

Dear Sirs,

The GSMA is pleased to see that the Department of Telecommunications (DoT) is interested in machine-to-machine (M2M) and the GSMA Embedded SIM specifications. M2M can bring substantial and tangible social and economic benefits to consumers, businesses, citizens and governments, for example, helping limit healthcare costs, reducing the carbon footprint and resources waste, increasing access to education and improving safety.

The GSMA believes that India can enjoy the concrete benefits that this opportunity offers. For example, a study conducted in 2013 on behalf of the GSMA¹ indicates that in India mobile smart meters could help improve efficiency and reduce power theft. This could save 47 billion Kilowatt hours to help power an additional 10 million homes by 2017. Also, remote monitoring of water pumps in remote communities can help reduce waste and guarantee provision of essential resources.

In order for India to maximise the benefits of this opportunity the GSMA believes that it is important to consider the following aspects:

1. **A flexible deployment model:** The GSMA believes that parties should have the flexibility to select the connectivity model that best facilitates a rapid and economically viable deployment of IoT services. This will allow a great number and variety of IoT services to be deployed in India. Global IoT Service providers will want to maximise economies of scale and as such adopt connectivity solutions that work seamlessly across the globe
2. **Mandatory KYC rules for IoT connected devices:** As set out in the GSMA mobile policy handbook², registration of SIM cards should not need to be mandated. This principles is valid and should apply for IoT connected devices too.
3. **SIM transferability:** The GSMA Embedded SIM guidelines³ describe an interoperable approach for remote provisioning that enables ease of switching, that operators can deploy for those services where that is an important criteria.
4. **Numbering resources:** The GSMA is currently investigating whether a specific numbering solution is required to support the growing number of IoT connected services globally. Belgium, Denmark, Finland, Luxembourg, the Netherlands, Norway, Singapore, Spain, and Sweden are amongst the countries that have opened a new long numbering range only for IoT. Many other countries are considering such a decision. If a new numbering scheme is being considered by the DoT in India, it would merit following a forthcoming GSMA recommendation to ensure global compatibility.

The embedded SIM specifications for remote provisioning

One of the objectives of the GSMA Connected Living programme consists in creating a single common and global specification for remote provisioning of M2M SIM cards, removing the need for

¹ GSMA- PWC study (2013) http://www.gsma.com/connectedliving/wp-content/uploads/2013/06/GSMA_PwC_Connected-life_260613.pdf

² Please refer to the section “Mandatory registration of prepaid SIM card users” in the GSMA mobile policy handbook : <http://mph.gsma.com/publicpolicy/handbook/consumer-protection>

³ Remote SIM provisioning GSMA resources: <http://www.gsma.com/connectedliving/embedded-sim/>

each operator to develop their own technical solution and enabling them to offer scalable, secure and reliable M2M connectivity. The Embedded SIM specifications achieve this objective.

At the same time, the GSMA believes that all parties in the IoT value chain should have the flexibility to select a deployment model that best facilitates a rapid and economically viable deployment of IoT services, and that therefore no specific model should be preferred, mandated or imposed by regulatory action.

All deployment model alternatives for IoT connected services considered by MNOs have their merit. The ultimate choice of deployment model depends on a number of factors, such as needs of the mobile network operator, the IoT service provider and the end-user, the scale and geographical footprint of the deployment, the type of IoT application, the device lifetime, its accessibility and the bandwidth requirements.

Answers to your questions

1. How many operators have signed up for this globally? Are any Indian operators signatory to this.

At present, five leading mobile operators have launched solutions compliant with the GSMA Embedded SIM specification for remote 'over the air' provisioning of machine-to-machine devices. These are: AT&T, Etisalat, NTT DOCOMO, Telefonica, Vodafone Group. Additional operators and ecosystem partners, including Ericsson, Jasper and Telenor Connexion, have committed to launch⁴.

2. Are global embedded SIM active yet? Are they being used by operators or other utilities?

GSMA does not have visibility of direct implementation and therefore cannot answer these questions. However, the operators above (see answer 1) have committed to deploy commercially the solution within the next 6 months.

3. How are security concerns (terrorists use) being addressed?

The GSMA Embedded SIM specifications for remote provisioning have been developed with security as a key requirement. To facilitate secure management of the Embedded SIM, two new key network elements have been included within the system architecture. A Subscription Manager Data Preparation (SM-DP) securely encrypts operator credentials ready for over the air installation within the SIM. A Subscription Manager Secure Routing (SM-SR) securely delivers the encrypted operator credentials to the SIM and then, once the credentials are installed, remotely manages the SIM thereafter. These entities, which are subject to security certification by the GSMA's Security Accreditation Scheme (SAS) ensure that IoT Connected Services using an Embedded SIM are as secure as those using traditional SIM cards.

4. Have any KYC norms been laid down for M2M and Embedded SIM?

⁴ Embedded SIM press release: <http://www.gsma.com/newsroom/mobile-industry-embraces-gsma-embedded-sim-iot/>

Nothing specific to our knowledge has been laid down for M2M and Embedded SIM. The GSMA has conducted a study on the mandatory registration of Prepaid SIM card users. Below, we report the link to the study⁵. It is worth highlighting that:

- To date there is no evidence that mandatory registration leads to a reduction in crime
- GSMA believes that Governments should not mandate Know your customer rules

5. How will the Embedded SIM work globally?

The Embedded SIM has been developed as a single, common and global specification to accelerate growth in M2M, as global standardization is vital for scaling the market. Detail on how it works are provided at the link below.

On a related point, the global nature of the IoT market the GSMA invite the DOT to maintain a flexible regulatory policy which will allow communities in developing markets to benefit from a faster deployment of IoT services.

In particular, data transfer rules, the GSMA recommends establishing cross border standards that are premised on business accountability and supporting privacy enhancing technologies e.g., minimum standards for consumer privacy, transparency and choice rather than mandating prescriptive rules that could prevent innovation and economic development in the region⁶.

6. What is the probability of M2M becoming popular in India?

GSMA forecasts predict that by 2020, India will have 24.6 million active cellular M2M connections⁷, the 9th highest number in the world.

7. How will the SIM be manufactured and by whom?

All top four SIM manufacturers (Gemalto, Giesecke & Devrient, Morpho (Safran), Oberthur Technologies) support the Embedded SIM specifications.

8. According to DoT, Brazil has disallowed use of Embedded SIM in their country. Can more insight be provided on the regulations prevalent there?

Embedded SIM is allowed in Brazil. It is our understanding that the Brazilian government encourages connectivity via local providers and this is not incompatible with Embedded SIM. In fact, Embedded SIM enables the use of local providers.

On a closely related matter it is worth noting that recently the Brazilian government has significantly reduced SIM card tax on M2M devices⁸ by 80% providing a stimulus for operators to develop services, such as smart metering, car tracking or remote health monitoring.

⁵ Mandatory registration of Prepaid SIM card users

http://www.gsma.com/publicpolicy/wp-content/uploads/2013/11/GSMA_White-Paper_Mandatory-Registration-of-Prepaid-SIM-Users_32pgWEBv3.pdf

⁶ Effective mobile policy and regulation for the ASEAN community – data protection and privacy

http://www.gsma.com/aboutus/wp-content/uploads/2013/08/Capitalizing_on_ASEAN%E2%80%99s_Mobile_Moment_24ppWEB.pdf

⁷ GSMA M2M report and forecasts (2014)

⁸ GSMA, May 9th 2014, "GSMA welcomes Brazilian government decision to reduce machine-to-machine taxation", retrieved from <http://www.gsma.com/newsroom/gsma-welcomes-brazilian-government/>

9. Any update on how emergency calls will work in M2M?

Access to emergency services is an obligation connected with the use of E.164 resources that was imposed for applications with human interfaces in mind. It is not a relevant in an IoT context and regulators should link requirements to the nature of the service offered.

Collaterals

1) Press Release on Embedded SIM:

<http://www.gsma.com/newsroom/mobile-industry-embraces-gsma-embedded-sim-iot/>

2) Presentation on Embedded SIM

<http://www.gsma.com/connectedliving/wp-content/uploads/2014/10/Embedded-SIM-Toolkit-Oct-14-updated1.pdf>

3)The mandatory registration of Prepaid SIM card users

http://www.gsma.com/publicpolicy/wp-content/uploads/2013/11/GSMA_White-Paper_Mandatory-Registration-of-Prepaid-SIM-Users_32pgWEBv3.pdf

4) Connected life – the next five years in Asia

http://www.gsma.com/connectedliving/wp-content/uploads/2013/06/GSMA_PwC_Connected-life_260613.pdf

5) GSMA M2M report and forecast -attached

About the GSMA Connected Living Programme

The Connected Living Programme (CLP) is a GSMA initiative to help operators add value and accelerate the delivery of new connected devices and services to mobilise the Internet of Things. The GSMA CLP works with ecosystem partners to establish guidelines for how machines should connect and communicate intelligently and efficiently; establishes common capabilities among operators; enables a network that supports value creation through the delivery of innovative services beyond connection; and promotes government support for the growth of M2M services in the most effective way to maximise the socio-economic benefit that the IoT opportunity offers. It also aims at creating a single common and global specification for remote provisioning of M2M SIMs, removing the need for each operator to develop their own technical solution and enabling them to offer scalable, secure and reliable M2M connectivity.

Definitions

- **IoT:** Coordination of multiple vendor machines, devices and appliances connected to the Internet through multiple networks. Devices include everyday 'objects' such as consumer electronics, machines, vehicles, monitors and sensors equipped to support M2M services.

- **M2M:** Devices and appliances connected wirelessly or via IP. In most cases, communication takes place with limited human intervention. M2M is an integral part of the IoT.
- **IoT Connected Services** are those delivered via devices where the connectivity is provided by authenticating a SIM and where the service has at least one of the following characteristics:
 - i. Open internet or open any-to-any voice communications are not the primary purpose of the service; mobile connectivity is utilised to deliver value-added functionality, or
 - ii. Services which have a closed user group and service provider managed connectivity which excludes open internet or any-to-any voice access.