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U.S.- India Business Council

January 11, 2017

Shri R S Sharma
Chairman
Telecom Regulatory Authority of India
New Delhi

Subject: **USIBC Comments on TRAI's Consultation Paper on Spectrum, Roaming and QoS-Related Requirements in M2M Communications**

Dear Shri Sharma,

The U.S.-India Business Council (USIBC) would like to thank the Authority for its efforts to promote efficient and light-touch regulation within India's crucial information and communication technologies (ICT) sector. India's digital development ties directly to ICT's socio-economic benefit to the nation, and to the U.S.-India bilateral relationship. USIBC appreciates your pivotal role in introducing new technologies, such as machine-to-machine (M2M), which buttress the Digital India and Smart Cities initiatives, and could dramatically improve the country's economic competitiveness.

Given the nascent nature of M2M technology and its business models, USIBC strongly recommends that the Authority encourage transparent, open and flexible standards while minimizing barriers, costs, and risk to investors and M2M providers. So much is unknown about the evolution of the M2M ecosystems that prescriptive regulation and onerous fees could stifle innovation, reduce investment, and sour initial customer and consumer experiences. USIBC encourages, therefore, that TRAI adopt a "light touch" regulatory approach by foregoing requirements such as the domestic gateways provision within the National M2M Roadmap. We also suggest the initial waiving of all regulatory fees and the promotion of multiple technologies and business models to stimulate the rapid and viable introduction of M2M services. As the market develops, the Authority can relook at standards, regulation, and fees to address market gaps and needed changes.

USIBC would like to acknowledge the Authority's efforts to unify M2M and the Internet of Things (IoT) policy, and the Council offers its support to help coordinate ongoing Government of India (GOI) efforts to align and sequence relevant ICT policies.

Please find USIBC recommendations below, along with our recent submission in response to the M2M guidelines conducted by the Department of Telecommunications (DOT). Please feel free to contact me or my staff: Jay Gullish, jgullish@usibc.com, in Washington, D.C., or Abhishek Kishore, akishore@usibc.com, in New Delhi. Once again, I would like to personally thank you for your leadership, and the Council and its members hope to discuss these recommendations at your convenience.

Sincerely,

Dr. Mukesh Aghi
President
U.S.-India Business Council

USIBC Recommendations for the Draft Policy

M2M technology could emerge as the next major transformation within the ICT sector, with optimistic forecasts suggesting the market reaching \$1.3 trillion by 2019 with the Asia-Pacific region accounting for 40% of revenue worldwide.¹ Successful global developments and introduction of M2M applications, however, require global platforms and standards, which directly counters the need for domestic regulations that could inhibit the deployment and investment in specific markets and/or countries. In order to promote innovation and investment in India, The Authority and other GOI decision-makers should adopt light-touch and flexible regulatory frameworks to facilitate faster and efficient deployment and adoption of M2M in the country. These include, but are not limited to:

- **Emphasize light-touch regulation** to avoid unnecessary regulations and costs that impede innovation and negatively impact the ease of doing business;
- **Proactively engage international standards initiative** to ensure Indian standards are embedded in, and in line with, global best practices, which also ensures Indian solutions can be easily exported and integrated into global supply chains and product ecosystems;
- **Promote liberalized policies** for spectrum allocation and numbering;
- **Develop inclusive and flexible processes to encourage** cooperation and discussion around M2M security and privacy practices;
- **Support seamless cross-border data flows** for all types of services, and avoid data localization and infrastructure localization requirements; and,
- **Acknowledge that M2M services often differ** from consumer facing telecommunications and ICT services, which reinforces the need for the regulatory principles above.

Q1. What should be the framework for introduction of M2M Service providers in the sector? Should it be through amendment in the existing licenses of access service/ISP license and/or licensing authorization in the existing Unified License and UL (VNO) license or it should be kept under OSP Category registration? Please provide rationale to your response.

The Authority has noted the nascent nature of M2M services, and USIBC believes the Authority should focus on ways to promote the introduction and growth of M2M technology, and emphasize investment and viable business models to account for the diversity of M2M solutions. Accordingly, the Authority should have a clear, predictable and proportionate approach that enables existing license holders to provide ancillary M2M services as well as a simple notification process, such as the current Other Service Providers (OSPs) requirements, for pure-play M2M service providers.

USIBC strongly agrees with the Authority's assessment in section 2.9 that regulations for managed service providers (MSPs) should be as lightweight as possible, noting that the final decision should:

- Clearly exempt internal M2M enterprise networks from registration or licensing requirements, including services provided by 3rd party vendors;
- Require only a simple registration/intimation for M2M service providers (M2MSPs) that offer supply chain services or over the top models to end users;
- Recommend the addition to M2M services to existing and future telecommunications service provider (TSP) licenses;

¹ <http://www.machinetomachinemagazine.com/2015/12/14/iot-spending-forecast-to-reach-1-3-trillion-by-2019/>

- There should not be any requirement to register subscriber identity module (SIM) to facilitate deployment and ease registration requirements, which reduces the administrative burden on companies and the government; and,
- The telecom license can only regulate the underlying connectivity which is already part of the license provided to mobile operators, and consequently, no license should be prescribed for the application part.

Furthermore, the M2M device makers or the M2M service providers typically contract with a mobile network operator (MNO); the MNO does not typically contract with the consumer/end-user. Thus with M2M services, the threshold policy question of actual consumer harm must be evaluated and the technological advancements and innovations that continue to define the M2M marketplace considered before imposing over prescriptive requirements.

Also, the terms and conditions should enable the MSP to obtain numbering resources directly, without any infrastructure requirements or other obligations such as quality of service (QoS), etc.

Licensing authorization in the existing Unified License and UL (VNO) license:

USIBC does not support the idea of a licensing in the existing Unified License and UL (VNO) license for M2M services.

Bringing the MSP under the existing use of Other Service Provider (OSP) regime:

If additional regulation must be imposed, then DOT should permit the global SIMs used for M2M to be covered by the existing practice of OSP registration. This would be similar to other OSP activities (e.g. call centers), where there is an underlying network operator who has the network license, but the OSP is a non-network operator who still registers its activity with DOT. In this instance, an Indian affiliate of, or an entity with a commercial relationship with, a global roaming SIM provider would register as an OSP, and then bear responsibility for a high-level know-your-customer (KYC) compliance for SIMs in India.

A simple M2MSP registration (the framework promulgated by DOT through industry consultation) is the preferred approach for identifying the M2M players in the industry. This flexible approach would provide the insight into the M2M services market in India without being unduly burdensome. At least initially, an authorization/registration and not license framework should serve as a means to collect statistical information for identifying the number of M2M players in the industry.

The following summarizes the reasons why M2MSP should not be linked to a UL or UL VNO.

1. VNO is essentially a licensing requirement. It comes with a cost of US\$1.1 million and multiple compliances. Making VNO a precondition to M2MSP registration could reduce competition and erect a market entry barrier unnecessarily.
2. The reason why VNO option was perhaps not considered by DOT during the formulation of the draft M2M SP Guidelines was that they did not want to restrict innovation, growth and competition by burdening M2M ecosystem with legacy voice linked license regime.
3. M2M is at very early stages of development. It requires very light touch regulation akin to registration at most. Any regulation beyond that would be considered heavy-handed, and dampen the ecosystem for investments due to costs, compliance and other related issues, included in the UL VNO licensing specifications.

4. M2M business is very different from voice. M2M is a high volume and low average revenue per user (ARPU) business. UL VNO license has huge financial entry cost (entry fee of INR 7.5 crores (\$1.2 million), recurring license fee and spectrum charges totaling to 13% approximately, coupled with bank guarantee cost will make the M2M business unviable.

5. A UL VNO in India for M2M suggest that devices will work solely on the underlying cellular connectivity. Machina Research 2016 projects that by 2021 there will be merely 8.4% connected devices on cellular connectivity. This implies that a vast majority of potential M2M service providers will not be traditional telephony providers or offer voice services as a part of their portfolio.

6. Other connectivity options (sensors, radio frequency identification (RFID), Bluetooth, ZigBee protocol, etc.) are expected to proliferate M2M connectivity in a significant manner. Provisions for these connectivity options do not require any telecom license or authorization. The current licensing framework is not aligned to the requirements of M2M businesses which requires a light touch regulatory approach for which licensing is not the option.

Q2. In case a licensing framework for MSP is proposed, what should be the Entry Fee, Performance Bank Guarantee (if any) or Financial Bank Guarantee etc? Please provide detailed justification.

Should a licensing framework regrettably be proposed, USIBC recommends a waiver for all M2M fees to stimulate the market. This approach would reduce the detrimental impacts of imposing licensing requirements.

Q3. Do you propose any other regulatory framework for M2M other than the options mentioned above? If yes, provide detailed input on your proposal.

Please refer to our response in Question No 1.

Q4. In your opinion what should be the quantum of spectrum required to meet the M2M communications requirement, keeping a horizon of 10-15 years? Please justify your answer.

USIBC strongly favors technologically-neutral policies, and cautions the Authority against prescriptive M2M spectrum policies as the technology and marketplace are not well understood or mature. Incorrect analyses could stifle innovation, create inefficiencies and unforeseen consequences. As noted above, only 8.4% of M2M connections are expected to be cellular.

The Authority should initially assume and/or plan for sufficient spectrum to meet overall broadband requirements that include both licensed and unlicensed bands *instead of* focusing on whether there is sufficient spectrum for M2M or a need for a dedicated band. In 5G networks, for example, a range of M2M services will be designed and offered with a variety of characteristics – high throughput/low throughput; low latency/best efforts networking; long range/short range, etc. The networks will be designed to take advantage of very different radio bands depending on the use case – from low band (below 3 GHz), middle band (3-6 GHz) and high band (24 GHz and above).

USIBC urges the GOI to benchmark its plans for the release of spectrum against ongoing activities leading up to the World Radiocommunication Conference (WRC)-19 at the International Telecommunication Union (ITU), as well as in leading jurisdictions such as the European Union (EU) and the United States. In some cases, spectrum bands will need to be allocated to mobile where they are not now, while for bands already declared to be mobile, it may be possible for India to move forward on assignment proceedings. USIBC recommends the government to start identifying the issues that may arise from sharing dis-similar technologies with terrestrial networks so that technical issues can be resolved proactively where possible.

Q5. Which spectrum bands are more suitable for M2M communication in India including those from the table 2.3 above? Which of these bands can be made delicensed?

While table 2.3 represents a good starting point, it fails to include numerous bands that will be enormously important for 5G and unlicensed technologies. USIBC recommends the government to review all of the proposed spectrum agenda items for the WRC-19, as well as European progress on 3.4-3.8 GHz.

Q6. Can a portion of 10 MHz centre gap between uplink and down link of the 700 MHz band (FDD) be used for M2M communications as delicensed band for short range applications with some defined parameters? If so, what quantum? Justify your answer with technical feasibility, keeping in mind the interference issues.

No comment.

Q7. In your opinion, should national roaming for M2M/IoT devices be free?

- (a) If yes, what could be its possible implications?
- (b) If no, what should be the ceiling tariffs for national roaming for M2M communications?

The TRAI tariff order should not be applicable to M2M devices. The Authority should permit commercial negotiations among operators to identify the best options for roaming – or select alternative connectivity options – for M2M communication.

Q8. In case of M2M devices, should;

- (a) roaming on permanent basis be allowed for foreign SIM/eUICC; or
- (b) Only domestic manufactured SIM/eUICC be allowed? and/or
- (c) there be a timeline/lifecycle of foreign SIMs to be converted into Indian SIMs/eUICC?
- (d) any other option is available?

Please explain implications and issues involved in all the above scenarios.

Roaming on a “permanent basis” is not different from current roaming policies as permitted under existing license terms and conditions. Prohibiting the use of foreign SIMs or numbers for roaming will impede the growth of M2M applications and services. Requiring the use of a local number will not enhance the availability of data significantly. We understand that the language in the draft policy does mention providing a reasonable time-frame for transition to local SIMs in consultation with stakeholders, but USIBC strongly believe that there should not be any requirement to replace foreign SIMs in cases where a device is already fitted with hard or soft embedded SIMs.

Vehicles and devices with embedded SIMs from other countries would come into India and roam on the network of India telecom operators in exactly the same way as any individual with a mobile phone would roam with an international SIM with the number from the country of origin.

Q9. In case permanent roaming of M2M devices having inbuilt foreign SIM is allowed, should the international roaming charges be defined by the Regulator or it should be left to the mutual agreement between the roaming partners?

Roaming charges should be market driven rather than prescriptive in nature. Given the availability of commercial roaming agreements in India, there is no need for any regulatory intervention on this matter.

Q10. What should be the International roaming policy for machines which can communicate in the M2M ecosystem? Provide detailed answer giving justifications.

The MSP shall utilize telecom resources operated by an authorized telecom licensee having valid license under Indian Telegraph Act, 1885, which may include international roaming under the international roaming arrangement or agreement with telecom operators worldwide. The telecom resources should be technology neutral, as the provision of M2M services can be on any technology or standard. Nothing should prohibit M2M devices from being able to roam on an Indian TSPs network under a legitimate international roaming arrangement.

We further note that the M2M roadmap released by DOT recognized the global nature of M2M services and underscore that a locally registered MSP in India may have commercial arrangements with MSPs in foreign markets. Therefore, it is important that resources being used to provide service can transit countries throughout a product's lifetime. Additionally "international roaming" is an accepted concept, and is specifically mentioned under clause 4.3.4 of the National Telecom M2M Roadmap as well. The TRAI should follow the same recommendations in order to be consistent with the roadmap.

Q11. In order to provide operational and roaming flexibility to MSPs, would it be feasible to allocate separate MNCs to MSPs? What could be the pros and cons of such arrangement?

While there may be potential benefits to liberalizing some numbering assignment policies to extend the direct allocation of MNCs to MSPs, there are concerns in granting MNCs to parties other than telecom operators (i.e., to M2M users or MSPs, rather than MNOs or virtual MNO (MVNOs)). According to the Body of European Regulators of Electronic Communications (BEREC), for example, allowing IoT users to be assigned MNCs raises questions of the technical and economic conditions of MNC assignees. Operational and security issues also would need to be addressed, including what infrastructure requirements would apply to the M2M user, how would switching operate and with what risks, and what would be the impact on MNC resources. Thus, before making any policy decisions, it would be prudent for the TRAI to observe what countries with more open MNC assignment policies have experienced relative to uptake and perhaps to consider a phased approach to changes in assignment policy.

Q12. Will the existing measures taken for security of networks and data be adequate for security in M2M context too? Please suggest additional measures, if any, for security of networks and data for M2M communication.

Industry is keenly focused on the security issues around M2M services. Indeed, as devices become ever more connected it follows that security risks are likely to increase across the ecosystem. Threats can include unlawful interception of data transmissions, network and device denial of service attacks, malware infections and other forms of threats—with some as yet unknown. M2M security, therefore, is a necessity, but a prescriptive regulatory approach is not. In fact, any service provider or M2M solution failing to adequately address security from the outset (i.e., security by design) will not have commercial success. For this reason, there are a wide variety of standards bodies and industry coalitions working on security specifications for M2M.

For questions 12 and 13, USIBC also urges the government to follow an approach that is not M2M specific, but that is generalized. Hence, the government should approach data privacy in a holistic manner instead of thinking of an M2M approach to privacy. Alignment to global best practices in this area will help industry scale more effectively.

Q13. (a) How should the M2M Service providers ensure protection of consumer interest and data privacy of the consumer? Can the issue be dealt in the framework of existing laws?

(b) If no, what should be the ceiling tariffs for national roaming for M2M communication? If not, what changes are proposed in Information Technology Act, 2000 and relevant license conditions to protect the security and privacy of an individual? Please comment with justification.

USIBC opposes prescriptive privacy regulations because industry stakeholders—device makers, connectivity providers, application developers, and platform operators—are proactively engaged in voluntary and collaborative processes to provide appropriate privacy protections for M2M applications. Establishing this trusted environment for consumers will be crucial to commercial success, separate and apart from any policy frameworks for these issues. Indeed, with this broad variety of industry players, it will be impossible to regulate a path to effective privacy protection. Rather, those protections will depend on a robust multi-stakeholder process to define the practices that will engender consumer trust—and therefore adoption—across the system. Thus, for privacy concerns, as with security, government should opt for a common, M2M-wide framework that relies not on regulation, but rather on multi-stakeholder efforts that will facilitate development of effective privacy approaches.

Overemphasizing concerns over security and privacy at the initial stages of implementation of new services like M2M will deter investor sentiment and the future development of new technologies.

Government policy should offer complete flexibility to move the data as the ability for information to flow across borders will be increasingly important to economic growth as all businesses are dependent on the flow of digital, cloud-based information.

Q14. Is there a need to define different types of SLAs at point of interconnects at various layers of Heterogeneous Networks (HetNets)? What parameters must be considered for defining such SLAs? Please give your comments with justifications.

In a competitive market, market players should determine the terms of the service-level agreements (SLAs). Since SLAs may require different measurements depending on the M2M service provided, any attempt by government to set those parameters could result in impeding the deployment of new and innovative services. The best approach is not to mandate any QoS as every M2M application may have its own unique requirements.

Q15. What should be the distributed optimal duty cycle to optimise the energy efficiency, end-to-end delay and transmission reliability in a M2M network?

No comment

Q16. Please give your comments on any related matter not covered in this consultation paper.

M2M communications are already demonstrating the potential to massively improve efficiency, productivity and social welfare in diverse fields. Indeed, the GOI, recognizing the potential of M2M communications to advance all aspects of Indian society, enshrined M2M as early as 2012 in its National Telecom Policy (“NTP-2012”). DOT in May 2015, introduced the National Telecom M2M Roadmap to guide the development of M2M-related policies. Today India boasts one of the world’s fastest growing economies—as well as telecommunications markets—and is looking to harness the power of telecommunications as a “key driver of economic and social development in an increasingly knowledge intensive global scenario.” Therefore, as India develops a telecom platform to transform the country into “an empowered and knowledge based society,” it must adopt flexible, globally-minded, industry-driven and technologically-neutral policies to create conditions for pioneering technologies, services, business models and investment to flourish.