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CHARTING THE FUTURE OF M2M COMMUNICATIONS THROUGH TRAILBLAZING REGULATORY DEVELOPMENTS

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On 21 March 2024, the telecom authorities in India announced major developments in the machine-to-machine (M2M) space. Particularly, the Department of Telecommunications (DoT) issued an amendment to the existing instructions on M2M connections relaxing the highly criticized restrictive features of M2M connections (Guidelines). On the same day, the Telecom Regulatory Authority of India (TRAI) also issued the much-awaited recommendations on '*Usage of Embedded SIM for Machine-to-Machine (M2M) Communications*' (Recommendations). The Guidelines as well as the Recommendations seek to address the burgeoning needs of the M2M industry by easing some regulatory constraints as well as providing a direction for future regulations on various issues related to the usage of embedded SIM (eSIM).

Key features of the Guidelines

- *Background*: On 16 May 2018, DoT had issued instructions which inter alia set out that M2M SIMs will have certain restrictive features compared to traditional SIMs for voice / data communications used for person-to-person communications. Among other things, the restrictions stated that calls were allowed to / from a predefined set of maximum one number, SMS was allowed to / from a predefined set of maximum two numbers, data communication was allowed only on maximum two numbers of predefined IP addresses etc. However, pursuant to criticism from the industry stakeholders, DoT issued another notification on 30 May 2019 relaxing the restrictive features for M2M connections in which the number of calls and SMSs were increased for a maximum of four numbers, data communication was allowed on maximum four numbers of predefined public IP addresses, etc. Notably, even after the announcement of the relaxations on the restrictive features, such limitations on the number of calls, messages and data communications used for M2M connections stifled innovation in M2M services. For instance, providers of connected car services that use M2M connectivity faced constraints in facilitating connection between vehicles and external systems (such as emergency services, fleet management platforms) and were unable to explore advanced features and functionalities such as entertainment and infotainment services, real-time diagnostics, etc., which required more flexible communication capabilities.

- *Relaxation for data communications in M2M SIMs*: In response to the general industry observation and in order to further enlarge the scope of the existing features for M2M connections, DoT issued a notification amending its existing instructions. Pursuant to the relaxation, permission for data communication on M2M SIMs has been significantly increased to a maximum of 100 pre-defined public IP addresses / URLs. Given the wide application of internet of things (IoT) and M2M devices, this relaxation will help

entities providing M2M SIMs to optimize their network resources and cater their services to a wide range of use cases across various industries such as automobiles, logistics, healthcare etc., which was earlier a restraint.

Key features of the Recommendations:

- *Background*: In view of the technical features and functionalities of eSIMs, DoT had made a reference to TRAI seeking its views on various issues including inter alia timeline for foreign embedded Universal Integrated Circuit Card (eUICC) (i.e., the software component of the eSIM) fitted devices to be on roaming in the network of an Indian telecom service provider (TSP), ownership and management of Subscription Manager Secure Routing (SM-SR), profile switch-over from one TSP to another, issues pertaining to consumer eSIMs, etc. Pertinently, these issues have created a lot of complexity in the M2M industry necessitating the need for a comprehensive framework that provides more regulatory clarity for businesses.

- *Timeline for foreign SIMs working on a roaming basis*: An earlier recommendation made by TRAI suggested that all devices fitted with foreign eUICC may operate on a roaming basis for a maximum period of 3 years from the date of activation of international roaming in India on the network of an Indian TSP or change of ownership of the device, whichever is earlier. Thereafter, TRAI recommended that it should be mandatorily converted into the SIM card of an Indian TSP. However, TRAI revisited its recommendation based on the issues raised by DoT and feedback received from the stakeholders. Accordingly, TRAI has now suggested that all profiles configured over any M2M eSIM installed in imported devices should be converted to the profile of an Indian TSP within 6 months from the date of activation of roaming in the network of Indian TSP or change of ownership of the device, whichever is earlier. In light of this, it appears that the Government seems to be wary of permitting the use of foreign SIMs including in imported devices on a permanent roaming basis in India.

- *Ownership and management of SM-SR*: TRAI noted that Subscription Manager Secure Routing (SM-SR) serves an essential role in the M2M communications space. For context, in simple terms, SM-SR is a component within the M2M ecosystem which helps in securely managing and routing subscription profiles to M2Ms/ eSIM devices. Given that such M2M systems require adequate level of security and protection, TRAI was of the view that SM-SR should be brought under some form of regulatory control. Accordingly, TRAI recommended that inter alia telecom licensees with Access Service authorisation, M2M authorisation, companies holding M2M registration with a specified permission etc., should be permitted to own and manage SM-SR in India. In other words, ownership and management of SM-SR is likely to be linked to some form of license or registration by the Government.

- *Switch-over of communication profiles*: At present, the M2M eSIMs are configured with communication profiles of TSPs in India on behalf of the respective OEMs, based on the request of the M2MSPs. In other words, an end-user of the M2M device does not have the ability to switch the profile to a different TSP in case they are dissatisfied with the service of a particular TSP. Many stakeholders had submitted that profile switch-over should be initiated by M2MSPs or OEMs and not by users. This is because an OEM takes the M2M service from an M2MSP and an M2MSP on the other hand obtains M2M connectivity from an Indian TSP. Therefore, even though end-users are the ultimate beneficiaries of the M2M device, however, OEMs and M2MSPs exercise control over major part of the features. Hence, TRAI recommends that profile switch-over of TSPs on M2M eSIMs should be driven by the OEMs. Further, given that such agreements between TSPs and M2MSPs are undertaken on a large scale, TRAI noted that it would be challenging to accommodate individual end-user requests for switch-over of communication providers.

- *Profile transfer on consumer eSIMs:* The Recommendations also discussed the challenge with regard to transfer of profile from one mobile handset to another mobile handset in case of eSIMs. This is otherwise seamlessly possible in case of

physical SIMs where a customer can easily transfer a physical SIM to another mobile handset. TRAI acknowledged that currently, there is no standard solution for this issue. Accordingly, TRAI recommended that the technical wing of DoT, i.e., the Telecom Engineering Centre, should evaluate the technical possibilities of such a device-to-device transfer of profiles on consumer eSIMs.

Comment

The M2M industry is witnessing a rapid ascent as more and more companies are leveraging connected devices and users are becoming dependent on technology for enhanced functionalities and ease of living. From health monitoring devices to connected cars and smart cities, IoT and M2M technology is revolutionizing the way data is exchanged and used on a real-time basis. However, as the technology becomes more complex and integral to society, there arises a pressing need for regulations around the use and operation of such technologies. Particularly, for entities that are a part of M2M ecosystem, it is pertinent to have regulations that foster innovation and facilitate seamless integration and use of connected devices.

DoT and TRAI have been instrumental in identifying the prevailing issues and lacunae in the industry, conducting stakeholder consultations and providing appropriate recommendations for the benefit of this industry. While DoT's amendment to increase data communications in M2M SIMs expands the scope of connectivity for M2M devices by enabling them to communication with a larger number of endpoints to provide more features and functionalities, it still remains to be seen how DoT will adopt the recommendations provided by TRAI. Such regulations once adopted by DoT will bring in much needed clarity and certainty for businesses to navigate through the M2M landscape by making more informed decisions and investing in the development of M2M technologies.

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