



## ICC comments to the Telecom Regulatory Authority of India consultation on cloud computing

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Speaking on behalf of businesses from all sectors and sizes in every part of the world, the International Chamber of Commerce (ICC) believes that flexible and light touch regulation for emerging and innovative technologies and business models is crucial to take advantage of the social and economic benefits of the digital economy. It is therefore important that all providers of cloud services have appropriate policies and practices in place that: are compliant with applicable laws, are consistent with relevant industry best practices and use meaningful and reasonable efforts to address and deter the use of their services to engage in illegal activity. Regulators should consider how to apply existing regulation to the cloud environment, as long as they do not unduly restrict innovative cloud services and new business models. Where gaps are found, a flexible and light touch approach to regulation is advised<sup>1</sup>.

Following the invitation by the Telecom Regulatory Authority of India (TRAI) to send written comments to the consultation paper released on 10 June 2016 on cloud computing, ICC would like to take this opportunity to share global business perspectives on the topics addressed in the consultation. In this context, this submission will share global business views on the benefits of cloud computing and offer policy considerations for TRAI as it aims to facilitate and promote the adoption of cloud services in India.

### Benefits of cloud

Cloud computing is a style of computing in which dynamically scalable and often virtualised resources are provided as a service over the Internet. Users need not have knowledge of, expertise in, or control over the technology infrastructure in the 'cloud' that support them. The concept generally incorporates combinations of the following: infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS). Cloud computing services often provide common business and other consumer applications online that can be accessed from a web browser or mobile device. The cloud has evolved to provide numerous other services, all of which are delivered with improved efficiency, economy, scope, security, reliability and scale. Increasingly, data analytics are also being provided as a cloud service, enabling organizations to analyse and gain insights about large private data sets that they can upload to the cloud or are generated by cloud services, and/or public data sets that are made available in the cloud.

Access to digital products and services, such as cloud applications, provides small and medium enterprises (SMEs) with cutting edge services at competitive prices, enabling them to participate in global supply chains and directly access customers in foreign markets in ways previously only feasible for larger companies. Indeed, the Internet can be a great equalizer, lowering the barrier for market entry, and enabling small companies to compete globally using the same tools as large and established companies.

Cloud services also enable emerging technologies, such as the Internet of everything<sup>2</sup> (IoE),

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<sup>1</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>2</sup> The Internet of everything (IoE) is a term that is increasingly being used to represent the superset of concepts related to the interaction between and among people and objects using cloud computing supported by data analytics. IoE is an overarching term that captures a number of existing and emerging elements: the Internet of things (IoT), machine to machine (M2M), the industrial Internet, and industrie 4.0. These technology models work in an ecosystem that also includes cloud services and big data analytics. While many of these terms are relatively new, the concept of IoE is not. Indeed, in the late 1990's and early 2000's work was already underway in research laboratories on the topic and concepts of 'ubiquitous computing' and were being discussed at the Asia-Pacific Economic Cooperation (APEC).

realize its potential value. With the cloud and data analytics, the data collected can be analysed for insights that can be used to improve decision making and efficiency of the overall IoT ecosystems across all sectors in the global economy.

The truly scalable data storage and processing capabilities that the cloud provides makes big data analytics an affordable possibility for the public sector and SMEs.

Cloud computing has been adopted broadly in a variety of sectors and industries, with numerous wide-ranging benefits including:

- increased productivity by allowing businesses to focus on their core competencies and customer offerings rather than information technology (IT) infrastructure and maintenance,
- economies of scale through use of data centres that are more energy efficient and environmentally sustainable,
- reduced operating and capital cost,
- greater speed to market by reducing solution deployment time,
- dynamically increased capacity and flexibility in catering to business peaks without investing in infrastructure,
- transformation of organizations fixed cost into variable cost,
- up-to-date software, professionally managed,
- consumer access to all applications,
- improved security and reliability through cloud service providers,
- new business opportunities and new markets by offering high computing power at lower cost,
- faster and cheaper innovation by providing an existing platform for developers to build on,
- leverage on cloud computing for reliable and scalable backup and recovery facilities for Disaster Recovery (DR), and
- low barrier to entry, which can foster innovation and entrepreneurship<sup>3</sup>.

Cloud computing services can offer increased data security, privacy, and reliability. With the PC-based computing model; when a PC is lost, stolen, destroyed, or compromised, data can be permanently lost or, worse, extracted to reveal personal or proprietary information. In addition, many organizations, especially consumers and SMEs, do not have the technical staff to assure that systems are patched, tested and appropriately backed up. Furthermore, for many computer users with limited technical support and capacity, security is accomplished by locks and doors and imperfect passwords. The laptop or server under a desk is no match for a level 4-data centre. The cloud model provides enhanced reliability because data is backed-up over the network at multiple locations hosted by the cloud computing service provider eliminating the single point of failure concern. This added reliability is essential for individual users and organizations that hold sensitive and personal data, such as health care providers, financial institutions, and government agencies<sup>4</sup>.

For example, electronic health records (EHRs) lead to greater and more seamless flow of information within a digital health care infrastructure and can transform the way care is delivered. With EHRs, information is available whenever and wherever and is facilitating improved patient care and coordination, improved diagnostics and patient outcomes and significant efficiencies and costs savings. Through the cloud patient information is readily available improving efficiency

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<sup>3</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>4</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

and reducing paper work and costs.

## Promoting and facilitating the adoption of cloud services

### Design flexible frameworks to capitalize innovative potential

Careful and fact-based review is crucial for understanding areas related to fast-changing and emerging technology such as cloud. As new technologies spawn new services and business models, one should consider whether such innovations need to be regulated, and if so how. To optimize the interests of consumer protection and innovation, existing models of sectoral regulation should be evaluated for relevance and appropriateness before being applied<sup>5</sup>.

Given the speed at which new services, players and industries can appear or disappear, it is vital that regulatory regimes are forward looking and encourage innovation and large-scale private sector investment by all parties. Regulators need to be cautious not to regulate prescriptively at too granular a level, which may limit the flexibility needed to consider or capitalize on innovative potential. Overly detailed regulation risks becoming outdated by technological evolution and advancements or inhibiting potential benefits of these<sup>6</sup>.

When modernizing regulatory frameworks, one must also consider consistency, predictability and granularity of regulation as drafted and applied. Regulatory frameworks should be applied consistently across those engaging in similar activity; should have predictable outcomes and should be drafted at a level of granularity that is appropriate and proportionate to the subject matter in question. Rapidly evolving technologies and business models may be more suited to guiding principles than to prescriptive regulations, thereby ensuring flexibility to be relevant over periods of time. Overly granular or prescriptive regulation in those cases may result in premature regulatory obsolescence. One should also be careful not to confuse flexibility with a lack of rigour in the quality, application or implementation of regulation. Flexibility can be an attribute of a sound and effective regulatory model<sup>7</sup>.

ICC underscores that disproportionate regulatory burdens – such as onerous license approval requirements – run counter to the goal of supporting the growth of cloud services and will inhibit the development of the market in India. License approval requirements would be more restrictive than global norms, as few countries impose licensing requirements on cloud computing providers. Overbroad and burdensome requirements pose new compliance costs on both foreign and domestic cloud providers, and could limit the choices of Indian consumers, slow the development of the market, and reduce the pace of innovation in India.

Cloud is not a unitary technology and therefore should not be subject to a one-size fits all policy or regulatory approach. Cloud services include established services such as software as a service (IaaS), Platform as a Service (PaaS) and Infrastructure as a Service as well as emerging services such as Data as a Service. Beyond the different services, cloud may be offered as public, private or hybrid solutions. This variety of services and implementations enable user choice addressing a range of market needs. As governments consider the appropriate policy and regulatory environment they should take this essential variety of services and implementations into account, tailoring their policies to foster the benefits and address any specific issues related to the nature of the service and its implementation. Nuances of the

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<sup>5</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2016/ICC-Digital-Economy-Commission-Policy-Statement-on-Regulatory-Modernization-in-the-Digital-Economy/>

<sup>6</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2016/ICC-Digital-Economy-Commission-Policy-Statement-on-Regulatory-Modernization-in-the-Digital-Economy/>

<sup>7</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2016/ICC-Digital-Economy-Commission-Policy-Statement-on-Regulatory-Modernization-in-the-Digital-Economy/>

services and implementations must be reflected in context appropriate policies.

## Consider SMEs

While cloud services continue to represent technological evolution for SMEs and consumers, they have the potential of creating more revolutionary business offerings in terms of new services and delivery mechanisms. But consumers and SMEs are initially less likely to have the knowledge or experience required to understand the possible legal and contract issues that may be relevant to cloud services. Finally, consumers and SMEs may have less bargaining power and will likely be relying on established service offerings where service variations are possible through in-built configuration options rather than customization to a single enterprise's needs<sup>8</sup>.

It is worth noting that SMEs and consumers differ slightly in two main respects. When resorting to cloud services, SMEs may require more specialization in the offerings they use which may mean that they are more likely to purchase offerings from smaller, more specialized or niche cloud providers that focus on their sector or vocation. These smaller providers, while having expertise in their services, may be relatively new to the complexity of cloud practices and contracts. Consumers, on the contrary, may be more likely to adopt highly standardized offerings. The second major difference is that "consumer developers" of more social-oriented cloud services may do so on a voluntary, non-commercial basis<sup>9</sup>.

Although the commercial implications of cloud for SMEs and consumers maybe revolutionary, it does not follow that there needs to be revolution in government's regulation of cloud services contracts. While many issues are and may arise related to cloud services, many are either well within our experience curve or still evolving and not ripe for detailed guidance. Overly prescriptive measures or the anointment of "a" best practice where many practices may be needed can serve to limit the potential of emerging models and constrain innovation related to models not yet developed. Regulators and governments already have wide-ranging powers in respect of cloud-based services, particularly in the consumer arena. ICC believes that governments should be encouraged to use the regulatory powers they possess, in order to improve trust and understanding in the cloud services market. In the meantime, information is needed to help users make more informed choices among service offerings, terms and practices<sup>10</sup>.

## Ensure interoperability of cloud services

Interoperability is crucial for promoting and facilitating the use of cloud services. The power of the Internet lies in its cohesive technological and commercial platform. For services such as cloud that are inherently cross-border in nature, governments and industry need to work continually towards interoperable frameworks that provide an adequate level of consumer protection in multiple countries<sup>11</sup>.

As technology will continue to rapidly evolve governments should adopt flexible and long-term outlooks when approaching strategies to harness emerging technologies. Efforts should be made to evaluate policy frameworks to ensure that obstacles to the deployment of converged business models, and information communication technology (ICTs) generally are removed. Governments should work in partnership with business to enable convergence and ensure that

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<sup>8</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>9</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>10</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>11</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2016/ICC-Digital-Economy-Commission-Policy-Statement-on-Regulatory-Modernization-in-the-Digital-Economy/>

regulation does not create unnecessarily burdens nor unintended consequences that could impair the potential for economic societal benefit that deployment of these technologies and/or new business models can provide.

Ideally, resolving interoperability problems between different cloud services is a question that should be resolved in the long run by the market. Many new technologies present such challenges when they first emerge, however they are often ironed out later through coordination between market actors.

Regulatory action in the near term, if any is needed, should look at what would best expand the scope for growth in the market and the benefits that cloud services bring to Indian consumers. The government acting prematurely and imposing inappropriate or restrictive standards risks doing more harm than good, especially in a cloud services market that still has enormous potential to grow and develop.

### **Address connectivity**

To address connectivity and interoperability, a successful public policy framework must contemplate intelligent gateway solutions that can connect legacy systems and provide common interfaces and seamless communication between devices and the cloud. Connecting legacy systems will accelerate the impact of IoE by allowing data from existing infrastructure to be captured and utilised.

Additionally, investments in high performance and secure broadband networks are needed: reliable, comprehensive and robust communication networks are key to IoE. Therefore governments and regulators should provide for a policy framework based on a light-touch regulatory approach that incentivizes investment and enables the development of new business models.

Spectrum is an essential building block for the wireless connectivity of devices. Ubiquitous, affordable, high-speed broadband connections over licensed and unlicensed airwaves are critical to enable consumers and the public and private sectors throughout the IoE ecosystem. Thus, effective and technologically neutral management of this increasingly scarce resource must be a priority for policymakers. They should also ensure that sufficient harmonised spectrum resources are made available in a technologically-neutral manner. In order to reduce the costs and delays in time to market for innovative new uses, spectrum licenses should be granted under more harmonised terms than it is often the case today, in particular in terms of timing, license durations and assignment conditions.

### **Create a trusted and secure environment**

The benefits of emerging technologies such as cloud will only be realized, if they are adopted by consumers, business and governments who trust that their personal data will be treated according to privacy and security laws. Cloud computing by definition involves accessing services over the Internet. Already today many services include global information flows facilitated by the Internet, whether obvious to the end user or not. But cloud broadens and accelerates the movement of data. Therefore, keeping data secure is of critical importance for all users - governments, organizations and individuals<sup>12</sup>. ICC believes that adoption of cloud of computing will be helped by the acceptance of international standards and related acceptance of those standards in any related accredited labs.

The migration of data over the Internet and into the cloud does not make data any more

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<sup>12</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>



vulnerable than it was when secured internally; however, this movement and remote storage does make data in the cloud a target from attack that differs from what organizations and individuals are typically familiar with, and by virtue of its scale a more attractive target to attack<sup>13</sup>.

Policymakers and others involved in cloud need to demonstrate that they take these concerns seriously – otherwise cloud services will not be taken up. The reputational risk to cloud vendors that might result from data loss or compromise makes them strongly incentivised, in addition to their technical expertise, to address these risks well. But the risks should not be exaggerated. Governments' and regulators' role in the cloud market should be largely to encourage use and development, to dismiss unfounded concerns, to monitor the evolving market, and where necessary, to take action against service providers who seek to exploit customers fraudulently or unduly constrain competition<sup>14</sup>.

There are regulatory obligations derived from the personal nature of the data a customer places in the cloud. These types of regulations typically impose obligations, usually on owners or controllers of data, about keeping information secure, notifying individuals when their information is lost and requiring oversight of contractors who might get access to this information. Important work has been done in Asia-Pacific Economic Cooperation (APEC) on implementing a privacy framework based on accountability. Concepts of accountability are especially important in cloud contexts as they more easily enable obligations to flow with the data. As opposed to requirements based solely on the laws of the jurisdiction where information is processed, accountability mechanisms, like the APEC example, embody negotiated common principles that, for the jurisdictions involved, adequately reflect the key tenets and enforceability of their own national or regional rules. The potential merits of accountability mechanisms today have great currency, and in no small part, trace origins to the principles of the 1980 Organisation for Economic Cooperation and Development (OECD) Privacy Guidelines and Personal Information Protection and Electronic Documents Act (PIPEDA), the Canadian Privacy Law<sup>15</sup>.

Lack of interoperability across the policy and regulatory environment can create needless administrative burdens and compliance inconsistencies across jurisdictions. As privacy is both subjective to the data subject and tied to the cultural and legal context of the jurisdiction, harmonization has been difficult to obtain. Work has been undertaken between the APEC Data Protection Subgroup and the European Union (EU) Article 29 Working Group on mapping obligations and solutions across jurisdictions to develop frameworks of policy interoperability between regions. This work is not intended to diminish any jurisdiction's protection but rather to find ways of avoiding duplicative compliance requirements and needless administrative burdens, while assuring adequate levels of protection. In any event, companies must take appropriate steps to comply with policy frameworks and regulations related to the security and protection of personal data, to maintain and build user trust.

Cloud computing may often increase the security of information. Many non-IT customers may not have the skills or staffing to securely manage information and maintain systems. Reputable cloud providers, both local and global have dedicated and trained IT staff that implement the latest technology and maintain it professionally in terms of operational status, updates and security. Users should therefore consider the reputation and history of providers as important selection criteria. Users should also understand their business and regulatory requirements as they consider the broad range of services offered. This range allows the market to address the

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<sup>13</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>14</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>15</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

broad and diverse range of user needs. Policy and regulatory environments should support this constructive diversity to support differentiation and innovation in business services that use cloud. Open standards and policy interoperability will help assure that users are neither locked into a specific vendors, technologies or geographies.

### **Enable cross border data flows**

Conceptually, cloud computing is global in nature. The economies of scope and scale of global provision are important elements of efficiency. While cloud providers may operate locally, nationally, regionally or globally, cloud computing benefits from global solutions. Global consideration of the breadth of technology and implementations help create needed competitive dynamics in markets. Markets that are closed may not feel pressures to apply the best of cutting edge solutions. Those markets are often limited to domestic potential and will not have the opportunity to become export markets for cloud. India's business processing outsourcing industry is a prime example of a how a progressive and facilitating policy and regulatory environment enabled a fledgling domestic industry to become a world class global provider. It should be noted that global competitive pressures do not limit the ability of local providers to develop solutions more attractive to the local market-place that are either developed to service niche markets or a domestic need. The breadth of solutions across types of players and nature of services provide great options for users across type, nature, customization and price points of services.

Needless burdens or unjustified restrictions on technologies such as cloud can significantly limit the potential of these technologies to deliver economic and social benefit. Trade can also be negatively impacted by government mandated requirements related to data flows which may take the form of geographical mandates related to data flows, processing or storage; local technology or content requirements and specific technical requirements (restrictions or mandates).

Creating artificial constraints to such planning through data or server localization restrictions increases the costs of doing business and diminishes the attractiveness of the location for investment or inclusion in such value chains. In some cases, local data storage regulations can lead to higher costs for the local companies – especially SMEs – that depend on cloud computing and other Internet resources to operate and to reach global markets. In certain cases, local companies could be denied services altogether, because the costs of local data storage or processing for some companies may be too great and result in the companies not offering services in the domestic market.

Some research has focused on potential negative economic impact of recently proposed or enacted legislation on GDP. For example, the European Centre for International Political Economy (ECIPE) estimates GDP losses due to data localization policies may have significant domestic impact in Brazil at -0.2%, China at -1.1%, the European Union at -0.4, India at -0.1%, Indonesia at -0.5%, Korea at -0.4% and Vietnam at -1.7%.<sup>16</sup> The research focuses solely on the costs of doing business in those jurisdictions based on adoption of data localization policies.

### **Improve mutual legal assistance treaties and cross border law enforcement assistance**

The flexibility afforded to businesses by cloud solutions may result in data of a customer moving across borders, perhaps even residing in multiple jurisdictions at the same time. That movement of data across borders exposes data to different regimes for access both in civil litigation and regulator backed investigations. Subsequent disclosure of that information, by a service provider

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<sup>16</sup> ECIPE, No. 3/2014 at [www.ecipe.org/app/uploads/.../OCC32014\\_1.pdf](http://www.ecipe.org/app/uploads/.../OCC32014_1.pdf)

either compelled to comply or voluntarily complying with a court or regulator request, may put customers in breach of rules prohibiting co-operation with foreign litigation or investigatory action. Those risks are not, however, exclusive to cloud computing or even outsourcing as a whole – they are for most organizations inherent in doing business, whether purchasing or sales, internationally<sup>17</sup>.

Communications trends like mobility and cloud computing present increasing challenges for cross-border law enforcement assistance. ICC understands that there are legitimate concerns of law enforcement regarding the need for lawful interception of communications and access to information which may be stored abroad. At the same time, it is critical to ensure that the implementation of such narrowly tailored law enforcement requirements do not have the unintentional effect of limiting the innovation, network security and customer data protection of cloud services.

Governments should seek to improve mutual legal assistance treaties (MLATs) which can be a “win-win-win” for governments, CSPs and the broader public interest. For governments and law enforcement agencies (LEAs), better MLAT processes can significantly improve prevention and investigation of crime and terrorism. This is particularly the case for conduct requiring a fast response, such as crime and fraud on the Internet (where perpetrators can cover their tracks very rapidly) and situations involving an imminent threat to life or property. As cyber-attacks and hacking increases in scale and impact, the ability of LEAs to identify perpetrators rapidly is key. For governments seeking inward IT investment, there is also a clear opportunity to enhance the attractiveness of their markets by offering clear and transparent processes to multinational providers of communications and IT services, including those offering cloud-based services<sup>18</sup>.

Governments should work with the private sector to establish a responsible balance of interests for lawful intercept (LI) on both national and cross-border bases. In addition to providing for LI with appropriate authorization to enforce national laws, governments must ensure that the use of LI is consistent with other important legal obligations and goals of consumers and businesses, such as information security, human rights, and privacy, transparency and proportionality<sup>19</sup>.

ICC recognizes and commends the participation of senior Indian delegations in constructive bilateral and global security dialogs on these issues and urges the Indian government to work in partnership with the private sector to develop solutions to give law enforcement the access they need without imposing additional costs on cloud services. Multi-jurisdiction questions regarding storage data have been recognized in several other countries and are the subject of ongoing debate. Premature action in this space risks creating a legal conflict between compliance with Indian law and compliance with other national legal regimes, placing barriers before firms that want to offer services in multiple countries.

### **Factor impacts of government application of cloud**

For many years, state authorities have focused on the emerging information society to mitigate risks in areas such as privacy, security and consumer protection and governments have started to recognize the potential of ICTs for improving the way in which they provide services to users (like citizens or business entities) and for optimizing their own administrative processes. Governments can do this firstly by adopting available office automation tools in traditional processes, and secondly re-engineering such processes to take full advantage of the potential of ICTs. Cloud computing can introduce substantial efficiencies and cost saving in government

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<sup>17</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-policy-statement-on-business-views-on-regulatory-aspects-of-cloud-computing/>

<sup>18</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/mlat/>

<sup>19</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/mlat/>



back end service applications including, finance, treasury, human resources, etc. as well as provide new and more user accessible opportunities for government citizen interaction and service delivery across platforms and devices. Hybrid cloud implementation options also enable governments to determine which sensitive or mission critical information they wish to retain in private versus public clouds. As cloud services can be dynamically provisioned, these allocations can be revised as comfort levels, processing needs and other requirements dictate. The resulting projects, processes and systems are often referred to as “e-government”<sup>20</sup>.

A side-effect of, in particular, the latter developments can be that governments increasingly impose “information compliance” provisions on businesses to adopt processes or systems, which enable interaction with e-government facilities. Increasingly, companies must integrate with a multitude of e-government systems (using a multitude of mandatory technologies and processes) for tax, customs and other purposes so as to obtain data clearance for e.g. invoicing, import/export or sales to public administrations. Such conditions require businesses to meet certain provisions in their own use of ICTs to ensure control and audit by public administrations. Meeting such provisions may force businesses to adopt technologies and processes other than those businesses use for their own control and audit purposes<sup>21</sup>.

E-Government and associated information compliance requirements force enterprises to consider public law requirements in the design, operation and change management of e-business systems and processes. As many requirements vary among countries, and repeatedly within countries, they often frustrate businesses’ desire to consolidate systems and processes. Such consolidation is an important step in optimizing demand and supply chains through the adoption by enterprises of standardized processes. This would generate cost savings while improving quality, security, cash-flow, reporting, customer service and business intelligence<sup>22</sup>.

It must be noted that there are areas of e-government and information compliance in which measures have been identified and taken with business stakeholders to avoid as much as possible the side-effects mentioned in the examples above. Such an approach is, for example, demonstrated in the proposed European Directive on e- Invoicing in e-Procurement. In short, e-government and companies’ forced use of public administration-friendly technologies often maximize public sector efficiencies, while not always fully factoring in the potential negative impact this can have on businesses and the broader economy<sup>23</sup>.

### Encourage public private partnerships

To ensure the long-term benefits and use of cloud computing is sustained, at a minimum close coordination, collaboration and cooperation is required (i.e., all government regulators and policymakers, providers and end users). This coordinated effort needs to extend to businesses which develop the technology, its applications and related business models, as well as those that need to implement or use these technologies.

Government and industry should work together to promote a business environment that

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<sup>20</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2014/ICC-policy-statement-on-assessing-the-impact-on-trade-of-e-government-and-associated-information-compliance/>

<sup>21</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2014/ICC-policy-statement-on-assessing-the-impact-on-trade-of-e-government-and-associated-information-compliance/>

<sup>22</sup> <http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2014/ICC-policy-statement-on-assessing-the-impact-on-trade-of-e-government-and-associated-information-compliance/>

<sup>23</sup> See ICC policy statement proposes a high-level assessment framework that governments and businesses can use (where relevant and in addition to existing impact assessments) to better analyse the impact of e-government initiatives and associated information compliance requirements on businesses, national economies and international trade (<http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2014/ICC-policy-statement-on-assessing-the-impact-on-trade-of-e-government-and-associated-information-compliance/>)

motivates private investment and innovation – including the protection of commercial and proprietary data from misuse by competitors and third parties. Data ownership is a critical component to delivering economic value and must be defined between government, industry, and consumers. For example, in order to incentivise investment in the IoE ecosystem in which cloud computing is key, it is essential that public policy frameworks ensure protection of proprietary and commercial data that could be considered intellectual property. Public-private partnerships should leverage existing industry standards and investments and utilize both public and private resources in order to facilitate the research, leadership, and governance to advance an overarching IoE vision. Government funding may be appropriate in certain targeted situations to incentivize more rapid development and deployment of the IoE ecosystem, particularly where the outcome has significant societal benefits (e.g.: smart cities).

## Concluding remarks

As today's technological advances continue to develop in a more dynamic environment, transforming historic business and network models, ICC believes that only flexible, globally-compatible, and industry-driven policies will continue to fuel innovation and increase the societal and economic benefits of the digital economy. In order to capture the unique and crucial opportunities of cloud computing ICC urges proper assessment of both the potential benefits and risks of cloud and their implications for innovation, efficiency, privacy and security and recommends efforts to ensure better understanding of which policies may create unintended consequences, or act as unnecessary barriers or constraints to innovation or technology use. Taxation of cloud computing is a complex area which is beyond the scope of this comment letter. Nevertheless, ICC wishes to highlight that tax uncertainty inhibits trade and investment and should therefore be avoided. ICC considers public-private partnerships as crucial to facilitating the research, leadership, and governance required to advance an overarching Internet of everything vision and remains available to work with to the Telecom Regulatory Authority of India as they continue to define practical, optimally effective policies to reap the full benefits of cloud computing.

### **About The International Chamber of Commerce (ICC)**

The International Chamber of Commerce (ICC) is the world's largest business organization with a network of over 6.5 million members in more than 130 countries. We work to promote international trade, responsible business conduct and a global approach to regulation through a unique mix of advocacy and standard setting activities—together with market-leading dispute resolution services. Our members include many of the world's largest companies, SMEs, business associations and local chambers of commerce.

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