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Ref: **ACTO's Response to TRAI's Consultation Paper dated July 25, 2022 on Embedded SIM for M2M Communications**

Dear Sir,

With reference to the *Consultation Paper on Embedded SIM for M2M Communications* issued by Hon'ble Authority, Association of Competitive Telecom Operators (ACTO), is pleased to provide our comments.

We hope that our comments (enclosed as Annexure - I) will merit consideration of the Hon'ble Authority.

Thanking you,  
Respectfully submitted

Yours sincerely,  
for **Association of Competitive Telecom Operators**



**Tapan K. Patra**  
**Director**

Encl: As above

## Annexure-I

### **ACTO's comments on TRAI's Consultation Paper on Embedded SIM for M2M Communications**

As brief background, DoT had released M2M roadmap in 2015 then draft registration guidelines on June, 2016. TRAI had released the recommendation on Sept, 2017 & DoT had released Draft Guidelines for Registration Process of M2M service providers & WPAN/WLAN Connectivity Providers for M2M Services in March 2021. Final Guidelines for Registration Process of M2M service providers & WPAN/WLAN Connectivity Providers for M2M Services were released on 8th February 2022.

Association of Competitive Telecom Operators (ACTO) appreciates TRAI for bringing out the Consultation Paper on "*Embedded SIM for M2M Communications*" as referred by DOT for the recommendation towards the holistic deployment of eSIM in Indian Telecom Network including implementation mechanism under different profile configurations and switchover of profiles by TSP's.

ACTO has been working with DOT/TRAI on M2M since 2012. We had given our detailed response to the last TRAI consultation paper and also to DOT on several issues related to M2M. In spite of various efforts taken by government, M2M/IOT is yet to pick up in India and it is expected that a significant growth will be seen with the deployment of 5G. At this stage, any regulatory mandate by the way of prohibition/restriction on IOT/M2M, will dampen the prospective growth of this important segment of telecom sector. Many countries in Europe, USA, Australia and Singapore have taken more flexible regulatory approach to promote and facilitate IOT/M2M business including with respect to roaming as well as embedded SIM.

In response to this consultation paper, we would like to provide our input on the few key issues and these are follows:

#### **1. Need for review of foreign eUICC fitted devices to be on roaming with Indian TSP's network for a maximum period of three years.**

International roaming is a negotiable commercial arrangement. It is one of the critical requirement or faster adoption of M2M & IoT services in any country. The IoT and M2M applications span a range of industries, including automotive/transportation, utilities/energy, healthcare, safety and surveillance, financial/retail, public safety, smart cities and agriculture. Whether vehicle tracking, smart metering, remotely-controlled irrigation systems, wearable health devices or waste management, the number and variety of M2M applications continue to accelerate. IoT generally, and M2M more specifically, are inherently global business and operations models which require norms, standards and regulatory policies and platform that reflect this unique requirement. Being a negotiable commercial arrangement, local carriers also earn revenue for roaming as general practice across the globe.

Our view as mentioned above, was rightly stated in the M2M Roadmap by DOT in May 2015 "*The ability to offer services globally is critical for supporting many vertical sectors including automotive and consumer electronics. Regulatory prohibition of roaming will fundamentally influence how connectivity is provided.*"

Furthermore, IoT/M2M is more than just connectivity. Switching in the ‘traditional’ communication environment plays a significant role in boosting competition, on the assumption that every Service Provider offers transferrable equivalent connectivity services like voice & data. However, in the M2M/IoT market, Service Providers offer a bundle of IoT that includes services and devices, whereas the connectivity element is only a secondary part of this proposition. This means that mandating switching between different IoT/M2M service providers, which offer different bundles propositions and devices (i.e. the service offers elements which cannot be entirely transferred), does not guarantee or even promise any tangible benefits for the customer.

In addition, mandating switching will definitely increase the cost of the IoT/M2M devices, thus undermining one of the core elements of the IoT/M2M proposition, to be made IoT/M2M devices more affordable that reach massive scale of deployment. It should not be ‘one size fits all’ approach to eSIM switching. For the M2M solutions economies of scale are essential. Compared to mobile phones and tablets, M2M devices typically have low data consumption and very low average revenue per user (“ARPU”). Manufacturers typically do not sell, or charge end users separately, for wireless connectivity. Instead, wireless connectivity is a cost of doing business that may be included in the overall price of the M2M product. Because their products usually have very low ARPU, manufacturers are *extremely sensitive* to development and deployment input costs. To efficiently amortize their costs, manufacturers tend to develop standardized products with long lifecycles that can be sold in significant volumes across many countries. In sum, to be economically viable, M2M device manufacturers must be able to “build it once and sell it everywhere.” Some customers may want the flexibility of eSIM, others will not, because of the service limitations/alterations or costs associated to it. Therefore, regulation should not mandate a particular approach, particularly at this early stage of market development.

The IoT and M2M communications promise to deliver substantial growth and innovation, leading to profound societal impact. The IoT and M2M applications have a great potential to transform businesses. M2M communications challenge companies to be innovative in the same way as mobile internet did. Given the diverse nature of IoT / M2M applications, some sectors will be more successful/ innovative and emerge as winner than other sectors. However, for IoT / M2M to gain acceptance among the general populace, service providers and others must deliver applications that bring tangible value to people’s lives. The scope is far reaching because it is not only about smart devices having an IP address but being able to link even passive objects on the network.

By allowing IoT / M2M devices to roam for extended periods in the country having their access based on the commercial terms with a licensed service provider will actually benefit the growth and adoption of IoT without any disadvantage. More importantly International Mobile Roaming Guidelines by ITU also suggest that National Regulatory Authorities should invest in and promote Internet-of-things (IoT) and machine-to machine (M2M) solutions based on the permanent roaming services. Any technologically and commercially viable M2M solution should be acceptable from a regulatory perspective.

Three-year timeline for permanent roaming of TRAI past recommendation needs to be removed and to be made open subject to mutual agreement between operators. M2M is still at a nascent

stage and the policy environment should create an enabling environment instead of creating uncertainties or artificial barriers like three years.

As investments are made based on long term planning and projections, three-year is too less a time to plan long term investment especially in a nascent industry like M2M. In fact, any timeframe on permanent roaming for IoT/M2M devices, is likely to result in a diminished investment in connected devices in India by foreign mobile operators, as the costs of re-credential to local SIM will outweigh the benefits. Roaming arrangements are based on mutual understanding and continue to be in existence based on the agreement between parties. If the parties to the roaming agreement have the requisite clearances and agree to have an agreement for say 20 years (akin to tenure of the telecom license), it should not be different in case of M2M.

Roaming has been in existence ever since international telecommunications have started. That's how people connect around the globe as not every operator can secure a license in each country. The TRAI recommendations (Sept, 2017) themselves have stated that majority of the countries permit permanent roaming:

*Clause No.3.91 "According to the study provided by Machina Research, the share of the countries explicitly prohibiting permanent roaming is only 2%, share of the countries permitting clearly is around 11% and rest of the countries have no clear cut regulations thus may be considered as probably permitted cases."*

To foster adoption, innovation, and scalability of IoT/M2M, ACTO most strongly suggests that international roaming for M2M devices should continue without any restriction in time duration, in line with the now adopted and dominant global practices.

## **2. Regulatory mandate to change profile over OTA**

'OTA' and eUICC solutions allow to change the mobile carriers dynamically over the lifespan of the product, offering increased options to customers without the need for regulatory intervention. However, despite the flexibility OTA offers, incorporating an OTA capability inevitably adds costs to an M2M solution. The benefit of OTA capability may be outweighed by the expense. Many consumers of IoT/M2M devices contain soldered SIM cards that do not have the ability to support Remote SIM Provisioning (RSP). Such devices are typically low cost IoT devices manufactured by small and niche market players who may not have sufficient resources to comply with the RSP standards.

Moreover, eSIM (eUICC) devices for enterprise customers may also need to be customised according to business requirements such that the device may not conform to the GSMA specifications on OTA Remote Provisioning. ACTO submits that so long as the enterprise customer is aware of the consequences of customizing a device such that it does not support the OTA Remote Provisioning functionality (i.e., the device will not be able to switch to a different MNO profile), the choice of doing so should be left to the customers. About the proposed solution, a request to implement a GSMA certified Subscription Management solution requires significant investment of time, cost and resources from both the foreign and Indian TSP to manage the initial implementation and maintain ongoing support. The solution reflected is prone to continued points of failures due to the transference of eUICC key information and profile

downloading given the location of the service request and connectivity limitations that can exist. The assumed timeframe for implementation should be 12 months after contractual and funding agreements have been formalized and commitments received signed off. The SM-SR integration, is the most complex of all Subscription Management integrations and is often plagued by eUICC interoperability issues. In regards of the other model proposed, TSP SM-DP with the Indian SR. Not all foreign TSP's would agree to the solution without guarantees of service and security levels being in alignment with the GSMA standard.

Vendors have e-SIMs with different capabilities and it suggests to have a flexible regulatory approach rather than a mandated one keeping in mind for the rapid growth of M2M deployment in the country. Any kind of mandate will put extra cost and that would be detrimental to the fastest adaptation of M2M and depriving the technological benefit to end users.

Given the varying economics, an OTA re-credentialing capability is an option but should not be prescribed. We specifically caution against the adoption of a blanket regulatory policy approach towards OTA (or other mandated) switching, which would reduce operating flexibility, inhibit innovation, and increase costs in new M2M offerings and business models while not necessarily addressing the needs of all service types or all market participants (e.g., manufacturers, device distributors, systems integrators).

ACTO believes that it is too early to assess which is the most suitable model and in that context we believe that TRAI/DOT should adopt a facilitative policy in this area. Moreover, there is also no 'one size fits all' approach to the business model to underpin the eSIM provisioning model. Both "managed service" and "fully owned" provisioning system models exist in the market and are being rolled out by mobile operators around the world.

Furthermore, and on a wider perspective, we consider that the regulatory policy should not mandate M2M/IOT service providers to port the numbers, switch the customer profiles, base all the in-country solutions on eSIM and likewise. We also believe that all technologies and M2M/IoT solutions should be made available and permissible from a regulatory perspective.

The M2M/IOT market is characterized by tremendous diversity in services, platforms, providers, users, applications, industries and technologies. Any policy approach should accommodate multiple solutions; there is not necessarily a standard "one size fits all" solution that fits across the ecosystem. Industry requires flexibility to develop models that best facilitate a rapid and economically viable deployment of M2M services.

Keeping in mind, the successful cooperation between various market participants in designing and implementing working solutions for carrier switching for M2M, and the absence of any demonstrable market failure, a regulatory mandate to require number porting or other switching mechanisms is premature and unjustified. It should be free to pursue a choice of commercial models and technical solutions and accommodate switching where appropriate for the device and circumstances. However, no obligations on such switching should be imposed.

### 3. Global practices

Any regulatory mandate on this issue, would be against the prevailing international regulatory policy on eSIM. For example:

- a) The recently finalised **European Electronic Communications Code** states that Member States should promote, but not mandate, the availability of this technology, as follows:

*“Member States should promote over-the-air provisioning of numbering resources to facilitate switching of electronic communications providers. Over the-air provisioning of numbering resources enables the reprogramming of telecommunication equipment identifiers without physical access to the devices concerned. This feature is particularly relevant for machine-to-machine services, that is to say services involving an automated transfer of data and information between devices or software-based applications with limited or no human interaction. Providers of such machine-to-machine services might not have recourse to physical access to their devices due to their use in remote conditions, or to the large number of devices deployed or to their usage patterns. In view of the emerging machine-to-machine market and new technologies, Member States should strive to ensure technological neutrality in promoting over-the-air provisioning.”* (Recital 224 of the Code).

[http://europa.eu/rapid/press-release\\_IP-18-4070\\_en.htm](http://europa.eu/rapid/press-release_IP-18-4070_en.htm)

- b) The **Australian Communications and Media Authority** has stated that –

*“The integrity of personal information, and the interoperability of devices and portability of data and information, will be key underpinnings for the IoT environment” and device interoperability and portability of data between devices and networks “may require further examination in the IoT context to provide certainty for suppliers of IoT services about their obligations, as well as certainty for users in supplying information that is exchanged in M2M and IoT communications”.*

The ACMA has not, however, intervened to mandate switching of eSIM.

<https://www.acma.gov.au/theACMA/internet-of-things-and-the-acmas-area-of-focus>

- c) **Infocomm Media Development Authority(IMDA)**, Singapore had consultation process on embedded SIM technology for M2M/IOT in 2018. Most of the stakeholders are in view not for any regulatory mandate and no decision has been taken by IMDA as yet.

### 4. Security Related Concerns

During the last TRAI consultation process, ACTO had suggested that BLAT/MLAT (*Bi-Lateral or Multi-Lateral Trade*) agreement should be invoked while placing any sort of restriction in case it is required for security related concern in the larger interest of the country. It is not for the telecom operator to invoke such mechanism as these avenues are available to Government to deal with issues in case of security or dealing with hostile / unfriendly countries. TRAI had also captured it vide the following clause 5.7 (c):

***“Country specific relaxation on permanent roaming of foreign SIMs, if any, can be considered based on the strategic importance, Bi-lateral or Multi-lateral trade agreements and principle of reciprocity by the government.”***

Roaming predominantly has been a subject of discussion more between operators worldwide than it is for Government's under the existing MLAT and BLAT agreements. The only exception being if roaming relates to an unfriendly country.

The MLAT (Multi-Lateral Agreements for Trade) and BLAT (Bi-Lateral Agreements for Trade) procedures are taken as given and granted from day one. Only for countries which are unfriendly from diplomatic relations perspective needs to be identified from time to time from security perspective to carve out exceptions.

Ideally MLAT and BLAT procedures should be invoked while placing any sort of restriction. It is not for the telecom operator to invoke such mechanism as these avenues are available to Government to deal with issues in case of security or dealing with hostile / unfriendly countries.

**Summary of our suggestions:**

**M2M/IoT is a key enabler for the economy as a whole, it is essential to focus on promoting investment and innovation particularly at the early stage of deployment. In line with global practice, no regulatory mandate to restrict international roaming as well as to mandatory switching to OTA /e-SIM. Options are available to the customers for switching or porting of number if needed but not through regulatory mandate. M2M/IoT to be considered as globally not only at national and regional level. Specific security related concern can be addressed through the mechanism of MLAT/BLAT.**

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