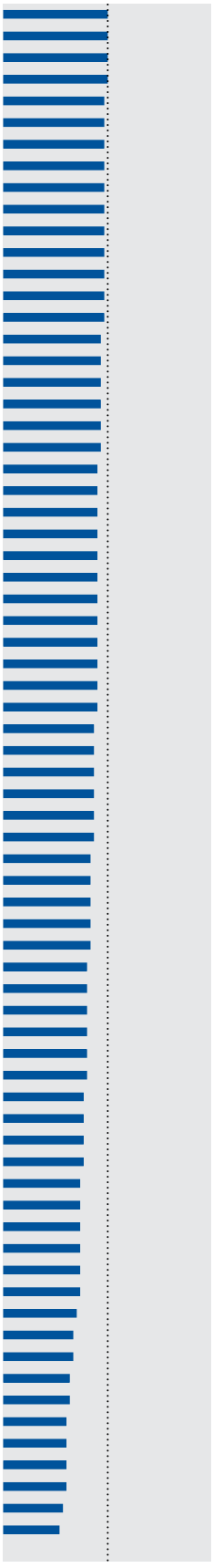
SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.06 Extent of staff training

In your country, to what extent do companies invest in training and employee development? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Switzerland	5.7
2	Japan	5.4
3	Luxembourg	5.4
4	Malaysia	5.3
5	Finland	5.3
6	Qatar	5.3
7	Singapore	5.3
8	Norway	5.2
9	Belgium	5.1
10	Sweden	5.1
11	United Arab Emirates	5.1
12	Netherlands	5.0
13	Germany	5.0
14	United States	5.0
15	Denmark	4.9
16	Puerto Rico	4.9
17	New Zealand	4.9
18	South Africa	4.9
19	Austria	4.8
20	Ireland	4.8
21	Costa Rica	4.7
22	Canada	4.7
23	United Kingdom	4.7
24	Indonesia	4.7
25	Iceland	4.7
26	Hong Kong SAR	4.6
27	Philippines	4.6
28	Guatemala	4.6
29	Bahrain	4.5
30	Australia	4.5
31	France	4.5
32	Albania	4.4
33	Latvia	4.4
34	Kenya	4.4
35	Mauritius	4.4
36	Estonia	4.4
37	Thailand	4.4
38	Honduras	4.4
39	Barbados	4.4
40	Malta	4.4
41	Taiwan, China	4.4
42	Gambia, The	4.3
43	Cyprus	4.3
44	Brazil	4.3
45	Lao PDR	4.3
46	China	4.3
47	Panama	4.3
48	Nigeria	4.3
49	Oman	4.3
50	Lithuania	4.2
51	Trinidad and Tobago	4.2
52	Chile	4.2
53	Korea, Rep.	4.2
54	Portugal	4.2
55	Czech Republic	4.1
56	Sri Lanka	4.1
57	Namibia	4.1
58	Jordan	4.1
59	Jamaica	4.1
60	Saudi Arabia	4.1
61	Ghana	4.1
62	Kazakhstan	4.1
63	Zambia	4.1
64	Guyana	4.0
65	Malawi	4.0
66	Rwanda	4.0
67	Seychelles	4.0
68	Botswana	4.0
69	Cameroon	4.0
70	Côte d'Ivoire	4.0
71	El Salvador	4.0
72	Poland	4.0
73	Mongolia	4.0
74	Mexico	4.0
75	Lesotho	4.0
76	Israel	4.0
77	India	3.9
78	Senegal	3.9
79	Swaziland	3.9
80	Uruguay	3.9
81	Macedonia, FYR	3.9
82	Cambodia	3.9
83	Colombia	3.9
84	Zimbabwe	3.9
85	Vietnam	3.9
86	Dominican Republic	3.9
87	Montenegro	3.9
88	Nicaragua	3.8
89	Russian Federation	3.8
90	Slovak Republic	3.8
91	Turkey	3.8
92	Ukraine	3.8
93	Peru	3.8
94	Azerbaijan	3.7
95	Argentina	3.7
96	Spain	3.7
97	Kuwait	3.7
98	Slovenia	3.7
99	Tunisia	3.7
100	Gabon	3.7
101	Suriname	3.7
102	Madagascar	3.7
103	Tajikistan	3.7
104	Cape Verde	3.7
105	Paraguay	3.7
106	Morocco	3.6
107	Hungary	3.6
108	Bhutan	3.6
109	Uganda	3.6
110	Romania	3.6
111	Greece	3.6
112	Kyrgyz Republic	3.5
113	Georgia	3.5
114	Bolivia	3.5
115	Tanzania	3.5
116	Lebanon	3.5
117	Algeria	3.4
118	Armenia	3.4
119	Moldova	3.4
120	Mozambique	3.4
121	Pakistan	3.4
122	Ethiopia	3.4
123	Venezuela	3.3
124	Nepal	3.3
125	Mali	3.3
126	Bulgaria	3.3
127	Guinea	3.2
128	Croatia	3.2
129	Haiti	3.2
130	Bangladesh	3.2
131	Yemen	3.2
132	Italy	3.2
133	Serbia	3.1
134	Iran, Islamic Rep.	3.0
135	Timor-Leste	3.0
136	Burundi	2.9
137	Myanmar	2.9
138	Chad	2.8
139	Burkina Faso	2.8
140	Angola	2.8
141	Egypt	2.8
142	Libya	2.7
143	Mauritania	2.6





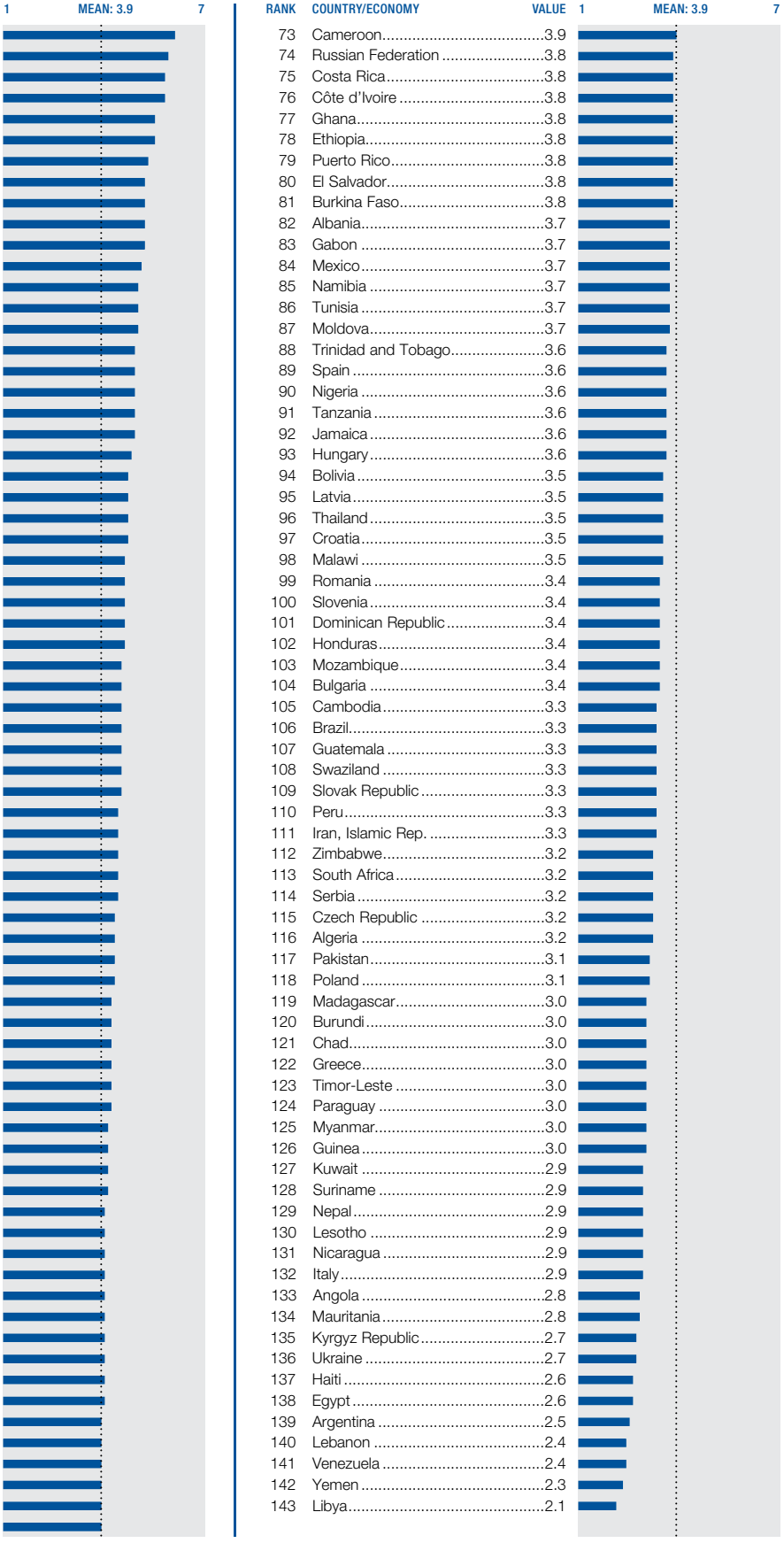
SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

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] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	United Arab Emirates	6.1
2	Singapore	5.9
3	Qatar	5.8
4	Rwanda	5.8
5	Luxembourg	5.5
6	Malaysia	5.5
7	New Zealand	5.3
8	Saudi Arabia	5.2
9	Azerbaijan	5.2
10	Malta	5.2
11	Bahrain	5.2
12	Estonia	5.1
13	Taiwan, China	5.0
14	Sweden	5.0
15	Korea, Rep.	5.0
16	Sri Lanka	4.9
17	Finland	4.9
18	Oman	4.9
19	Macedonia, FYR	4.9
20	Japan	4.9
21	Gambia, The	4.8
22	Kenya	4.7
23	Norway	4.7
24	Portugal	4.7
25	China	4.7
26	Jordan	4.6
27	Hong Kong SAR	4.6
28	Panama	4.6
29	United Kingdom	4.6
30	Mauritius	4.6
31	Cape Verde	4.5
32	Israel	4.5
33	Netherlands	4.5
34	Indonesia	4.5
35	Ireland	4.5
36	Germany	4.5
37	Bhutan	4.5
38	Switzerland	4.4
39	United States	4.4
40	Australia	4.4
41	Denmark	4.4
42	Colombia	4.4
43	Kazakhstan	4.3
44	Iceland	4.3
45	Montenegro	4.3
46	Canada	4.3
47	Morocco	4.2
48	Armenia	4.2
49	Chile	4.2
50	Zambia	4.2
51	Lao PDR	4.2
52	Austria	4.2
53	France	4.1
54	Mali	4.1
55	Vietnam	4.1
56	Belgium	4.1
57	Turkey	4.0
58	Guyana	4.0
59	Seychelles	4.0
60	Bangladesh	4.0
61	Senegal	4.0
62	Lithuania	4.0
63	Botswana	4.0
64	Cyprus	4.0
65	Uruguay	4.0
66	Georgia	4.0
67	Mongolia	3.9
68	Tajikistan	3.9
69	Philippines	3.9
70	Uganda	3.9
71	India	3.9
72	Barbados	3.9
73	Cameroon	3.9
74	Russian Federation	3.8
75	Costa Rica	3.8
76	Côte d'Ivoire	3.8
77	Ghana	3.8
78	Ethiopia	3.8
79	Puerto Rico	3.8
80	El Salvador	3.8
81	Burkina Faso	3.8
82	Albania	3.7
83	Gabon	3.7
84	Mexico	3.7
85	Namibia	3.7
86	Tunisia	3.7
87	Moldova	3.7
88	Trinidad and Tobago	3.6
89	Spain	3.6
90	Nigeria	3.6
91	Tanzania	3.6
92	Jamaica	3.6
93	Hungary	3.6
94	Bolivia	3.5
95	Latvia	3.5
96	Thailand	3.5
97	Croatia	3.5
98	Malawi	3.5
99	Romania	3.4
100	Slovenia	3.4
101	Dominican Republic	3.4
102	Honduras	3.4
103	Mozambique	3.4
104	Bulgaria	3.4
105	Cambodia	3.3
106	Brazil	3.3
107	Guatemala	3.3
108	Swaziland	3.3
109	Slovak Republic	3.3
110	Peru	3.3
111	Iran, Islamic Rep.	3.3
112	Zimbabwe	3.2
113	South Africa	3.2
114	Serbia	3.2
115	Czech Republic	3.2
116	Algeria	3.2
117	Pakistan	3.1
118	Poland	3.1
119	Madagascar	3.0
120	Burundi	3.0
121	Chad	3.0
122	Greece	3.0
123	Timor-Leste	3.0
124	Paraguay	3.0
125	Myanmar	3.0
126	Guinea	3.0
127	Kuwait	2.9
128	Suriname	2.9
129	Nepal	2.9
130	Lesotho	2.9
131	Nicaragua	2.9
132	Italy	2.9
133	Angola	2.8
134	Mauritania	2.8
135	Kyrgyz Republic	2.7
136	Ukraine	2.7
137	Haiti	2.6
138	Egypt	2.6
139	Argentina	2.5
140	Lebanon	2.4
141	Venezuela	2.4
142	Yemen	2.3
143	Libya	2.1



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2013

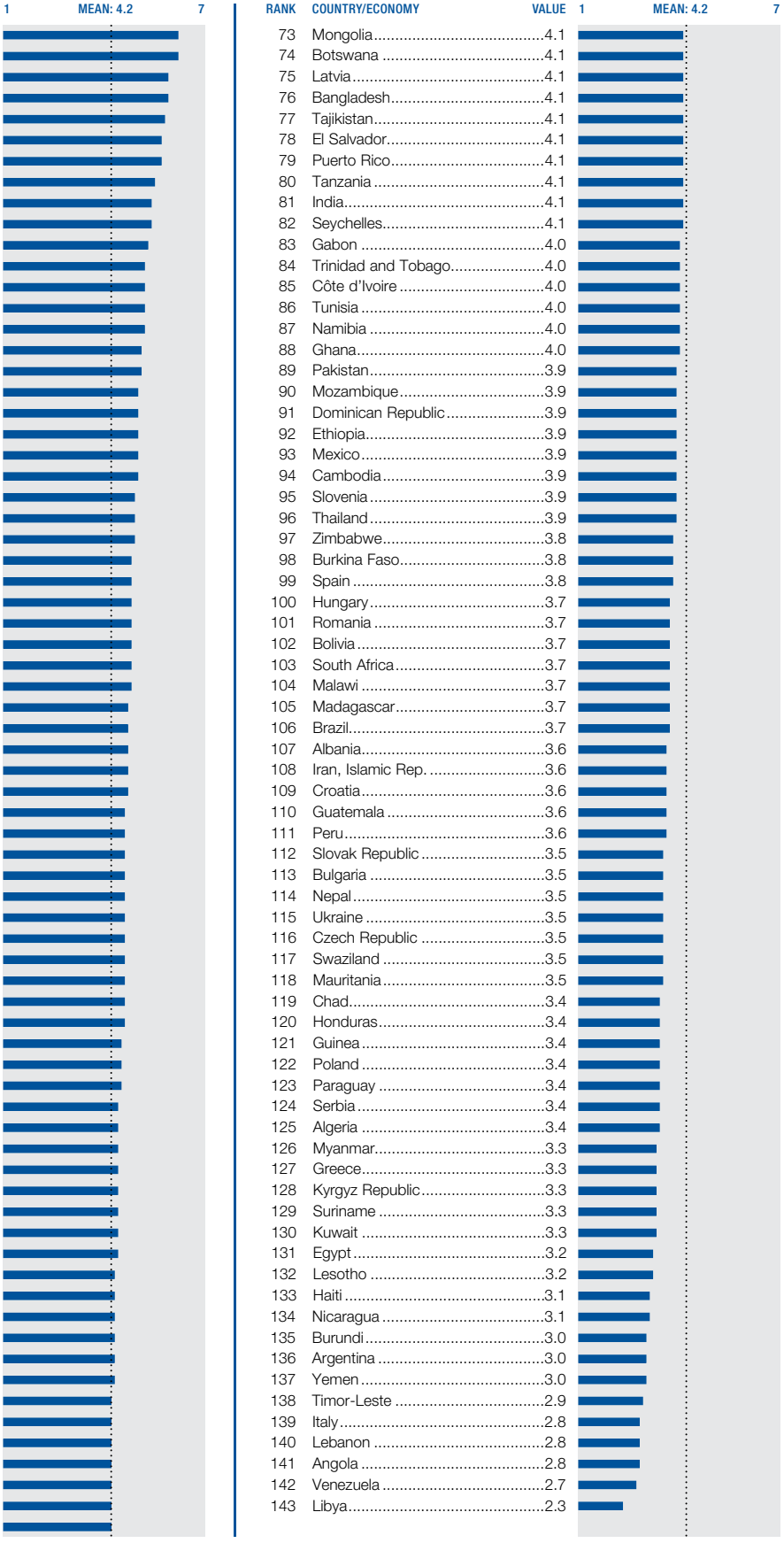
RANK	COUNTRY/ECONOMY	VALUE
1	France	1.00
2	Singapore	0.99
3	Korea, Rep.	0.98
4	Japan	0.94
4	Spain	0.94
4	United States	0.94
7	Bahrain	0.94
8	Australia	0.93
8	Netherlands	0.93
10	Canada	0.91
11	United Kingdom	0.90
12	United Arab Emirates	0.88
13	Israel	0.87
14	Uruguay	0.85
15	New Zealand	0.84
16	Chile	0.82
17	Colombia	0.79
18	Estonia	0.77
18	Finland	0.77
18	Saudi Arabia	0.77
21	Lithuania	0.76
21	Norway	0.76
23	Austria	0.75
23	Italy	0.75
23	Kazakhstan	0.75
26	Oman	0.73
27	Russian Federation	0.71
28	Latvia	0.70
28	Sweden	0.70
30	Morocco	0.69
31	Belgium	0.68
31	Ireland	0.68
31	Malaysia	0.68
34	Germany	0.67
35	Denmark	0.66
35	Mexico	0.66
37	Qatar	0.65
37	Sri Lanka	0.65
39	Portugal	0.64
39	Tunisia	0.64
41	Peru	0.63
42	Luxembourg	0.62
43	Armenia	0.61
43	Costa Rica	0.61
43	Iceland	0.61
43	Mongolia	0.61
47	China	0.61
47	Greece	0.61
49	Brazil	0.60
49	Georgia	0.60
51	Egypt	0.59
52	Kuwait	0.57
53	Hungary	0.56
53	Turkey	0.56
55	Argentina	0.55
55	Venezuela	0.55
57	India	0.54
57	Poland	0.54
59	El Salvador	0.54
60	Moldova	0.53
60	Montenegro	0.53
62	Jordan	0.52
63	Rwanda	0.51
64	Switzerland	0.50
65	Slovak Republic	0.49
66	Philippines	0.48
67	Cyprus	0.47
67	Mauritius	0.47
69	Croatia	0.46
70	Ethiopia	0.46
71	Albania	0.45
72	Romania	0.44
72	Thailand	0.44
74	Azerbaijan	0.43
75	Kenya	0.43
75	Slovenia	0.43
77	Vietnam	0.42
78	Honduras	0.40
78	Malta	0.40
80	Bolivia	0.39
80	Serbia	0.39
82	Dominican Republic	0.39
82	South Africa	0.39
84	Czech Republic	0.37
84	Iran, Islamic Rep.	0.37
84	Panama	0.37
87	Indonesia	0.36
88	Lebanon	0.35
89	Bangladesh	0.35
90	Seychelles	0.33
90	Trinidad and Tobago	0.33
92	Namibia	0.32
92	Pakistan	0.32
94	Ghana	0.31
94	Jamaica	0.31
94	Mozambique	0.31
97	Botswana	0.31
97	Nigeria	0.31
97	Senegal	0.31
97	Yemen	0.31
97	Zimbabwe	0.31
102	Angola	0.30
102	Burkina Faso	0.30
102	Tanzania	0.30
105	Kyrgyz Republic	0.28
106	Ukraine	0.27
107	Bhutan	0.24
107	Guyana	0.24
107	Macedonia, FYR	0.24
107	Madagascar	0.24
111	Bulgaria	0.24
112	Paraguay	0.23
113	Barbados	0.22
114	Gambia, The	0.20
114	Timor-Leste	0.20
116	Cameroon	0.20
117	Cambodia	0.17
117	Côte d'Ivoire	0.17
117	Malawi	0.17
120	Cape Verde	0.17
121	Lesotho	0.16
121	Nepal	0.16
123	Guatemala	0.15
123	Uganda	0.15
125	Lao PDR	0.14
125	Suriname	0.14
125	Zambia	0.14
128	Mali	0.13
128	Swaziland	0.13
130	Haiti	0.11
131	Gabon	0.09
131	Nicaragua	0.09
133	Algeria	0.08
134	Tajikistan	0.06
135	Chad	0.05
135	Mauritania	0.05
137	Myanmar	0.02
138	Burundi	0.02
138	Libya	0.02
140	Guinea	0.00
n/a	Hong Kong SAR	n/a
n/a	Puerto Rico	n/a
n/a	Taiwan, China	n/a

SOURCE: United Nations Department of Economic and Social Affairs (UNDESA), *UN E-Government Development Database* (retrieved November 27, 2014)

8.03 Government success in ICT promotion

In your country, how successful is the government in promoting the use of information and communication technologies (ICTs)? [1 = not successful at all; 7 = extremely successful] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Rwanda	6.2
2	United Arab Emirates	6.2
3	Singapore	5.9
4	Luxembourg	5.9
5	Qatar	5.8
6	Malaysia	5.7
7	Estonia	5.7
8	Malta	5.5
9	Saudi Arabia	5.4
10	Azerbaijan	5.4
11	Korea, Rep.	5.3
12	Bahrain	5.2
13	Sri Lanka	5.2
14	Sweden	5.2
15	Taiwan, China	5.2
16	Portugal	5.1
17	Oman	5.1
18	Norway	5.0
19	Macedonia, FYR	5.0
20	Finland	5.0
21	Kenya	5.0
22	Israel	5.0
23	Netherlands	4.9
24	Mauritius	4.9
25	New Zealand	4.9
26	United States	4.8
27	Japan	4.8
28	Switzerland	4.8
29	Gambia, The	4.8
30	Hong Kong SAR	4.8
31	Germany	4.8
32	Jordan	4.8
33	Zambia	4.7
34	Kazakhstan	4.7
35	Panama	4.7
36	Ireland	4.7
37	United Kingdom	4.7
38	China	4.6
39	Lao PDR	4.6
40	Mali	4.6
41	Lithuania	4.6
42	Cape Verde	4.6
43	Vietnam	4.6
44	Senegal	4.6
45	Canada	4.6
46	Denmark	4.6
47	Iceland	4.6
48	Austria	4.6
49	Indonesia	4.5
50	Uruguay	4.5
51	Morocco	4.5
52	Armenia	4.4
53	Philippines	4.4
54	Uganda	4.4
55	Georgia	4.4
56	Chile	4.4
57	Colombia	4.4
58	Belgium	4.4
59	Montenegro	4.4
60	Cameroon	4.3
61	Bhutan	4.3
62	Australia	4.3
63	France	4.3
64	Barbados	4.3
65	Costa Rica	4.3
66	Guyana	4.2
67	Moldova	4.2
68	Turkey	4.2
69	Russian Federation	4.2
70	Jamaica	4.2
71	Nigeria	4.2
72	Cyprus	4.2
73	Mongolia	4.1
74	Botswana	4.1
75	Latvia	4.1
76	Bangladesh	4.1
77	Tajikistan	4.1
78	El Salvador	4.1
79	Puerto Rico	4.1
80	Tanzania	4.1
81	India	4.1
82	Seychelles	4.1
83	Gabon	4.0
84	Trinidad and Tobago	4.0
85	Côte d'Ivoire	4.0
86	Tunisia	4.0
87	Namibia	4.0
88	Ghana	4.0
89	Pakistan	3.9
90	Mozambique	3.9
91	Dominican Republic	3.9
92	Ethiopia	3.9
93	Mexico	3.9
94	Cambodia	3.9
95	Slovenia	3.9
96	Thailand	3.9
97	Zimbabwe	3.8
98	Burkina Faso	3.8
99	Spain	3.8
100	Hungary	3.7
101	Romania	3.7
102	Bolivia	3.7
103	South Africa	3.7
104	Malawi	3.7
105	Madagascar	3.7
106	Brazil	3.7
107	Albania	3.6
108	Iran, Islamic Rep.	3.6
109	Croatia	3.6
110	Guatemala	3.6
111	Peru	3.6
112	Slovak Republic	3.5
113	Bulgaria	3.5
114	Nepal	3.5
115	Ukraine	3.5
116	Czech Republic	3.5
117	Swaziland	3.5
118	Mauritania	3.5
119	Chad	3.4
120	Honduras	3.4
121	Guinea	3.4
122	Poland	3.4
123	Paraguay	3.4
124	Serbia	3.4
125	Algeria	3.4
126	Myanmar	3.3
127	Greece	3.3
128	Kyrgyz Republic	3.3
129	Suriname	3.3
130	Kuwait	3.3
131	Egypt	3.2
132	Lesotho	3.2
133	Haiti	3.1
134	Nicaragua	3.1
135	Burundi	3.0
136	Argentina	3.0
137	Yemen	3.0
138	Timor-Leste	2.9
139	Italy	2.8
140	Lebanon	2.8
141	Angola	2.8
142	Venezuela	2.7
143	Libya	2.3



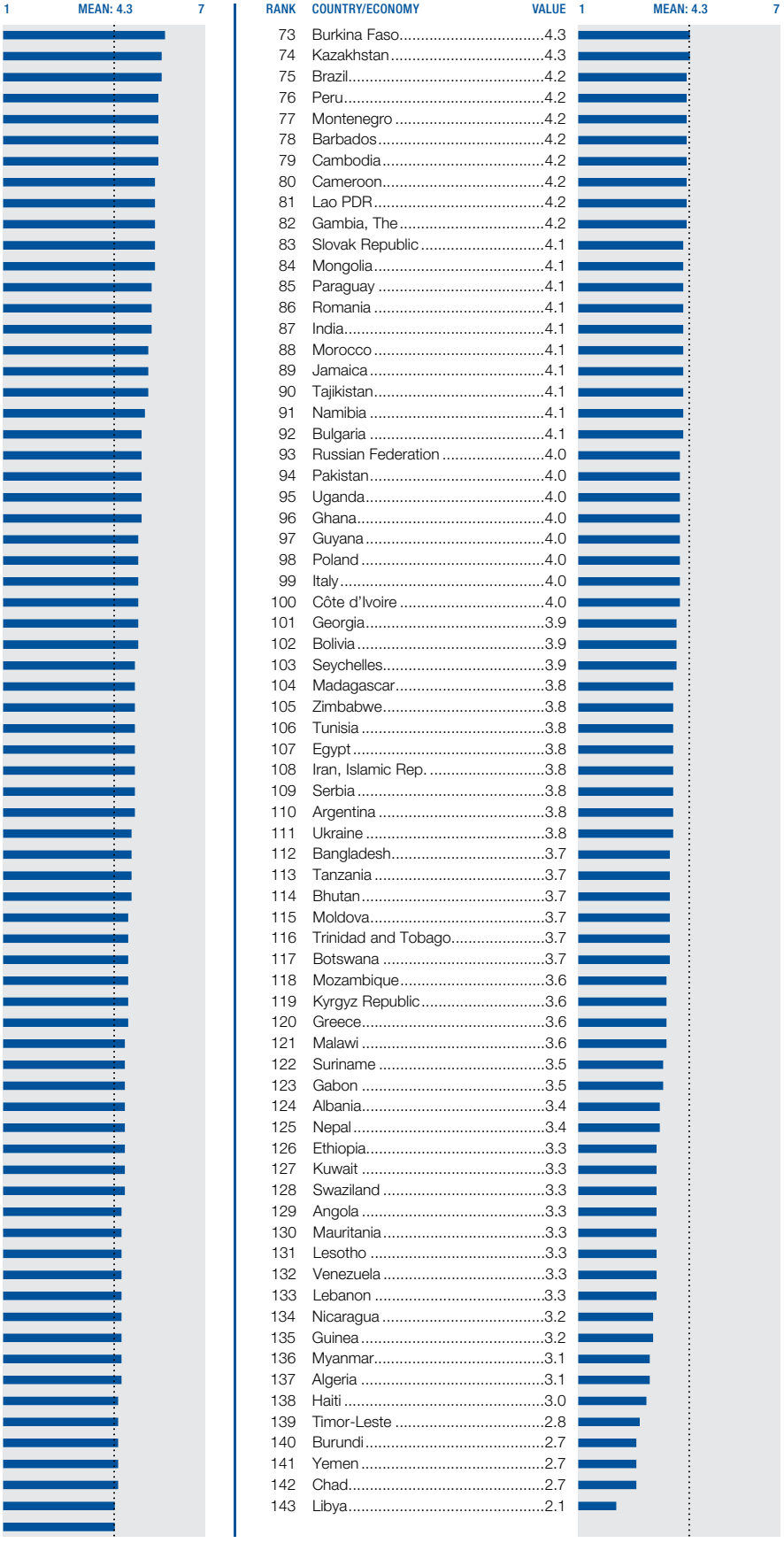
SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

9th pillar
Economic impacts

9.01 Impact of ICTs on new services and products

In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Finland	5.8
2	United Arab Emirates	5.7
3	Estonia	5.7
4	Qatar	5.6
5	Netherlands	5.6
6	Sweden	5.6
7	Luxembourg	5.6
8	United Kingdom	5.5
9	Singapore	5.5
10	Malaysia	5.5
11	Norway	5.5
12	Korea, Rep.	5.5
13	Switzerland	5.4
14	Japan	5.4
15	New Zealand	5.4
16	Ireland	5.3
17	Portugal	5.3
18	United States	5.3
19	Germany	5.2
20	Taiwan, China	5.1
21	Canada	5.1
22	Israel	5.1
23	Iceland	5.1
24	Belgium	5.1
25	Hong Kong SAR	5.0
26	Spain	5.0
27	Lithuania	5.0
28	Rwanda	5.0
29	Chile	5.0
30	Saudi Arabia	5.0
31	France	4.9
32	Austria	4.9
33	Indonesia	4.9
34	Puerto Rico	4.9
35	Panama	4.9
36	Australia	4.9
37	Malta	4.9
38	Bahrain	4.9
39	Kenya	4.8
40	Guatemala	4.8
41	Jordan	4.8
42	Azerbaijan	4.8
43	Costa Rica	4.7
44	Turkey	4.7
45	Denmark	4.7
46	Thailand	4.7
47	Czech Republic	4.7
48	Uruguay	4.7
49	China	4.6
50	Philippines	4.6
51	Colombia	4.6
52	Macedonia, FYR	4.6
53	Senegal	4.6
54	Vietnam	4.6
55	Dominican Republic	4.6
56	Armenia	4.6
57	Mali	4.5
58	South Africa	4.5
59	Mauritius	4.5
60	Oman	4.5
61	Latvia	4.5
62	Hungary	4.5
63	Sri Lanka	4.5
64	Croatia	4.5
65	El Salvador	4.5
66	Slovenia	4.4
67	Mexico	4.4
68	Cyprus	4.4
69	Honduras	4.4
70	Cape Verde	4.4
71	Nigeria	4.3
72	Zambia	4.3
73	Burkina Faso	4.3
74	Kazakhstan	4.3
75	Brazil	4.2
76	Peru	4.2
77	Montenegro	4.2
78	Barbados	4.2
79	Cambodia	4.2
80	Cameroon	4.2
81	Lao PDR	4.2
82	Gambia, The	4.2
83	Slovak Republic	4.1
84	Mongolia	4.1
85	Paraguay	4.1
86	Romania	4.1
87	India	4.1
88	Morocco	4.1
89	Jamaica	4.1
90	Tajikistan	4.1
91	Namibia	4.1
92	Bulgaria	4.1
93	Russian Federation	4.0
94	Pakistan	4.0
95	Uganda	4.0
96	Ghana	4.0
97	Guyana	4.0
98	Poland	4.0
99	Italy	4.0
100	Côte d'Ivoire	4.0
101	Georgia	3.9
102	Bolivia	3.9
103	Seychelles	3.9
104	Madagascar	3.8
105	Zimbabwe	3.8
106	Tunisia	3.8
107	Egypt	3.8
108	Iran, Islamic Rep.	3.8
109	Serbia	3.8
110	Argentina	3.8
111	Ukraine	3.8
112	Bangladesh	3.7
113	Tanzania	3.7
114	Bhutan	3.7
115	Moldova	3.7
116	Trinidad and Tobago	3.7
117	Botswana	3.7
118	Mozambique	3.6
119	Kyrgyz Republic	3.6
120	Greece	3.6
121	Malawi	3.6
122	Suriname	3.5
123	Gabon	3.5
124	Albania	3.4
125	Nepal	3.4
126	Ethiopia	3.3
127	Kuwait	3.3
128	Swaziland	3.3
129	Angola	3.3
130	Mauritania	3.3
131	Lesotho	3.3
132	Venezuela	3.3
133	Lebanon	3.3
134	Nicaragua	3.2
135	Guinea	3.2
136	Myanmar	3.1
137	Algeria	3.1
138	Haiti	3.0
139	Timor-Leste	2.8
140	Burundi	2.7
141	Yemen	2.7
142	Chad	2.7
143	Libya	2.1



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2011–2012 average

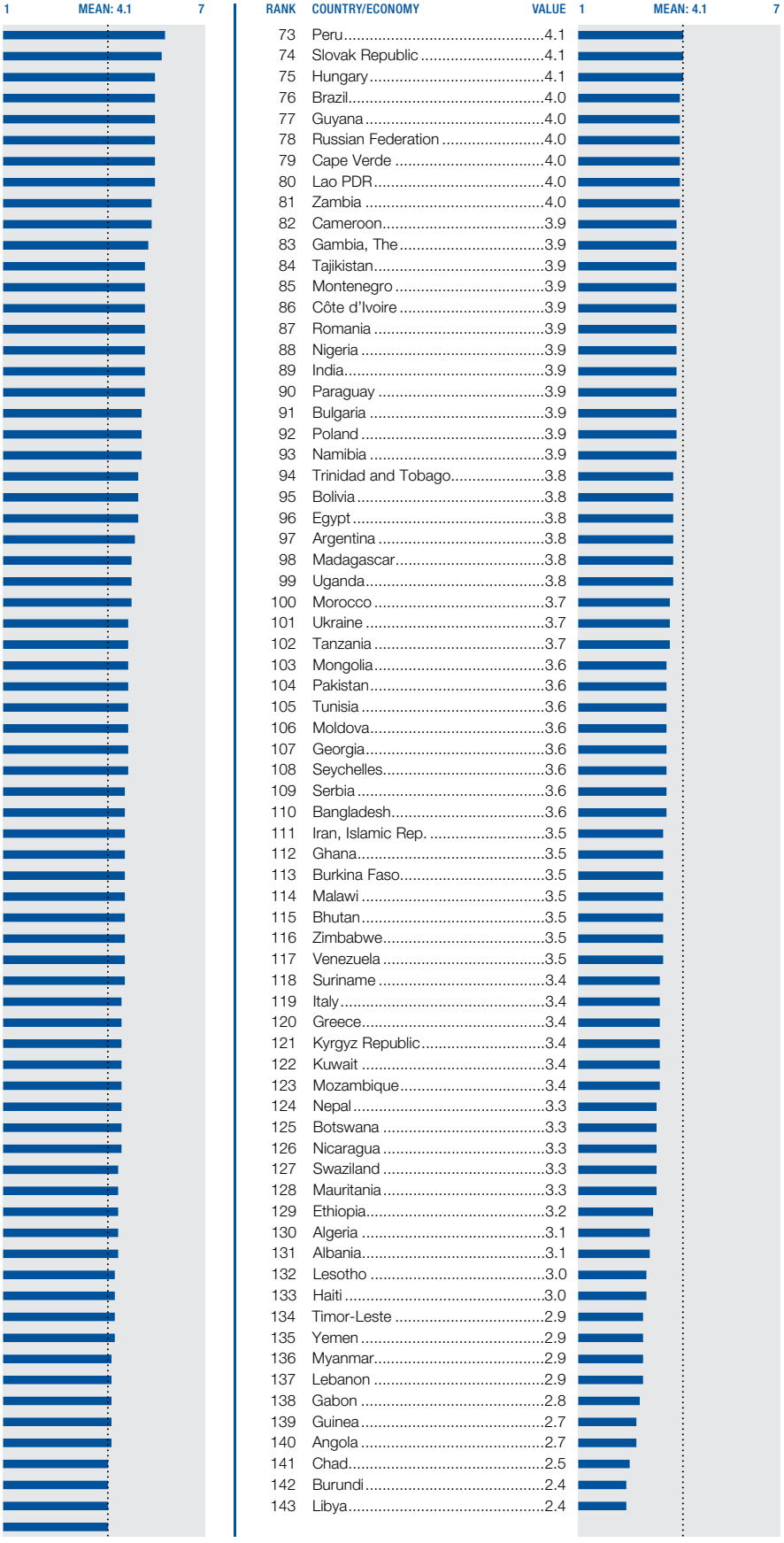
RANK	COUNTRY/ECONOMY	VALUE
1	Finland	157.4
2	Sweden	152.5
3	Japan	141.9
4	Israel	109.9
5	Korea, Rep.	105.7
6	Barbados	79.4
7	Switzerland	76.7
8	United States	64.8
9	Netherlands	60.3
10	Singapore	57.2
11	Germany	52.6
12	Denmark	42.1
13	Canada	37.5
14	Ireland	37.2
15	Austria	36.0
16	France	33.8
17	Norway	32.2
18	Belgium	29.4
19	Luxembourg	29.0
20	United Kingdom	28.9
21	Australia	23.0
22	Iceland	18.1
23	New Zealand	13.5
24	Qatar	12.3
25	Slovenia	10.3
26	Spain	10.0
27	Italy	9.3
28	Hungary	8.5
29	Estonia	8.5
30	China	8.5
31	Malaysia	6.0
32	Malta	3.6
33	Latvia	3.5
34	Portugal	3.4
35	Czech Republic	3.1
36	Lithuania	2.8
37	Greece	2.4
38	Russian Federation	2.4
39	Saudi Arabia	2.1
40	Bulgaria	1.9
41	Croatia	1.8
42	Panama	1.7
43	Poland	1.6
44	United Arab Emirates	1.6
45	South Africa	1.6
46	Slovak Republic	1.5
47	Serbia	1.3
48	Cyprus	1.2
49	Turkey	1.2
50	Romania	1.2
51	Ukraine	1.1
52	Puerto Rico	1.0
53	Lebanon	0.9
54	Chile	0.8
55	Mauritius	0.8
56	Uruguay	0.8
57	Georgia	0.7
58	India	0.5
59	Brazil	0.5
60	Bahrain	0.5
61	Armenia	0.5
62	Moldova	0.4
63	Jordan	0.4
64	Mongolia	0.4
65	Costa Rica	0.3
66	Argentina	0.3
67	Timor-Leste	0.3
68	Mexico	0.3
69	Tunisia	0.2
70	Morocco	0.2
71	Azerbaijan	0.2
72	Egypt	0.2
73	Oman	0.2
74	Jamaica	0.2
75	Colombia	0.2
76	Thailand	0.2
77	Sri Lanka	0.2
78	Gambia, The	0.1
79	Kazakhstan	0.1
80	Philippines	0.1
81	Macedonia, FYR	0.1
82	Kuwait	0.1
83	Peru	0.1
84	Kenya	0.1
85	Nicaragua	0.1
86	Namibia	0.1
87	Algeria	0.1
88	Dominican Republic	0.0
89	Vietnam	0.0
90	Iran, Islamic Rep.	0.0
91	Pakistan	0.0
92	Venezuela	0.0
93	Senegal	0.0
94	Indonesia	0.0
95	Nigeria	0.0
96	Bangladesh	0.0
97	Uganda	0.0
98	Ethiopia	0.0
99	Albania	0.0
99	Angola	0.0
99	Bhutan	0.0
99	Bolivia	0.0
99	Botswana	0.0
99	Burkina Faso	0.0
99	Burundi	0.0
99	Cambodia	0.0
99	Cameroon	0.0
99	Cape Verde	0.0
99	Chad	0.0
99	Côte d'Ivoire	0.0
99	El Salvador	0.0
99	Gabon	0.0
99	Ghana	0.0
99	Guatemala	0.0
99	Guinea	0.0
99	Guyana	0.0
99	Haiti	0.0
99	Honduras	0.0
99	Kyrgyz Republic	0.0
99	Lao PDR	0.0
99	Lesotho	0.0
99	Libya	0.0
99	Madagascar	0.0
99	Malawi	0.0
99	Mali	0.0
99	Mauritania	0.0
99	Montenegro	0.0
99	Mozambique	0.0
99	Myanmar	0.0
99	Nepal	0.0
99	Paraguay	0.0
99	Rwanda	0.0
99	Seychelles	0.0
99	Suriname	0.0
99	Swaziland	0.0
99	Tajikistan	0.0
99	Tanzania	0.0
99	Trinidad and Tobago	0.0
99	Yemen	0.0
99	Zambia	0.0
99	Zimbabwe	0.0
n/a	Hong Kong SAR	n/a
n/a	Taiwan, China	n/a

SOURCES: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2015; World Bank, *World Development Indicators* (retrieved November 26, 2014)

9.03 Impact of ICTs on new organizational models

In your country, to what extent do ICTs enable new organizational models (e.g., virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Finland	5.8
2	Estonia	5.7
3	Norway	5.5
4	Malaysia	5.5
5	United Arab Emirates	5.5
6	Netherlands	5.5
7	Qatar	5.5
8	United Kingdom	5.5
9	United States	5.4
10	Sweden	5.4
11	Singapore	5.3
12	Canada	5.2
13	Ireland	5.2
14	Taiwan, China	5.2
15	Iceland	5.2
16	New Zealand	5.2
17	Luxembourg	5.2
18	Australia	5.2
19	Portugal	5.1
20	Korea, Rep.	5.1
21	Hong Kong SAR	5.1
22	Germany	5.0
23	Lithuania	5.0
24	Belgium	5.0
25	Puerto Rico	4.9
26	Saudi Arabia	4.8
27	Switzerland	4.8
28	Azerbaijan	4.8
29	Israel	4.7
30	Guatemala	4.7
31	Jordan	4.7
32	Bahrain	4.7
33	Denmark	4.7
34	China	4.7
35	Indonesia	4.7
36	Spain	4.7
37	Latvia	4.6
38	Costa Rica	4.6
39	Japan	4.6
40	Philippines	4.6
41	Malta	4.6
42	Chile	4.6
43	Panama	4.6
44	Czech Republic	4.6
45	Uruguay	4.6
46	Armenia	4.6
47	Rwanda	4.5
48	France	4.5
49	Austria	4.5
50	Dominican Republic	4.5
51	Sri Lanka	4.5
52	Croatia	4.5
53	Honduras	4.5
54	Colombia	4.5
55	Mauritius	4.4
56	Slovenia	4.4
57	Kenya	4.4
58	Turkey	4.4
59	South Africa	4.4
60	Cambodia	4.3
61	El Salvador	4.3
62	Macedonia, FYR	4.3
63	Mexico	4.3
64	Senegal	4.2
65	Kazakhstan	4.2
66	Cyprus	4.2
67	Jamaica	4.2
68	Thailand	4.2
69	Mali	4.1
70	Barbados	4.1
71	Vietnam	4.1
72	Oman	4.1
73	Peru	4.1
74	Slovak Republic	4.1
75	Hungary	4.1
76	Brazil	4.0
77	Guyana	4.0
78	Russian Federation	4.0
79	Cape Verde	4.0
80	Lao PDR	4.0
81	Zambia	4.0
82	Cameroon	3.9
83	Gambia, The	3.9
84	Tajikistan	3.9
85	Montenegro	3.9
86	Côte d'Ivoire	3.9
87	Romania	3.9
88	Nigeria	3.9
89	India	3.9
90	Paraguay	3.9
91	Bulgaria	3.9
92	Poland	3.9
93	Namibia	3.9
94	Trinidad and Tobago	3.8
95	Bolivia	3.8
96	Egypt	3.8
97	Argentina	3.8
98	Madagascar	3.8
99	Uganda	3.8
100	Morocco	3.7
101	Ukraine	3.7
102	Tanzania	3.7
103	Mongolia	3.6
104	Pakistan	3.6
105	Tunisia	3.6
106	Moldova	3.6
107	Georgia	3.6
108	Seychelles	3.6
109	Serbia	3.6
110	Bangladesh	3.6
111	Iran, Islamic Rep.	3.5
112	Ghana	3.5
113	Burkina Faso	3.5
114	Malawi	3.5
115	Bhutan	3.5
116	Zimbabwe	3.5
117	Venezuela	3.5
118	Suriname	3.4
119	Italy	3.4
120	Greece	3.4
121	Kyrgyz Republic	3.4
122	Kuwait	3.4
123	Mozambique	3.4
124	Nepal	3.3
125	Botswana	3.3
126	Nicaragua	3.3
127	Swaziland	3.3
128	Mauritania	3.3
129	Ethiopia	3.2
130	Algeria	3.1
131	Albania	3.1
132	Lesotho	3.0
133	Haiti	3.0
134	Timor-Leste	2.9
135	Yemen	2.9
136	Myanmar	2.9
137	Lebanon	2.9
138	Gabon	2.8
139	Guinea	2.7
140	Angola	2.7
141	Chad	2.5
142	Burundi	2.4
143	Libya	2.4



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

9.04 Share of workforce employed in knowledge-intensive activities (%)

Share of workforce employed in knowledge intensive activities (%) | 2013 or most recent

RANK	COUNTRY/ECONOMY	VALUE
1	Luxembourg	59.1
2	Singapore	52.7
3	Switzerland	51.0
4	Iceland	49.3
5	Sweden	48.5
6	United Kingdom	47.7
7	Norway	46.8
8	Israel	46.5
9	Netherlands	46.4
10	Denmark	45.5
11	Finland	44.7
12	Belgium	44.4
13	France	44.3
14	Canada	44.2
15	Australia	43.8
16	Russian Federation	43.6
17	New Zealand[8]	42.9
18	Germany	42.9
19	Lithuania	42.8
20	Slovenia	42.2
21	Estonia	41.8
22	Malta	40.6
23	Ireland	40.5
24	Austria	39.8
25	Latvia	39.2
26	United States	38.0
27	Czech Republic	37.8
28	Hong Kong SAR	37.3
29	Montenegro[12]	37.2
30	Egypt	36.3
31	United Arab Emirates[8]	36.1
32	Poland	35.9
33	Hungary	35.6
34	Italy	35.1
35	Cyprus	35.1
36	Croatia	35.1
37	Ukraine	33.7
38	Taiwan, China	33.3
39	Spain	33.2
40	Portugal	32.5
41	Greece	32.3
42	Kazakhstan	32.3
43	Puerto Rico[8]	31.9
44	Lebanon[7]	31.8
45	Slovak Republic	31.8
46	Bulgaria	31.0
47	Barbados	30.9
48	Moldova	30.0
49	Jordan[4]	28.2
50	Serbia	28.1
51	Macedonia, FYR	27.9
52	Trinidad and Tobago	27.0
53	Armenia[11]	26.9
54	Saudi Arabia	26.6
55	Seychelles[11]	26.3
56	South Africa	25.5
57	Costa Rica	25.0
58	Malaysia	24.7
59	Argentina[12]	24.6
60	Panama[12]	24.4
61	Chile	24.3
62	Mongolia[12]	24.3
63	Japan	24.3
64	Oman[1]	24.3
65	Philippines	23.7
66	Azerbaijan	23.4
67	Bahrain[2]	23.1
68	Uruguay[11]	23.1
69	Georgia[7]	22.2
70	Korea, Rep.	21.4
71	Romania	21.2
72	Brazil	21.0
73	Tunisia[12]	20.9
74	Mauritius[12]	20.4
75	Jamaica[8]	20.1
76	Bangladesh[11]	20.0
77	Pakistan[8]	19.5
78	Timor-Leste[10]	19.3
79	Venezuela	19.2
80	Turkey	19.2
81	Mexico	19.1
82	Paraguay	18.9
83	Kuwait[5]	18.7
84	Qatar	18.2
85	Botswana[10]	17.9
86	Algeria	17.6
87	Kyrgyz Republic	17.3
88	Dominican Republic	17.2
89	Yemen[5]	17.0
90	Colombia[10]	16.8
91	Bhutan	16.5
92	Albania	16.1
93	Iran, Islamic Rep.[10]	16.0
94	Sri Lanka	15.7
95	Bolivia[9]	15.3
96	Peru	15.0
97	Nicaragua[6]	14.8
98	Namibia	14.6
99	Thailand	13.9
100	Guyana[3]	12.7
101	El Salvador	12.1
102	Guatemala	10.8
103	Vietnam	10.0
104	Indonesia	8.9
105	Ghana[10]	8.6
106	China[5]	7.4
107	Zambia[10]	7.3
108	Morocco[8]	6.8
109	Lesotho	6.8
110	Zimbabwe[11]	6.6
111	Uganda[9]	4.4
112	Nepal[8]	4.3
113	Cambodia[10]	4.1
114	Ethiopia	3.8
115	Rwanda[12]	3.8
116	Madagascar[10]	2.9
117	Tanzania[6]	2.6
118	Guinea[10]	0.7
n/a	Angola	n/a
n/a	Burkina Faso	n/a
n/a	Burundi	n/a
n/a	Cameroon	n/a
n/a	Cape Verde	n/a
n/a	Chad	n/a
n/a	Côte d'Ivoire	n/a
n/a	Gabon	n/a
n/a	Gambia, The	n/a
n/a	Haiti	n/a
n/a	Honduras	n/a
n/a	India	n/a
n/a	Kenya	n/a
n/a	Lao PDR	n/a
n/a	Libya	n/a
n/a	Malawi	n/a
n/a	Mali	n/a
n/a	Mauritania	n/a
n/a	Mozambique	n/a
n/a	Myanmar	n/a
n/a	Nigeria	n/a
n/a	Senegal	n/a
n/a	Suriname	n/a
n/a	Swaziland	n/a
n/a	Tajikistan	n/a

SOURCE: International Labour Organization (ILO), ILOSTAT Database (retrieved November 28, 2014), www.ilo.org/ilostat

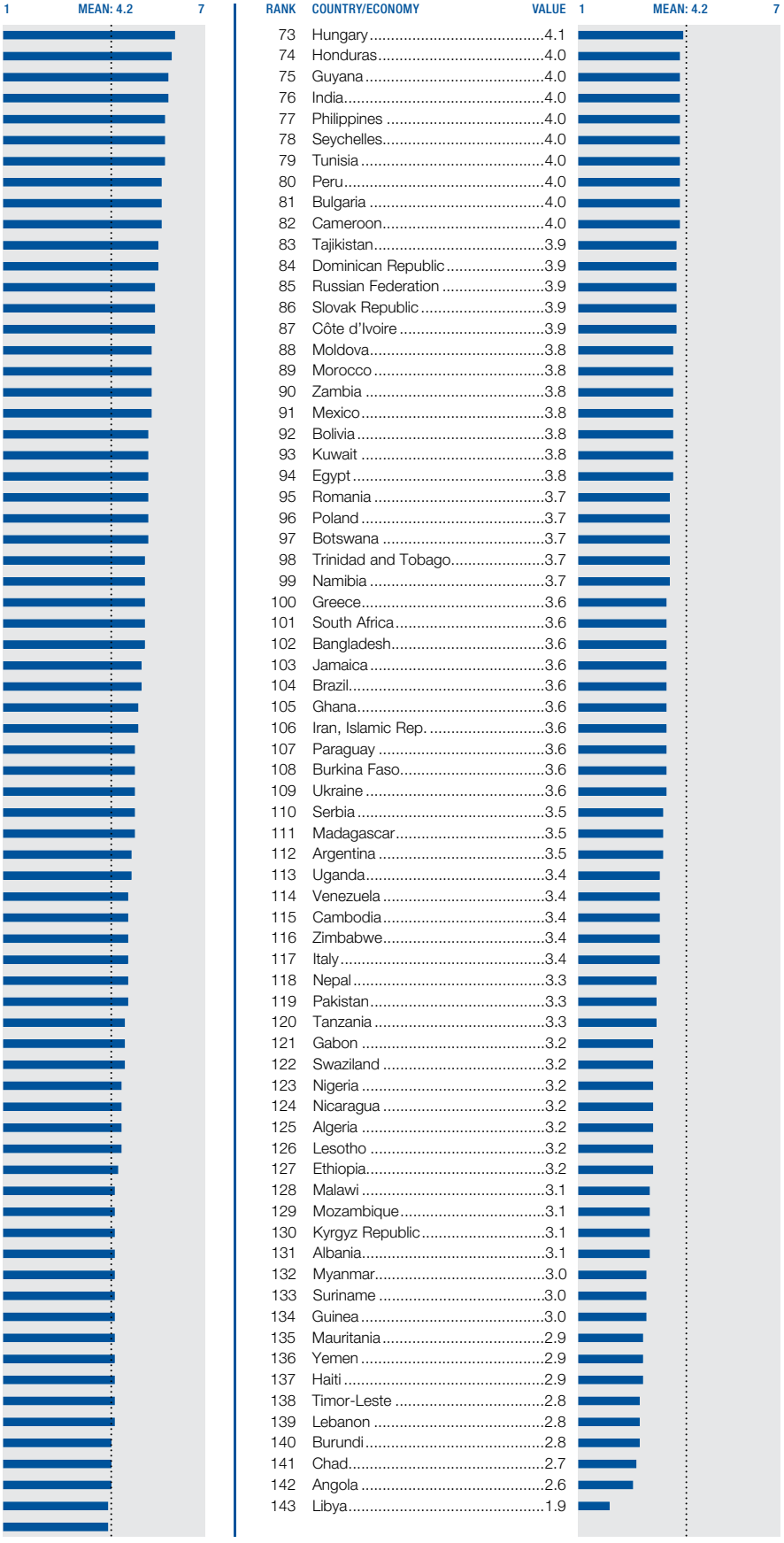
[1] 2000 [2] 2001 [3] 2002 [4] 2004 [5] 2005 [6] 2006 [7] 2007 [8] 2008 [9] 2009 [10] 2010 [11] 2011 [12] 2012

10th pillar
Social impacts

10.01 Impact of ICTs on access to basic services

In your country, to what extent do ICTs enable access for all citizens to basic services (e.g., health, education, financial services, etc.)? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	United Arab Emirates	6.1
2	Qatar	6.0
3	Singapore	5.9
4	Netherlands	5.9
5	Estonia	5.8
6	Norway	5.8
7	Luxembourg	5.8
8	Sweden	5.7
9	Taiwan, China	5.7
10	Switzerland	5.7
11	Finland	5.6
12	Korea, Rep.	5.6
13	Iceland	5.5
14	Canada	5.5
15	Malaysia	5.5
16	Malta	5.4
17	Belgium	5.4
18	Austria	5.4
19	Portugal	5.4
20	Rwanda	5.3
21	Bahrain	5.3
22	New Zealand	5.3
23	Hong Kong SAR	5.3
24	Japan	5.3
25	Saudi Arabia	5.3
26	United Kingdom	5.2
27	Denmark	5.2
28	Israel	5.2
29	Germany	5.2
30	United States	5.2
31	Lithuania	5.1
32	Australia	5.1
33	Macedonia, FYR	5.0
34	France	5.0
35	Jordan	4.9
36	Azerbaijan	4.9
37	Oman	4.9
38	Sri Lanka	4.9
39	Chile	4.9
40	Turkey	4.8
41	Spain	4.8
42	Latvia	4.7
43	Panama	4.7
44	Cyprus	4.7
45	Uruguay	4.7
46	China	4.7
47	Ireland	4.7
48	Puerto Rico	4.6
49	Mauritius	4.6
50	Slovenia	4.6
51	Costa Rica	4.5
52	Kenya	4.5
53	Barbados	4.5
54	Mali	4.5
55	Georgia	4.4
56	Czech Republic	4.3
57	Bhutan	4.3
58	Colombia	4.3
59	Indonesia	4.3
60	Cape Verde	4.3
61	Armenia	4.3
62	Kazakhstan	4.3
63	Guatemala	4.3
64	Senegal	4.3
65	Croatia	4.3
66	Vietnam	4.3
67	Gambia, The	4.3
68	Lao PDR	4.2
69	Thailand	4.2
70	Montenegro	4.2
71	Mongolia	4.1
72	El Salvador	4.1
73	Hungary	4.1
74	Honduras	4.0
75	Guyana	4.0
76	India	4.0
77	Philippines	4.0
78	Seychelles	4.0
79	Tunisia	4.0
80	Peru	4.0
81	Bulgaria	4.0
82	Cameroon	4.0
83	Tajikistan	3.9
84	Dominican Republic	3.9
85	Russian Federation	3.9
86	Slovak Republic	3.9
87	Côte d'Ivoire	3.9
88	Moldova	3.8
89	Morocco	3.8
90	Zambia	3.8
91	Mexico	3.8
92	Bolivia	3.8
93	Kuwait	3.8
94	Egypt	3.8
95	Romania	3.7
96	Poland	3.7
97	Botswana	3.7
98	Trinidad and Tobago	3.7
99	Namibia	3.7
100	Greece	3.6
101	South Africa	3.6
102	Bangladesh	3.6
103	Jamaica	3.6
104	Brazil	3.6
105	Ghana	3.6
106	Iran, Islamic Rep.	3.6
107	Paraguay	3.6
108	Burkina Faso	3.6
109	Ukraine	3.6
110	Serbia	3.5
111	Madagascar	3.5
112	Argentina	3.5
113	Uganda	3.4
114	Venezuela	3.4
115	Cambodia	3.4
116	Zimbabwe	3.4
117	Italy	3.4
118	Nepal	3.3
119	Pakistan	3.3
120	Tanzania	3.3
121	Gabon	3.2
122	Swaziland	3.2
123	Nigeria	3.2
124	Nicaragua	3.2
125	Algeria	3.2
126	Lesotho	3.2
127	Ethiopia	3.2
128	Malawi	3.1
129	Mozambique	3.1
130	Kyrgyz Republic	3.1
131	Albania	3.1
132	Myanmar	3.0
133	Suriname	3.0
134	Guinea	3.0
135	Mauritania	2.9
136	Yemen	2.9
137	Haiti	2.9
138	Timor-Leste	2.8
139	Lebanon	2.8
140	Burundi	2.8
141	Chad	2.7
142	Angola	2.6
143	Libya	1.9

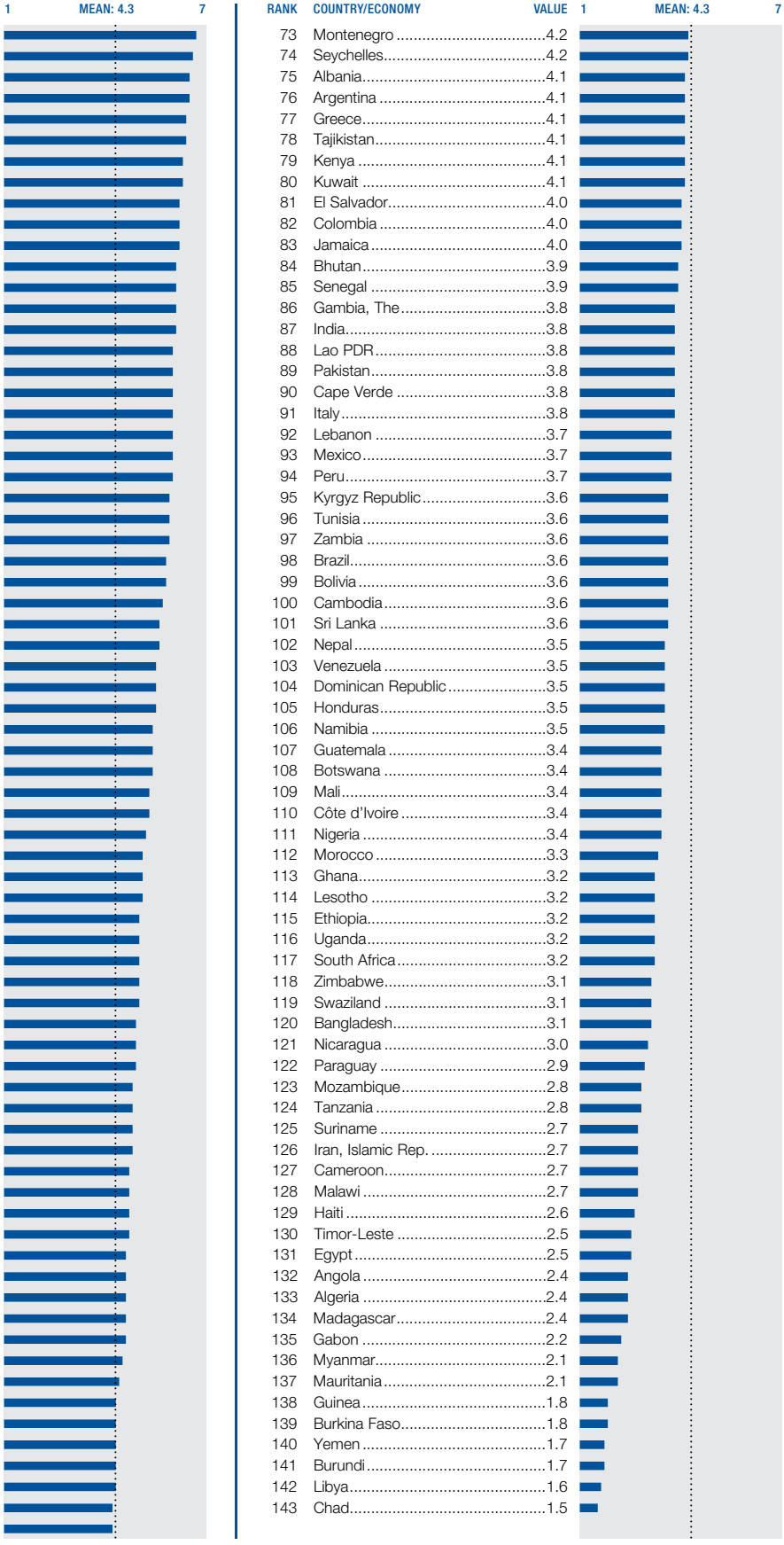


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

10.02 Internet access in schools

In your country, how widespread is Internet access in schools? [1 = nonexistent; 7 = extremely widespread] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	Iceland	6.7
2	Estonia	6.6
3	Norway	6.5
4	Finland	6.5
5	Netherlands	6.4
6	Singapore	6.4
7	United Kingdom	6.3
8	Sweden	6.3
9	Canada	6.2
10	Korea, Rep.	6.2
11	Australia	6.2
12	Taiwan, China	6.1
13	Switzerland	6.1
14	Luxembourg	6.1
15	United States	6.1
16	Hong Kong SAR	6.0
17	Uruguay	6.0
18	United Arab Emirates	6.0
19	New Zealand	6.0
20	Slovenia	6.0
21	Latvia	6.0
22	Denmark	6.0
23	Lithuania	5.9
24	Belgium	5.9
25	Qatar	5.9
26	Malta	5.8
27	Czech Republic	5.8
28	Portugal	5.7
29	Austria	5.6
30	Cyprus	5.6
31	Slovak Republic	5.5
32	Israel	5.5
33	Macedonia, FYR	5.5
34	Malaysia	5.4
35	Hungary	5.4
36	Ireland	5.4
37	Japan	5.3
38	China	5.3
39	Bahrain	5.2
40	Panama	5.1
41	Russian Federation	5.1
42	Chile	5.1
43	Germany	5.0
44	Barbados	5.0
45	Bulgaria	5.0
46	Jordan	5.0
47	Vietnam	5.0
48	Indonesia	4.9
49	Moldova	4.9
50	Poland	4.9
51	Spain	4.8
52	Croatia	4.8
53	Romania	4.8
54	Puerto Rico	4.8
55	France	4.7
56	Kazakhstan	4.7
57	Costa Rica	4.7
58	Turkey	4.7
59	Georgia	4.6
60	Oman	4.6
61	Thailand	4.6
62	Mongolia	4.6
63	Saudi Arabia	4.6
64	Trinidad and Tobago	4.5
65	Mauritius	4.4
66	Philippines	4.3
67	Ukraine	4.3
68	Armenia	4.3
69	Azerbaijan	4.3
70	Rwanda	4.3
71	Guyana	4.2
72	Serbia	4.2
73	Montenegro	4.2
74	Seychelles	4.2
75	Albania	4.1
76	Argentina	4.1
77	Greece	4.1
78	Tajikistan	4.1
79	Kenya	4.1
80	Kuwait	4.1
81	El Salvador	4.0
82	Colombia	4.0
83	Jamaica	4.0
84	Bhutan	3.9
85	Senegal	3.9
86	Gambia, The	3.8
87	India	3.8
88	Lao PDR	3.8
89	Pakistan	3.8
90	Cape Verde	3.8
91	Italy	3.8
92	Lebanon	3.7
93	Mexico	3.7
94	Peru	3.7
95	Kyrgyz Republic	3.6
96	Tunisia	3.6
97	Zambia	3.6
98	Brazil	3.6
99	Bolivia	3.6
100	Cambodia	3.6
101	Sri Lanka	3.6
102	Nepal	3.5
103	Venezuela	3.5
104	Dominican Republic	3.5
105	Honduras	3.5
106	Namibia	3.5
107	Guatemala	3.4
108	Botswana	3.4
109	Mali	3.4
110	Côte d'Ivoire	3.4
111	Nigeria	3.4
112	Morocco	3.3
113	Ghana	3.2
114	Lesotho	3.2
115	Ethiopia	3.2
116	Uganda	3.2
117	South Africa	3.2
118	Zimbabwe	3.1
119	Swaziland	3.1
120	Bangladesh	3.1
121	Nicaragua	3.0
122	Paraguay	2.9
123	Mozambique	2.8
124	Tanzania	2.8
125	Suriname	2.7
126	Iran, Islamic Rep.	2.7
127	Cameroon	2.7
128	Malawi	2.7
129	Haiti	2.6
130	Timor-Leste	2.5
131	Egypt	2.5
132	Angola	2.4
133	Algeria	2.4
134	Madagascar	2.4
135	Gabon	2.2
136	Myanmar	2.1
137	Mauritania	2.1
138	Guinea	1.8
139	Burkina Faso	1.8
140	Yemen	1.7
141	Burundi	1.7
142	Libya	1.6
143	Chad	1.5

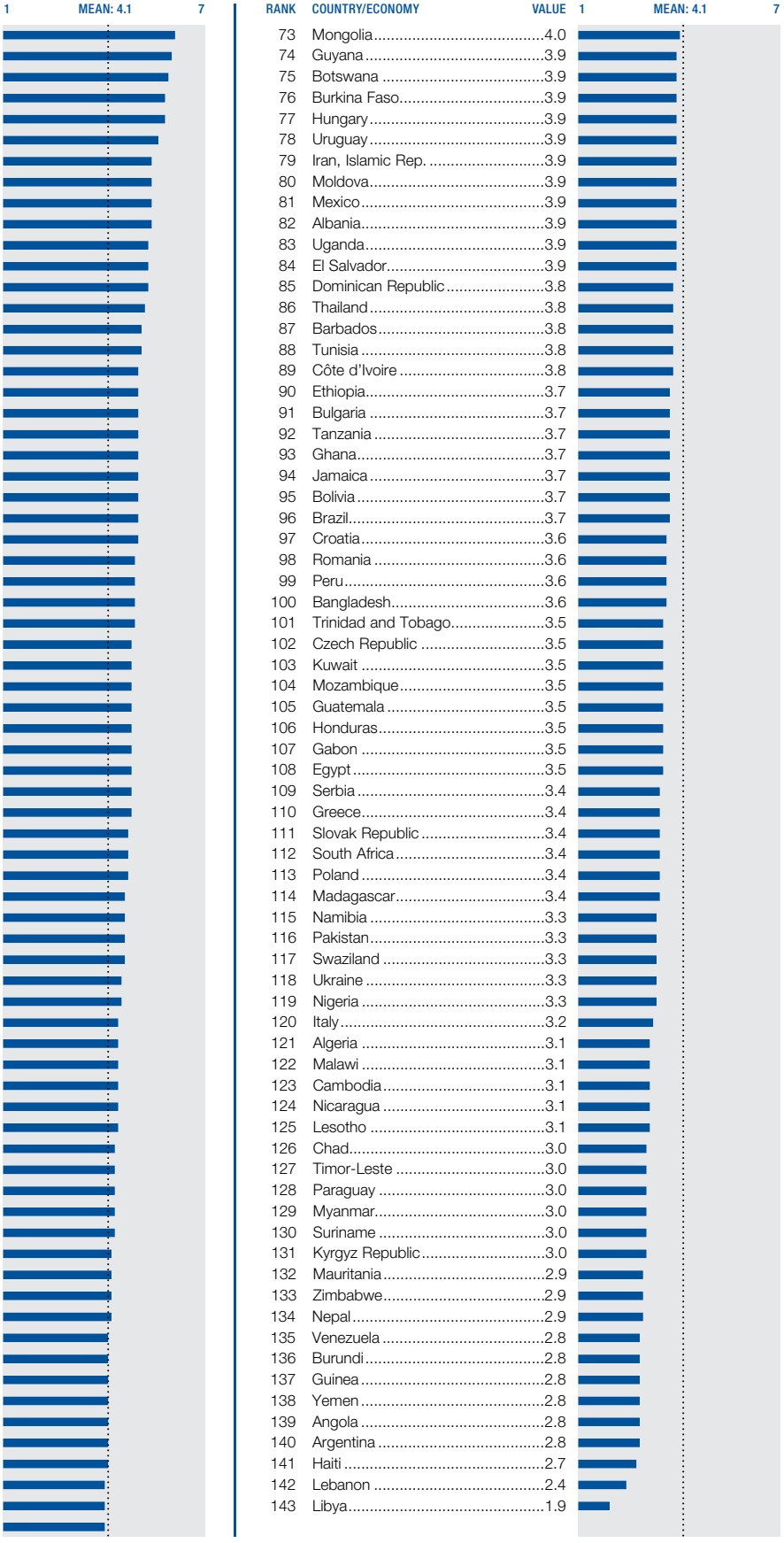


SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

10.03 ICT use and government efficiency

In your country, to what extent does the use of ICTs by the government improve the quality of government services to citizens? [1 = not at all; 7 = to a great extent] | 2013–2014 weighted average

RANK	COUNTRY/ECONOMY	VALUE
1	United Arab Emirates	6.1
2	Singapore	6.0
3	Qatar	5.9
4	Rwanda	5.8
5	Estonia	5.8
6	Malaysia	5.6
7	Saudi Arabia	5.4
8	Portugal	5.4
9	Luxembourg	5.4
10	Azerbaijan	5.4
11	Bahrain	5.3
12	Norway	5.3
13	Korea, Rep.	5.3
14	Sweden	5.2
15	Taiwan, China	5.1
16	Finland	5.1
17	Malta	5.0
18	Netherlands	5.0
19	Switzerland	5.0
20	Sri Lanka	5.0
21	Oman	5.0
22	Austria	5.0
23	New Zealand	5.0
24	Hong Kong SAR	5.0
25	Japan	5.0
26	Georgia	4.9
27	Macedonia, FYR	4.9
28	Denmark	4.9
29	Iceland	4.9
30	Jordan	4.8
31	Cape Verde	4.8
32	United Kingdom	4.8
33	Germany	4.8
34	Israel	4.8
35	Canada	4.8
36	Lithuania	4.8
37	Armenia	4.8
38	Chile	4.8
39	Ireland	4.7
40	Turkey	4.7
41	China	4.7
42	Panama	4.6
43	France	4.6
44	Kazakhstan	4.6
45	United States	4.6
46	Kenya	4.5
47	Bhutan	4.5
48	Mauritius	4.4
49	Gambia, The	4.4
50	Australia	4.4
51	Cyprus	4.4
52	Latvia	4.4
53	Montenegro	4.4
54	Belgium	4.3
55	Seychelles	4.3
56	Spain	4.3
57	Lao PDR	4.3
58	Mali	4.3
59	Indonesia	4.2
60	Zambia	4.2
61	Colombia	4.2
62	Puerto Rico	4.2
63	Senegal	4.1
64	Morocco	4.1
65	Tajikistan	4.1
66	Vietnam	4.1
67	Russian Federation	4.1
68	Costa Rica	4.1
69	Philippines	4.1
70	India	4.0
71	Cameroon	4.0
72	Slovenia	4.0
73	Mongolia	4.0
74	Guyana	3.9
75	Botswana	3.9
76	Burkina Faso	3.9
77	Hungary	3.9
78	Uruguay	3.9
79	Iran, Islamic Rep.	3.9
80	Moldova	3.9
81	Mexico	3.9
82	Albania	3.9
83	Uganda	3.9
84	El Salvador	3.9
85	Dominican Republic	3.8
86	Thailand	3.8
87	Barbados	3.8
88	Tunisia	3.8
89	Côte d'Ivoire	3.8
90	Ethiopia	3.7
91	Bulgaria	3.7
92	Tanzania	3.7
93	Ghana	3.7
94	Jamaica	3.7
95	Bolivia	3.7
96	Brazil	3.7
97	Croatia	3.6
98	Romania	3.6
99	Peru	3.6
100	Bangladesh	3.6
101	Trinidad and Tobago	3.5
102	Czech Republic	3.5
103	Kuwait	3.5
104	Mozambique	3.5
105	Guatemala	3.5
106	Honduras	3.5
107	Gabon	3.5
108	Egypt	3.5
109	Serbia	3.4
110	Greece	3.4
111	Slovak Republic	3.4
112	South Africa	3.4
113	Poland	3.4
114	Madagascar	3.4
115	Namibia	3.3
116	Pakistan	3.3
117	Swaziland	3.3
118	Ukraine	3.3
119	Nigeria	3.3
120	Italy	3.2
121	Algeria	3.1
122	Malawi	3.1
123	Cambodia	3.1
124	Nicaragua	3.1
125	Lesotho	3.1
126	Chad	3.0
127	Timor-Leste	3.0
128	Paraguay	3.0
129	Myanmar	3.0
130	Suriname	3.0
131	Kyrgyz Republic	3.0
132	Mauritania	2.9
133	Zimbabwe	2.9
134	Nepal	2.9
135	Venezuela	2.8
136	Burundi	2.8
137	Guinea	2.8
138	Yemen	2.8
139	Angola	2.8
140	Argentina	2.8
141	Haiti	2.7
142	Lebanon	2.4
143	Libya	1.9



SOURCE: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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. | 2013

RANK	COUNTRY/ECONOMY	VALUE
1	Korea, Rep.	1.00
1	Netherlands	1.00
3	Uruguay	0.98
4	France	0.96
4	Japan	0.96
4	United Kingdom	0.96
7	Australia	0.94
7	Chile	0.94
9	United States	0.92
10	Singapore	0.90
11	Colombia	0.88
12	Israel	0.86
13	United Arab Emirates	0.84
14	Bahrain	0.82
14	Canada	0.82
14	Costa Rica	0.82
17	Greece	0.80
17	Morocco	0.80
19	Italy	0.78
19	New Zealand	0.78
19	Spain	0.78
22	Estonia	0.76
22	Kazakhstan	0.76
24	Brazil	0.71
24	Finland	0.71
24	Germany	0.71
24	Latvia	0.71
24	Oman	0.71
24	Peru	0.71
30	Mongolia	0.69
30	Norway	0.69
30	Russian Federation	0.69
33	China	0.65
33	Ireland	0.65
33	Kenya	0.65
33	Lithuania	0.65
33	Portugal	0.65
33	Sri Lanka	0.65
33	Tunisia	0.65
40	Austria	0.63
40	Belgium	0.63
40	India	0.63
40	Moldova	0.63
40	Slovak Republic	0.63
45	El Salvador	0.61
45	Mexico	0.61
45	Qatar	0.61
45	Sweden	0.61
49	Georgia	0.59
49	Montenegro	0.59
51	Philippines	0.57
51	Saudi Arabia	0.57
51	Venezuela	0.57
54	Argentina	0.55
54	Denmark	0.55
54	Egypt	0.55
54	Luxembourg	0.55
54	Thailand	0.55
59	Albania	0.53
59	Armenia	0.53
59	Malaysia	0.53
59	Mauritius	0.53
63	Rwanda	0.51
64	Iceland	0.49
64	Panama	0.49
64	Poland	0.49
64	Turkey	0.49
64	Vietnam	0.49
69	Jordan	0.47
69	Malta	0.47
69	Romania	0.47
72	Hungary	0.45
72	Zimbabwe	0.45
74	Azerbaijan	0.43
74	Kuwait	0.43
74	Ukraine	0.43
77	Bolivia	0.41
77	Kyrgyz Republic	0.41
77	Serbia	0.41
80	Bangladesh	0.39
80	Ghana	0.39
80	Slovenia	0.39
80	Tanzania	0.39
84	Switzerland	0.37
85	Bhutan	0.35
85	Madagascar	0.35
85	Senegal	0.35
88	Croatia	0.33
88	Dominican Republic	0.33
88	Guyana	0.33
88	Honduras	0.33
88	Mozambique	0.33
88	Namibia	0.33
88	Nigeria	0.33
88	Pakistan	0.33
88	South Africa	0.33
97	Botswana	0.31
97	Cyprus	0.31
97	Trinidad and Tobago	0.31
100	Indonesia	0.29
100	Iran, Islamic Rep.	0.29
100	Lebanon	0.29
100	Nepal	0.29
100	Timor-Leste	0.29
105	Yemen	0.27
106	Bulgaria	0.25
106	Czech Republic	0.25
106	Ethiopia	0.25
106	Paraguay	0.25
106	Seychelles	0.25
111	Angola	0.24
111	Malawi	0.24
113	Gabon	0.22
113	Gambia, The	0.22
113	Macedonia, FYR	0.22
116	Cambodia	0.20
116	Guatemala	0.20
116	Jamaica	0.20
116	Lao PDR	0.20
120	Côte d'Ivoire	0.18
120	Haiti	0.18
120	Zambia	0.18
123	Cameroon	0.16
123	Mali	0.16
123	Swaziland	0.16
126	Burkina Faso	0.14
126	Lesotho	0.14
126	Suriname	0.14
126	Uganda	0.14
130	Tajikistan	0.12
131	Barbados	0.10
131	Cape Verde	0.10
131	Nicaragua	0.10
134	Algeria	0.08
134	Chad	0.08
134	Mauritania	0.08
134	Myanmar	0.08
138	Burundi	0.06
138	Libya	0.06
140	Guinea	0.02
n/a	Hong Kong SAR	n/a
n/a	Puerto Rico	n/a
n/a	Taiwan, China	n/a

SOURCE: United Nations Department of Economic and Social Affairs (UNDESA), *UN E-Government Development Database* (retrieved November 27, 2014)

2.3

Technical Notes and Sources

Technical Notes and Sources

This section complements the Data Tables by providing additional information for all indicators used in the computation of the Networked Readiness Index 2015. In the case of indicators derived from the Executive Opinion Survey (the Survey), the full question and associated answers are provided. For more details on Survey indicators, refer to Chapter 1.3 of *The Global Competitiveness Report 2014–2015*.

For indicators sourced from other organizations, because of space limitations it is not possible to reproduce in this *Report* all the additional information associated with specific data points. Readers and users are urged to refer to the original source for any additional information and exceptions for certain economies or/and data points.

Although the World Economic Forum takes every reasonable step to ensure the quality and accuracy of the data used in the computation of the Networked Readiness Index, it makes no warranties with respect to their quality and accuracy. The World Economic Forum shall not be held responsible or liable for any outcome resulting from the use of these data. In particular, it shall not be responsible for any interpretation, decisions, or actions based on these data.

Furthermore, the data used in the computation of the Networked Readiness Index 2015 represent the most recent or/and best data available at the time when they were collected. It is possible that data were updated or revised subsequently.

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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 = not effective at all—among the worst in the world; 7 = extremely effective—among the best in the world] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.02 Laws relating to ICTs

How developed are your country's laws related to the use of ICTs (e.g., electronic commerce, digital signatures, consumer protection)? [1 = not developed at all; 7 = extremely well developed] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.03 Judicial independence

In your country, to what extent is the judiciary independent from influences of members of government, citizens, or firms? [1 = heavily influenced; 7 = entirely independent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.04 Efficiency of legal framework in settling disputes

In your country, how efficient is the legal framework for private businesses in settling disputes? [1 = extremely inefficient; 7 = extremely efficient] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.05 Efficiency of legal framework in challenging regulations

In your country, how easy is it for private businesses to challenge government actions and/or regulations through the legal system? [1 = extremely difficult; 7 = extremely easy] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.06 Intellectual property protection

In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures? [1 = extremely weak; 7 = extremely strong] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

1.07 Software piracy rate

Unlicensed software units as a percentage of total software units installed | 2013

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, or software loaded onto tablets or smart phones.

For more information about the methodology, refer to the study available at http://globalstudy.bsa.org/2013/index.html.

Source: The Software Alliance (BSA), *The Compliance Gap: BSA Global Software Survey* (June 2014)

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 | 2014

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. Other procedural steps, internal to the court or between the parties and their counsel, may be counted as well. This indicator includes steps to file and serve the case, steps to assign the case to a judge, steps for trial and judgment, and steps necessary to enforce the judgment. To indicate overall efficiency, one procedure is subtracted from the total number for economies that have specialized commercial courts or divisions, and one procedure for economies that allow electronic filing of the initial complaint. Some procedural steps that are part of others are not counted in the total number of procedures.

For more details about the methodology employed and the assumptions made to compute this indicator, visit http://www.doingbusiness.org/methodology/enforcing-contracts.

Source: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

1.09 Time required 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 | 2014

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/methodology/enforcing-contracts.

Source: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2nd pillar: Business and innovation environment

2.01 Availability of latest technologies

In your country, to what extent are the latest technologies available? [1 = not available at all; 7 = widely available] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 = extremely difficult; 7 = extremely easy] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2013

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 2015* reports the total tax rate for calendar year 2013. 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 five 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 taxes).

For more details about the methodology employed and the assumptions made to compute this indicator, visit http://www.doingbusiness.org/methodology/paying-taxes.

Source: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.04 Time required to start a business

Number of days required to start a business | 2014

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/methodology/starting-a-business.

Source: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.05 Number of procedures required to start a business

Number of procedures required to start a business | 2014

A *procedure* is defined as any interaction of the company founders with external parties (e.g., government agencies, lawyers, auditors, or notaries).

For details about the methodology employed and the assumptions made to compute this indicator, visit http://www.doingbusiness.org/methodology/starting-a-business.

Source: World Bank/International Finance Corporation, *Doing Business 2015: Going Beyond Efficiency*

2.06 Intensity of local competition

In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

2.07 Tertiary education enrollment rate

Gross tertiary education enrollment rate, gross % | 2012 or most recent

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 26, 2014); Organisation for Economic Co-operation and Development (OECD), *OECD.Stat* (retrieved January 14, 2015); national sources

2.08 Quality of management schools

In your country, how would you assess the quality of business schools? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

2.09 Government procurement of advanced technology products

In your country, to what extent do government purchasing decisions foster innovation? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

3rd pillar: Infrastructure

3.01 Electricity production

Electricity production (kWh) per capita | 2011 or most recent

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 26, 2014).

Sources: The World Bank, *World Development Indicators* (retrieved November 26, 2014); US Central Intelligence Agency (CIA), *The World Factbook* (retrieved January 8, 2015)

3.02 Mobile network coverage rate

Percentage of total population covered by a mobile network signal | 2013 or most recent

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 2014* (December 2014 edition)

3.03 International Internet bandwidth

International Internet bandwidth (kb/s) per Internet user | 2013 or most recent

International Internet bandwidth is the sum of the 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 2014* (December 2014 edition)

3.04 Secure Internet servers

Secure Internet servers per million population | 2013

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

Source: The World Bank, *World Development Indicators* (retrieved November 26, 2014)

4th pillar: Affordability

4.01 Prepaid mobile cellular tariffs

Average per-minute cost of different types of mobile cellular calls (PPP $) | 2013 or most recent

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.

In order to account for differences in costs of living, we convert the dollar amounts into international dollars by applying the purchasing power parity (PPP) conversion factor sourced from the World Bank's *World Development Indicators* (retrieved January 2, 2015).

There are limitations associated with using PPP estimates. First, finding comparable baskets of goods with which to compare purchasing power across countries is an arduous task because there are inherent differences across countries in the quality of goods and consumption patterns. Second, price levels in one particular sector or industry, or for a particular product (or service), do not always reflect the general level of prices; this is a result of specific market conditions (competition, maturity, offering, and so on). Tariff rates expressed in PPP terms must therefore be interpreted with caution.

Sources: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition); World Bank, *World Development Indicators* (retrieved January 2, 2015); national sources

4.02 Fixed broadband Internet tariffs

Monthly subscription charge for fixed (wired) broadband Internet service (PPP $) | 2013 or most recent

Fixed (wired) broadband is considered any dedicated connection to the Internet at downstream speeds equal to, or greater than, 256 kilobits per second. In order to account for differences in costs of living, we convert the dollar amounts into international dollars by applying the purchasing power parity (PPP) conversion factor sourced from the World Bank's *World Development Indicators* (retrieved January 2, 2015).

There are limitations associated with using PPP estimates. First, finding comparable baskets of goods with which to compare purchasing power across countries is an arduous task because there are inherent differences across countries in the quality of goods and consumption patterns. Second, price levels in one particular sector or industry, or for a particular product (or service), do not always reflect the general level of prices; this is a result of specific market conditions (competition, maturity, offering, and so on). Tariff rates expressed in PPP terms must therefore be interpreted with caution.

Sources: Authors' calculations based on International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition); World Bank, *World Development Indicators* (retrieved January 2, 2015); 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 | 2013 or most recent

This variable measures the degree of liberalization in 17 categories of ICT services, including 3G/4G telephony, 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 2013 for the majority of countries (for others, data are available as of 2012 or earlier years). The index is calculated as the average of points obtained in each of the 17 categories for which data are 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* (retrieved January 2, 2015).

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 = extremely well] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

5.02 Quality of math and science education

In your country, how would you assess the quality of math and science education in schools? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

5.03 Secondary enrollment rate

Secondary education gross enrollment rate (%) | 2012 or most recent

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 (retrieved November 26, 2014); United Nations Children's Fund (UNICEF), Education Statistics; national sources

5.04 Adult literacy rate

Adult literacy rate (%) | 2015 or most recent

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. We also assume a rate of 99 percent for Hong Kong SAR. 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 (retrieved November 26, 2014); national sources

6th pillar: Individual usage

6.01 Mobile telephone subscriptions

Mobile telephone subscriptions (post-paid and pre-paid) per 100 population | 2013

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 prepaid 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 2014* (December 2014 edition)

6.02 Internet users

Percentage of individuals using the Internet | 2013

This refers to the proportion of individuals who used the Internet in the last 12 months. Data are based on surveys generally carried out by national statistical offices or estimated based on the number of Internet subscriptions.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.03 Households with a personal computer

Percentage of households equipped with a personal computer | 2013 or most recent

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.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.04 Households with Internet access

Percentage of households with Internet access at home | 2013 or most recent

The share of households with Internet access at home is calculated by dividing the number of in-scope households (where at least one household member is aged 15–74) with Internet access by the total number of in-scope households.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.05 Fixed broadband Internet subscriptions

Fixed broadband Internet subscriptions per 100 population | 2013 or most recent

This refers to total fixed (wired) broadband Internet subscriptions to high-speed access to the public Internet—a TCP/IP connection—at downstream speeds equal to, or greater than, 256 kb/s. This includes cable modem, DSL, fiber-to-the-home/building, and other fixed (wired)-broadband subscriptions. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile-cellular networks and wireless-broadband technologies.

Source: International Telecommunication Union (ITU), *ITU World Telecommunication/ICT Indicators Database 2014* (December 2014 edition)

6.06 Mobile broadband Internet subscriptions

Mobile broadband Internet subscriptions per 100 population | 2013 or most recent

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 2014* (December 2014 edition)

6.07 Use of virtual social networks

In your country, how widely used are virtual social networks (e.g., Facebook, Twitter, LinkedIn)? [1 = not used at all; 7 = widely used] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7th pillar: Business usage

7.01 Firm-level technology absorption

In your country, to what extent do businesses adopt new technology? [1 = not at all; 7 = adopt extensively] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.02 Capacity for innovation

In your country, to what extent do companies have the capacity to innovate? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.03 PCT patents applications

Number of applications filed under the Patent Cooperation Treaty (PCT) per million population | 2011–2012 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.

For more information, consult http://www.oecd.org/sti/inno/oecdpatentdatabases.htm. The average count of applications filed in 2011 and 2012 is divided by population, using figures from the World Bank's *World Development Indicators* (retrieved November 26, 2014).

Sources: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2015; World Bank, *World Development Indicators* (retrieved November 26, 2014)

7.04 Business-to-business Internet use

In your country, to what extent do businesses use ICTs for transactions with other businesses? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.05 Business-to-consumer Internet use

In your country, to what extent do businesses use the Internet for selling their goods and services to consumers? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

7.06 Extent of staff training

In your country, to what extent do companies invest in training and employee development? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2013

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 http://unpan3.un.org/egovkb/.

Source: United Nations Department of Economic and Social Affairs (UNDESA), *UN E-Government Development Database* (retrieved November 27, 2014)

8.03 Government success in ICT promotion

In your country, how successful is the government in promoting the use of information and communication technologies (ICTs)? [1 = not successful at all; 7 = extremely successful] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

9th pillar: Economic impacts

9.01 Impact of ICTs on new services and products

In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2011–2012 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 http://www.oecd.org/sti/inno/oecdpatentdatabases.htm. The average count of applications filed in 2011 and 2012 is divided by population, using figures from the World Bank's *World Development Indicators* (retrieved November 26, 2014).

Sources: Organisation for Economic Co-operation and Development (OECD), *Patent Database*, January 2015; World Bank, *World Development Indicators* (retrieved November 26, 2014)

9.03 Impact of ICTs on new organizational models

In your country, to what extent do ICTs enable new organizational models (e.g., virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

9.04 Share of workforce employed in knowledge-intensive activities (%)

Share of workforce employed in knowledge-intensive activities (%) | 2013 or most recent

Knowledge-intensive jobs correspond to the International Labour Organization (ILO) aggregate category "Managers, professionals, and technicians," as provided in the ILOSTAT Database. For a few countries, when aggregate data were not available, authors have manually calculated the share of knowledge-intensive jobs (as a percentage of total employment) summing the following ISCO-88 categories: (1) Legislators, senior officials and managers; (2) Professionals; and (3) Technicians and associate professionals.

Source: International Labour Organization (ILO), ILOSTAT Database (retrieved November 28, 2014), http://www.ilo.org/ilostat

10th pillar: Social impacts

10.01 Impact of ICTs on access to basic services

In your country, to what extent do ICTs enable access for all citizens to basic services (e.g., health, education, financial services, etc.)? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

10.02 Internet access in schools

In your country, how widespread is Internet access in schools? [1 = nonexistent; 7 = extremely widespread] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 editions

10.03 ICT use and government efficiency

In your country, to what extent does the use of ICTs by the government improve the quality of government services to citizens? [1 = not at all; 7 = to a great extent] | 2013–14 weighted average

Source: World Economic Forum, Executive Opinion Survey, 2013 and 2014 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 | 2013

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 policymaking through the use of e-government programs. Within the *E-Participation Index*, countries are benchmarked in three areas: *e-information, e-consultation,* and *e-decision-making*. As such, the index indicates 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 http://unpan3.un.org/egovkb/.

Source: United Nations Department of Economic and Social Affairs (UNDESA), *UN E-Government Development Database* (retrieved November 27, 2014)

About the Authors

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Luis Alvarez was appointed CEO of BT Global Services in October 2012, reporting to the CEO of BT Group. BT Global Services is a £7 billion business, which provides managed networked IT services to around 7,000 large corporate and public-sector customers in over 170 countries worldwide. Mr Alvarez joined BT Global Services in April 1999 as Multimedia and Internet Director, then as Country Manager for BT's Spanish, Portuguese, and Latin American operations. Prior to his current role, he was President of BT in Europe, Middle East, Africa, and Latin America, with responsibility also for BT's Global Telecom Markets unit. Before BT, Mr Alvarez held management positions at Ericsson, IBM, Grupo Santander, and Banesto. He has a Telecommunications Engineering degree from UPM, Madrid, and continued his education at ESADE, IMD, and Tuck University. He has won awards from organizations such as ComputerWorld, Directivo Plus, the Spanish Association of Telecommunications Engineers, and Spain's leading business school, ESIC. He is very active in BT's global sustainability work.

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Lohini Moodley is a leader in McKinsey's Telecommunications, Media, and Technology practice in Africa. A major focus of her work is on unlocking the potential of information and communication technologies (ICTs) to transform lives, businesses, and national economies in Africa. Ms Moodley has been leading McKinsey's research on digital trends in Africa. Her research has provided insight into how consumers and small- and medium-sized enterprises are using the Internet as well as implications for governments and telecommunications operators in the region on how to increase broadband adoption and usage. She has contributed to recent reports include *Lions Go Digital: The Internet's Transformative Potential in Africa* and *Offline and Falling Behind: Barriers to Internet Adoption.* Ms Moodley also leads a McKinsey program called Remarkable Women in sub-Saharan Africa, which aims to equip high-potential South African women with the skills to become great leaders. She has a BSc (Hons) in Mathematics and Applied Mathematics from the University of Cape Town and an MSc in Mathematics from the University of South Africa.

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Robert Pepper leads Cisco's Global Technology Policy team working with governments and business leaders across the world in areas such as broadband, IP-enabled services, wireless and spectrum policy, security, privacy, Internet governance, and ICT development. He joined Cisco in July 2005 from the Federal Communications Commission, where he served as Chief of the Office of Plans and Policy and Chief of Policy Development beginning in 1989. There he led teams developing policies promoting the development of the Internet, implementing telecommunications legislation, planning for the transition to digital television, and designing and implementing the first US spectrum auctions. Dr Pepper serves on the board of the US Telecommunications Training Institute (USTTI) and advisory boards for Columbia University and Michigan State University, and is a Communications Program Fellow at the Aspen Institute. He is a member of the US Department of Commerce's Spectrum Management Advisory Committee, the UK's Ofcom Spectrum Advisory Board, and the US Department of State's Advisory Committee on International Communications and Information Policy. He received his BA and PhD from the University of Wisconsin-Madison.

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Sergio Sandoval is a Senior Expert in McKinsey & Company's Brussels Office. Mr Sandoval joined the firm in late 2001 and has been part of McKinsey's global efforts in regulation, regulatory economics, and stakeholder management for the past six years. He has been a lead author in the annual *Global Information Technology Report* of the World Economic Forum since 2005, with articles focused on topics of regulation, next-generation networks, and the economic impact of high-speed broadband networks. He is also the key liaison person between McKinsey and the European Union—his Brussels-based location enables him to maintain high-level contacts and get information first hand from key European industry stakeholders in Brussels such as the European Telecommunications Network Operators' Association (ETNO), the European Competitive Telecommunications Association (ECTA), the Centre for European Political Studies (CEPS), and EurActiv. Prior to joining McKinsey, Mr Sandoval worked with Colombia's Presidency of the Republic as Economic Advisor to the President. He obtained a BS and an MA in Economics from Los Andes University in Colombia, and an MBA with high honors from Solvay Business School.

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Dominic Vergine

Dominic Vergine was appointed Head of Sustainability and Corporate Responsibility at ARM in December 2013. He is responsible for developing ARM's sustainability and corporate responsibility programs. Mr Vergine is currently driving several initiatives focused on delivering technology across the developing world and exploring ways that technology can help improve global sustainability. He is also involved in company reporting, marketing, business development, government affairs, and public policy for the sustainable development of ARM. Prior to ARM, Mr Vergine co-founded Iceni Mobile, Aptivate and Vertus Tech. As CEO of Aptivate, he worked with governments and international agencies across Europe and Sub-Saharan Africa to focus on technology for international development (ICT4D). Mr Vergine is also Chair of Trustees and Co-Founder of The Humanitarian Centre. He has a Master degree in English Literature from the University of Oxford and a Post-Graduate Certificate in Sustainable Business from the University of Cambridge.

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Dale Wiggins is Vice President and General Manager of the Philips HealthSuite Digital Platform (HSDP). HSDP is the core infrastructure for Philips solutions, with patient-centricity and continuity of care built into the design. HealthSuite is fully open in order to create a rich ecosystem that can enable continuum of care with big data and integrated clinical solutions. Previously, Mr Wiggins was General Manager of Philips Research North America, leading the laboratory contributing to global research programs in the fields of healthcare and lighting. Prior to this appointment, he was Chief Technology Officer of the Patient Care and Clinical Informatics business. He drove strategic technology plans and oversaw activities related to several principal healthcare industry themes, including systems integration within the hospital enterprise architecture, clinical decision support, interoperability standards, and outcomes improvement studies and other clinical research. Mr Wiggins joined Philips in 2001 from Hewlett-Packard, where he held various management, architecture, and engineering positions. He holds BS and MS degrees in Computer and Systems Engineering.

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