2013 BSA GLOBAL CLOUD COMPUTING SCORECARD

A Clear Path to Progress

galexia CONSULTING

CONTENTS

EXECUTIVE SUMMARY

The 2013 BSA Global Cloud Computing Scorecard — the first-ever report to track year-over-year change in the international policy landscape for cloud computing — shows that cloud readiness is improving, if unevenly.

These findings come against the backdrop of the massive and well-documented movement to cloud services by consumers, businesses, and governments. What hasn't been documented until now is the less steady improvement in the policy environment to support global cloud computing, with some countries making big strides to improve their cloud readiness while others, including some of the world's largest technology markets, have stalled or even backtracked.

All of these changes are significant because, based on the global opportunity that cloud computing presents, each country's policy changes will alter not just that country's environment but the global market for cloud computing as a whole. Every day, more and more evidence points to the importance of cloud computing to global growth. One recent study found that public and private IT cloud services will produce nearly 14 million jobs worldwide by 2015 — and more than half of those jobs will come from small and medium-sized businesses.[1] The study goes on to predict that cloud computing will generate as much as $1.1 trillion in annual revenue by 2015.

This global growth, though, is contingent on an increasingly global policy environment as envisioned by the BSA Scorecard. As outlined in last year's report, numerous issues must be addressed and all countries would benefit from coordinated policy responses that would enable governments, businesses, and the public to take full advantage of cloud computing. Among this year's findings:

A small number of countries have quickly advanced by embracing the legal and regulatory changes needed to take full advantage of the digital economy. They have adopted new laws that will improve user confidence in the cloud and allow the countries to exploit the great productivity and expanded economic growth that cloud computing enables. For example:

- Singapore jumps from 10th to 5th in this year's rankings based largely on the adoption of a new privacy law that balances user protections and continued innovation.
- Malaysia, though not moving up in the rankings, made the biggest gains in the Scorecard scale based on a range of changes in cybercrime and intellectual property laws and improvements in efforts to improve digital trade. In doing so, Malaysia crossed the divide noted in last year's Scorecard between more-developed economies and those still striving toward "cloud readiness."

[1] IDC, *Cloud Computing's Role in Job Creation* (March 2012).

Embracing important and internationally agreed-upon legal baselines in key areas can help countries close the policy gap.

- Brazil was the only country in last year's report that lacked any sort of cybercrime laws. This in a country where economic losses related to cybercrime were estimated to reach $8 billion in 2012.[2] By approving cybercrime legislation in November 2012 and making other minor policy improvements, Brazil moves out of last place in the Scorecard rankings and climbs two spots.
- Several countries moved up in the rankings based on a range of improvements in intellectual property protections in line with key international agreements. Among them are Canada (which moved up three places, from 12th to 9th), Russia (up two places to 16th), and India (up two places to 17th).

Looking ahead, despite the advancements found in this year's Scorecard, issues remain to be addressed in every country surveyed.

In the world's largest markets, progress in the policy environment for cloud computing largely plateaued in 2012. The sharp divide between the advanced economies and the developing world that was revealed in the initial BSA Global Cloud Computing Scorecard narrowed as the greatest progress was made in Malaysia, Brazil, and Russia, all developing countries. This is despite the fact that room for policy improvements exists in every country in the study. Notable developments:

- All six European Union countries studied in the Scorecard slid in the rankings. Further, a closer look at the countries' specific results reveals that only Poland (1.3-point increase), the UK (0.4-point increase), and Germany (0.1-point increase) improved their overall standing.
- The United States improved its rank by one position (from 4th to 3rd) by leapfrogging a more slowly improving Germany. Even so, the US gains are based on useful advances in standards development for cloud computing and infrastructure improvements rather than major policy improvements.

Troublingly, potentially cloud-inhibiting policies continue to emerge despite efforts in many venues to promote a global approach to cloud computing. Countries continue to propose geographic restrictions on data and other limits on the outsourcing of work or data. This is true even among the countries at the top of the Scorecard rankings: Germany, which slips one spot to 4th in this year's Scorecard, was cited in last year's report for certain overly restrictive legal interpretations that would keep some data within national borders. For example:

- Indonesia, a country that made certain improvements in its laws on privacy, undermined any possible advances by introducing ICT regulations that introduce significant barriers for cloud service providers. Specifically, the regulations include provisions requiring providers to register their services with a central authority and rules that will force some providers to establish local data centers and hire local staff. Instead of advancing in the Scorecard, Indonesia fell one place to 21st.

In addition to the broad findings, this year's Scorecard for the first time includes a series of case studies that highlight positive — and troubling — developments in global cloud policy.

Looking ahead, despite the advancements found in this year's Scorecard, issues remain to be addressed in every country surveyed. The key to improving each individual country's ability to capitalize on the benefits of cloud computing will be a coordinated policy response that helps grow the global cloud.

[2] Norton by Symantec, *2012 Norton Cybercrime Report*, September 5, 2012.

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 — as with 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.

KEY FINDINGS

The 2013 BSA Global Cloud Computing Scorecard finds marked improvements in the policy environment for cloud computing in several countries around the world. The findings are based on the one-of-a-kind examination and ranking of 24 countries using seven policy categories that measure the countries' preparedness to support the growth of cloud computing. The 24 countries together account for 80 percent of the global information and communication technologies (ICT) market.

MEASURING CLOUD COMPUTING READINESS

The Scorecard examines major laws and regulations relevant to cloud computing in seven policy categories as well as each country's ICT-related infrastructure and broadband deployment. These policy categories align with the BSA's Cloud Computing Guiding Principles, which underpin the Scorecard's analytical framework and its suggestions for providing a workable framework to allow for the growth of cloud computing.

National privacy regimes should be predictable and transparent and should avoid unnecessarily burdensome restrictions on cloud service providers such as registration requirements for data controllers and cross-border data transfers.

Data Privacy

Cloud users will fully accept and adopt cloud computing only if they are confident that private information stored in the cloud, wherever in the world, will not be used or disclosed by the cloud provider in unexpected ways. National privacy regimes should be predictable and transparent and should avoid unnecessarily burdensome restrictions on cloud service providers such as registration requirements for data controllers and cross-border data transfers. Cloud providers should be encouraged to establish privacy policies that are appropriate for the particular cloud service they provide and the business model they use.

The Scorecard shows that most countries have data protection frameworks and have established independent privacy commissioners. Many laws are based on a mix of the Organisation for Economic Co-operation and Development Guidelines, the European Union Directive, and the Asia-Pacific Economic Cooperation Privacy Principles. Unfortunately, registration requirements for those who hold or process data or for data transfers may act as barriers to taking up cloud services. Such requirements exist in some countries, including in some EU countries for registering cross-border transfers.

Australia, Canada, Japan, and Korea score well in the privacy section, as they have comprehensive privacy regimes without any onerous registration requirements.

Singapore and China introduced new privacy laws in 2012, and existing laws were revised in Australia and Indonesia. Singapore received a big boost to its score and ranking for introducing a modern, balanced privacy regime. China received a smaller boost, as its approach is limited to the introduction of some basic privacy and security principles to a narrower class of data. Unfortunately, privacy reform in several countries has been delayed, with proposals in Brazil, India, South Africa, Thailand, and Turkey failing to gain parliamentary support.

Privacy laws in the EU and the United States are also the subject of significant debate and reform. The EU has proposed replacing the existing directive with a regulation containing some positive elements for consumers but potentially some new administrative burdens for cloud service providers. The draft regulation

CASE STUDY

SINGAPORE: New Privacy Legislation Takes Balanced Approach by Avoiding Other's Missteps

Singapore is a late entrant to privacy regulation, having passed its Personal Data Protection Act 2012 in October. But that timing has helped the country develop a regulatory framework that picks and chooses from the best parts of the European Union and Asia-Pacific Economic Cooperation approaches to privacy regulation and avoids much of the excessive legalese and administrative complexity found in other country's laws.

The law sets out a progressive, light-touch regime for protecting personal information in a modern information society. As noted in its "objective," the Singapore law attempts to strike a balanced approach:

> The purpose of this Act is to govern the collection, use, and disclosure of personal data by organizations in a manner that recognizes both the right of individuals to protect their personal data and the need of organizations to collect, use, or disclose personal data for purposes that a reasonable person would consider appropriate in the circumstances.

To accomplish that goal, Singapore has adopted a broad, principles-based approach to privacy protection. The law contains short sections on notice, consent, security, access, correction, and data retention — all of which are based on familiar international standards.

As it relates to the transfer of personal data outside Singapore, the law allows breathing room for technological evolution by anticipating that more detailed regulations may be developed in the future. It avoids onerous registration requirements or prescriptive administrative burdens, even as it balances the need for compliance by requiring organizations to delegate a responsible individual.

The law establishes an independent Personal Data Protection Commission for monitoring and enforcement. The initial approach will be based on investigations and mediation, although regulators will have powers to direct compliance, complemented by strong sanctions. All parties to complaints or directions are provided with several layers of appeal rights.

CASE STUDY

KOREA: Proposed Cloud Computing Legislation Threatens to Undermine Global Cloud with Country-Specific Rules

Historically, Korea's approach to technology regulation has sometimes been touted as a model for global best practices. Indeed, the country has generally followed the key best practice in cloud computing — making modest changes to legal frameworks to keep pace with technological evolution.

Helped by such overall success in promoting a thriving digital environment, Korea again ranks among the top 10 most cloud-ready countries in this year's BSA Global Cloud Computing Scorecard. Unfortunately, that ranking could have been put at risk by legislation proposed in 2012.

The draft legislation — the "Bill for the Development of Cloud Computing and Protection of Users" — was based on the good intention of promoting economic growth through the technology sector. Unfortunately, the bill's original provisions would have threatened that growth by defining regulations too broadly and imposing unilateral requirements on global services. Some of the challenges presented in the bill would have:

- Established a poor definition of cloud computing, which could cause confusion and lack of transparency in future enforcement of the rules;
- Classified cloud computing as a telecommunications service, potentially subjecting cloud services to significant and unnecessary regulations;
- Created confusion in the requirement for registration of cloud providers in Korea by not making clear which cloud providers must register and opening foreign providers to prosecution (it's not clear why there should even be a registration requirement);
- Imposed numerous Korea-specific requirements that risk isolating Korea from technological developments, hindering cloud adoption by Korean consumers and local service providers; and
- Included the creation of unilateral standards for interoperability, security, safety, and quality of service, all of which take a one-size-fits-all approach that is unlikely to match the speed of the market. Rather, this approach is likely to isolate Korean providers from this globally driven business model.

Policy efforts to promote cloud computing are commendable. But legislation like the bill proposed in Korea offers more cause for concern than it does benefits. To its credit, the government continues to consult closely with industry and take into account issues that have been raised. BSA encourages the Korean government to carefully consider before over-legislating in this dynamic, globally based technology area.

is the subject of ongoing debate. In the United States, the Obama administration has announced a commitment to general privacy legislation, although in practice this may be difficult to develop in the absence of a broader consensus among lawmakers. In the meantime the United States is working on implementing the new Consumer Privacy Bill of Rights, which could provide a layer of protection through enforceable codes of conduct, and the key regulators are becoming more active in enforcing existing sectoral privacy protections.

Security

Consumers of cloud computing and other digital services (including both private-sector and government users) need assurance that cloud service providers understand and appropriately manage the security risks associated with storing their data and running their applications on cloud systems. This section of the Scorecard examines whether security criteria and the ongoing testing of security measures are the subject of regulation in each jurisdiction. The security section also examines electronic signature laws and Internet censorship or filtering requirements.

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

The Scorecard reveals that most countries have clear, technology-neutral electronic signature laws. In addition, security requirements are in place in most jurisdictions, and security audit requirements were generally absent. However, some overly prescriptive security requirements have begun to appear. These include a new regulation in Indonesia that — among other negative developments — requires service providers to locate their data centers inside the country and proposed legislation in Korea that would create unilateral security standards.

A number of countries have implemented Internet filtering or censorship regimes that may act as a barrier to the expansion of the digital economy and cloud computing. The key intention of the schemes is to address criminal conduct, including distribution of illegal material, particularly child pornography. However, several of the filtering or censorship schemes regularly block sites that express political dissent. In 2012 Russia introduced new Internet censorship rules, and its score in this section fell significantly. On a positive note, Australia dropped plans for mandatory filtering, and its score improved.

Cybercrime

Because cloud computing involves the aggregation of massive amounts of data in large data centers, it creates new and highly tempting targets. As criminals turn their attention to these vaults of information, it will become increasingly challenging to protect such data centers from both physical and cyberattacks. Governments should ensure that domestic laws provide an effective mechanism for law enforcement, and for cloud providers themselves, to combat unauthorized access to data stored in the cloud. This section examines these issues as well as rules relating to investigation and enforcement, including access to encrypted data and extraterritorial offenses.

Governments should ensure that domestic laws provide an effective mechanism for law enforcement, and for cloud providers themselves, to combat unauthorized access to data stored in the cloud.

The Scorecard finds that most countries have either computer crime laws or cybercrime laws and that many of these laws are broadly compliant with the Convention on Cybercrime. Many countries in the study (Australia, EU members, Japan, and the United States) have now ratified the Convention, and several other countries are considering signing. Unfortunately, a few key jurisdictions still have gaps and inconsistencies in their cybercrime laws. For example, Canada and Korea have not updated their criminal laws, and Russia has chosen a legal approach that does not follow international best practice.

Australia, France, Germany, and Japan score extremely high in the cybercrime section. Canada, China, Korea, Russia, and Vietnam score poorly. The country that shows the most improvement is Brazil, which finally passed cybercrime laws after a long campaign.

CASE STUDY

EU: Data Protection Review Must Foster User Trust, Leave Breathing Room for Innovation

Privacy law can be a key enabler, or inhibitor, of cloud computing. Such laws must give customers the confidence that their data will not be used or disclosed in unexpected ways while also allowing providers to move data through the global cloud in the most efficient way possible. As such, the review of the European Union's data protection framework is an opportunity to both improve user privacy and advance the global cloud.

In this case, EU lawmakers can achieve these goals through forward-looking solutions that ensure the protection of European citizens online while also preserving the ability of companies to innovate and create new products and solutions that meet user demands. In order to accomplish these goals European privacy legislation should allow for effective measures to protect user privacy and earn customers' trust; provide a harmonized set of rules and legal certainty for businesses and users; and, develop a differentiated approach to the definition of personal data that takes into account the context and risk of the data processing.

Unfortunately, several proposed reforms could raise significant hurdles to cloud computing — within the EU itself — and globally. As the review progresses, the EU must ensure that the revised privacy framework includes:

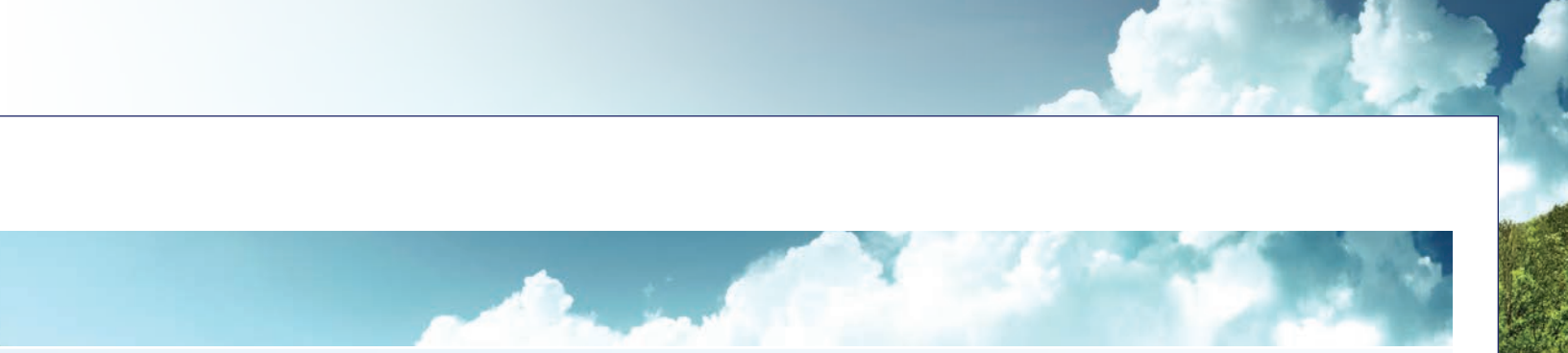
- **A workable, technologically neutral framework to meet evolving technology needs.** Technology changes quickly — and cloud is a perfect example of the speed of technological change. Highly prescriptive and Europe-centric rules could cordon off European cloud users from the global cloud and fail to recognize new and evolving technologies.
- **A context- and risk-based approach to privacy and avoiding blanket rules to data protection.** In a rapidly changing technology environment, there are numerous legitimate contexts for collecting and processing data. In particular, this includes ensuring the ability to examine and manage data for security purposes.

This section also examines rules on investigation and enforcement, including access to encrypted data and extraterritorial offences. There is a greater divergence in results in these fields.

Intellectual Property Rights

Providers of cloud computing and digital economy technologies and services, as with other highly innovative products, rely on a combination of patents, copyrights, trade secrets, and other forms of intellectual property protection. Thus, to encourage investments in cloud research and development, as well as infrastructure, IP laws must provide strong incentives for these investments and clear protection and vigorous enforcement against misappropriation and infringement. Online intermediaries should have incentives to behave responsibly, and they should enjoy safe harbors from liability when they do so.

This section also examines investigatory and enforcement approaches, where there is a wide diversity of approaches and significant inconsistency. There are also concerns over the enforcement culture and resources available in some jurisdictions. Even countries with up-to-date IP laws sometimes fail to



➲ **An internal market for the free flow of data, with a harmonized level of personal data protection.** Harmonization within the EU is a critical step to provide legal certainty and consistency for both businesses and consumers. The proposal makes progress in this regard, and it's important to see it through the final regulation.

What is needed is not a rigid framework that acts as a "checklist" for privacy compliance in Europe, but rather clear rules that balance respect for the basic rights of individuals and enterprises with the need for continued technological progress. If the rules are too prescriptive, they will undermine Europe's privacy goals. New products and technologies that lie outside the specific parameters of the regulation will undercut European privacy goals by both retarding technological progress and leaving less choice for European consumers.

It should be noted also that this same global approach must be taken in EU initiatives to establish a Digital Single Market for cloud computing. The European Commission's cloud-focused work on standards and certifications, contract terms and conditions, and the EU Cloud Partnership, all part of the Commission's EU Cloud Computing Strategy, as well as the forthcoming European Parliament report on cloud, must take a global view rather than focusing on the EU alone.

Privacy is a necessity in the digital environment. As with the development or revision of any data privacy law, the end goal of Europe's review should be a framework that works in practice to deliver high standards for user privacy while advancing Europe's digital economy and encouraging the type of innovation that underscores cloud computing.

enforce these laws, and piracy rates remain high in many jurisdictions. The Scorecard reveals that countries are moving toward a consistent approach on many key rights and protections. Gaps exist, however, in the IP laws of some jurisdictions.

Significant law reform in intellectual property has occurred in the past year. Canada, India, Malaysia, and Russia passed important amendments to their copyright laws, bringing them in line with international standards. Malaysia signed the World Intellectual Property Organization (WIPO) Copyright Treaty. Enforcement also improved in several countries.

There were still some disappointments: Brazil failed to update its copyright laws, and Italy dropped promising online copyright regulations that had been in development for more than two years.

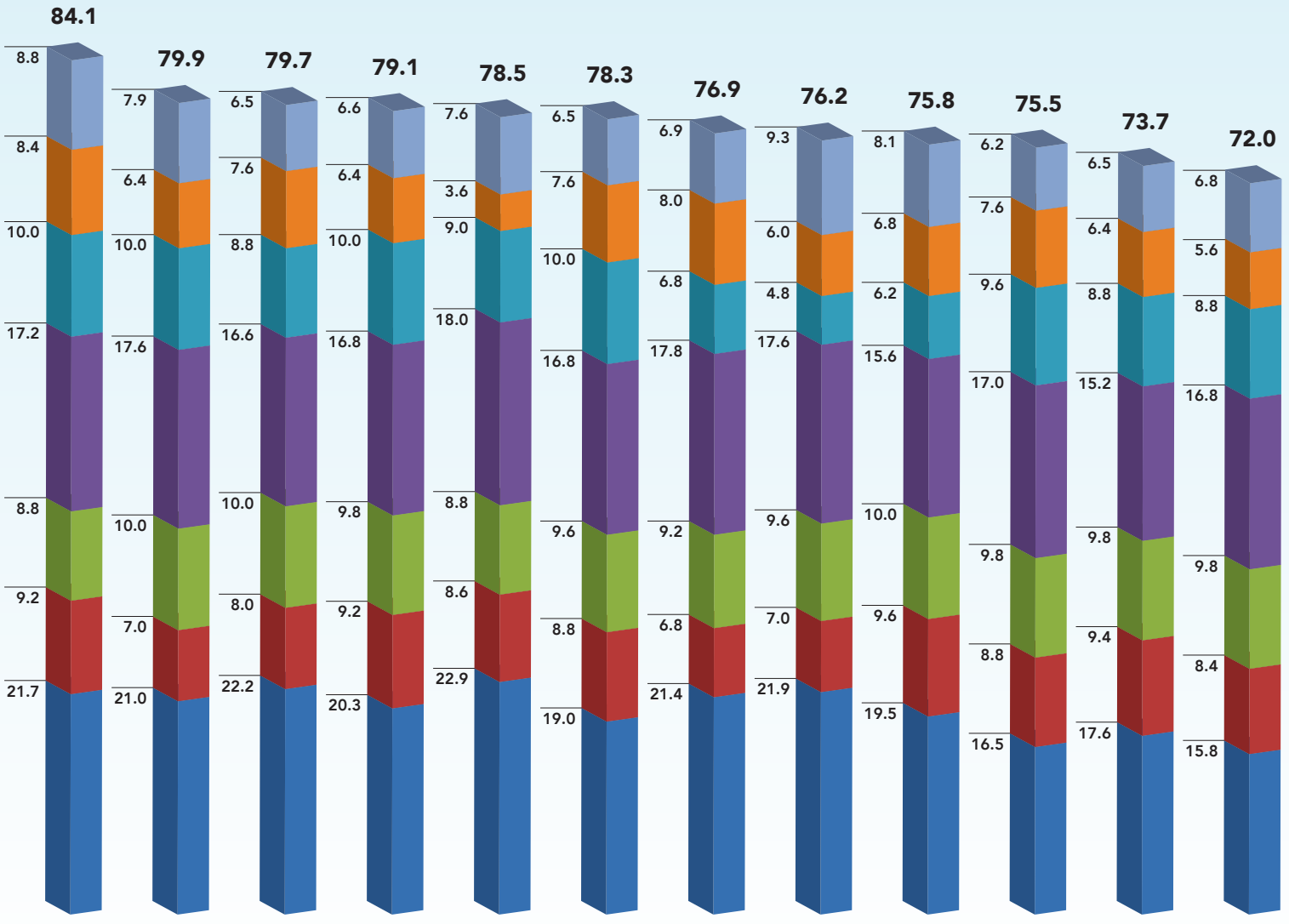
The leading countries in this section are Australia, Malaysia, Singapore, and the UK. The stragglers include Brazil, Indonesia, Thailand, and Vietnam.

Data portability and seamless use of interoperable applications are key considerations for cloud computing and digital economy applications. Consumers are

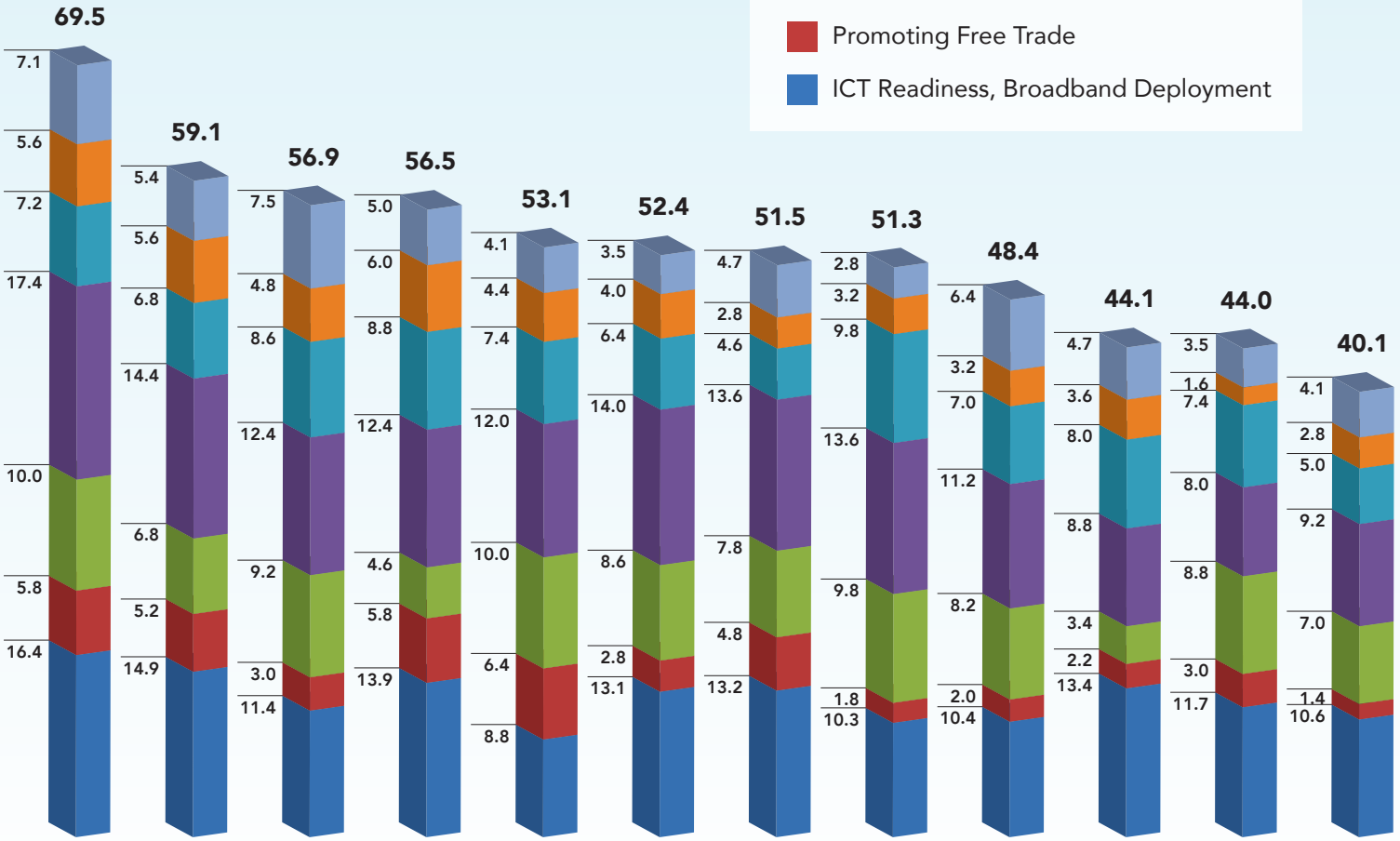
continued on page 12

2013 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 ICT market.



	Japan	Australia	United States	Germany	Singapore	France	United Kingdom	Korea	Canada	Italy	Spain	Poland
Change in Rank	none	none	+1	-1	+5	-1	-1	none	+3	-4	-2	-1



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

demanding interoperability in the cloud computing space, and industry is working hard through standards development organizations and other international avenues to meet this demand. Government support of these efforts and the avoidance of technological mandates are important.

This section of the Scorecard examines whether or not governments encourage standards to be developed through voluntary, industry-led standards processes. This section also examines international harmonization of e-commerce rules, tariffs, and relevant trade rules.

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 slow the evolution of cloud computing.

The Scorecard reveals that governments take an inconsistent approach to standards development and that many ad hoc decisions are made in the absence of national frameworks and policies. Tariffs and trade barriers for online software and applications are rare, although a few jurisdictions still maintain tariffs on new technology products that are used to access cloud services.

In 2012 a positive development in this section was the finalization of cloud computing standards by the US National Institute of Standards and Technology.

The leading countries in international harmonization are Australia, Canada, India, Malaysia, and the United States, which all scored full marks in this section. Argentina, Brazil, Russia, and Vietnam score poorly.

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 slow the evolution of cloud computing.

This section of the Scorecard examines and compares government procurement regimes and efforts to remove barriers to free trade, including countries' requirements and preferences for particular products. The section also examines whether countries have joined the WTO Agreement on Government Procurement, which liberalizes such policies. The leading countries in this section include Canada, Germany, Japan, and Spain.

The Scorecard finds that a number of countries still provide preferential treatment for domestic suppliers in government procurement. Indonesia, South Africa, and Vietnam score poorly in this section.

This section also notes some very negative developments in Indonesia, where a new regulation introduces onerous requirements for electronic service providers, including potential requirements to locate data centers within the country and to hire local staff.

Infrastructure

This section of the Scorecard examines and compares the infrastructure that is available in each country to support the digital economy and cloud computing. It is based on detailed comparative statistics on a range of important ICT 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.

Based on those factors, Japan, Korea, Singapore, and the United States score highest in this component of the Scorecard. Brazil, China, Poland, Russia, and Singapore show the most improvement in their infrastructure score for 2013.

Infrastructure is enhanced in those countries that have developed or are developing national broadband access networks. Several countries, including Japan, Korea, and Singapore have implemented impressive national broadband networks. In 2012 China announced a major national broadband plan to accommodate a projected 800 million Internet users by 2015.

CASE STUDY

TRADE AGREEMENTS: Trans-Pacific Partnership, Other New Efforts Present the Chance to Grow Economies by Facilitating Trade in Data

As global trade has evolved, the international agreements that govern such activity have evolved as well. As we fully enter the cloud computing era, the ongoing negotiations of the Trans-Pacific Partnership represent a timely opportunity for continued advancement, particularly in writing the first modern-day rules on cross-border data flows in a multilateral environment.

The TPP and other trade multilateral trade agreements that appear to be emerging in 2013 will build on work that has come before. In the World Trade Organization, for example, the General Agreement on Trade in Services established a framework of rules for computer services. That 1995 agreement, though, did not fully contemplate the Internet revolution or cloud technology. A more recent trade agreement, the US-Korea Free Trade Agreement, includes strong, relevant provisions on e-commerce. But it is limited to two countries.

Today, new multilateral rules are necessary to protect the free flow of data globally. The governments involved in the various negotiations should seize the opportunities they present. As a starting point, governments must work to establish a framework that is rigorous enough to meet individual countries' privacy concerns but flexible enough to ensure the free flow of cross-border data transfers.

To ensure the growth of cloud computing, the obligations in forward-looking trade agreements should:

- Explicitly prohibit restrictions on the provision of cross-border data services;
- Prohibit requiring the use of local computing infrastructure, such as servers, as a condition for providing, or investing in the provision of, cloud services in the country;
- Prohibit the use of standards and licensing requirements in ways that restrict trade; and
- Cover purchase by private businesses and consumers and government procurement, including by state-owned enterprises.

Japan and Korea dominate the percentage of fiber Internet connections, with each having twice the level of penetration of any other country. Japan and Korea have more than half of the 60 million global fiber connections, followed by Russia with 9 million connections and the United States with 6 million.

Singapore stands out as having both the highest score in the infrastructure section and maintaining leading growth rates in a number of areas, such as International Internet Bandwidth.

The United States leads in the size of its public cloud services market and the sheer volume of the number of active mobile broadband subscriptions.

While major infrastructure improvements are under way in a number of countries, broadband penetration remains very inconsistent and some countries have both low infrastructure scores and low growth rates. There is a risk that some countries do not yet have the infrastructure (or plans) in place to take full advantage 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 towards 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.
- ◑ Indicates that the assessment is positive in part, although some gaps or inconsistencies may exist which 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.

ICT 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

#	THEME / QUESTIONS	Weight	Value (out of 100)
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 takedown content that infringes copyright, upon notification by the right 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
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
4.	Is the downloading of applications or digital data from foreign cloud service providers free from tariff or other trade barriers?	10%	1
5.	Are international standards favored over domestic standards?	10%	1
6.	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
ICT READINESS, BROADBAND DEPLOYMENT		**30%**	**30**
1.	Is there a national broadband plan?	13%	3.75
3.7.	Personal Computers (% of households) (2011)	3%	0.75
4.1.	ITU ICT Development Index (IDI) (2011) *(Score is out of 10 and includes 161 countries)*	20%	6
4.2.	World Economic Forum Networked Readiness Index (NRI) (2012) *(Score is out of 7 and includes 142 countries)*	20%	6
4.3.	International Connectivity Score (2011) *(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)*	10%	3
5.2.	Internet Users as Percentage of Population (2011)	5%	1.5
5.3.	International Internet Bandwidth (bits per second per Internet user) (2010)	3%	0.75
5.4.	International Internet Bandwidth (2011) (total gigabits per second [Gbps] per country)	3%	0.75
6.4.	Fixed Broadband Subscriptions as % of Internet Users (2011)	5%	1.5
7.2.	Active Mobile Broadband Subscriptions per 100 Inhabitants (2011)	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	None
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	None
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?	✖	Undecided	✖
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	Not applicable
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	None	None	National regulator	Se
Sole commissioner	Not applicable	Sole commissioner	Sole commissioner	Not applicable	Not applicable	Collegial body	Oth
✔	✔	✖	✖	✔	✔	✖	
✔	✔	✖	✔	◑	✔	✔	
✖	✖	◑	◑	✖	✔	✖	
✔	✔	✔	✔	✔	✔	✔	
✔	✖	✔	◑	✖	◑	◑	
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 re-quirements (including Common Criteria)	Limited requirements	Comprehensive re-quirements (including Common Criteria)	Comprehensive re-quirements (including Common Criteria)	Limited requirements	No requirements	Comprehensive re-quirements (including Common Criteria)	Co quire Co
◑	✔	✔	✔	✔	✔	✔	
◑	✖	✔	✔	✔	✔	✔	
Access with a warrant	Not stated	Access with a warrant	Access with a warrant	Unlimited access	Not stated	Access with a warrant	Acce
Limited coverage	Limited coverage	Comprehensive coverage	Comprehensive coverage	Comprehensive coverage	Limited coverage	Limited coverage	C
✔	✔	✔	✔	✔	✔	✔	
✔	◑	✔	✔	◑	◑	✔	
◑	✔	✔	✔	✖	✔	✔	
✔	◑	✔	✔	✔	◑	✔	
✔	✔	✔	✔	✔	✔	✔	
◑	✔	✔	◑	✔	✔	✔	
✔	✔	✔	✔	✔	✖	✔	
✔	✔	✔	◑	◑	Undecided	✔	
Civil	Civil and criminal	Civil and criminal	Civil	Not applicable	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	Not a
◑	✔	◑	◑	✔	◑	✔	
✔	✔	✔	◑	✔	✔	✔	
Available	Available	Not available	Available	Available	Available	Not available	Av
ctoral regulator	National regulator	National regulator	National regulator	National regulator	National regulator	National regulator	
her government official	Other government official	Other government official	Collegial body	Sole commissioner	Other government official	Not applicable	Not a
✔	✔	✔	✔	✖	✖	✔	
✔	✔	✔	✔	◑	✖	✔	
◑	✔	✖	✔	◑	✔	✖	
✔	✔	✔	✔	✔	✔	✔	
✔	✖	✔	✔	✔	◑	✖	
ited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Limited coverage in legislation	Detailed legislation	None	
ited coverage in legislation	Limited coverage in legislation	None	None	None	None	None	
mprehensive re-ements (including ommon Criteria)	Limited requirements	Limited requirements	No requirements	Limited requirements	Comprehensive requirements	Limited requirements	No re
✔	✔	✔	✔	✔	✔	✔	
✔	✖	◑	✔	✔	◑	✔	
ess with a warrant	Not Stated	Undecided	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	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
✖	✔	✖	✖	✔	◑	◑
applicable	Comprehensive	Not applicable	Not applicable	Comprehensive	Sectoral	Not applicable
✖	✔	✖	✖	✔	◑	✖
✖	✔	✖	✖	✔	◑	✖
vailable	Available	Available	Available	Available	Available	Undecided
None	National regulator	None	None	National regulator	Sectoral regulator	None
applicable	Sole commissioner	Not applicable	Not applicable	Sole commissioner	Other government official	Not applicable
✔	✖	✔	✔	✖	✔	✔
✔	✖	✔	✔	✔	◑	✔
✖	◑	✖	✖	◑	✔	✖
✔	✔	✔	✔	✔	✔	✔
◑	✔	✖	✖	✔	✔	✖
None	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	No access	Unlimited access	Not stated	Unlimited access	Not stated	Unlimited access
prehensive verage	Comprehensive coverage	Comprehensive coverage	Limited coverage	Comprehensive coverage	Limited coverage	Limited coverage
✔	✔	✔	✔	✔	✔	✔
✔	✔	◑	✔	✔	✔	◑
✖	✔	✖	✔	✔	✔	✖
◑	✔	✖	✔	✔	✔	◑
✔	◑	✔	✔	✔	◑	✔
✔	◑	✔	Undecided	✔	◑	✔
✔	✔	✖	✔	✔	✔	✖
✔	✔	✖	✔	✔	✔	✖
Civil	Civil	Not applicable	Civil and criminal	Civil and criminal	Civil and criminal	Not applicable
✔	✔	✖	✔	◑	✔	✖
✖	✖	✖	✖	◑	◑	✖
prehensive otection	Comprehensive protection	Limited protection (criminal activity only)	Comprehensive protection	Comprehensive protection	Comprehensive protection	No protection
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	◑	✔	✔	✔
TRAL Model E-Commerce	UNCITRAL Model Law on E-Commerce	UNCITRAL Model Law on E-Commerce	Other	Other	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?	◑	◑	✖
	ICT 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 2021, the National Broadband Network (NBN) will cover 100% of premises, 93% of homes, schools and businesses at up to 100 Mbps over fiber, with the remainder at up to 12 Mbps over next generation wireless and satellite	• By 2014, 30 fixed broadb connections minimum sp 1Mbps), incl homes, busi and co-oper plus 100,000 telecenters
2.	Are there laws or policies that regulate the establishment of different service levels for data transmission based on the nature of data transmitted?	Limited regulation and limited public debate	No regulation and extensive public debate	Regulation un sideration by ment and ex public del
	3. Base Indicators			
3.1.	Population (2011)	40,764,561	22,605,732	196,655,
3.2.	Urban Population (%) (2011)	93%	89%	85%
3.3.	Number of Households (2011)	11,162,000	8,623,000	58,663,0
3.4.	Population Density (people per square km) (2010)	15	3	23
3.5.	Per Capita GDP (US$ 2011)	$10,941	$60,642	$12,59
3.6.	Public Cloud Services Market Value (2011) (Billions of US$)	0.16	2.09	1.43
3.7.	Personal Computers (% of households) (2011)	50%	83%	45%
	4. ICT and Network Readiness Indicators			
4.1.	ITU ICT Development Index (IDI) (2011) *(Score is out of 10 and includes 161 countries)*	5.00	7.05	4.72
4.2.	World Economic Forum Networked Readiness Index (NRI) (2012) *(Score is out of 7 and includes 142 countries)*	3.99	5.11	4.32
4.3.	International Connectivity Score (2011) *(Score is out of 10 and includes 50 countries)*	5.46	6.93	5.14
4.4.	IT Industry Competitiveness Index (2011) (*Score is out of 100 and includes 66 countries)*	36.20	67.50	39.50
	5. Internet Users and International Bandwidth			
5.1.	Internet Users (2011)	19,446,326	17,858,528	88,494,7
5.2.	Internet Users as Percentage of Population (2011)	48%	79%	45%
5.3.	International Internet Bandwidth (bits per second per Internet user) (2011)	25,712	50,396	29,04
5.4.	International Internet Bandwidth (2011) (total gigabits per second [Gbps] per country)	500	900	2,570
	6. Fixed Broadband			
6.1.	Fixed Broadband Subscriptions (2011)	4,294,000	5,498,000	16,884,1
6.2.	Fixed Broadband Subscriptions as % of Households (2011)	38%	64%	29%
6.3.	Fixed Broadband Subscriptions as % of Population (2011)	11%	24%	9%
6.4.	Fixed Broadband Subscriptions as % of Internet Users (2011)	22%	31%	19%
	7. Mobile Broadband			
7.1.	Mobile Cellular Subscriptions (2011)	55,000,000	24,490,000	244,357,
7.2.	Active Mobile Broadband Subscriptions per 100 Inhabitants (2011)	12	73	21
7.3.	Number of Active Mobile Broadband Subscriptions (2011)	4,775,000	16,491,000	41,114,4

ICT Readiness (Country Ranking Out of 24)

Highest — Lowest

	Canada	China	France	Germany	India	Indonesia	Italy
	✔	✖	◑	✔	◑	◑	◑
	✔	◑	✔	✔	◑	◑	✔
	✔	◑	◑	◑	✔	◑	◑
	✔	◑	✔	✔	◑	✖	✔
million band (with a peed of luding inesses, ratives, 0	• By 2016, all Canadians to have access to broadband speeds of at least 5 Mbps for downloads and 1 Mbps for uploads.	• From 2013, all new houses to have fiber Internet connections • By 2015, more than 40 million families connected to fiber • By 2016 - 270 million fixed broadband subscribers - 450 million 3G broadband subscribers - Urban Internet access speed: 20 Mbps - Rural Internet access speed: at least 4 Mbps	• By 2014 all business and industrial zones connected to fast broadband • By 2020, 70% of homes connected to fast broadband • By 2025, 100% of homes connected to fast broadband	• By 2014, 75% of households to have download speeds of 50 Mbps.	• By 2014, 160 million broadband connections (22 million DSL, 78 million cable and 60 million wireless broadband)	• By 2014, increase broadband connections to 8% of households and to 30% of the population	• By 2013, provid broadband to 5 million people excluded from high-speed Inte services • By 2020, provid access to at least 50% of the population spee greater than 10 Mbps on fixed networks (FttH)
der con- govern- tensive bate	Multiple regulations and extensive public debate	No regulation and limited public debate	Regulation under consideration by government and extensive 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 sideration by gov ment and extens public debate
014	34,349,561	1,347,565,324	63,125,894	82,162,512	1,241,491,960	242,325,638	60,788,694
	81%	51%	86%	74%	31%	51%	68%
000	13,125,000	384,137,000	26,200,000	39,135,000	226,697,000	60,532,000	23,399,000
	4	143	118	234	394	132	206
94	$50,345	$5,445	$42,377	$43,689	$1,489	$3,495	$36,116
	3.41	2.71	3.02	4.28	0.24	0.02	1.33
	86%	38%	81%	90%	7%	12%	66%
	7.04	3.88	7.30	7.39	2.10	3.19	6.28
	5.33	4.90	5.14	5.41	4.30	4.38	4.43
	6.88	2.72	6.06	6.27	1.25	2.01	4.79
	67.60	39.80	59.30	64.10	41.60	24.80	50.70
756	28,510,136	516,117,519	50,235,586	68,194,885	125,018,240	43,618,615	34,527,978
	83%	38%	80%	83%	10%	18%	57%
1	70,150	2,692	78,590	74,786	5,423	7,196	60,820
	2,000	1,389	3,948	5,100	678	314	2,100
27	10,931,877	156,487,000	22,749,000	27,185,816	13,350,000	2,736,379	13,421,336
	83%	41%	87%	69%	6%	5%	57%
	32%	12%	36%	33%	1%	1%	22%
	38%	30%	45%	40%	11%	6%	39%
507	27,387,200	986,253,000	59,840,000	108,700,000	893,862,478	249,805,619	96,004,795
	38	9	44	35	2	22	33
405	13,188,757	127,521,000	27,890,000	28,600,000	23,000,000	53,786,371	20,224,000

	Japan	Korea	Malaysia	Mexico	Poland	Russia	Singapore
	◑	✖	◑	✖	✔	◑	✔
	✔	✔	✔	✔	✔	✖	✔
	✔	✔	◑	✔	✔	✖	✔
	✔	✔	◑	✖	✔	✔	✔
e rnet e eds 0	• By 2015, all households to have very high-speed fiber broadband (FttH) connections	• By 2012, wireless broadband services to be upgraded to 10 Mbps • By 2012, high-speed Internet services to be upgraded from 100 Mbps to 1 Gbps	• By 2015, 75% of households to access high-speed broadband	• By 2012, 22% broadband penetration	• By 2013, 23% of population to have access to broadband	• 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 500Mbps upstream broadband access to every home, office, and school
con- vern- sive e	Limited regulation and extensive public debate	Limited regulation and extensive public debate	No regulation and extensive public debate	No regulation and limited public debate	Limited regulation and limited public debate	Regulation under consideration by government and limited public debate	Limited regulation and limited public debate
	126,497,241	48,391,343	28,859,154	114,793,341	38,298,949	142,835,555	5,187,933
	91%	83%	73%	78%	61%	74%	100%
	47,260,000	18,967,000	6,039,000	26,476,000	13,710,000	52,130,000	1,171,000
	350	504	86	58	126	9	7252
	$45,903	$22,424	$9,656	$10,064	$13,463	$13,089	$46,241
	4.98	1.59	—	0.55	0.16	0.61	—
	86%	82%	64%	32%	73%	57%	86%
	7.76	8.56	4.82	3.79	6.19	6.00	7.66
	5.40	5.02	5.08	4.29	4.46	4.21	5.63
	5.89	5.80	6.61	4.87	4.26	5.68	6.40
	63.40	60.80	44.10	37.00	44.60	35.20	69.80
	100,603,256	40,551,945	17,604,084	41,497,793	24,848,358	69,989,422	3,890,950
	80%	84%	61%	36%	65%	49%	75%
	23,111	17,170	10,651	8,743	40,244	31,911	547,064
	2,325	696	188	363	1,000	2,233	2,129
	34,917,822	17,859,003	2,147,800	11,723,336	5,622,367	18,775,088	1,329,900
	74%	94%	36%	44%	41%	36%	114%
	28%	37%	7%	10%	15%	13%	26%
	35%	44%	12%	28%	23%	27%	34%
	132,761,125	52,506,793	36,661,261	94,565,305	50,160,222	256,116,581	7,794,300
	101	105	12	7	50	48	114
	128,153,700	50,836,196	3,539,100	7,483,891	19,014,462	68,394,682	5,917,400

South Africa	Spain	Thailand	Turkey	United Kingdom	United States	Vietnam
✖	✔	✖	✖	◑	✔	✖
◑	✔	✔	✔	✖	✔	✖
◑	✔	✔	✔	✖	✔	✖
✖	✔	✖	✖	✔	◑	✖
• By 2014, 5% broadband penetration (min. 256 kbps)	• By 2015, 100 Mbps broadband available to 50% of population	• Extend broadband coverage to 95% by 2020 • By 2020, provide broadband Internet access of at least 100 Mbps in economically important provinces	• By 2013, the broadband subscriber penetration rate to increase to 20% • By 2013, the proportion of Internet users to increase to 60%	• By 2015, to bring "superfast broadband" to all parts of the UK and to provide everyone with at least 2 Mbps and superfast broadband to be available to 90% of people	• 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 to 30% of households to have access to broadband • By 2020, 50 to 60% of households have access to broadband, of which 20 to 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	Regulation under consideration by government and extensive public debate	No regulation and limited public debate
50,459,978	46,454,895	69,518,555	73,639,596	62,417,431	313,085,380	88,791,996
62%	77%	34%	72%	80%	82%	31%
12,599,000	15,942,000	19,238,000	16,656,000	26,079,000	119,300,000	17,936,000
41	92	135	95	257	34	280
$8,070	$32,244	$4,972	$10,498	$38,818	$48,442	$1,411
—	1.31	—	0.08	—	50.50	—
20%	73%	25%	48%	84%	77%	16%
3.42	6.62	3.41	4.38	7.75	7.48	3.68
4.34	4.54	4.52	4.28	5.39	5.43	4.24
4.68	5.09	3.68	5.51	7.06	7.82	2.73
35.00	50.40	30.50	38.70	68.10	80.50	27.10
10,596,595	31,403,509	16,475,898	31,002,270	51,182,293	243,777,735	31,139,353
21%	68%	24%	42%	82%	78%	35%
18,874	64,069	10,622	33,938	166,073	47,174	9,998
200	2,012	175	1,052	8,500	11,500	311
907,000	11,048,496	3,496,000	7,554,725	20,438,000	85,630,000	3,838,206
7%	69%	18%	45%	78%	72%	21%
2%	24%	5%	10%	33%	27%	4%
9%	35%	21%	24%	40%	35%	12%
64,000,000	52,597,587	77,604,738	65,321,745	81,612,000	290,304,000	127,318,045
20	42	0.14	9	53	75	18
10,000,000	19,313,800	97,000	6,454,801	32,804,000	233,265,000	16,014,991

ABOUT BSA

BSA | The Software Alliance is the leading advocate for the global software industry before governments and in the international marketplace. It is an association of world-class companies that invest billions of dollars annually to create software solutions that spark the economy and improve modern life.

BSA serves as the world's premier anti-piracy organization and as a respected leader in shaping public policies that promote technology innovation and drive economic growth.

Through government relations, intellectual property enforcement, and educational activities in markets around the world, BSA protects intellectual property and fosters innovation; works to open markets and ensure fair competition; and builds trust and confidence in information technology for consumers, businesses, and governments alike.

PROTECTING INTELLECTUAL PROPERTY & FOSTERING INNOVATION

Intellectual property rights (IPR) — copyrights, patents, and trademarks — provide the legal framework for creative enterprise, the bedrock of growing economies. They are also essential to commercial software development, which is the world's largest copyright industry.

By working with policymakers, leading enforcement actions, and conducting public-education initiatives around the world, BSA ensures that respect for IPR pervades the global economy and society.

- **Championing Intellectual Property Rights:** BSA works with governments around the world to ensure intellectual property protections keep pace with new innovations in technology, such as cloud computing.
- **Curbing Software Theft:** BSA conducts vigorous enforcement programs in approximately 50 countries, helping its members guard against software theft by taking legal action against commercial, end-user license infringement, counterfeiting operations, and Internet piracy.
- **Leading Industry Research:** BSA publishes the most authoritative global studies on piracy and its economic impact, illuminating the scope of the problem and helping shape national and international policy responses.
- **Educating the Public:** BSA educates consumers about harms associated with software piracy and offers a groundbreaking training program to help organizations more effectively manage their software assets.

BSA serves as the world's premier anti-piracy organization and as a respected leader in shaping public policies that promote technology innovation and drive economic growth.

OPENING MARKETS & ENSURING FAIR COMPETITION

Open markets are essential to economic growth and prosperity. BSA expands market opportunities for the software industry by working with governments to break down trade barriers and eliminate discriminatory procurement preferences that stifle innovation by skewing competition.

- **Breaking Down Barriers to Growth:** BSA provides policymakers with information, expert analysis, and industry insights to promote an open-market agenda. These efforts include a special focus on the so-called 'BRIC' economies of Brazil, Russia, India, and China, which are the world's fastest-growing technology markets but also home to rampant piracy.
- **Promoting Technology Neutrality:** BSA encourages fair competition among technologies by promoting internationally recognized standards and unbiased IT-procurement policies for governments.
- **Supporting New Innovations:** BSA works with policymakers around the world to create conditions for new technologies such as cloud computing to flourish. In addition to collaborating on technology standards, this work involves elevating intellectual property protections, harmonizing international legal principles, and addressing other challenges that are beyond the capability or jurisdiction of any one company or government.

BUILDING TRUST & CONFIDENCE IN TECHNOLOGY

Security and privacy undergird trust and confidence in information technology for consumers, businesses, and governments. BSA promotes responsible data stewardship and facilitates acceptance and adoption of each new wave of innovation that transforms the technology marketplace and creates value for society.

- **Driving Public-Private Collaboration:** Drawing on the expertise of its members and productive working relationships with public officials, BSA serves as a knowledge center and catalyst to encourage cooperation and forge consensus among industry and governments.
- **Protecting Consumers:** As new technologies emerge, such as cloud computing, BSA and its members develop appropriate privacy and security standards and share their insights with policymakers and regulators.
- **Mapping Policy Solutions:** BSA has developed a global cybersecurity framework to guide governments in crafting policies that effectively deter and punish cybercrime, mitigate threats, inform and protect consumers, and respond to cyber incidents.

www.bsa.org

BSA Worldwide Headquarters

20 F Street, NW
Suite 800
Washington, DC 20001

T: +1.202.872.5500
F: +1.202.872.5501

BSA Asia-Pacific

300 Beach Road
#25-08 The Concourse
Singapore 199555

T: +65.6292.2072
F: +65.6292.6369

BSA Europe, Middle East & Africa

2 Queen Anne's Gate Buildings
Dartmouth Street
London, SW1H 9BP
United Kingdom

T: +44.207.340.6080
F: +44.207.340.6090

Argentina Australia Belgium Brazil Canada Chile China Colombia Czech Republic Denmark France Germany Greece India Indonesia Israel Italy Japan Malaysia Mexico Netherlands Panama Peru Poland Russia South Africa South Korea Spain Taiwan Thailand Turkey Vietnam