
The Software Alliance
BSA
2016 BSA GLOBAL CLOUD COMPUTING SCORECARD
Confronting New Challenges
galexia
CONSULTING

CONTENTS

EXECUTIVE SUMMARY

The 2016 BSA Global Cloud Computing Scorecard — the only report to regularly track change in the international policy landscape for cloud computing — shows that global cloud readiness continues to improve in every region of the world. Even so, important exceptions exist in certain countries that threaten to slow economic growth in those markets.

Information technology (IT) is integral to a nation's economic growth. As a recent IT innovation, cloud computing has added a new dimension to that importance by increasing access to technology that drives economic growth at the national and global levels.

The Scorecard ranks the IT infrastructure and policy environment — or cloud computing readiness — of 24 countries that account for 80 percent of the world's IT markets. Each country is graded on its strengths and weaknesses in seven key policy areas.

The results show progress in some areas, setbacks in others, and the trends that have emerged since the first Scorecard report in 2012. The results also serve as an important roadmap for the future, highlighting the initiatives and policies that countries can — and should — take to ensure that they reap the full suite of economic and growth benefits of cloud computing.

Cloud computing democratizes the use of advanced technologies. Cloud computing allows anyone — a start-up, an individual consumer, a government or a small business — to access technology previously available only to large organizations. These services in return have opened the door to unprecedented connectivity, productivity and competitiveness.

Countries that offer a policy environment in which cloud-computing services can flourish gain in productivity and economic growth. The countries with the most favorable policies are those in which the free movement of data, privacy, intellectual property protections, robust deterrence and enforcement of cybercrime are all important priorities. Many countries also recognize that coordination of national cloud-computing policies with those of other nations will facilitate benefits for all countries participating in the global economy.

But countries inhibiting, or failing to support, the use of cloud computing will not keep pace with those embracing the tool.

This year's results reveal that almost all countries have made significant improvements in their policy environments since 2013. But the stratification between high-, middle- and lower-achieving country groups has widened, with the middle-ranking countries stagnating even as the high achievers continue to refine their policy environments.

The Scorecard can be analyzed in many different ways, but the clearest measurements lie in the scores. The biggest improvers were South Africa (moving up six places), Canada (moving up five places) and Brazil (up more than 4 points but not changing positon).

...while many countries are focused on data protection and cybercrime, few are promoting policies of free trade or harmonization of cloud computing policies.

Notably, three of the lowest-ranked countries — Thailand, Brazil and Vietnam — continue to make significant and consistent gains that are closing their gap with next-higher countries. The world's major IT markets remained stable with modest gains.

Negative trends emerged as well. For example, while many countries are focused on data protection and cybercrime, few are promoting policies of free trade or harmonization of cloud computing policies. Russia and China, in particular, have imposed new policies that will hinder cloud computing.

Other countries, such as Korea, may rank among the better-performing markets based on high scores in certain categories but also have adopted restrictive policies that drag down their overall ranking.

Among this Scorecard's findings:

Data privacy regimes continue to strengthen in most, but not all, countries:

- Most countries now have data protection frameworks in place. Canada scored highest based on its comprehensive privacy regime that avoids onerous registration requirements.
- South Africa received a big boost to its score, moving up six places in rank since 2013, after introducing a comprehensive privacy regime.
- Russia fell three positions in rank based on its new data protection framework that contains prescriptive data localization requirements. These requirements likely will pose a significant barrier to cloud service providers. Indonesia has also adopted a prescriptive data localization regime.
- Unfortunately, privacy laws are still absent in several countries. Brazil, Thailand and Turkey have no comprehensive laws in place, while the laws in China, India, Indonesia and Vietnam remain very limited.

Data security and cybercrime continue to be high priorities for most countries:

- Recent high-profile cybersecurity attacks have spurred governments to respond with new cybersecurity laws and policies and most now have legislation to combat the unauthorized access to data in the cloud and cybercrime. A few key jurisdictions continue to have gaps, including China, Russia, Vietnam and Korea.
- Unfortunately, some countries have been over-prescriptive. China, for example, has imposed an Internet filtering and censorship regime that may act as a barrier to cloud computing.

Fewer countries are promoting free trade, data portability and the harmonization of standards:

- Canada and the United States continue to lead in promoting free trade. A number of countries still provide preferential treatment for domestic suppliers in government procurement or have introduced other barriers to international trade.
- Damagingly, policies in China, India, Indonesia, Korea and Russia have moved away from accepting international standards and international certifications.

Obstructive policies continue to keep some countries from advancing:

- Despite an improved IT infrastructure score, China dropped four places to next-to-last in the overall rankings due to gaps in privacy protection and cybercrime laws and poor enforcement of intellectual property rights. Other policies discriminate against foreign technology companies and impose onerous certification requirements that hinder free trade. China's extensive regulation of Internet content, including mandatory Internet filtering and censorship, continues to inhibit data movement.

BSA CLOUD POLICY BLUEPRINT

The economic growth predicted to flow from cloud computing — and the resulting transformation of both businesses and national economies — is predicated on the proper policies being in place in each of the seven areas used in the BSA index:

- **Ensuring privacy:** The success of cloud computing depends on users' faith that their information will not be used or disclosed in unexpected ways. At the same time, to maximize the benefit of the cloud, providers must be free to move data through the cloud in the most efficient way.
- **Promoting security:** Users must be assured that cloud computing providers understand and properly manage the risks inherent in storing and running applications in the cloud. Cloud providers must be able to implement cutting-edge cybersecurity solutions without being required to use specific technologies.
- **Battling cybercrime:** In cyberspace, as in the real world, laws must provide meaningful deterrence and clear causes of action. Legal systems should provide an effective mechanism for law enforcement, and for cloud providers themselves, to combat unauthorized access to data stored in the cloud.
- **Protecting intellectual property:** In order to promote continued innovation and technological advancement, intellectual property laws should provide for clear protection and vigorous enforcement against misappropriation and infringement of the developments that underlie the cloud.
- **Ensuring data portability and the harmonization of international rules:** The smooth flow of data around the world — for example, between different cloud providers — requires efforts to promote openness and interoperability. Governments should work with industry to develop standards, while also working to minimize conflicting legal obligations on cloud providers.
- **Promoting free trade:** By their very nature, cloud technologies operate across national boundaries. The cloud's ability to promote economic growth depends on a global market that transcends barriers to free trade, including preferences for particular products or providers.
- **Establishing the necessary IT infrastructure:** Cloud computing requires robust, ubiquitous, and affordable broadband access. This can be achieved through policies that provide incentives for private sector investment in broadband infrastructure and laws that promote universal access to broadband.

The move to the cloud and capitalization on its benefits across the board is hardly inevitable, and an urgent task lies ahead for governments. In order to obtain the benefits of the cloud, policymakers must provide a legal and regulatory framework that will promote innovation, provide incentives to build the infrastructure to support it, and promote confidence that using the cloud will bring the anticipated benefits without sacrificing expectations of privacy, security, and safety.

The United States continues to be an active participant in international standards development processes and an advocate of free trade and harmonization.

Some countries made significant gains but little overall improvement:

- Although many of the lower-achieving countries made big gains in some policy areas, the effect was dampened by other low scores. The strong intellectual property and IT readiness scores of Indonesia, Thailand and Vietnam, for example, were negatively off-set by poor scores in security.
- Brazil typifies the struggle of these countries. Brazil ranked lowest in 2012. Although this year it improved considerably, its position in the rankings (22nd) remains the same as it was in the last Scorecard. Despite improvements in security, infrastructure and Internet freedom, Brazil is held back by a lack of comprehensive privacy laws, out-of-date copyright laws, gaps in intellectual property protection and widespread online piracy.

In the world's largest markets, countries remained stable with modest gains:

- Japan remains in first place, with a score made stronger by continual update and reform of privacy laws, among other policies.
- Canada made the biggest jump in rank, moving up five spots (for a total of eight positions since the first Scorecard in 2012) into fourth place. Canada's score benefits from a comprehensive privacy scheme with no onerous registration requirements.
- Of the six European Union countries considered in the Scorecard, all but the United Kingdom improved or held their positions since 2013. Specifically, Poland (4.70-point increase) and Italy (3.81) each moved up two positions in the rankings, while Germany (2.96) and France (2.41) moved up one place and Spain (2.55) stayed the same. The United Kingdom's score increased by 1.94 points, but the country lost two places in the rankings due to the gains of other countries. The EU continues to develop regulations that will likely improve harmonization of laws across Europe and increase their scores — so long as the regulations do not also create new burdens.
- The United States achieved a 2.64-point increase, thanks to a significant improvement in free trade policies and improved IT infrastructure. The United States moved up one position into second place behind Japan. The United States continues to be an active participant in international standards development processes and an advocate of free trade and harmonization.
- Despite their cloud-readiness, there remains a strong need among the higher-ranked countries for the alignment of legal and regulatory environments that will allow for cloud computing's global potential and provide a model toward which other countries can strive.

General improvements in global IT infrastructure continue, but the picture is uneven:

- Most countries have improved their infrastructure score significantly since the last Scorecard, with the biggest improvers being France, Russia, South Africa, Thailand and the United Kingdom. Several countries, including Japan, Korea and Singapore, have implemented impressive national broadband networks.
- Despite major infrastructure improvements under way in a number of countries, broadband penetration remains very inconsistent.

KEY FINDINGS

The 2016 BSA Global Cloud Computing Scorecard reveals significant changes in the policy environment for cloud computing in key global economies since the previous Scorecard in 2013. Many of the changes are positive, especially in the field of data protection and intellectual property protection.

General improvements in global IT infrastructure have produced a positive environment for cloud computing. However, some countries have lost ground due to new restrictions on IT service providers, and new trade barriers that threaten further growth and innovation in the cloud computing sector.

The findings are based on a unique examination and ranking of the 24 countries that account for 80 percent of the global IT market. Countries are scored across seven policy areas encompassing the laws, regulations and IT infrastructure necessary for the support and growth of digital technology and cloud computing.

Data Privacy

Users of cloud computing continue to be concerned with the protection of private information they store in the cloud. The revelations regarding widespread national security surveillance have increased scrutiny of the issue and its scope.

Cloud users need to trust that their data, which may be stored anywhere in the world, will not be used or disclosed by a cloud provider in unauthorized ways. Countries can provide these assurances with appropriate privacy laws. But it is a delicate balance: unnecessarily burdensome restrictions will hinder the important advantages of cloud computing that users want and need.

This section of the Scorecard examines how countries are managing these competing interests. Overall, the concern for privacy has produced many positive results around the globe, including significant law reform, greater oversight of national security agencies, a strengthening of security and encryption regimes by key cloud service providers and a greater public awareness of data privacy issues.

But in some nations, governments have proposed stronger restrictions on the cross-border transfer of data without further benefits. If those proposals become law, they could negatively impact cloud service providers.

Since 2013, most countries have data protection frameworks in place and have established independent privacy commissioners. Many of the protection laws are based on the Organisation for Economic Co-operation and Development Guidelines, the European Union Data Protection Directive and the Asia-Pacific Economic Cooperation Privacy Principles.

However, some countries still have registration requirements for data controllers and cross-border data transfers in place, and a small number of countries have adopted or proposed prescriptive data localization regimes that would require cloud providers to restrict the free flow of data or build costly — and unnecessary — servers in order to provide services in a specific market.

CASE STUDY

MODERNIZING TRADE RULES: Trans-Pacific Partnership Pact Eases Data Sharing

The 21st century will be defined by explosive growth in digital trade. Every year, more businesses and their customers are using data services — including storage, processing and analytics — much of it through cloud computing.

Software and data services have transformed the lives of millions of people around the world. Farmers use analytics to reduce the use of pesticides and water and improve yields; cities use data to design transportation routes that save time and reduce emissions; and doctors employ data analysis to speed up diagnoses for their patients and increase the effectiveness of treatments.

But while digital trade has been rapidly evolving, trade rules have not kept up. Multilateral trade agreements currently in force do not contemplate the rapid technological advances that have occurred in recent years, including the scope and potential of cloud computing technology. It is an area of growing concern because the digital economy needs a positive policy environment to continue growing.

The good news is that in October of 2015 an important development occurred: 12 countries[1] announced the conclusion of the negotiation of the Trans-Pacific Partnership Agreement, known as TPP.[2]

The TPP is a milestone as it represents the first multilateral trade agreement to create a strong framework for the movement of data across borders. Among its key provisions, the signatories agree that they "shall allow" the cross-border transfer of information by electronic means, subject to a limited public policy exception, and they will not require the presence of local computing facilities as a prerequisite for access to their national markets. Also, they will not mandate source code disclosure for market access, and they will not impose customs duties on electronic transmissions.

The final provisions are expected to align and considerably improve digital trade policies among the participating nations. Since these countries account for 40 percent of the global economy, the potential positive impact of the TPP cannot be overestimated.

The TPP is an important step in the right direction. It also paves the way for other digital trade agreements, such as the Trade in Services Agreement (TiSA), which currently has 23 countries at the negotiating table. TiSA seeks to open markets and improve rules in areas such as licensing, financial services, telecoms, e-commerce and maritime transport.

Multilateral trade agreements may take time, effort and compromise to complete, but they deliver benefits that go far beyond the negotiating table. In the case of the TPP, the result is a bigger, healthier cloud for users of every size and need.

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[1] When TPP negotiations were concluded, the participating countries were Australia, Canada, Japan, Malaysia, Mexico, Singapore, the United States and Vietnam (all of which are countries covered by this report), Brunei, Chile, New Zealand and Peru. Other countries may join TPP in the future.

[2] As of January 2016, TPP signature and implementation is still pending.

Canada and Korea have the highest score in the privacy section, offering comprehensive privacy regimes with no onerous registration requirements. Because Japan continues to update and reform its privacy laws, it also scores well in this section. South Africa received a big boost to its score and ranking for introducing a comprehensive privacy regime.

Unfortunately, privacy laws are still absent or insufficient in several countries. Brazil, Thailand and Turkey have no comprehensive laws in place, while laws in China, India, Indonesia and Vietnam remain very limited.

One notable development is the introduction of a new data protection framework in Russia containing prescriptive data localization requirements, such as a new law requiring that the personal data of Russian citizens be stored on servers based in Russia. This new regime is likely to act as a significant barrier to cloud service providers, and Russia's score and ranking fell as a direct result.

Privacy laws in the European Union and the United States continue to be the subject of significant debate and reform. The EU is close to the final implementation of a new regulation. The proposed General Data Protection Regulation (GDPR) contains many positive elements, and it should drive improved harmonization of laws across Europe. But the proposed regulation presents some challenges and potential administrative burdens for cloud service providers, including its liability regime, extension of data processor burdens, and the potential for jurisdictional clashes on access to data by authorities.

(**Editor's note:** Following the completion of the research underlying this year's research, the United States and European Union have continued to move closer to finalizing a new agreement, the Privacy Shield, that will allow data to continue to be shared across borders. This is an important development that was not finalized in time to fully be considered for this report.)

In the United States, officials have not made significant progress on development of general privacy legislation, but work has increased on improving oversight of national security agencies and improving legal redress avenues for overseas data subjects.

Overall, many countries have responded to emerging threats to cybersecurity by developing and implementing new cybersecurity frameworks, laws and policies.

Security

Users of cloud computing and other digital services need to be certain that cloud service providers can manage the security risks of storing their data and running their applications on cloud systems. These concerns have been intensified by a number of recent high-profile, international cybersecurity attacks, including breaches that range across the economy, from health insurance providers to hotel chains and even toymakers.

This section examines how countries regulate security criteria and test security measures. It also examines the status of electronic signature laws and the Internet censorship or filtering requirements some countries are imposing with a view to stemming certain Internet-related crimes. Overall, many countries have responded to emerging threats to cybersecurity by developing and implementing new cybersecurity frameworks, laws and policies.

The Scorecard indicates that most countries now have security requirements in place. Most also now have clear, technology-neutral electronic signature laws. Overall, cybersecurity scores have risen significantly when compared with the last Scorecard.

France, Japan, Italy, the United Kingdom and the United States all score well in this section. China, Indonesia, Malaysia and Vietnam score poorly.

The Scorecard also reveals some overly prescriptive security requirements that duplicate accepted international standards and/or impose onerous local requirements. For example, Russia requires service providers to locate their data centers inside the country, and several countries have introduced local security testing requirements.

CASE STUDY

RUSSIA: The Negative Impact of New Data Localization Policies

Cloud computing and data analytics deliver enormous benefits to governments, consumers and businesses, enhancing lives and spurring unprecedented economic growth.

Unfortunately, some countries are now adopting, or contemplating, data localization policies that threaten to destroy the gains and growth potential of software and data-driven innovations such as cloud computing.

Computer networks store and process data in multiple locations in multiple countries. But data localization policies require service providers — and the data they manage — to be located inside the country where their services are accessed. These "walled-off" providers can no longer contribute to or receive the benefits of the global cloud.

Russia is one such country that recently adopted a data localization law. In September 2015, Russia mandated that all companies serving the Russian market must process and store Russian citizens' personal data in databases located inside the country. In enacting the law, the government cited the need to protect Russian citizens from unlawful access to their data by foreign governments.

But data localization laws are not an effective mechanism for protecting citizen information. Data are not kept safer by virtue of being kept in a specific location. The ideal method for keeping data secure is the use of robust security technology, processes and controls, and data protection legislation coupled with effective enforcement. If there are concerns regarding mandatory disclosures required by foreign governments, these are best served through international cooperation versus isolation.

Not only are data localization laws ineffective, they deter essential economic growth and innovation. Many companies will be unable or unwilling to operate in countries with data localization requirements due to the complexity and extremely high associated costs. Most companies — even the very large ones — are simply not able to build and maintain servers in every country they serve.

Although it is too early to evaluate the full ramifications of the new Russian law, there is little doubt that it will impact Russian consumers and the Russian economy. The European Center for International Political Economy has estimated that the law will cost the country around 0.27 percent of its GDP.[3]

Data localization requirements cannot be ignored. They compromise access to globalized supply chains and negatively impact investments, exports and economic growth — not just for the country that imposes them, but for the global digital economy as a whole.

[3] The report "Data Localisation in Russia: A Self-imposed Sanction" may be found at http://ecipe.org/publications/data-localisation-russia-self-imposed-sanction/.

Several countries also continue to impose Internet filtering or censorship regimes that may act as barriers to the expansion of the digital economy and cloud computing. The intention of the schemes may be to address criminal conduct, including distribution of illegal material such as child pornography, but some are blocking sites that express political dissent.

Cybercrime

Because the massive quantities of valuable data held in cloud-computing data centers have attracted the attention of organized crime, governments must address these ever-evolving threats with robust legislation, investigation and enforcement.

This section examines cybercrime laws, as well as rules relating to investigation and enforcement, which includes access to encrypted data by investigators and the prosecution of extraterritorial offenses.

Overall, the Scorecard indicates that most countries are rising to the challenge of protecting data from cyberattack and physical security breaches. Most have legislation combatting the unauthorized access of data stored in the cloud. Most also have now implemented computer crime laws or cybercrime laws, many of which are broadly compliant with the Convention on Cybercrime.

Indeed, many countries in the study — Australia, Canada, EU Member States, Japan and the United States — have now ratified the convention. Australia, France, Germany and Japan score extremely high results in the cybercrime section.

Unfortunately, a few key jurisdictions still have gaps and inconsistencies in their cybercrime laws. China, Korea, Russia and Vietnam scored poorly.

Countries diverge when it comes to enforcement, investigation and prosecution of cybercrime. In particular, many countries are debating the extent to which law enforcement should be allowed access to encrypted data. The resolution of these issues and their impact on global policy remains to be seen.

Overall, the Scorecard indicates that most countries are rising to the challenge of protecting data from cyberattack and physical security breaches.

Intellectual Property Rights

As with other highly innovative and fast-evolving products, providers of cloud computing services rely on a combination of patents, copyrights, trade secrets and other forms of intellectual property protection. To encourage investment in cloud research and development, intellectual property laws must provide clear protections and vigorous enforcement of misappropriation and infringement. Online intermediaries should be offered incentives to operate responsibly and should enjoy safe harbor from copyright liability when they do so.

This section examines the intellectual property protections in place in each country, as well as their investigatory and enforcement approaches.

Overall, the Scorecard reveals significant reform in intellectual property laws since the last Scorecard, although gaps and inconsistencies still exist, especially with regard to enforcement.

Australia, Italy and Korea received the highest scores for intellectual property protection due to their robust legislative schemes. Canada updated and improved its intellectual property laws. Significant gaps in the laws of Brazil and Vietnam left these countries with the poorest results.

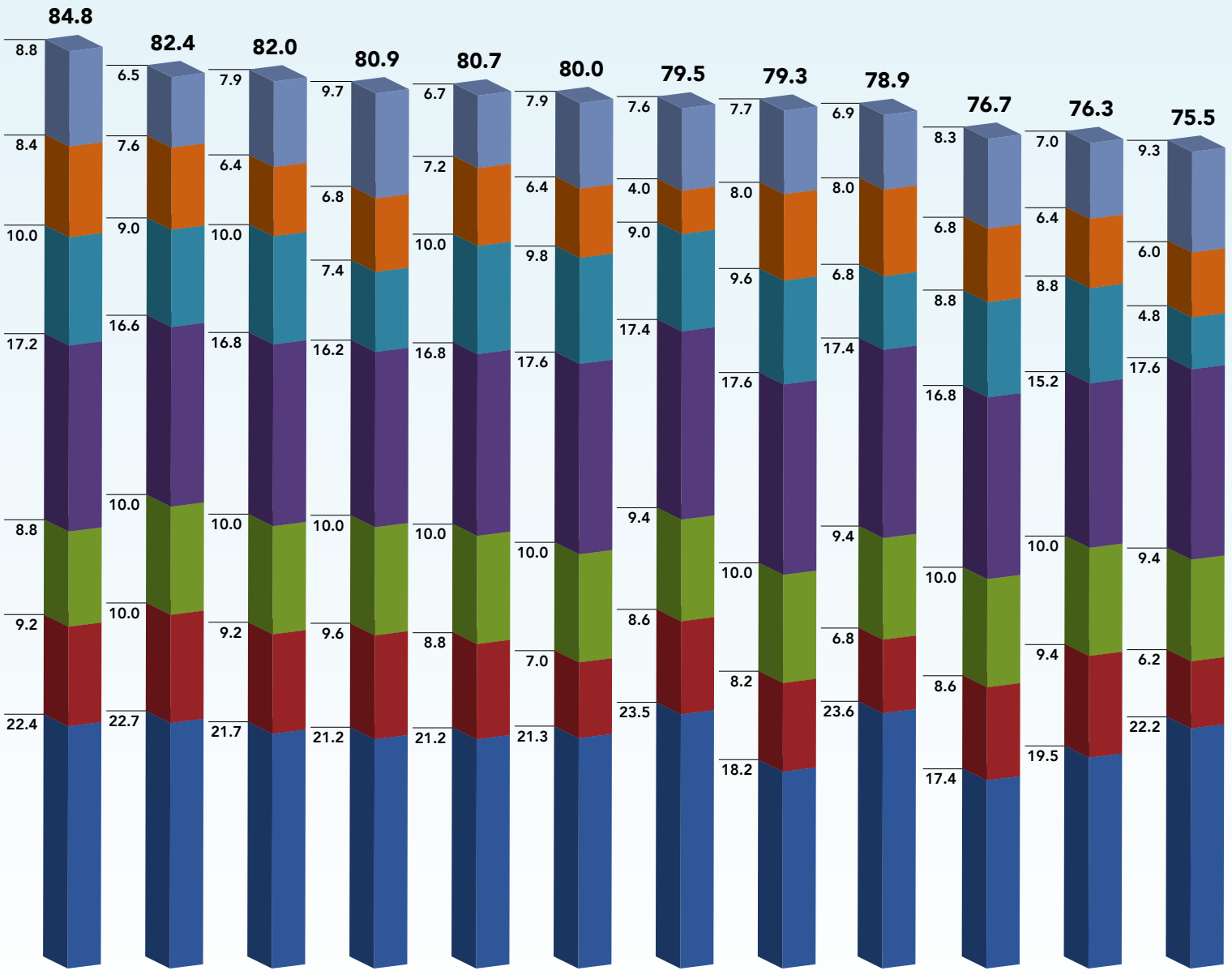
Support for Industry-Led Standards and International Harmonization of Rules

Users need data portability and seamless interoperable applications if they are to make full use of cloud-computing services and the digital economy. IT industry organizations are developing international standards that will ensure optimal portability. Government support for these voluntary, industry-led efforts is

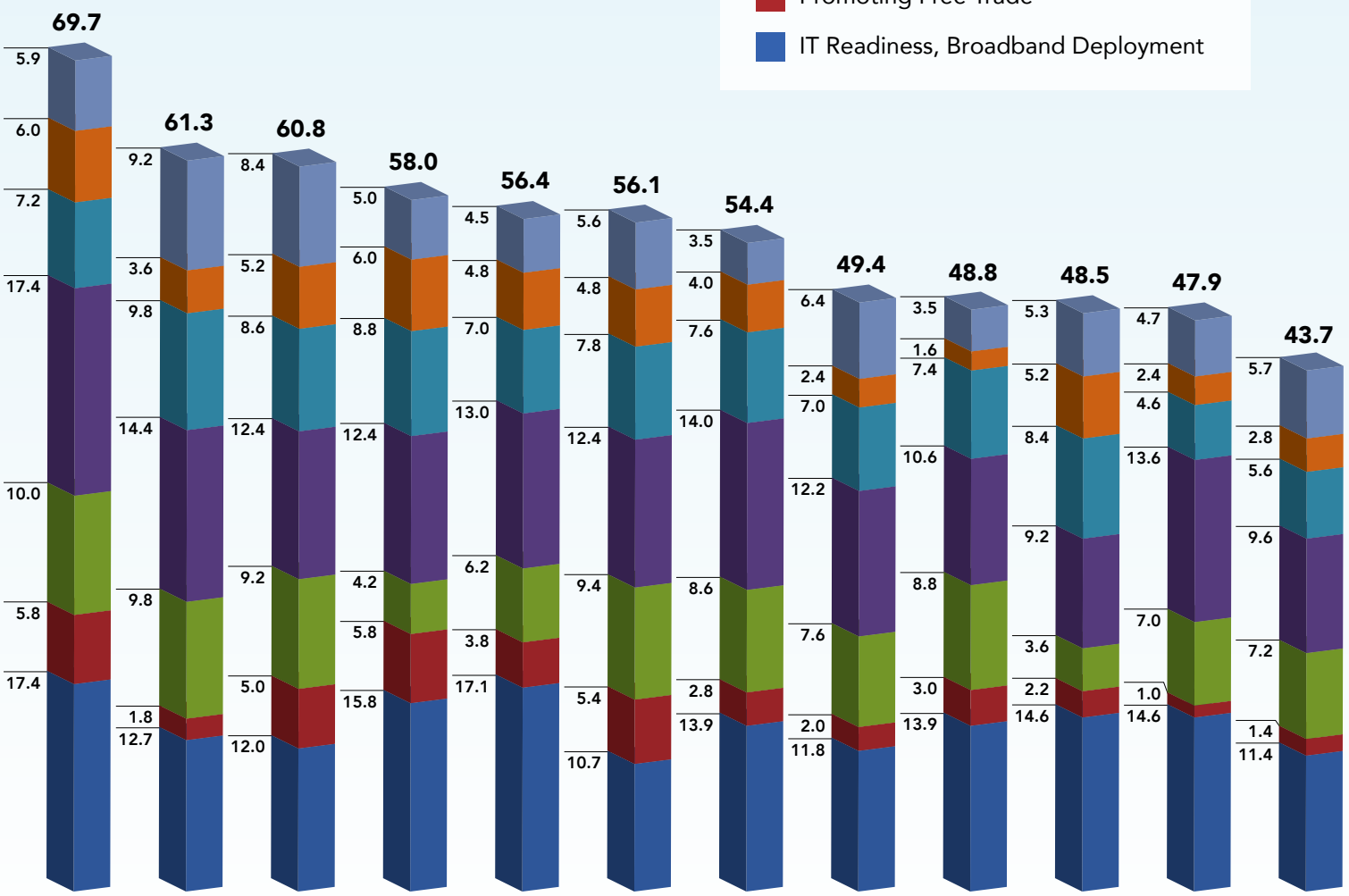
continued on page 12

2016 BSA Global Cloud Computing Scorecard

Several countries have made marked improvements in the policy environment for cloud computing in the past year. These findings are based on the BSA Scorecard's one-of-a-kind examination and ranking of 24 countries that account for 80 percent of the global IT market.



	Japan	United States	Germany	Canada	France	Australia	Singapore	Italy	United Kingdom	Poland	Spain	Korea
Change in Rank	none	+1	+1	+5	+1	-4	-2	+2	-2	+2	none	-4



Malaysia	South Africa	Mexico	Argentina	Russia	India	Turkey	Indonesia	Thailand	Brazil	China	Vietnam
none	+6	none	none	-3	-1	-1	+1	+2	none	-4	none

Despite major infrastructure improvements under way in a number of countries, broadband penetration remains very inconsistent.

highly important. Countries must also promote global harmonization of e-commerce rules, tariffs and relevant trade rules.

This section examines the extent to which governments have encouraged industry-led processes and promoted harmonization of e-commerce rules.

The Scorecard reveals that some countries have moved away from accepting international standards and international certifications, most notably China, India, Indonesia, Korea and Russia.

Although tariffs and trade barriers for online software and applications continue to be rare, they are still hindering new technology products used to access cloud services in a few countries. Argentina, Brazil and Russia all scored poorly in this section.

Promoting Free Trade

Cloud services operate across national boundaries, and their success depends on access to regional and global markets. Restrictive policies that create actual or potential trade barriers will inhibit or slow the evolution of cloud computing.

This section examines government procurement regimes and the existence or absence of barriers to free trade, including each country's requirements and preferences for particular products. The section also examines whether countries have joined the World Trade Organization Agreement on Government Procurement, which liberalizes such policies.

The Scorecard reveals that a number of countries still provide preferential treatment for domestic suppliers in government procurement, or have introduced other barriers to international trade. Vietnam and China recorded the lowest scores, while Canada and the United States scored the highest.

IT Readiness and Broadband Deployment

Digital economies and cloud computing require extensive, affordable broadband access, which in turn requires incentives for private sector investment in infrastructure and laws and policies that support universal access.

This section of the Scorecard examines and compares the infrastructure available in each country to support the digital economy and cloud computing. It is based on detailed comparative statistics on a range of important IT indicators, including the presence of a national broadband plan, a country's International Connectivity Score and International Internet Bandwidth. In addition, the Scorecard includes statistics on the number of subscribers for various services, reflecting the importance (and growth) of mobile broadband subscriptions.

Overall, most countries have improved their infrastructure score significantly since the last Scorecard, with the biggest improvers being France, Russia, South Africa, Thailand and the top-scoring United Kingdom. Several countries, including Japan, Korea and Singapore, have high scores reflecting their implementation of impressive national broadband networks.

Despite major infrastructure improvements under way in a number of countries, broadband penetration remains very inconsistent. As a result, some countries continue to have low infrastructure scores. Countries that do not yet have sufficient infrastructure continue to be at risk of missing the economic benefits of the digital economy and cloud computing.

SCORECARD METHODOLOGY

The BSA Global Cloud Computing Scorecard examines the legal and regulatory framework of 24 countries around the world, identifying 66 questions that are relevant to determining readiness for cloud computing. The questions are categorized under the aforementioned policy categories, and are generally framed so as to be answerable by "yes" or "no." The answers are also color coded:


Indicates a positive assessment, which is generally considered to be an encouraging step toward the establishment of a favorable legal and regulatory environment for cloud computing.


Indicates a negative assessment and the presence of a potential barrier to the establishment of a favorable legal and regulatory environment for cloud computing.


Indicates that the assessment is positive in part, although some gaps or inconsistencies may exist that require further remedial work.


Indicates a fact-finding question on relevant issues.

The Scorecard aims to provide a platform for discussion between policymakers and providers of cloud offerings, with a view toward developing an internationally harmonized regime of laws and regulations relevant to cloud computing. It is a tool that can help policymakers conduct a constructive self-evaluation, and determine the next steps that need to be taken to help advance the growth of global cloud computing.

Responses for the infrastructure portion of the Scorecard are color coded based on the scale below. That is, the "highest" answer to a particular question (e.g., the largest population or highest number of Internet users) is indicated in bright green, and the color for other responses graduates down to the lowest response in red.

IT Readiness (Country Ranking Out of 24)

Highest Lowest

USING THE SCORECARD

The Scorecard is derived from the Country Reports — a weighted score has been allocated to a selection of key questions. A number of basic fact-finding questions are excluded from the scoring system. Each group of questions is weighted to reflect its importance to cloud computing. Each individual question is also weighted to reflect its importance within each group. The weights are shown in the following table:

# THEME / QUESTIONS	Weight	Value (out of 100)
DATA PRIVACY	**10%**	**10**
1. Are there laws or regulations governing the collection, use or other processing of personal information?	30%	3
6. Is there an effective agency (or regulator) tasked with the enforcement of privacy laws?	25%	2.5
8. Are data controllers free from registration requirements?	20%	2
9. Are cross-border transfers free from registration requirements?	15%	1.5
10. Is there a breach notification law?	10%	1
SECURITY	**10%**	**10**
1. Is there a law or regulation that gives electronic signatures clear legal weight?	20%	2
2. Are ISPs and content service providers free from mandatory filtering or censoring?	20%	2
3. Are there laws or enforceable codes containing general security requirements for digital data hosting and cloud service providers?	20%	2
4. Are there laws or enforceable codes containing specific security audit requirements for digital data hosting and cloud service providers?	20%	2
5. Are there security laws and regulations requiring specific certifications for technology products?	20%	2
CYBERCRIME	**10%**	**10**
1. Are there cybercrime laws in place?	50%	5
2. Are cybercrime laws consistent with the Budapest Convention on Cybercrime?	30%	3
3. What access do law enforcement authorities have to encrypted data held or transmitted by data hosting providers, carriers or other service providers?	10%	1
4. How does the law deal with extraterritorial offenses?	10%	1
INTELLECTUAL PROPERTY RIGHTS	**20%**	**20**
1. Is the country a member of the TRIPS Agreement?	10%	2
2. Have IP laws been enacted to implement TRIPS?	10%	2
3. Is the country party to the WIPO Copyright Treaty?	10%	2
4. Have laws implementing the WIPO Copyright Treaty been enacted?	10%	2
5. Are civil sanctions available for unauthorized making available (posting) of copyright holders' works on the Internet?	10%	2
6. Are criminal sanctions available for unauthorized making available (posting) of copyright holders' works on the Internet?	10%	2
7. Are there laws governing ISP liability for content that infringes copyright?	5%	1
8. Is there a basis for ISPs to be held liable for content that infringes copyright found on their sites or systems?	5%	1
10. Must ISPs take down content that infringes copyright, upon notification by the copyright holder?	5%	1
11. Are ISPs required to inform subscribers upon receiving a notification that the subscriber is using the ISP's service to distribute content that infringes copyright?	5%	1
12. Is there clear legal protection against misappropriation of cloud computing services, including effective enforcement?	20%	4

# THEME / QUESTIONS	Weight	Value (out of 100)
SUPPORT FOR INDUSTRY-LED STANDARDS & INTERNATIONAL HARMONIZATION OF RULES	**10%**	**10**
1. Are there laws, regulations or policies that establish a standards setting framework for interoperability and portability of data?	30%	3
2. Is there a regulatory body responsible for standards development for the country?	10%	1
3. Are e-commerce laws in place?	30%	3
5. Is the downloading of applications or digital data from foreign cloud service providers free from tariff or other trade barriers?	10%	1
6. Are international standards favored over domestic standards?	10%	1
7. Does the government participate in international standards-setting process?	10%	1
PROMOTING FREE TRADE	**10%**	**10**
1. Are there any laws or policies in place that implement technology neutrality in government?	20%	2
2. Are cloud computing services able to operate free from laws or policies that mandate the use of certain products (including, but not limited to types of software), services, standards or technologies?	20%	2
3. Are cloud computing services able to operate free from laws or policies that establish preferences for certain products (including, but not limited to types of software), services, standards or technologies?	10%	1
4. Are cloud computing services able to operate free from laws that discriminate based on the nationality of the vendor, developer or service provider?	50%	5
IT READINESS, BROADBAND DEPLOYMENT	**30%**	**30**
1. Is there a national broadband plan?	13%	3.75
3.7 Personal Computers (% of households) (2014)	3%	0.75
4.1 ITU ICT Development Index (IDI) (2015) *(Score is out of 10 and includes 167 countries)*	20%	6
4.2 World Economic Forum Networked Readiness Index (NRI) (2015) *(Score is out of 7 and includes 143 countries)*	20%	6
4.3 International Connectivity Score (2014) *(Score is out of 10 and includes 50 countries)*	15%	4.5
4.4 IT Industry Competitiveness Index (2011) *(Score is out of 100 and includes 66 countries)* *(Note: This is not as current as the other indicators and while it is no longer displayed in the reports it has been retained as part of the overall score for integrity and consistency purposes)*	10%	3
5.2 Internet Users as Percentage of Population (2014)	5%	1.5
5.3 International Internet Bandwidth (2014) (bits per second per Internet user)	3%	0.75
5.4 International Internet Bandwidth (2014) (total gigabits per second [Gbps] per country)	3%	0.75
6.4 Fixed Broadband Subscriptions as % of Internet Users (2014)	5%	1.5
7.2 Active Mobile Broadband Subscriptions per 100 Inhabitants (2014)	5%	1.5

BSA Global Cloud Computing Country Checklist

✔ Yes ✖ No ◑ Partial

#	QUESTION	Argentina	Australia	Brazil
	DATA PRIVACY			
1.	Are there laws or regulations governing the collection, use, or other processing of personal information?	✔	✔	◑
2.	What is the scope and coverage of privacy law?	Comprehensive	Comprehensive	Not applicable
3.	Is the privacy law compatible with the Privacy Principles in the EU Data Protection Directive?	✔	◑	✖
4.	Is the privacy law compatible with the Privacy Principles in the APEC Privacy Framework?	✔	✔	✖
5.	Is an independent private right of action available for breaches of data privacy?	Available	Not available	Available
6.	Is there an effective agency (or regulator) tasked with the enforcement of privacy laws?	National regulator	National regulator	None
7.	What is the nature of the privacy regulator?	Sole commissioner	Sole commissioner	Not applicable
8.	Are data controllers free from registration requirements?	✖	✔	✔
9.	Are cross-border transfers free from registration requirements?	◑	✔	✔
10.	Is there a breach notification law?	✖	✖	✖
	SECURITY			
1.	Is there a law or regulation that gives electronic signatures clear legal weight?	✔	✔	✔
2.	Are ISPs and content service providers free from mandatory filtering or censoring?	✔	✔	✔
3.	Are there laws or enforceable codes containing general security requirements for digital data hosting and cloud service providers?	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation
4.	Are there laws or enforceable codes containing specific security audit requirements for digital data hosting and cloud service providers?	Limited coverage in legislation	None	Limited coverage in legislation
5.	Are there security laws and regulations requiring specific certifications for technology products?	No requirements	Limited requirements	No requirements
	CYBERCRIME			
1.	Are cybercrime laws in place?	✔	✔	✔
2.	Are cybercrime laws consistent with the Budapest Convention on Cybercrime?	✔	✔	✔
3.	What access do law enforcement authorities have to encrypted data held or transmitted by data hosting providers, carriers or other service providers?	Access with a warrant	Access with a warrant	Access with a warrant
4.	How does the law deal with extraterritorial offenses?	Limited coverage	Comprehensive coverage	Comprehensive coverage
	INTELLECTUAL PROPERTY RIGHTS			
1.	Is the country a member of the TRIPS Agreement?	✔	✔	✔
2.	Have IP laws been enacted to implement TRIPS?	✔	✔	✔
3.	Is the country party to the WIPO Copyright Treaty?	✔	✔	✖
4.	Have laws implementing the WIPO Copyright Treaty been enacted?	◑	✔	◑
5.	Are civil sanctions available for unauthorized making available (posting) of copyright holders' works on the Internet?	◑	✔	◑
6.	Are criminal sanctions available for unauthorized making available (posting) of copyright holders' works on the Internet?	◑	✔	◑
7.	Are there laws governing ISP liability for content that infringes copyright?	✖	◑	◑
8.	Is there a basis for ISPs to be held liable for content that infringes copyright found on their sites or systems?	✖	✔	◑
9.	What sanctions are available for ISP liability for copyright infringing content found on their site or system?	Not applicable	Civil and criminal	Civil
10.	Must ISPs take down content that infringes copyright, upon notification by the right holder?	◑	✔	✖
11.	Are ISPs required to inform subscribers upon receiving a notification that the subscriber is using the ISP's service to distribute content that infringes copyright?	✖	✔	✖
12.	Is there clear legal protection against misappropriation of cloud computing services, including effective enforcement?	Limited protection (criminal activity only)	Comprehensive protection	Limited protection (criminal activity only)
	SUPPORT FOR INDUSTRY-LED STANDARDS & INTERNATIONAL HARMONIZATION OF RULES			
1.	Are there laws, regulations or policies that establish a standards setting framework for interoperability and portability of data?	✖	✔	✖
2.	Is there a regulatory body responsible for standards development for the country?	✔	✔	✔
3.	Are e-commerce laws in place?	◑	✔	✖
4.	What international instruments are the e-commerce laws based on?	Not applicable	UNCITRAL Model Law on E-Commerce	Not applicable
5.	Is the downloading of applications or digital data from foreign cloud service providers free from tariff or other trade barriers?	✖	✔	✖
6.	Are international standards favored over domestic standards?	◑	✔	✔
7.	Does the government participate in international standards setting process?	✔	✔	✔

Canada	China	France	Germany	India	Indonesia	Italy	
✔	◑	✔	✔	◑	◑	✔	
Comprehensive	Sectoral	Comprehensive	Comprehensive	Sectoral	Comprehensive	Comprehensive	C
✔	✖	✔	✔	✖	✖	✔	
✔	✖	✔	✔	✖	◑	✔	
Available	Available	Available	Available	Available	Not available	Available	
National regulator	None	National regulator	Sectoral regulator	Sectoral regulator	None	National regulator	Se
Sole commissioner	Not applicable	Sole commissioner	Sole commissioner	Not applicable	Not applicable	Collegial body	C
✔	✔	✖	◑	✔	✔	✖	
✔	✔	✖	✔	✔	✔	✔	
✔	✖	◑	◑	✖	✔	◑	
✔	✔	✔	✔	✔	✔	✔	
✔	✖	◑	◑	✖	◑	◑	
None	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Detailed legislation	Limited coverage in legislation	Detailed legislation	Lim
Limited coverage in legislation	None	Limited coverage in legislation	None	Code of conduct	Limited coverage in legislation	Limited coverage in legislation	Lim
Comprehensive requirements (including Common Criteria)	Limited requirements	Comprehensive requirements (including Common Criteria)	Comprehensive requirements (including Common Criteria)	Limited requirements	No requirements	Comprehensive requirements (including Common Criteria)	Co quire Co
◑	✔	✔	✔	✔	✔	✔	
✔	✖	✔	✔	✔	✔	✔	
Access with a warrant	Not stated	Access with a warrant	Access with a warrant	Access with a warrant	Not stated	Access with a warrant	Acce
Limited coverage	Limited coverage	Comprehensive coverage	Comprehensive coverage	Comprehensive coverage	Limited coverage	Limited coverage	C
✔	✔	✔	✔	✔	✔	✔	
✔	◑	✔	✔	✔	◑	✔	
✔	✔	✔	✔	✖	✔	✔	
✔	◑	✔	✔	✔	◑	✔	
✔	✔	✔	✔	✔	◑	✔	
◑	✔	✔	◑	✔	✔	✔	
✔	✔	✔	✔	✔	◑	✔	
✔	✔	✔	◑	✔	◑	✔	
Civil	Civil and criminal	Civil and criminal	Civil	Civil	Not applicable	Civil and criminal	
✖	✔	✔	✔	◑	✖	◑	
◑	✖	✔	✖	◑	✖	✖	
Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	C
✔	✔	✔	✔	✔	✔	✔	
✔	✔	✔	✔	✔	✔	✔	
✔	✔	✔	✔	✔	✔	✔	
UNCITRAL Model Law on E-Commerce	UN Convention on E-Contracting	UNCITRAL Model Law on E-Commerce	UNCITRAL Model Law on E-Commerce	UNCITRAL Model Law on E-Commerce	UN Convention on E-Contracting	UNCITRAL Model Law on E-Commerce	N
✔	◑	✔	✔	◑	◑	✔	
✔	◑	✔	✔	◑	◑	✔	
✔	✔	✔	✔	✔	✔	✔	

Japan	Korea	Malaysia	Mexico	Poland	Russia	Singapore	Sou
✔	✔	✔	✔	✔	✔	✔	
omprehensive	Comprehensive	Sectoral	Comprehensive	Comprehensive	Comprehensive	Comprehensive	Comp
◑	✔	◑	◑	✔	◑	✔	
✔	✔	✔	◑	✔	✔	✔	
Available	Available	Not available	Available	Available	Available	Not available	Av
ctoral regulator	National regulator	National regulator	National regulator	National regulator	National regulator	National regulator	Nation
Collegial body	Other government official	Other government official	Collegial body	Sole commissioner	Other government official	Not applicable	Sole co
✔	✔	◑	✔	◑	✖	✔	
✔	✔	✔	✔	✔	✖	✔	
◑	✔	✖	✔	◑	✔	✖	
✔	✔	✔	✔	✔	✔	✔	
✔	✖	✔	✔	✔	◑	✖	
ited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Detailed legislation	Detailed legislation	Limited coverage in legislation	Limited leg
ited coverage in legislation	Limited coverage in legislation	None	None	Limited coverage in legislation	None	Limited coverage in legislation	
mprehensive re-ements (including ommon Criteria)	Limited requirements	Limited requirements	No requirements	Limited requirements	Comprehensive requirements	Limited requirements	No re
✔	✔	✔	✔	✔	✔	✔	
✔	✖	◑	✔	✔	◑	✔	
ess with a warrant	Unlimited access	Unlimited access	Not stated	Not stated	Unlimited access	Access with a warrant	Access w
omprehensive coverage	Comprehensive coverage	Comprehensive coverage	Limited coverage	Limited coverage	Limited coverage	Comprehensive coverage	Comp co
✔	✔	✔	✔	✔	✔	✔	
✔	✔	✔	✔	✔	◑	✔	
✔	✔	✔	✔	✔	✔	✔	
✔	✔	✔	◑	✔	✔	✔	
✔	✔	✔	◑	✔	◑	✔	
✔	✔	✔	◑	✔	✔	✔	
✔	✔	✔	◑	✔	◑	✔	
✔	✔	✔	◑	✔	✔	✔	
Civil	Civil	Civil	Civil and criminal	Civil and criminal	Civil and criminal	Civil	
✔	✔	✔	✖	✔	◑	◑	
✔	✔	◑	✖	✖	◑	◑	
omprehensive protection	Comprehensive protection	Comprehensive protection	Limited protection (criminal activity only)	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comp pro
✔	✔	✔	✔	✔	✔	✔	
✔	✔	✔	✔	✔	✔	✔	
◑	✔	✔	✔	✔	◑	✔	
Not applicable	UNCITRAL Model Law on E-Commerce	UN Convention on E-Contracting	UNCITRAL Model Law on E-Commerce	UNCITRAL Model Law on E-Commerce	UN Convention on E-Contracting	UN Convention on E-Contracting	UNCIT Law on
✔	✔	✔	✔	✔	◑	✔	
✔	◑	✔	✔	✔	◑	✔	
✔	✔	✔	✔	✔	✔	✔	

th Africa	Spain	Thailand	Turkey	United Kingdom	United States	Vietnam
✔	✔	✖	✖	✔	◑	◑
prehensive	Comprehensive	Not Applicable	Not Applicable	Comprehensive	Sectoral	Sectoral
✔	✔	✖	✖	✔	◑	◑
✔	✔	✖	✖	✔	◑	◑
vailable	Available	Available	Available	Available	Available	Available
al regulator	National regulator	None	None	National regulator	Sectoral regulator	None
ommissioner	Sole commissioner	Not applicable	Not applicable	Sole commissioner	Other government official	Not applicable
✔	✖	✔	✔	✖	✔	✔
✔	✖	✔	✔	✔	◑	✔
✔	◑	✖	✖	◑	✔	◑
✔	✔	✔	✔	✔	✔	✔
✔	✔	✖	✖	✔	✔	✖
coverage in gislation	Limited coverage in legislation	None	None	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation
None	None	None	None	Limited coverage in legislation	Limited coverage in legislation	None
quirements	Comprehensive requirements (including Common Criteria)	No requirements	Comprehensive requirements (including Common Criteria)	Comprehensive requirements (including Common Criteria)	Comprehensive requirements (including Common Criteria)	No requirements
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	◑	✔	◑
with a warrant	Not stated	Unlimited access	Unlimited access	Unlimited access	Access with a warrant	Unlimited access
prehensive verage	Comprehensive coverage	Comprehensive coverage	Limited coverage	Comprehensive coverage	Limited coverage	Limited coverage
✔	✔	✔	✔	✔	✔	✔
✔	✔	◑	✔	✔	✔	◑
✖	✔	✖	✔	✔	✔	✖
◑	✔	◑	✔	✔	✔	◑
✔	◑	✔	✔	✔	◑	✔
✔	◑	✔	◑	✔	◑	✔
✔	✔	✔	✔	✔	✔	◑
✔	✔	✔	✔	✔	✔	◑
Civil	Civil	Civil and criminal	Civil and criminal	Civil and criminal	Civil and criminal	Not applicable
✔	✔	◑	✔	◑	✔	✖
✖	✖	✖	✖	◑	◑	✖
prehensive otection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection	Comprehensive protection
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	◑	✔	✔	✔
TRAL Model E-Commerce	UNCITRAL Model Law on E-Commerce	UNCITRAL Model Law on E-Commerce	Other	UNCITRAL Model Law on E-Commerce	Other	UNCITRAL Model Law on E-Commerce
✔	✔	✔	✔	✔	✔	✖
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔

#	QUESTION	Argentina	Australia	Brazil
	PROMOTING FREE TRADE			
1.	Are there any laws or policies in place that implement technology neutrality in government?	✖	✔	✖
2.	Are cloud computing services able to operate free from laws or policies that mandate the use of certain products (including, but not limited to types of software), services, standards or technologies?	✔	✔	✔
3.	Are cloud computing services able to operate free from laws or policies that establish preferences for certain products (including, but not limited to types of software), services, standards or technologies?	✔	✔	◑
4.	Are cloud computing services able to operate free from laws that discriminate based on the nationality of the vendor, developer or service provider?	◑	◑	✖
	IT READINESS, BROADBAND DEPLOYMENT			
1.	Is there a national broadband plan?	• By 2015, more than 10 million homes with broadband access • By 2015, 97% of the population accessing an optical fiber network at 10 Mbps and the remaining 3% of the population covered by satellite connections	• By 2020, the National Broadband Network (NBN) is forecasted to provide 8 million connections at speeds of 25–50 Mbps	• By 2019, na average bro speed being Mbps
2.	Are there laws or policies that regulate the establishment of different service levels for data transmission based on the nature of data transmitted?	Multiple regulations and limited public debate	No regulation and extensive public debate	Multiple regu and extensive debat
	3. Base Indicators			
3.1.	Population (millions) (2014)	41	23	200
3.2.	Urban Population (%) (2014)	92%	89%	85%
3.3.	Number of Households (millions) (2014)	11	9	59
3.4.	Population Density (people per square km) (2014)	16	3	25
3.5.	Per Capita GDP (US$ 2014)	$12,569	$61,887	$11,38
3.6.	IT Service Exports (2014) (billions of US$)	$5.8	$9.9	$23.0
3.7.	Personal Computers (2014) (% of households)	62%	86%	52%
	4. IT and Network Readiness Indicators			
4.1.	ITU ICT Development Index (IDI) (2015) *(Score is out of 10 and covers 167 countries)*	6.40	8.29	6.03
4.2.	World Economic Forum Networked Readiness Index (NRI) (2015) *(Score is out of 7 and covers 143 countries)*	3.72	5.48	3.85
4.3.	International Connectivity Score (2014) *(Score is out of 10 and covers 52 countries)*	4.50	5.37	4.83
	5. Internet Users and International Bandwidth			
5.1.	Internet Users (millions) (2014)	25	19	103
5.2.	Internet Users as Percentage of Population (2014)	60%	83%	52%
5.3.	International Internet Bandwidth (2014) (bits per second per Internet user)	48,065	75,069	42,96
5.4.	International Internet Bandwidth (2014) (total gigabits per second [Gbps] per country)	1,300	1,500	5,000
	6. Fixed Broadband			
6.1.	Fixed Broadband Subscriptions (millions) (2014)	6	6	20
6.2.	Fixed Broadband Subscriptions as % of households (2014)	52%	65%	34%
6.3.	Fixed Broadband Subscriptions as % of population (2014)	16%	28%	12%
6.4.	Fixed Broadband Subscriptions as % of Internet users (2014)	24%	30%	20%
	7. Mobile Broadband			
7.1.	Mobile Cellular Subscriptions (millions) (2014)	66	31	281
7.2.	Active Mobile Broadband Subscriptions per 100 inhabitants (2014)	54	112	78
7.3.	Number of Active Mobile Broadband Subscriptions (millions) (2014)	22	27	158

IT Readiness (Country Ranking Out of 24)

Highest — Lowest

	Canada	China	France	Germany	India	Indonesia	Italy
	✔	✖	◑	✔	◑	◑	◑
	✔	✖	✔	✔	◑	◑	✔
	✔	✖	◑	◑	✖	◑	✖
	✔	◑	✔	✔	◑	✖	✔
tional adband g 25	• By 2017, all Canadians to have access to broadband speeds of at least 5 Mbps for downloads and 1 Mbps for uploads	• By 2020: - Coverage will reach 70% of households - Fiber to the home connections will surpass 300 million - Urban Internet speeds: 50 Mbps - Rural Internet speeds: 12 Mbps - Expected 400 million fixed broadband subscriptions - 3G and 4G wireless coverage to 85% of households - Expected 1.3 billion 3G/4G customers	• By 2022, 100% coverage of broadband connections providing in excess of 30 Mbps	• By 2018, households to have speeds of at least 50 Mbps	• By 2016, fiber network to reach 250,000 local government areas	• By 2019: - 71% of urban and 10% of rural households connected to fixed broadband, at speeds of 20 Mbps - 100% of business buildings in urban areas connected to fixed broadband at speeds of 1 Gbps - 30% penetration rate of fixed broadband in urban areas; 6% in rural areas - 100% penetration of mobile broadband in urban areas and 52% in rural areas, at speeds of 1 Mbps	• By 2020, deploy services with sp of 100 Mbps to densely populat areas • By 2020, deploy services with sp of 30 Mbps to n densely populat areas
ulations e public e	Multiple regulations and extensive public debate	No regulation and limited public debate	Multiple regulations and extensive public debate	Regulation under consideration by government and extensive public debate	No regulation and extensive public debate	No regulation and limited public debate	Multiple regulati and extensive pu debate
	35	1,386	64	83	1,252	250	61
	82%	54%	79%	75%	32%	53%	69%
	14	391	27	39	256	63	24
	4	145	121	232	436	140	209
5	$50,271	$7,594	$42,733	$47,627	$1,596	$3,492	$34,960
	$36.6	$81.9	$101.8	$108.1	$103.0	$7.2	$37.8
	88%	47%	83%	91%	13%	18%	74%
	7.76	5.05	8.12	8.22	2.69	3.94	7.12
	5.53	4.16	5.20	5.51	3.73	3.91	4.32
	5.27	3.40	5.04	5.42	2.14	2.89	3.76
	30	635	53	69	189	40	36
	86%	46%	82%	84%	15%	16%	58%
6	129,244	4,995	221,660	145,990	5,677	6,225	92,497
	4,000	3,433	12,000	10,400	1,295	270	3,500
	12	189	25	29	15	3	14
	86%	48%	94%	73%	6%	5%	58%
	35%	14%	40%	36%	1%	1%	24%
	39%	30%	47%	41%	8%	8%	38%
	29	1,286	65	100	944	326	94
	54	42	66	64	6	35	71
	19	583	43	53	70	88	43

	Japan	Korea	Malaysia	Mexico	Poland	Russia	Singapore
	◑	✖	◑	✔	✔	◑	✔
	✔	◑	✔	✔	✔	✖	✔
	✔	✔	◑	✔	✔	✖	✔
	✔	✔	◑	✖	✔	◑	✔
eeds ted eeds on- ted	• By 2015, all households to have very high-speed fiber broadband (FttH) connections	• By 2020, a fully operational commercial 5G broadband network	• By 2020, 100% of households in capital cities and high-impact growth area to have access to speeds of 100 Mbps • By 2020, 50% of households in suburban and rural areas to have access to speeds of 20 Mbps	• By 2018, a new national wireless broadband carrier network	• By 2020, 100% of population to have access to speeds of at least 30 Mbps • By 2025, 50% of households at 100 Mbps	• All settlements of over 250 people connected to a broadband network • By 2015, 35% of the population to have broadband access • By 2015, 75% of households to be connected to the Internet	• By 2015, the Next-Generation National Broadband Network (Next-Gen NBN) to deliver 1 Gbps downstream and 500 Mbps upstream broadband access to every home, office and school
ons ublic	Limited regulation and extensive public debate	Limited regulation and extensive public debate	No regulation and extensive public debate	Multiple regulations and extensive public debate	Limited regulation and limited public debate	No regulation and limited public debate	Limited regulation and limited public debate
	127	49	30	122	38	143	5
	93%	82%	74%	79%	61%	74%	100%
	47	19	6	27	14	52	1
	349	517	91	65	124	9	7,736
	$36,194	$27,970	$10,933	$10,230	$14,423	$12,736	$56,287
	$40.6	$23.5	$13.3	—	$13.8	$21.2	$38.1
	83%	78%	66%	38%	78%	71%	88%
	8.47	8.93	5.90	4.68	6.91	6.91	8.08
	5.60	5.52	4.85	4.03	4.38	4.53	6.02
	5.18	5.00	5.89	4.10	3.28	6.04	5.47
	110	42	20	53	24	88	4
	86%	85%	67%	43%	63%	61%	73%
	48,637	45,178	27,173	20,926	90,356	29,860	616,531
	5,595	1,886	554	1,150	2,300	3,000	2,789
	37	19	2	13	6	24	1
	78%	97%	39%	48%	44%	46%	114%
	29%	39%	10%	10%	19%	18%	27%
	34%	45%	12%	25%	25%	27%	36%
	153	57	45	102	57	221	8
	121	109	58	41	56	66	142
	154	54	18	51	21	94	8

South Africa	Spain	Thailand	Turkey	United Kingdom	United States	Vietnam
✖	✔	✖	✖	◑	✔	✖
◑	✔	✔	✔	✖	✔	✖
◑	✔	✔	✔	✖	✔	✖
✖	✔	✖	✖	✔	✔	✖
• By 2016, 50% of population with access to speeds of 5 Mbps • By 2020, 90% of population with access to speeds of 5 Mbps; 50% to speeds of 100 Mbps • By 2030, 100% of population with access to speeds of 10 Mbps; 80% to speeds of 100 Mbps	• By 2020, 100% of population to have access to speeds of at least 30 Mbps • By 2025, 50% of households at 100 Mbps	• By 2020, extend broadband coverage to 95% • By 2020, provide broadband Internet access of at least 100 Mbps in economically important provinces	• By 2018, the proportion of Internet users increase to 70% • By 2018, the number of fiber Internet subscribers increase to 4 million • By 2018, the number of LTE subscribers increase to 10 million • By 2018, the proportion market share of alternative DSL operators increase to 25% • By 2018, the GDP per capita rate of broadband access costs by lowered to 1%	• By 2017, to bring "superfast broadband" to all parts of the UK with download speeds of at least 2 Mbps and to provide 95% of home and businesses with speeds of 24 Mbps	• By 2020, at least 100 million homes to have affordable access to download speeds of 100 Mbps and upload speeds of 50 Mbps • By 2020, every household to have access to download speeds of 4 Mbps and upload speeds of 1 Mbps	• By 2015, 20–30% of households to have access to broadband • By 2020, 50–60% of households have access to broadband, of which 20–30% access via fiber optic cable
No regulation and limited public debate	Regulation under consideration by government and extensive public debate	No regulation and limited public debate	No regulation and limited public debate	Regulation under consideration by government and extensive public debate	Multiple regulations and extensive public debate	No regulation and limited public debate
53	47	67	75	63	320	92
64%	79%	49%	73%	82%	81%	33%
13	16	19	17	27	122	18
45	93	133	99	267	35	293
$6,478	$30,262	$5,519	$10,530	$45,603	$54,629	$2,052
$2.6	$49.9	$9.6	$0.6	$120.5	$165.4	—
28%	74%	34%	56%	91%	81%	21%
4.90	7.66	5.36	5.58	8.75	8.19	4.28
3.99	4.73	4.05	4.41	5.62	5.64	3.85
3.94	4.33	3.69	4.13	5.90	6.46	3.57
26	34	19	35	57	269	40
49%	72%	29%	46%	90%	84%	44%
149,542	111,545	46,826	42,911	429,830	70,970	20,749
3,894	4,000	1,098	1,661	25,000	20,000	928
2	12	5	8	23	94	5
13%	75%	25%	49%	85%	77%	28%
3%	27%	8%	12%	37%	31%	6%
6%	36%	25%	24%	40%	35%	13%
79	51	97	72	78	356	136
47	77	80	43	89	103	31.04
25	36	54	32	56	331	29

ABOUT BSA

BSA | The Software Alliance (www.bsa.org) is the leading advocate for the global software industry before governments and in the international marketplace. Its members are among the world's most innovative companies, creating software solutions that spark the economy and improve modern life.

With headquarters in Washington, DC, and operations in more than 60 countries around the world, BSA pioneers compliance programs that promote legal software use and advocates for public policies that foster technology innovation and drive growth in the digital economy.

ABOUT GALEXIA

Galexia (www.galexia.com) is at the forefront of international research and advice in the areas of privacy, identity, cybersecurity and cloud — with a particular focus on global and cross-border legal and regulatory issues. The firm advises national governments, regional and global organizations (ASEAN and the United Nations), and the private sector (particularly ICT, health and financial services). The firm has expertise in the policy complexities that arise for countries and business addressing cross-border issues. Galexia publishes world-leading research publications, including the regular Cloud Scorecards, Cybersecurity Dashboards and reports on identity management, authentication, privacy and cyberlaws. The firm has specialist expertise in data governance, particularly the development and implementation of identity and authentication management systems, Privacy Impact Assessments and Cybersecurity strategies.

Galexia works closely with a range of international business and government clients to produce clear and effective outcomes from evidence based research. The firm uses collaborative cloud-based reporting tools to provide real-time access to our research and analysis.

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