
AT&T Response to AGCOM's Survey on Machine-to-Machine (M2M) Communication Services

3 October 2014

AT&T is pleased to provide the following response to AGCOM's *Survey on Machine-to-Machine (M2M) Communication Services* (the "Survey"), pursuant to Resolution N. 708/13/CONS, as published on the AGCOM website on 31 July 2014. AT&T, given its leadership in working with customers to develop M2M solutions,¹ welcomes the opportunity to inform policies that will further promote M2M services and innovation in Italy. Although many questions and recommendations on the evolution of the M2M communications sector have been presented in the Survey, AT&T's comments focus on the unique business models and general applications of M2M communications, the ecosystem supporting the sector, the potential societal benefits derived from M2M communications, and the policies necessary to promote the rapid development and deployment of M2M communications. Specifically, AT&T limits its comments to Questions 2.1 (all), Questions 2.2 (a, b, and d), Questions 2.3 (all), Question 3.1, Questions 3.2 (all), Questions 3.3 (all, collectively), Questions 3.5 (a and b), Questions 3.7 (b, d, and e), Questions 3.8 (all, collectively), and Questions 3.9 (all).

Questions 2.1

a. What are the relevant elements that contribute to the definition and characterisation of M2M?

M2M communications can be defined as a set of diverse and expanding networking and IT technologies, which connects the physical systems of the world such as power meters, vehicles, containers, pipelines, wind-farm turbines, vending machines, personal accessories—essentially, any electronic device that would benefit from two-way communications. Although at a nascent stage of development, M2M communications have already demonstrated the potential to massively improve efficiency, productivity and social welfare in fields as diverse as education, healthcare, transportation, energy, security, agriculture, and many others. Indeed, this new connectivity is revolutionising every aspect of human life. With so much at stake, it is crucial to develop policies that foster the continued progression of M2M communications.

Critically, supportive policies must be based on the premise that the new business models for M2M communications differ greatly from the traditional business models that have supported the mobile phone and tablet industry segments in the past. The new business models vary both in terms of the nature of the wireless connectivity provided to the end user, and the economics of providing that connectivity. For example, with most M2M devices, mobile network operators (MNOs) do not provide a communications service directly to individual end users. Rather, MNOs provide wireless connectivity to

¹ AT&T has a proven M2M success record, with 1,800 certified connected devices, more than 17 million endpoints in active service and industry analyst recognition for solution deployment experience and capability. For example, in a recent iteration of Current Analysis' Global M2M Service provider rankings, principal analyst Kitty Weldon wrote that "AT&T is positioned as a global leader in providing M2M services and has demonstrated excellent traction for its initiatives with customers" (*Current Analysis, "AT&T - Global M2M Services and Strategies Vendor Profile," September 2013*). Moreover, AT&T has partnerships with other U.S. industry leaders such as Cisco, GE, IBM, and Intel.

the manufacturers, who distribute wirelessly-enabled products and services to end users. The manufacturer does not consider itself a provider of traditional communications services. Instead, the manufacturer develops a product that may be enhanced via the integration of wireless connectivity. For instance, an M2M-enabled smart meter fundamentally measures electricity usage; the M2M enhancement allows the near real-time transmission of that usage information to the electric utility company.

Because the M2M manufacturer usually does not provide a separate communications service to the end user, the manufacturer generally does not charge the end user for a communications service. Rather, data transport is merely an ancillary component, not a principal feature, of the overall product or featured service (e.g., data analytics, fleet management) sold to the end user customer. Therefore, in the M2M environment, 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) (e.g., a smart meter sending a few hundred bytes of data per day vs. a smartphone or tablet consuming tens of megabytes).
- 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 amortise their costs, manufacturers tend to develop standardised products with long useful lives 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, sell it everywhere.”

b. What are the distinctive elements of M2M, which are the most relevant from the point of view of the regulation?

Some of the major features that should inform regulatory policy towards M2M communications include:

- SIM (e.g., models, ownership, transferability):** The truly global nature of M2M communications requires the use of an appropriate SIM solution. There are many such solutions, including a single “global” SIM (i.e., with an International Mobile Subscriber Identity (IMSI) that works anywhere in the world based on roaming), multiple “local” IMSIs (with each device programmed with an IMSI from the country where it is to be used), and a shared Mobile Country Code (MCC) (901) or new 90X code exclusively for M2M services. (*The advantages and disadvantages of these models are discussed more fully in the answer to Question 2.2. b below.*)
- M2M Roaming:** Historically, MNOs have supported their customers’ international wireless connectivity through roaming agreements with MNOs in other countries. To facilitate the adoption of these types of international roaming arrangements as a commercial matter, the wireless industry’s leading trade association, the GSM Association (GSMA) has developed a series of roaming contract templates. These roaming templates, which are available for use by

GSMA's 800+ members, contain common industry-accepted terms and conditions that expedite the negotiation of roaming agreements. Commercially negotiated roaming arrangements that enable these customers to receive service outside their home country have been in place for decades and are mutually beneficial to the MNOs: the MNOs' customers receive service in foreign countries and the MNOs receive compensation from the other party for providing the service. Building on its success in fostering traditional roaming, in 2012 GSMA adopted an "M2M Annex" template for international roaming. Among other things, the Annex mandates transparency in the provision of M2M services by requiring the parties to agree to identify their M2M traffic separately from other traffic and to exclude traditional wireless services (e.g., conventional 2-way dialable PSTN voice). *(This issue is discussed more fully in the answer to Question 2.2.b below.)*

- iii. **Numbering Resources:** In the case of E.164-based M2M devices, there may be a possibility of number exhaustion in some markets due to the significant number of connected devices and therefore a need to consider an expanded number series. *(This issue is discussed more fully in the answer to Question 3.5 below.)*
- iv. **Data Privacy and Security:** Considering the proliferation of M2M services in every sector, a large volume of information will be generated, transmitted, collated and stored. As the volume of data increases, so do the security and privacy concerns. However, because security and privacy are central to the commercial viability of M2M services, there is incentive for industry to proactively focus on such issues and "self-regulate." In fact, industry stakeholders like AT&T have a track record of committing to meaningful, voluntary efforts to improve privacy and security—and will continue to do so. When regulatory oversight is warranted, it should provide data controllers with the flexibility to determine the best approach for protecting consumer privacy and should extend security measures to all players in the M2M ecosystem (e.g., include hardware and software providers in any privacy or security regulatory framework). *(These issues are discussed more fully in the answer to Question 3.9 below.)*

Questions 2.2

a. What are the subjects and the functions that compose the value chain of M2M services? Is it necessary to prospectively identify other subjects involved in the creation of M2M?

The M2M ecosystem incorporates many players, most notably connectivity providers (mobile and fixed network operators), hardware manufacturers (equipment manufacturers and device manufacturers), software/application service providers (telematics, data analytics, billing solutions, etc.), and system integrators. In addition, the associated vertical-market applications encompass a variety of industries, including:

- Healthcare (care provider, medical device manufacturer, health insurance);
- Logistics (asset tracking services, shipping);
- Energy/Utilities (electricity, water, waste; aggregator; meter manufacturer; pipeline/refinery management);

- Public Infrastructure (traffic control, facilities management, emergency services, security/defence);
- Building/Construction (energy management, security);
- Transportation (automotive, infotainment, hardware, services; fleet management, transportation insurance; mass transportation);
- Retail/Consumer (appliances/housewares, personal device manufacturer, signage, vending); and
- Industrial (manufacturing/fabrication, laboratory/pharmaceutical, agribusiness/farming).²

There are also new players entering the M2M ecosystem. For example, several companies announced plans to create a network exclusively for M2M communications. One French start-up plans to develop a low-cost, energy-efficient ultra-narrowband cellular network dedicated to M2M, and it wants to deploy in 60 countries over the next five years.³ While such players may fall under a traditional moniker (i.e., connectivity provider), their new networks may not fit neatly into traditional network concepts and regulatory frameworks. And as the industry grows, policymakers should expect and encourage further innovations that will propel the M2M ecosystem forward.

It is not necessary prospectively to identify other or specific subjects involved in the creation of M2M services, as they will be ever-changing. Rather, a framework that is flexible and adaptive will support the evolution of M2M communications.

b. The analysis of M2M value chain seems to promote a push towards globalisation and toward the construction of shared platforms. Do you agree with this assessment? If yes, which role does the technology platforms proposed by the alliances in the M2M sector undertake?

The impact of M2M will be far reaching, with global cross-border opportunities. That is, M2M solutions not only create social welfare benefits in Italy, but can create economic benefits to Italy's industry at large, by, for example, enabling Italian manufacturers to have success with exports to world markets. Different players will respond to the opportunities in different ways. Alliances and the building of shared platforms may be one response but another, "ready-made" global platform exists in the single (global) SIM model (i.e., as stated earlier, an IMSI that works anywhere in the world based on roaming).

As explained in Question 2.1.a above, when compared to traditional business models, M2M business models typically have significantly lower ARPU and high input cost sensitivities. Given these realities, manufacturers would face an almost insurmountable obstacle when seeking to deploy M2M products and services on a global scale if they followed traditional handset/tablet business models. To obtain wireless connectivity under traditional business models, a manufacturer would need to contract with at least one MNO in each country into which it sells its goods, which could mean incurring transaction costs for negotiating and then implementing dozens or hundreds of individual agreements. For each country, the manufacturer would need a SIM card with a country-specific IMSI code embedded in each M2M device to be distributed in that particular country. This would mean maintaining country-specific

² See IoT Vertical Markets, International M2M Council (IMC), at <http://www.im2mc.org/imcmarkets>.

³ See <http://www.lightreading.com/services-apps/m2m/metal-machine-music-dedicated-m2m-networks-on-horizon/d/d-id/708656>

inventory at each place of manufacture, leading to greatly increased inventory management costs. In cases where the M2M devices use E.164 numbers (i.e., Mobile Subscriber ISDN (MSISDN) numbers or mobile telephone number), the manufacturer would also need country-specific E.164 numbers in each country where it seeks to distribute its products, further increasing its costs and increasing pressure on limited numbering resources.

M2M business models also require delivery of services in a globally consistent manner, including being able to operationalise centralised manufacturing and plant resources, and establishing common management systems for consistent policy controls (e.g., ordering, provisioning, customer care, cyber security, billing and reporting). A fragmented distribution model, involving a separate SIM/IMSI per country and integration with each national MNO “platform,” would require the manufacturer to use multiple platforms that would not be integrated together and would not work together. Instead of one platform, it would need to work with dozens or even hundreds of different carrier platforms that would generate disparate reports that capture different information, depending on what the individual MNO offers. Requiring local IMSIs for each country where a product is used would prohibitively raise costs and stifle M2M innovation and deployment in most markets.⁴ This will impact citizens in large and small markets, depriving them of leading edge innovation and competition. Even across the 28 EU markets, if a nationally fragmented approach for SIM/IMSI use were to occur, there is a high risk that many markets could miss out on new M2M innovations due to the added expense and risk of needing to support a distinct IMSI platform for each country. This is also true for Italian device manufacturers intending to export around the world but finding their distribution model constrained by a precedent that requires a separate IMSI platform for each export market.

The new business models for M2M services necessitate innovative numbering solutions to accommodate the requirements of M2M customers and their product manufacturers. While a number of possible solutions to address the potential concerns relative to the needs of these stakeholders exist, AT&T believes that the most effective solution for global M2M services is to explicitly allow the extra-territorial use of numbering resources, such as E.212 (i.e., MCC+Mobile Network Code (MNC)) as well as E.164 number ranges). Such extra-territorial use of numbering for M2M services should not be confined to traditional roaming scenarios and should work in both directions—that is, national regulators should allow use of their MCC+MNC and MSISDN numbers outside their national territories, as well as allowing the use of foreign numbering codes within their national territories. In fact, this is an existing operational model already successfully in use in the field of M2M, and it is enabling the goals of a digital single market in Europe. Notably, acknowledging this, the CEPT/Electronic Communications Committee (ECC) Working Group on Numbering and Addressing in its final Report 212 on evolution of E.212 Mobile Network Codes added a recommendation that “[t]he ECC should further analyse the concepts of roaming and extra-territorial use of E.212 resources to examine the implications of such use on national numbering plan management.”⁵ The inclusion of this directive recognises the role the single (global) SIM model contributes to M2M.

⁴ For example, automotive companies may not know the final destination of each vehicle at the time of manufacture, nor would a typical manufacturer of connected watches, soil moisture detectors, etc.

⁵ ECC Report 212, *Evolution in the Use of E.212 Mobile Network Codes*, CEPT/Electronic Communications Committee (ECC) Working Group on Numbering and Addressing, (April 2014). See <http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCREP212.PDF>

To elaborate, there are existing, well-defined and well-established commercial models used between mobile operators that provide a practical basis for accommodating and facilitating the extra-territorial use of IMSIs and MSISDNs on a bilateral commercial basis. Foremost among these is the international M2M roaming framework that addresses and makes transparent international roaming used explicitly for M2M services. The roaming framework, currently the most efficient manner of delivering global M2M service, enables the use of the home carrier's IMSI and MSISDN to provide services on a global basis through a single (global) SIM architecture. This architecture allows the most innovative devices, from large or small companies, to be deployed to any country in the world, thereby bringing the benefits of leading-edge technology to all countries, businesses, mobile operators and citizens. With the business models used for M2M, where end users typically do not pay for data transport, the traditional policy considerations relative to the level of roaming charges are not relevant. Under the M2M roaming framework—recognised by the GSMA, and endorsed through the MNOs' adoption of an M2M Annex—procedures are in place to transparently identify, measure and distinguish M2M roaming traffic from traditional handset or tablet roaming traffic. The international roaming framework has been globally adopted by hundreds of mobile network operators who today enjoy the bilateral benefits of offering these services. And this bilateral framework has enabled large and small manufacturers alike to develop and export devices around the world, and to scale their business without the upfront entry barrier of establishing a distinct platform for each country before selling a single device. Thus, global numbering for M2M applications use promotes robust competition, and ensures competitive telecommunications markets because MNOs will continue to compete with each other to provide an international roaming platform for M2M service providers. Meanwhile, visited network MNOs benefit from the roaming traffic on their network.

d. What role do national institutions play, or can play, to promote the development of M2M services? What are the areas involved (European regulation, national regulation, regulation of the independent authority, standards)?

One crucial regulatory role for AGCOM, and other regulators, is the oversight of finite resources like numbers and spectrum. Such management should be guided by successful market solutions to new developments (e.g., the use of extra-territorial numbers) and, and in the case of spectrum, technological neutrality, to the extent practicable. More generally, there is abundant evidence that growth of M2M communications will be exponential and unparalleled; it is also manifest that technology drives such growth, not regulation. Indeed, AGCOM states that regulation is only justified when markets fail to themselves produce socially beneficial results, noting that, in particular, regulatory intervention in the electronic communications sector should not be undertaken except for correcting market failures.⁶ Thus far, the M2M communications market is stunningly successful. Moreover, as today's technological

⁶ Survey at 3.1.1. Note that the UK regulator, Ofcom, in its recent consultation on the Internet of Things, is of the view that "industry is best placed to drive the development, standardisation and commercialisation of new technology." See *Promoting Investment and Innovation in the Internet of Things*, Ofcom, (23 July 2014), at 1.3.4, <http://stakeholders.ofcom.org.uk/consultations/iot/>

advances are happening in a more dynamic environment and with more disruption to historic business models than ever before, only flexible, globally-minded, industry-driven policies will create conditions for pioneering technologies, services and business models to flourish. Therefore, M2M communications, as with the Internet in general, are best served by a light-touch regulatory approach that subordinates to technology and geography. Regulatory oversight should enable the intersection of technology with imagination to promote innovation, drive investment and engender the social good.

Questions 2.3

a. What are the main M2M applications to date developed in Italy and, how many (if any) connected devices are there, and what are the development prospects in the short term?

We are unable to offer insight into the specific applications being developed in Italy but note that, according to U.S. industrial M2M leader GE,⁷ Europe overall is well-positioned to reap the gains from the M2M revolution, and is especially in need of doing so to restore growth and contribute to ongoing debt reduction. Indeed, Europe is advancing M2M applications with developments in smart grids/meters⁸ and smart cities.⁹ Recognising this opportunity, in 2012, the Italian government enlisted ABB,¹⁰ a global leader in power and automation technologies, to assist it in developing a national strategy to encourage smart city progression in the country.

b. Is it possible to identify some applications which could drive the whole sector?

A key M2M application in Europe, and elsewhere, is the connected car. According to Pyramid Research, telematics is the fastest growing segment of the mobile M2M market and the firm predicts Europe will become the largest telematics market in 2016, overtaking the U.S.¹¹ To facilitate the expected growth relative to connected car, early this year the European Commission announced the establishment of a basic set of standards to ensure that vehicles made by different manufacturers can communicate with each other. The standards are expected to accelerate the European car industry's development of the next generation cars.¹² The market impact promises to be significant, as Europe currently has more than 200 million vehicles in use. AT&T is also contributing to the advancement of next generation cars. We recently introduced the AT&T Drive studio, a dedicated facility for connected car innovation and research. It is a working lab where AT&T tests and develops technologies to enhance the driving experience by improving safety, convenience and entertainment. AT&T also introduced its global connected car platform called AT&T Drive. AT&T Drive allows automakers to develop the services and

⁷ See <http://www.genewscenter.com/imagelibrary/downloadmedia.ashx?MediaDetailsID=5901&Sizeld=-1>

⁸ See <http://ses.jrc.ec.europa.eu/smart-grids-observatory>

⁹ See <http://ec.europa.eu/eip/smartcities/>

¹⁰ See

[http://www02.abb.com/db/db0003/db002698.nsf/0/5b7bd03fcb485697c1257ab40041ec27/\\$file/ReportAmbrose.ttiENG.pdf](http://www02.abb.com/db/db0003/db002698.nsf/0/5b7bd03fcb485697c1257ab40041ec27/$file/ReportAmbrose.ttiENG.pdf)

¹¹ See <http://www.prnewswire.com/news-releases/europe-to-overtake-us-in-cellular-telematics-market-by-2016--mobile-operators-go-after-the-connected-car-opportunity-255076341.html>

¹² See http://europa.eu/rapid/press-release_IP-14-141_en.htm

capabilities to differentiate their solutions in the marketplace.¹³ In addition to these technical initiatives, AT&T announced several connected car agreements with automotive makers, including deals covering North America with General Motors (GM),¹⁴ Tesla¹⁵ and Volvo.¹⁶

Likewise, healthcare stands out as a sector that will be transformed more than any other by M2M technologies in the coming years, and the transformation is well under way. M2M healthcare technologies have the potential to improve health outcomes, reduce health expenditures and facilitate the offering of care in more patient-friendly ways. For instance, wireless, body-worn sensors will increasingly allow the healthcare industry to free patients from a “tethered” hospital stay, which in many cases restricts patient mobility. Similar technologies are migrating into homes, allowing the remote and continuous monitoring of patients’ blood-pressure, respiration rate and a variety of other biometric information. This information typically flows across a short, unlicensed wireless link to a monitoring hub (i.e., from a device to a router) in the patient’s home, which then passes the information to the broadband network, routing it to the cloud where analytics continuously monitor a patient’s status, notifying a healthcare provider of any anomalies. Other applications work with smart-phone apps. For example, fitness applications help individuals keep track of daily miles walked, calories burned, and monitor pulse and respiration rates at different intervals. More broadly, the pharmaceutical supply chain continues to evolve and will require greater M2M visibility of products being distributed around the world. The field of telehealth also holds the promise of extending the reach of healthcare practitioners into remote, underserved and high-risk areas.

c. What initiatives could the regulator take to encourage the development of M2M?

Please see the answers to Question 2.2.d above and Question 3.3 below.

Questions 3.1

a. Is there the need/opportunity of public interventions aimed at facilitating in a direct way, the development of M2M services in Italy?

Generally, there can be benefits to public intervention directed at facilitating M2M service development for the public good or to influence public investment, including public services. With pressure to reduce costs, the introduction of more efficient ways of delivering quality and sustainable public services is increasingly important. In Sweden, for example, the rollout of smart meters was prompted by legislation that each household should be able to accurately monitor monthly electricity consumption by July 2009. A year later, Sweden became the first European nation to achieve 100% smart meter rollout — putting

¹³ See <http://www.prnewswire.com/news-releases/att-leads-the-future-of-the-connected-car---announces-new-att-drive-studio-and-global-att-drive-platform-238904071.html>

¹⁴ <http://www.prnewswire.com/news-releases/general-motors-selects-atts-4g-lte-network-to-deliver-enhanced-services-to-millions-of-vehicles-192939601.html>

¹⁵ See <http://www.prnewswire.com/news-releases/tesla-and-att-enter-multi-year-exclusive-agreement-to-connect-current-and-future-models-in-north-america-239064921.html>

¹⁶ See <http://www.prnewswire.com/news-releases/volvo-cars-and-att-enter-multi-year-agreement-to-connect-future-models-in-us-and-canada-255479991.html>

that country at the forefront of demand response potential.¹⁷ In another example, the UK's Department of Energy and Climate Change (DECC), recognising the benefits of energy efficiency and consumer control, developed plans to roll out smart meters to most households from 2015 through 2020.¹⁸ However, any need for regulatory intervention must be demonstrated on the basis of a clear cost-benefit analysis and it should be implemented in a proportionate, targeted and technologically -neutral manner to avoid unintended consequences.

Questions 3.2

a. **Is it appropriate to specifically identify the M2M services in order to identify the applicable regulations? If yes, what are the distinctive features that should be highlighted?**

Please see the answer to Question 3.3 below.

b. **In case the M2M services are not formally defined, considering the different organisational models mentioned above, which regulatory provisions may be not applicable?**

Examples of regulatory requirements or concerns that do not appear applicable in the context of M2M services include:

- **Number portability:** While number portability for handsets is important for individuals, this is not true for M2M devices, as the user of an M2M device typically does not know (or need to know) the number associated with the device. In the M2M context, the manufacturer typically contracts with the MNO; the MNO does not typically contract with the individual end user. The MNO usually allocates a block of IMSIs to each manufacturer who provisions the number in the M2M device. The end user is likely not able to change wireless connectivity providers as they do not have a relationship with that provider. If the manufacturer changes MNOs, the expectation is that the E.164 number (would be changed along with the assigned E.212 number. Porting would not be required because the new MNO serving the manufacturer would provide a new IMSI and a new MSISDN associated with it. The GSMA-embedded SIM specification now provides a mechanism for executing this change.¹⁹
- **Roaming price regulation:** As the issue of "bill shock" for roaming does not arise in the case of M2M business models, then it clearly makes sense that the provisions in the EU Roaming Regulation²⁰ relating to price transparency and roaming notifications are not applicable to M2M services and are therefore exempted (under Article 15 (4) of the Roaming Regulation. On the

¹⁷ See <http://www.emeter.com/smart-grid-watch/2010/sweden-at-forefront-of-demand-response-in-europe/>

¹⁸ See <https://www.gov.uk/smart-meters> and https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197794/smart_meters_programme.pdf

¹⁹ AT&T just introduced an enhanced global SIM that is designed to meet GSMA specifications for M2M and device manufacturers. In doing so, AT&T became the first carrier to offer a GSMA-certified globally connected SIM. See http://about.att.com/story/att_launches_enhanced_global_sim_designed_to_meet_gsma_specifications_for_m2m_and_connected_device_manufacturers.html

²⁰ *Regulation (EU) No 531/2012 of the European Parliament and of the Council of 13 June 2012 on roaming on public mobile communications networks within the Union*

same basis, we would argue that the retail and wholesale price caps in the Regulation are equally irrelevant to M2M.

- **E.164 number exhaustion considerations:** As we describe more fully in the answer to Question 3.5, machines, unlike humans, do not care about the length of numbers to be dialed, so it is possible to address number exhaustion concerns by simply introducing longer number lengths for M2M services.

Questions 3.3

- a. Do you agree with the expressed position?
- b. Are there any reasons that would lead to derogate to the existing authorisation rules for certain M2M services? In answering please indicate to which specific national and/or international service reference is made to and the pros and cons of the reason given
- c. If there is an exemption for certain M2M services, what would be the impacts and reasons not to derogate for certain subject-to-subject services?
- d. Should possible exceptions depend on the technology used to provide the same service and why? Should a regulation dependent on technology at European-level be proposed? What would be the pros and cons for enterprises and citizens?
- e. Is it necessary to revise the definition of electronic communication services provided for in the European directives? Please indicate the reasons for such a revision, indicating which should be the new definition.

AT&T does not believe that there is a need to revise the definition of Electronic Communications Services (ECS) as set out in the EU Directives.²¹ Nor do we believe that there should be a technology-dependent approach to determining which services are ECS. Rather, the ECS definition and any associated regulatory obligations need to be applied in a pragmatic and proportionate manner with due regard to the business model and preponderant service being provided. It is clear that many providers of M2M-based services are selling a comprehensive product or service (e.g., data analytics, telematics, health and wellness analysis) in which the communications transport is not only an incidental component, but is also not billed as a distinct communications charge to the end user. Such services should be more properly regarded as Information Society Services; i.e., services not consisting wholly or mainly in the conveyance of signals on electronic communications networks.²² It would be helpful if regulators, such as AGCOM working with BEREC, could provide clearer guidance to the market on this point. AT&T's experience is that many providers of M2M-based services have concerns about whether they are subject to ECS regulation and such concerns can have a chilling effect on their appetite to develop and offer new innovative services.

²¹ According to Directive 2002/21/EC, " 'electronic communications service' means a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunications services and transmission services in networks used for broadcasting, but exclude services providing, or exercising editorial control over, content transmitted using electronic communications networks and services; it does not include information society services, as defined in Article 1 of Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks" (emphasis added)

²² Id.

Questions 3.5

- a. Are there any problems regarding the availability of numbering resources in the medium to long term and their current use for M2M?**

Machines need to be uniquely identified and addressed in order to communicate; therefore, numbering ranges may be at risk of being exhausted if E.164 MSISDNs are to be assigned to individual M2M devices. The risk, of course, depends on the specificities of individual number plans and will vary by country. If such a concern should arise in Italy, AGCOM could consider the approach of several other European countries²³ which have introduced a special range of numbers for M2M communications. A special range of numbers for M2M may be appropriate as it would permit the introduction of a new number block using a longer number sequence (up to the full 15 digits) in the E.164 format. The length of E.164 numbers for mobile users was selected to balance the needs of the efficient use of numbering with the human factors of communicating and dialling a convenient length. To achieve that balance, in Europe the average length of E.164 number ranges typically does not exceed 12 digits (including trunk code). Machines, however, have no such need for convenience and so for M2M communications a full 15-digit number length, as described in ITU E.164, could be contemplated.

- b. Is it deemed necessary to dedicate to M2M applications one or more specific numbering bows E.164 and if so, which ones (please indicate the reasons), or do you think that the existing numbering for geographic and for mobile and personal services numbers can be used?**

See the answer to Question 3.5.a above.

Questions 3.7

- b. The price regulation of the Roaming Regulation applies equally to all types of roaming. What are the issues, if any, for the case of M2M?**

As noted in the answer to Question 3.2.b, there is no justification for applying retail and wholesale price caps to M2M services.

- d. Does the existence of devices permanently roaming in the Italian territory requires an assessment of the powers of the Authority for the functions of regulation and supervision?**

AT&T does not believe that permanent roaming compromises the ability of a National Regulatory Authorities (NRA), such as AGCOM, to perform its statutory functions. In the first place, all cases of permanent roaming involve a local home mobile network operator that is directly subject to the jurisdiction of the NRA. Furthermore, permanent roaming does not involve the purchase of a separate

²³ For example, Belgium, Bulgaria, Croatia, Denmark, Finland, France, Netherlands, Norway, Portugal, Spain, and Sweden.

data transport service by a local consumer in the country where the subscriber (i.e., the device manufacturer) is roaming. In addition, other government authorities are likely to have oversight of the manufacturer selling the M2M device to an end user, depending on the sector.

e. Are there specific issues for MVNOs? Does the current roaming model, as well as the existence of alliances, allow MVNOs to compete in M2M? What are the specific measures that should be in case implemented?

AT&T is not aware of any challenges or impediments to Mobile Virtual Network Operators (MVNOs) wishing to compete in the M2M space. With specific regard to roaming, MVNOs have a number of regulated and commercial options for meeting their requirements. Firstly, mobile operators are subject to the provisions of the EU Roaming Regulation to meet all reasonable requests for wholesale roaming access (Article 3 of the Regulation) and for access to facilities and related support services relevant for the separate sale of regulated retail roaming services (Article 5 of the Regulation). An MVNO also has the options either to seek conventional, bilateral commercial agreements with willing public MNOs or to use commercial roaming hubs, with whom a new operator can contract to gain access to all the hub provider's existing roaming agreements. In view of the availability of these regulated and commercial roaming possibilities, AT&T does not see any requirement for specific measures.

Questions 3.8

- a. What are the main aspects that need special users protection in case of M2M services? In this context, is it necessary to redefine the concept of "user"?**
- b. In the case of services not intended for M2M, are there specific clauses that refer to M2M (e.g., M2M block)? Is the insertion of such clauses foreseen?**
- c. How should the end user be protected in case of use of M2M devices, when the connectivity supply is contracted by third parties (devices like *Kindle, Tom Tom*, etc.)?**

The provider of an M2M service does not generally contract with or charge the end user for a communications service. Rather, data transport is merely an ancillary component, not a principal feature, of the overall product or featured service (e.g., data analytics, fleet management) sold by the manufacturer to its end user customer. In these circumstances, there is no requirement for specific measures to protect the end user under the electronic communications regulatory framework. The end user is instead protected by applicable general consumer protection laws vis-à-vis the purchased product (i.e., the M2M device user would benefit from all the applicable consumer protections relative to the product that was purchased from the M2M device manufacturer).

Questions 3.9

- a. What are the issues of security and privacy caused by M2M?**

Existing measures to counter potential security and privacy threats include key management, secure routing, data encryption, and Secure Multiparty Computation (SMC)-based key distribution schemes or mechanisms. Security and privacy issues vary according to the application, communications media used, and degree of human interaction (e.g., monitored assets typically have low human interaction

compared to telehealth with high human interaction). Critically, industry is addressing security and privacy issues collaboratively, as discussed more fully below.

Security

The industry is keenly focused on the security issues around M2M services. M2M security is a necessary prerequisite to providing service and any service provider or M2M solution failing to adequately address security from the outset will not have commercial success. For this reason, there are a wide variety of standards bodies working on security specifications for M2M.

One such example is the “oneM2M” initiative—an international standards body²⁴ established with the goal of developing technical specifications which address the need for a common M2M Service Layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide. With more than 250 members, including AT&T, oneM2M is focused on technical specifications for security and privacy aspects of M2M (authentication, encryption, etc.) and involves liaison relationships with other standards bodies such as 3rd Generation Partnership Project (3GPP), Broadband Forum (BBF), Home Gateway Initiative (HGI) and the International Telecommunications Union-Telecommunications Standardisation Sector (ITU-T). The Telecommunications Industry Association (TIA) and the Consumer Electronics Association (CEA) are also working on M2M standards. The Cloud Security Alliance (CSA) has published several recommendations for security in the cloud which are relevant to M2M applications that are being deployed in the cloud. More broadly, there is ongoing mobile security standards work at various industry organisations including 3GPP, GSMA, and Alliance for Telecommunications Industry Solutions (ATIS).

Privacy

An example of proactive, co-operative industry efforts on privacy issues in the United States is the development of a Smart Grid Privacy framework. In October 2012, the Future of Privacy Forum (FPF) announced a privacy seal program based upon a fundamental set of privacy principles incorporated in its Smart Grid Privacy Guidelines. Aware of the critical need for privacy and security protections for sensitive consumer energy information, industry members proactively engaged in collaborative, self-regulatory efforts. FPF convened a diverse group of companies—including AT&T, Comcast, Ecofactor, IBM, Intel, Motorola, Neustar, Opower, Tendril, Verizon, and TRUSTe—to develop the privacy framework. FPF also requested input from utilities and utility regulators as interested stakeholders. The Guidelines target companies that use consumer information (*e.g.*, companies offering home energy management, remote home control or security, smart thermostats and other services) to provide smart grid services. Furthermore, the Smart Grid Privacy Guidelines are designed to help assure consumers that organisations using their information are employing best practices for security, privacy, and dispute resolution and are using consistent approaches to obtaining consent. In order to receive a seal endorsement, participating organisations must validate that they are following Smart Grid Privacy Guidelines. TRUSTe, the company that administers the seal, checks an organisation’s privacy policy, scans for potential privacy threats, reviews consumer consent processes, and conducts various business and technical assessments to verify compliance. As the Smart Grid example suggests, self-regulatory

²⁴ The European Telecommunications Standards Institute (ETSI) was one of seven leading ICT standards development organisations to launch oneM2M in 2012. See <http://www.onem2m.org/press/oneM2M%20Launch%20Release.pdf>

measures can deliver real progress toward a more comprehensive, consumer-centric approach to privacy.

AT&T has participated in a number of other industry efforts to develop privacy guidelines. For example, AT&T assisted in the development of the CTIA (The Wireless Association) Best Practices and Guidelines for Location-Based Services.²⁵ We also joined discussions with the FPF and the Centre for Democracy and Technology regarding the development of broader industry guidelines on privacy protections for location-based services.²⁶

b. What regulatory activities are expected and what should be the role of National Regulatory Authorities (in the field of Electronic Communications)?

As described above, we believe that industry is proactively addressing security and privacy challenges on a collaborative basis. At this stage, we do not see a requirement for intervention by telecom NRAs, although there may be a role for data protection authorities in providing frameworks to facilitate industry collaboration. For example, the UK's Information Commissioner's Office (ICO) issued a consultation²⁷ on a draft framework for a consumer-facing privacy seal scheme to serve as a "stamp of approval" of an organisation's commitment to adopting sound privacy standards. Seeking industry input, the ICO is looking for proposals that include, among other principles, privacy and data as its core focus and the demonstration of good practice of information rights, rather than just compliance with the letter of the law.

* * *

AT&T commends AGCOM for engaging stakeholders to advance the conversation to inform regulatory policy that maintains the trajectory and promise of M2M communications. AT&T would be pleased to answer any questions concerning these comments.

Respectfully submitted,

Mike Corkerry
Executive Director, EMEA Government Affairs
AT&T
mike.corkerry@att.com
www.attpublicpolicy.com

²⁵ See http://files.ctia.org/pdf/CTIA_LBS_Best_Practices_Adopted_03_10.pdf

²⁶ See <http://www.futureofprivacy.org/best-practices-for-mobile-app-developers/>

²⁷ The ICO expects to select a privacy seal scheme in early 2015 and to launch a first round of endorsed schemes in 2016. See http://ico.org.uk/about_us/consultations/our_consultations