



Response to BoR (18) 230

BEREC Consultation

Internet of Things Indicators

23 January 2019

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## I. About MVNO Europe

1. MVNO Europe represents various types of Mobile Virtual Network Operators (MVNOs), with different business models, addressing retail consumers, business users, the public sector, machine-to-machine and Internet of Things, etc. <http://www.mvnoeurope.eu/members>
2. Our members provide mobile-only offers, fixed-mobile convergent offers and offers incorporating audio-visual media content, financial services, machine-to-machine communications including connected mobility, embedded data SIMs for tablets, laptops and other devices, etc. Our members are also active on wholesale markets as MVNE (Enabler) / MVNA (Aggregator). Some of our members hold rights-of-use over radio spectrum while also being an MVNO. MVNO Europe does not represent branded resellers.
3. MVNOs currently represent +/- 10% of SIM cards in the European Union.
4. MVNOs contribute strongly to competition and provide clear Business to Consumer (B2C) and Business to Business (B2B) end-user benefits. MVNOs also contribute to financing mobile networks through payment of wholesale charges which assure revenues to Mobile Network Operators, whilst avoiding costly duplication of network assets.

## II. Introduction and Key Points

5. MVNO Europe welcomes this BEREC consultation, which addresses the Internet of Things (IoT). This is an important area of development for electronic communications and related markets. Our members [Cubic Telecom](#), [Sierra Wireless](#), and [Transatel](#) are leading specialist MVNOs/MVNEs for the IoT, addressing connected mobility (cars, trucks, airplanes, etc.) and connected devices (laptops, tablets, Industry 4.0 devices, trackers, etc.), providing live services today to customers such as Airbus, Audi, FiatChrysler, Microsoft, and others. Our member [Fastweb](#) is engaged in 5G trials, which include industrial and public sector use cases, and is attracting start-ups to develop 5G innovations. Our [other members](#) also take a keen interest in development of the IoT.
6. MVNO Europe agrees with BEREC that monitoring of developments in the area of IoT, and more broadly 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.
7. The key to Europe's success in IoT is to have an accessible pan-European market for innovators, i.e. Europe as a domestic market for European companies, in a globalised market. This requires a vibrant wholesale mobile access market, in each and every EU Member State,

and regulatory intervention to ensure fit-for-purpose wholesale network access where necessary. MVNO Europe is on record with BEREC in highlighting that Europe's largest market, Germany, is highly problematic in this regard.

8. We urge BEREC to recognise explicitly that: (i) MVNOs serving so-called 'industry verticals' will be key to the success of IoT in Europe (also involving future 5G 'network slicing'), and more broadly to enable connected objects/devices in Europe, and (ii), fit-for-purpose wholesale network access for MVNOs is required, commercially agreed when possible, and subject to regulatory intervention when needed.

### III. Responses to BEREC Questionnaire

*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?*

9. 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"*.

10. MVNO Europe appreciates the wide scope of this definition. However, 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.

*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?*

11. MVNO Europe agrees that the underlying connectivity needs to be identified separately. Various forms of underlying connectivity, including wholesale network access, also need to be considered. We suggest more granularity, notably as regards: (i) distinguishing services provided directly by network operators (Mobile Network Operators - MNOs) or by Mobile Virtual Network Operators – MVNOs), or by specific 'verticals' providers, (ii) whether connectivity is provided/bundled with the object/device, (iii) whether objects/devices rely on the user's pre-existing or separately purchased fixed or mobile (Internet) connections for communications, (iv) whether the connectivity is in the form of Internet access or another (non-Internet) form.

12. MVNO Europe emphasises the need to distinguish and collect data on the underlying specific types of mobile/wireless connectivity (the generations of mobile connectivity provided), and wholesale access 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 BEREC's proposal of identifying private networks (Wi-Fi/Zigbee etc.). It also needs to identify and distinguish who is the operator (an MNO or an MVNO) and needs to 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.).
13. Services provided by MVNO Europe members need to be fully considered. MVNOs currently have leadership positions in segments such as connected mobility (cars, trucks, 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?*

14. M2M may be too restrictive a concept, often tied to traditional 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.
15. MVNO Europe 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 MVNO Europe 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.*

16. MVNO Europe agrees that these are the most relevant categories, but we would also caution against BEREC creating too 'closed' boxes.

17. Our member Transatel has segmented markets as follows: (i) consumer devices (such as laptops, tablets or trackers), (ii) automotive, (iii) industrial IoT, and (iv) mobile healthcare devices. Transatel considers that the mobile healthcare devices segment is not developed, yet, due to the lack of European harmonized regulation. This holds back Pan-European solutions for this specific market. Other MVNO Europe members consider industry logistics and smart home devices as relevant market categories.
18. We also consider that smart city, environmental monitoring, transport, security, and in many countries healthcare, 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.
19. 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?*

20. MVNO Europe notes that, where spectrum licences include Full MVNO access obligations imposed on MNOs, as is the case in some EU Member States, the market for IoT / connected objects/devices is more diversified and more competitive (and – to the contrary – where it is not (e.g. Germany) the market remains undeveloped).
21. MVNO Europe supports the inclusion of Full MVNO access obligations in spectrum licensing conditions. We have defined what constitutes Full MVNO access, in technical terms and in commercial terms, in a short paper – which is available on request.
22. We suggest that BEREC and NRAs specifically monitor the availability of fit-for-purpose wholesale access, for MVNOs generally, and specifically with regard to IoT-related services and applications. This will become increasingly relevant for 5G-based industrial IoT/“verticals”.
23. We add that IoT MVNOs (and indeed all IoT market participants, be they MNOs, MVNOs or others) 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 and Q3.3:*

*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?*

*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.*

24. Numbering-related matters have been invoked to restrict IoT service provision, notably in Germany (a BEREC Opinion was issued in 2018 on this specific point). If wholesale network access in the context of IoT / connected objects/devices is withheld in any EU Member State, including on the grounds of numbering rules, this will impede pan-European and global expansion for Europe-based companies.

25. MVNO Europe therefore agrees that NRAs need to monitor the use of national numbers for IoT, but most of all, NRAs need to lift restrictions on the use of any type of numbering resources, to enable pan-European IoT.

26. The EU Digital Single Market cannot be impeded by undue restrictions on number use at national level, and indeed the use of any and all numbering and addressing systems.

*Q4 and 5:*

27. MVNO Europe has examined BEREC's questions, and has no further comments to make.

#### IV. MVNO Europe Contact Details

Should you require any clarifications or further information on the elements and positions set out by MVNO Europe in this response, please contact:

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