



ecta RESPONSE

**TO THE PUBLIC CONSULTATION BY BEREC
ON**

INTERNET OF THINGS INDICATORS

BoR (18) 230

23 JANUARY 2018

Introduction

- **ecta** welcomes this BEREC consultation, which addresses an important area of development of electronic communications and related markets (including or not including electronic communications services), the socio-economic impact of which will certainly increase going forward.
- **ecta** agrees with BEREC that monitoring of developments in the area of Internet of Things / connected objects/devices is relevant and important. We support the idea that monitoring should be conducted by NRAs, jointly through BEREC, or with aggregation performed by BEREC, using a harmonized set of indicators, for the purposes of benchmarking, and to provide a statistical overview of the connected objects/devices landscape in Europe.

General comments

Data collection – scope and suggested enhancements

- **ecta** believes that, for the data collection to be reflective of market developments and relevant going forward, it should:
 - Go beyond traditional Machine-to-Machine (M2M) communications and reliance upon E.164 numbering resources, and go beyond studying “the total number of IoT subscribers emanating from ECS undertakings and/or the quantity of national numbering resources allocated specifically to IoT” (as discussed on page 3 and on page 23) as soon as NRAs have the powers to conduct wider data collection.
 - Examine not only electronic communications network/services markets, but also related markets, distinguishing configurations where an electronic communications service is provided/bundled (e.g. objects/devices that come with their own connectivity service), and where that is not the case (e.g. objects/devices that rely on the user’s pre-existing or separately purchased fixed or mobile (Internet) connections for communications).
 - Distinguish Internet-based communications (implying potential connectivity to/from any end-point on the Internet) from non-Internet-based communications (e.g. private Internet Protocol networks that do not involve connectivity with potentially any end-point on the Internet, network slices that do not involve connectivity with potentially any end-point on the Internet, dedicated networks running different protocols, etc.).
 - Distinguish services provided directly by network operators (Mobile

Network Operators - MNOs) and services provided by others (e.g. by Mobile Virtual Network Operators – MVNOs). Service provided by so-called ‘verticals’ (industrial users in areas such as Industry 4.0, connected mobility, new devices, etc. – European companies such as for example Philips Healthcare and Lighting and Schneider Electric), and where key service/application components are provided by Content and Application Providers (CAPs) over the Internet.

- Distinguish mobile/wireless connectivity at the level of the generations of mobile connectivity provided, notably 2G, 3G, LTE/4G, LTE-M, NB-LTE, and ‘5G’ in all its emerging modalities, with a specific focus on wholesale access being provided to these connectivity modalities.
- Include dedicated measurements that examine the functioning of the wholesale roaming access market, given that IoT connectivity relies in many cases on SIMs that are permanently roaming.
- We think that the distinctions we put forward in the bullet points above are particularly important to avoid omitting important parts of existing and future markets, to understand the boundaries between Internet Access Services (IAS) and non-Internet specialized services, and to have a comprehensive view on the markets for connected objects/devices, including where they are served directly by network operators or by others.
- In our responses to the questionnaire, we reflect our views on the necessity of a wide scope of data collection. There may also be a case for changing the title of the BEREC document, or the naming of future indicators, to reflect a scope that goes beyond the Internet, for instance by referring to “connected objects/devices” rather than to “Internet of Things”.

Number Portability

- At page 17, paragraph 2, BEREC suggests that *“requirements related to current numbering regulation such as number portability are not relevant with respect to the IoT, as the service does not directly involve an individual and the connectivity element is just an enabler of the entire service wrap”*. **ecta** considers that this is an overly broad statement, which should be removed from the BEREC document.
- **ecta** is aware of lobbying efforts having been made to exclude M2M/IoT from the definition of electronic communications service in the European Electronic Communications Code. Whilst these efforts did not prevail, there remain voices in the industry that seek to exclude M2M/IoT from consumer protection obligations,

contractual obligations, etc. even when an ECS is being sold directly to a consumer. There are also claims being made that number portability and switching obligations, and mobile international roaming obligations as well, would not apply, or should not apply where M2M/IoT is concerned. ecta does not agree with those positions. The M2M/IoT market should develop in a pro-competitive manner, with equal opportunities for all providers to gain customers, including gaining them from one another in a loyally competitive environment, unshackled by undue restrains on competition. Restrictions on wholesale roaming access imposed by operators are a bottleneck to the full development of IoT, and BEREC should measure KPIs that indicate the functioning of those markets. In addition, there is a specific concern about bundling of M2M/IoT with other services. If the M2M/IoT service would not be portable/switchable (e.g. connected home security system, connected fridge, connected toy) but would be sold in a bundle with ECS, this could lead to new lock-in concerns, whereby a service which is now a peripheral bundle add-on (be it an ECS or not an ECS), could be leveraged to lock-in the more traditional fixed and mobile telecoms services/bundles addressed to consumers.

IoT and NRA Spectrum Policies

- At page 17, paragraph 3, BEREC makes statements about E-health applications, suggesting they have exceptional (including spectrum-related?) requirements. Whilst ecta does not disagree that some e-health applications will make strong demands on networks, this should not be generalized on the basis of extreme examples. If BEREC or NRAs (or other stakeholders) are claiming that spectrum bands need to be dedicated, or other extreme regulatory measures are needed, this should be properly justified.
- At page 18, in closing the section on spectrum, BEREC indicates that *“Monitoring the specific spectrum use of IoT applications may therefore be essentially (sic) to define future demands. Furthermore, for capacity planning, it is important to know the estimated amount of data traffic based on technologies where regulation is in place (in particular cellular/mobile technologies or other types of licensed spectrum)”*. Whilst ecta agrees that monitoring, including in terms of spectrum requirements, is appropriate, we think that BEREC’s statement lacks clarity in terms of what exactly is targeted for monitoring and potential regulation. We are also unsure whether it would not be premature to categorize or even pre-determine spectrum bands for connected objects. A technology-neutral approach may well be preferable, at least until proof of the contrary.

IoT and NRA Allocation of Scarce Resources

- At pages 18 and 19, BEREC discusses numbering, including in the context of international roaming, and BEREC highlights scarcity and security considerations.

ecta wishes to state forcefully (contrary to BEREC's working hypothesis) that addressing resources are not intrinsically scarce; they are only scarce when not properly structured or improperly managed. There are of course existing cases of scarcity, including for certain E.164 numbering resources and for IPv4 addresses, but these result from past technology restrictions and past policies (and indeed lack of foresight). Policy-makers and NRAs/BEREC should first and foremost ensure that scarcity of addressing resources for connected objects/devices is structurally avoided, rather than finding themselves in a position of managing scarcity, which could impede innovation and the success of European companies, including those offering pan-European and global solutions.

- In the last paragraph of the section on scarce resources (page 19), BEREC correctly highlights that *"Historically, the regulation was set up to create competition and to assure that each end-user had access to basic telecom services at affordable cost and at sufficient quality"*. ecta considers that this remains entirely relevant today, and also going forward for all areas including connected objects/devices. ecta asks BEREC to confirm this. Similarly, on page 23, one but the last paragraph, BEREC refers to "[...adding a competition perspective...]". This is important and should explicitly be at the core of all BEREC considerations on connected objects/devices. ecta agrees that data should be collected on traffic volumes, prices, and price-models for the different IoT networks and services (page 23, last paragraph), as this is important to understand the dynamism and competitiveness of markets. ecta is engaged in ensuring that future markets for IoT/connected objects/devices will be sustainably competitive.

Emerging Markets, Market Participants (MNOs and others), and Pan-European Markets

- At pages 24 and 25, the concluding sections of the BEREC consultation document, BEREC indicates (among others) that: *"IoT is an emerging market with far reaching possibilities"*, *"[... to what extent MNOs try to cover all demand on their own]"*, and *"[... understand as to whether IoT could develop towards a European market...]"*. The use of terminology such as 'emerging markets' and 'European market' is important, with regard to the existing EU regulatory framework, and the European Electronic Communications Code. We urge BEREC to be cautious in using this terminology, as it could affect market definitions, and consequent assessments of Significant Market Power. Full market analyses are required before reaching conclusions.

Responses to Questions

Q1.1: Do you consider that the European Commission's definition of the IoT is sufficiently appropriate to collect relevant statistical information on the IoT? If not, how should the definition be changed?

The European Commission's definition is as follows: *"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"*.

ecta considers that this definition is broadly appropriate, and we appreciate its wide scope. However, as outlined in our general comments above, we believe that BEREC and NRAs need to make sure that indicators distinguish: (i) objects/devices which come with their own (Internet) connectivity services, from those that do not, and (ii) objects/devices connected to the Internet (implying potential connectivity to/from any end-point on the Internet) from those that are not connected to the Internet but use some other form of connectivity. We strongly encourage BEREC to introduce those distinctions, if not at the definitional stage, then certainly at the data collection stage.

Q1.2: Please suggest any available sources for information on measures/indicators on the IoT, in addition to the information mentioned above.

ecta has no further suggestions in this regard at this stage.

Q2.1: 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?

ecta agrees that the underlying connectivity needs to be identified separately. We add that BEREC would be well-advised to categorize various forms of underlying connectivity. We suggest more granularity, notably as regards: (i) whether connectivity is provided/bundled with the object/device, (ii) whether objects/devices rely on the user's pre-existing or separately purchased fixed or mobile (Internet) connections for communications, (iii) whether the connectivity is in the form of Internet access or another (non-Internet) form, and (iv) distinguishing services provided directly by network operators (Mobile Network Operators - MNOs) or services provided by others (e.g. by Mobile Virtual Network Operators - MVNOs), specific 'verticals' providers, etc. This needs to distinguish mobile/wireless connectivity at the level of the generations of mobile connectivity provided, notably 2G, 3G, LTE/4G, LTE-M, NB-LTE, and 5G in all its emerging modalities. We therefore believe that the distinction needs to go beyond identifying private networks (Wi-Fi/Zigbee etc.) but also needs to identify and distinguish Internet Access Services from specialized services (non-Internet Access Service, which could run over public electronic communications networks (dedicated public networks, network slices, etc.). Services provided by **ecta** members, including

others than network operators, also need to be fully considered. Specialist MVNOs currently have leadership positions in segments such as connected mobility (cars, airlines), connected devices (laptops, tablets), etc.

Q2.2: What is your opinion on the differentiation of IoT and M2M? Do you have additional proposals regarding such differentiation?

M2M may be too restrictive a concept, often tied to E.164 numbering regulation. IoT is an ambivalent concept, as it suggests Internet access, whilst most definitions (all those listed in BEREC's consultation document, perhaps except the IEEE definition) actually encompass non-Internet connected objects/devices.

Therefore, **ecta** considers that it would be more appropriate to discuss and define connected objects/devices, in a manner which encompasses, but properly distinguishes: (i) Internet and non-Internet connections, (ii) whether the connection is provided/bundled with the object/device, or (iii) whether the object/device relies on (Internet) connectivity supplied by its user. It is also important to recognize that connected objects could rely on E.164 numbers, IP (v4 and v6) addresses, and other /future addressing systems. Specifically as regards the M2M concept, some **ecta** members have faced regulatory restrictions, which prevent them from making use of numbering ranges for legitimate innovative services and products. Such restrictions should be re-examined, and lifted where appropriate, to avoid stifling innovation, notably by European companies providing pan-European and global services supporting connected objects/devices.

Q2.3: 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.

ecta broadly agrees that these are the most relevant categories, but we would also caution against BEREC creating too 'closed' boxes. Smart city, environmental monitoring, transport, security, and in many countries healthcare, may in many cases be public sector functions, or involve both the public sector and private sectors. These may be subject to specific sets of rules, and non-profit considerations, potentially extending into the connectivity solutions. More generally, we recommend that room is left for entirely new categories to emerge. We also note that healthcare in particular may involve humans (wearing or carrying objects/devices), leading to particularities extending into the communications aspects.

Q3.1: In your opinion, what effects on spectrum policy is the development of IoT expected to have, and do you think it's necessary for NRAs to monitor, and BEREC to benchmark, these developments?

Please refer to our specific comments on IoT and NRA Spectrum Policies above. We support monitoring in this area. We add that IoT MVNOs require Pan-European coverage, on all technology generations (2G to 5G), to be able to provide innovative solutions integrating connectivity and IT, and their own unique solutions, across the EU (and indeed globally), for all types of connected objects/devices.

Q3.2: 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?

Please refer to our specific comments on IoT and NRA Allocation of Scarce Resources above. We do support monitoring in this area. We add that wholesale network access for (IoT) MVNOs remains elusive or problematic in some EU Member States, notably Germany, which is the largest EU Member State, where numbering-related aspects have been invoked to restrict service provision (and a BEREC Opinion was issued in 2018). If wholesale network access in the context of IoT / connected objects/devices is withheld in any EU Member States, this will impede pan-European and global expansion for Europe-based companies.

Q3.3: 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 NRAs' territory)? If so, please elaborate.

ecta sees no strong need for such monitoring, but does not object to such monitoring being performed. In a European Digital Single Market, the choice of numbering or addressing resources (national E.164, trans-border use of national E.164, European (no longer in existence), or ITU global E.164, and any other) should not matter with regard to the services and applications being offered and delivered.

Q3.4: In your opinion in addition to NRAs, for which entities (EU and non-EU) are the following individual matters relevant? (categories not reproduced here by ECTA).

ecta has no comments on this question, but we can understand that emergency services and security organizations could have legitimate interests with regard to IoT/connected objects/devices.

Q4.1: What is your opinion on the benefit of a BEREC common approach regarding the IoT?

As stated in our introduction, **ecta** agrees with BEREC that monitoring of developments in the area of Internet of Things / connected objects/devices is relevant and important. We support the idea that monitoring should be conducted by NRAs, jointly through BEREC, or with aggregation performed by BEREC, using a harmonized set of indicators, for the purposes of benchmarking, and to provide a statistical overview of the connected

objects/devices landscape in Europe. As also stated throughout this response, **ecta** also considers that a broad approach is needed, to encompass all connected objects/devices, whether connected to the Internet or not. We suggest a more granular approach, notably distinguishing the connectivity being bundled or separate, and other elements. Please refer to our responses above.

Q4.2: 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?

ecta agrees with the areas of interest presented in Figure 4. Please refer to our general comments above, specifically where we address the notion of emerging markets and development towards a European market. Please also refer to our response to question 4.1. above.

Q4.3: Do you support the gathering of statistical information on IoT by BEREC? Please substantiate your answer.

ecta supports the gathering of statistical information in all areas proposed by BEREC. Our response suggests more granular data gathering, the specifics of which are outlined in our general comments above, and in our specific responses to questions as well. We add that data gathering by category of market participants (MNOs/MVNOs – industrial verticals, etc.) is relevant. We refer to the ARCEP trimestral report (known as SIM – Suivi des Indicateurs Mobiles), including SIMs used on a “permanent roaming” basis.

Q5.1: 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. Please refer to the entirety of the points made by **ecta** in its general comments and in its responses to BEREC’s questions.