AT&T Comments on *BEREC Public Consultation on Internet of Things Indicators* (BoR (18) 230)

23 January 2019

Introduction

AT&T Inc., and its affiliates that provide communications services to, from and within Europe (collectively "AT&T"), are pleased to provide the following comments on the ***BEREC Public Consultation on Internet of Things Indicators*** (BoR (18) 230) ("the Consultation") dated 6 December 2018. Given its leadership in working with customers to develop Internet of Things (IoT) solutions,[1] AT&T welcomes the opportunity to comment on some of the questions raised by BEREC.

Question 1.1:

Do you consider that the European Commission's definition[2] of the IoT is sufficiently appropriate to collect relevant statistical information on the IoT? If not, how should the definition be changed?

AT&T does not consider the European Commission definition to be appropriate as the basis for collecting statistical information on the IoT. Rather than BEREC seeking to measure the IoT against a top-down rigid or vague regulatory definition, AT&T believes it would be more appropriate for BEREC to build a bottom-up view of how IoT is being used in different sectors of the economy, such as energy, manufacturing, healthcare, automotive, agriculture, and others. This will allow BEREC to gain real-world insights about how IoT is being used, which will better inform BEREC's policymaking in the future. In short, BEREC shouldn't tell the economy what IoT is, it should observe the economy to understand what various economic sectors are doing with IoT. BEREC does not need to collect its own data to achieve this understanding. There are several commercial sources for such analysis that BEREC has already identified (IDC, Cisco's indices, IDC, HIS), as well as GSMA's Intelligence publications. If something more tailored is required, BEREC could consider commissioning a third-party to undertake research.

---

[1] AT&T pioneered M2M services in the first stages of development and now has a proven M2M success record with 48 million connected devices, including 24 million connected cars on the AT&T network, as of 3Q18, plus industry analyst recognition for solution deployment experience and capability. For example, in GlobalData's latest global IoT product report on AT&T, principal analyst Kathryn Weldon characterises AT&T as "a leader in the global IoT services market" and rates AT&T "very strong" in value-added services, vertical markets, partnerships and connectivity (GlobalData, *AT&T-Global Industrial IoT Services Product Assessment*, August 2018).

[2] EC (IoT) Definition "objects sharing information with other objects/members in the network, recognizing events and changes so to react autonomously in an appropriate manner. The IoT therefore builds on communication between things (machines, buildings, cars, animals, etc.) that leads to action and value creation."

If BEREC determines that it needs to relay on an existing definition, AT&T would refer BEREC to the October 2018 OECD report on *IoT Measurement and Applications.*[3] The OECD report contains a review of various stakeholder definitions of IoT and how these definitions have been used to measure the IoT.

Question 1.2:
Please suggest any available sources for information on measures/indicators of the IoT, in addition to the information mentioned above.

BEREC has identified the key sources (Gartner, Cisco indices, IDC, IHS).

Question 2.1:
Do you agree with the multi-layered approach in Figure 2 above, which seeks to separate M2M/IoT from the underlying connectivity and shows the relationship to ECS?

AT&T does not consider that the diagram in Figure 2 of the Consultation accurately describes "the boundaries of the Internet of Things" as its title suggests. It overstates the role of connectivity which is only a subset of the IoT and not the reverse as the diagram suggests. While connectivity may be a component of IoT applications and services, the IoT is much more than connectivity.

AT&T is concerned that BEREC's use of this "multi-layered" approach would inevitably lead to the bulk of data collection demands falling on regulated electronic communication service (ECS) providers who will not have insights into other parts of the IoT ecosystem. BEREC's report notes the GSMA's finding that the bulk of the M2M market uses short-range, unlicensed spectrum in private communication networks e.g., company-wide Wi-Fi networks or private Bluetooth- or Zigbee-based networks. Further, if providers of mobile connectivity in the wide area market using licensed wide area technologies (e.g., cellular) were to become subject to IoT statistical reporting requirements and other parts of the ecosystem were not subject to the same requirements, reports based on these partial data would be of highly questionable value and lead to technological biases due to the unequal burdens placed on licensed versus unlicensed wireless connectivity.

Question 2.2:
What is your opinion on the differentiation of IoT and M2M? Do you have any additional proposals regarding such differentiation?

AT&T agrees that M2M is a sub-set of the IoT. However, AT&T disagrees with the statement that M2M "allows [smart, connected devices] to interact <u>without any human intervention</u>" (emphasis added). National regulators have accepted the principle that an M2M service can comprise limited human intervention and incorporated this concept into local regulation[4]. The new European Electronic

---

[3] *IoT Measurement and Applications*, OECD Digital Economy Papers No. 271, October 2018, available at: https://www.oecd-ilibrary.org/science-and-technology/iot-measurement-and-applications_35209dbf-en
[4] See, e.g., Article 2(3) of BNetzA Administrative Orders No 33/2016 and 80/2017: *"A human is not usually involved in the communications, although limited human involvement does not preclude classification as M2M*

Communications Code (Directive (EU) 2018/1972) also makes the same point at Recital 249: *"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."*

Question 2.3:
In relation to application solutions, do you see the three categories "Industrial", "Automotive" and "Consumer" as the most relevant? Would you suggest other categories? If so, please elaborate.

While AT&T agrees that these are relevant categories, they are not exhaustive and potentially omit significant parts of the IoT ecosystem such as, for example, health and agriculture. Moreover, many IoT applications cut across multiple categories identified by BEREC. For example, wearables, security / surveillance, asset tracking, healthcare, and drones have both consumer and industrial uses. Similarly, "Automotive" could include traditional passengers vehicles purchased by consumers; fleet vehicles, trucks and buses purchased by corporate or government customers, and other forms of motorized transport, e.g., motorcycles, electric bikes, scooters, snowmobiles, etc., that are connected with telematics and other IoT features. Thus, BEREC should be mindful that the boundaries of any categories it identifies are quite fluid.

Question 3.1:
In your opinion, what effects on spectrum policy is the development of the IoT expected to have, and do you think it's necessary for NRAs to monitor, and BEREC to benchmark, these developments?

No comment

Question 3.2:
With regard to the expected growth in the use of IoT devices, do you see the necessity for NRAs to monitor, and BEREC to benchmark, these developments, particularly with respect to numbering? If so, why?

AT&T does not see a need for BEREC to benchmark the growth of IoT devices with respect to numbering. Established national processes for assigning numbers will pick up on growing demands for resources. There are also established national processes for addressing any emerging number exhaust issues, although no such issues have been identified yet. The impact of IoT/M2M on national numbering plans will vary by country depending on the resilience of the relevant plan. Some NRAs have anticipated the need to create additional numbering resources by introducing dedicated, longer M2M number ranges while others believe this is not required.

Question 3.3:

---

communications." Also, ComReg Decision D06/18: *""M2M service" means a service consisting of the exchange of data between devices, over a public electronic communications network, with limited or no human intervention."*

Do you see the need for NRAs to monitor which national numbers for IoT devices are used outside their domestic market/territory (and vice-versa, which numbers assigned in other countries are used in the NRA's territory)? If so, please elaborate.

AT&T does not see a need for NRAs to monitor which national numbers for IoT devices are used outside their domestic market territory (or vice versa). AT&T notes that, in an effort to introduce such monitoring, BNetzA introduced a requirement[5] for all foreign E.164 number ranges being used for M2M in Germany to be notified in advance. If this practice were replicated by all EU NRAs and other regulators around the world, keeping this kind of information updated would represent a significant burden for service providers.

As noted in the Consultation, the new European Electronic Communications Code assigns to BEREC a mandatory task to develop a database of numbering resources with a right of extraterritorial use. AT&T believes that completing this task should be prioritised before assessing whether the new database provides sufficient monitoring.

Question 3.4:
In your opinion, in addition to NRAs, for which entities (EU and non-EU) are the following individual matters relevant:

(a) The effect of IoT on spectrum policy

(b) The effect of IoT on scarce resources, i.e. numbering

(c) The monitoring of national numbers for IoT devices used on an extraterritorial basis

No comment.

Question 4.1:
What is your opinion on the benefit of a BEREC common approach regarding the IoT?

To the extent that collection of some data points is determined to be genuinely necessary (see response below to Question 4.3), AT&T does see a role for BEREC in developing a common format to be used by all NRAs for such requests to streamline processes and aid comparative analysis.

Question 4.2:
Do you agree with the general areas of interest for future indicators (to be collected), presented in Figure 4 above? Could you suggest any specific IoT indicators that BEREC should consider for collection?

---

[5] BNetzA Administrative Order 80/2017, available in English at:
https://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/Areas/Telecommunications/Companies/Number Management/M2M/M2MCommunications.pdf?__blob=publicationFile&v=3

AT&T notes that collecting data for some of these areas would likely involve NRAs/BEREC requiring information from providers other than those in the field of electronic communications. While the new EECC does create a power for NRAs and BEREC from "other relevant undertakings" active in electronic communications or closely related sectors, the threshold is that such information must be necessary for carrying out regulatory tasks under EU legislation.

Question 4.3:

Do you support the gathering of statistical information on IoT by BEREC? Please substantiate your answer.

AT&T sees no issue with BEREC gathering data from other bodies that research and forecast the growth on the IoT (e.g., Gartner, Cisco indices, IDC, IHS).

As regards gathering information from regulated ECS providers, AT&T notes BEREC's finding from a "small cohort of NRAs" that "collecting IoT indicators at the granularity of service/application would be very taxing for service providers". AT&T agrees. Each information request to a service provider represents an additional administrative burden, multiplied if the provider operates across multiple Member State markets and must respond to the same or similar requests in each jurisdiction. It is therefore essential that data collection requests are proportionate and genuinely necessary. The Consultation reports that several NRAs had responded to a BEREC questionnaire that it is "interesting to collect" data on number of IoT devices, types of users (for example, industrial use or residential devices) as well as which sectors or domains the devices are used in. This does not appear to be a sufficient justification for imposing burdensome data collection demands on service providers. Further, because of BEREC's limited abilities to collect information from the complete IoT ecosystem – or even the complete ecosystem of wireless connectivity providers – it is highly questionable whether BEREC's proposed data collections will lead to probative information that could guide useful IoT policies.

Question 5.1:

Are there any additional issues relating to collection of statistical information on the IoT which have not been included in previous questions that you would like to address?

No comment.

<div align="center">*   *   *</div>

AT&T would be pleased to answer any questions concerning these comments.

AT&T
23 January 2019