Creating a Digital Single Market for M2M and the Internet of Things

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CEPT ECC M2M workshop

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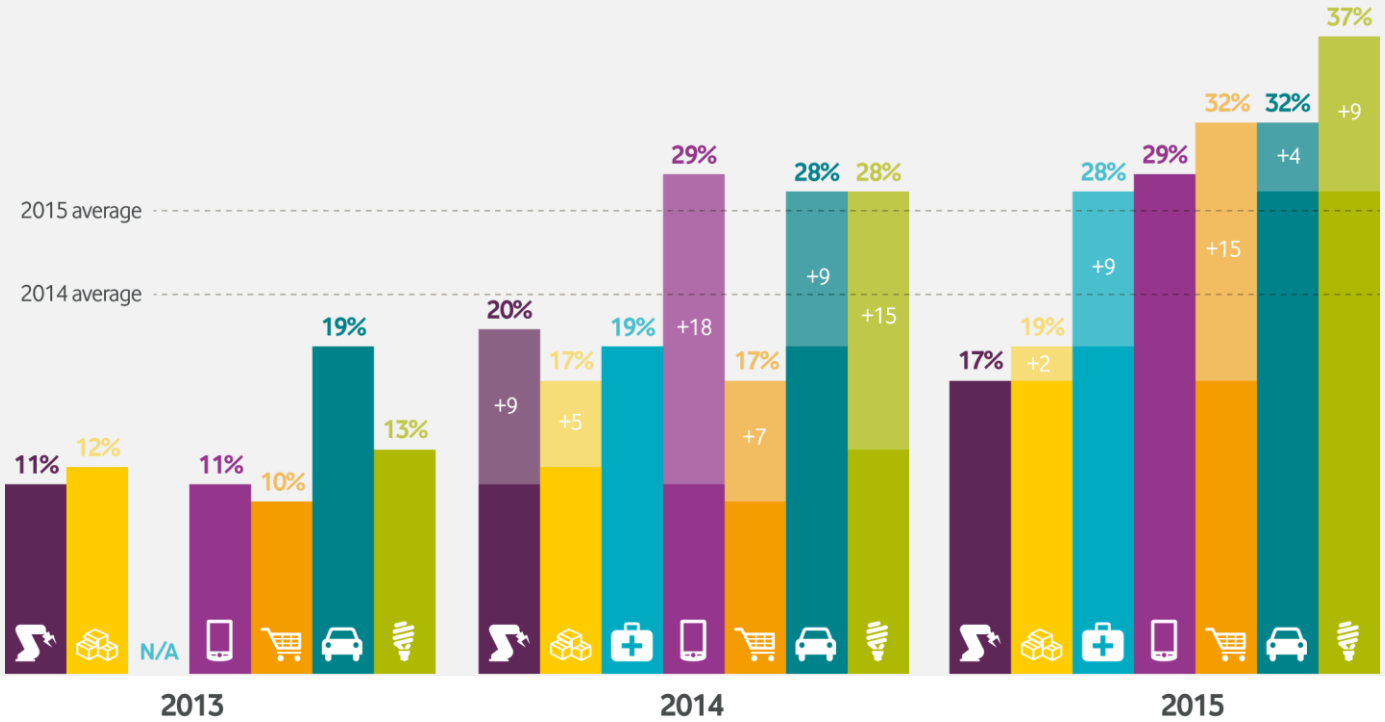
Market overview – adoption by industry, 2013-2015

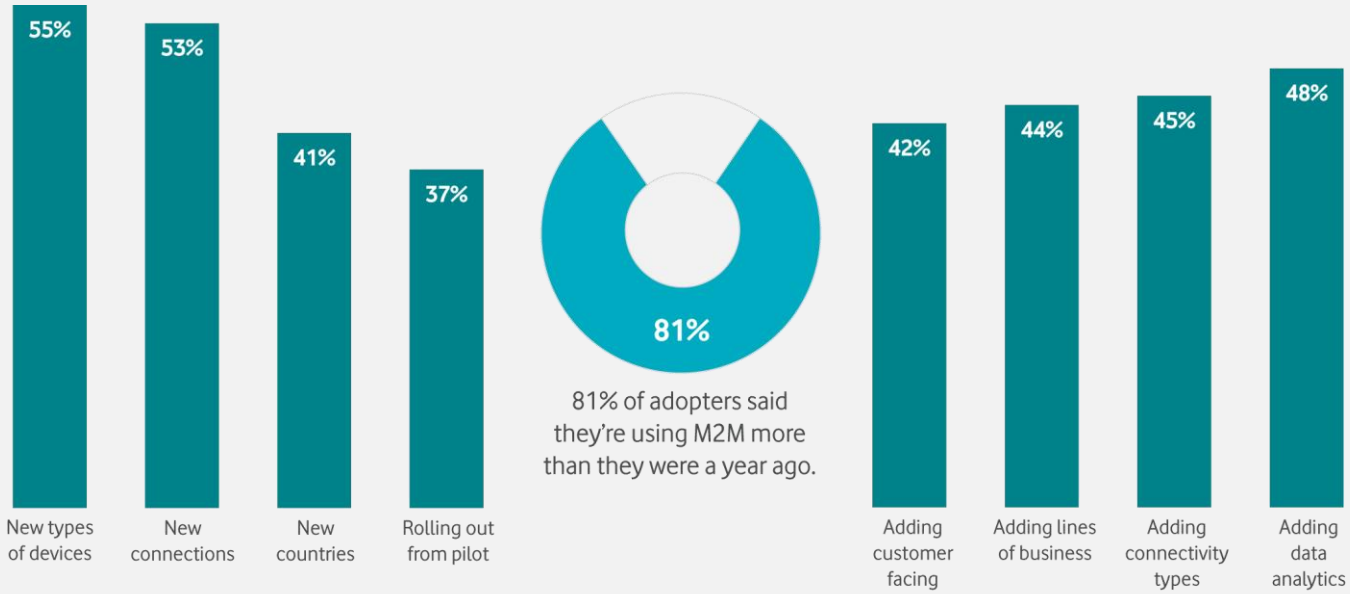


Manufacturing | Transport and logistics | Healthcare and pharma | Consumer electronics | Retail | Automotive | Energy and utilities

Source: http://www.vodafone.com/business/m2m/the-m2m-adoption-barometer-2015

Users of M2M are increasing both in scale and sophistication

How adopters are increasing their use of M2M



Increasing scope ← → **Adding new capabilities**

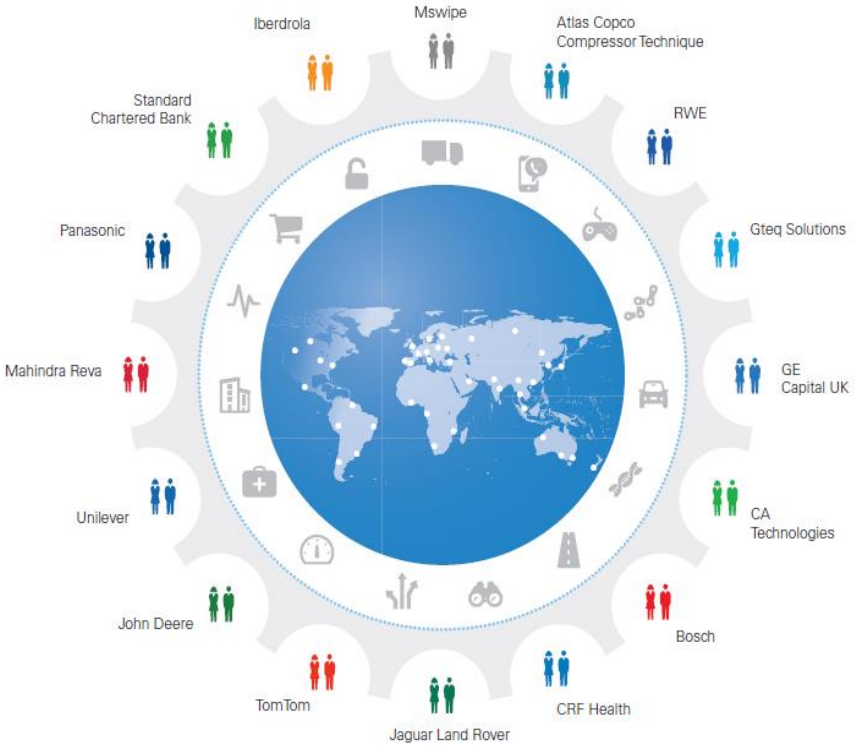
Source: http://www.vodafone.com/business/m2m/the-m2m-adoption-barometer-2015

M2M/IoT Numbering – Summary of Vodafone Group's strategy

- Use of supranational resources allocated to Vodafone by the ITU (+ 90128 E.212 number and + 88239 E.164 number) or specifically configured +20404 E.212 number and +88239 E.164 number.
- This strategy does not deplete national numbering E.164 resources and provides transparency of E.164 use for M2M/IoT.
- We have maintained a dialogue with the ITU as customer requirements have evolved:
  - **2009** : Vodafone Group presents solution to ITU, proposing a centralised closed M2M platform for data traffic, using a global addressing strategy for both E.212 and E.164 supranational shared resources, specifically configured to our M2M platform.
  - **2011** : Vodafone granted use of the E.164 shared resource +882-39 for the purposes of closed M2M voice (e.g. emergency calling in a lift)
  - **2012** : ITU grants inclusion of a voice component of in the M2M service in the original assignment for eCall (calls either to/from the car original equipment manufacturer call centre or to the Public Safety Answering Point for eCall).
  - **2015** : ITU grants extended use of shared resources to allow for the connection of Wi-Fi enabled end-user devices for automotive Internet services .

Customer benefits associated with this strategy

- This approach to **numbering** and also reliance on existing **roaming** agreements enables customers and end-users to benefit from certainty, economies of scale and cost and time savings. This directly benefits end-users of M2M/IoT applications, for example:
  - **RWE** : use of a Global M2M SIM for charging of electric vehicles enables a standardised manufacturing process, irrespective of where the charging station is to be shipped, which results in significant efficiency savings and quicker delivery of RWE's charging stations to customers.
  - **CRF Health** : cost and time savings for electronic Clinical Outcome Assessments through the use of the Global M2M SIM, as well as a single tariff which provides predictable fees for clinical trials before they take place .
  - **Atlas Copco :** provision of M2M enabled industrial equipment, some of which has a lifespan of around 30 years; machines are often sold on second hand.
- We are pleased that BEREC has recognised in its February 2016 report that the use of existing numbering resources, the extraterritorial use of numbers and the use of ITU numbers are reasonable approaches.



Source: KPMG Report for Vodafone ('Securing the Benefits of Industry Digitisation') available at https://www.vodafone.com/content/dam/vodafone-images/public-policy/policy-papers-and-news/Vodafone-Industry-Digitalisation-Report-051115.pdf

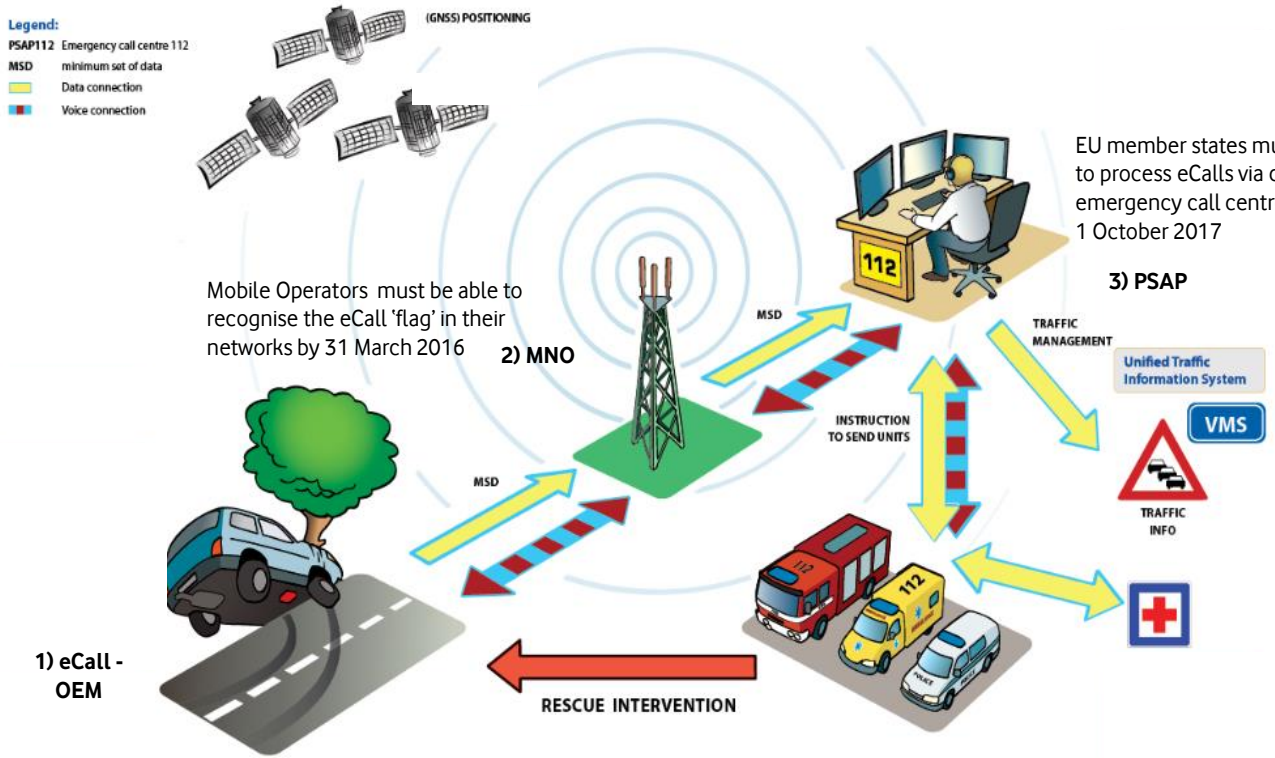
Any emerging regulatory issues should be manageable

- We support **national initiatives** designed to promote use of M2M/IoT
  - For example, current BNetzA consultation on the processes and interfaces for integrating non-domestic numbering onto a Law enforcement platform.
  - Amendments to national Numbering Plans where required to allow use of non-domestic numbering for M2M/IoT.
  - In so doing, we believe it is important to maintain a proportionate approach.
- We fully agree with BEREC's statement in its February 2016 report that the **number portability** obligation might not be appropriate in case the E.164 number of the connected device is not known by the IoT user (and/or by the IoT end-user), which usually happens when the device is not designed to send or receive any voice calls or SMS.
- In relation to **switching**, industry is moving forward with 'eSim'
  - There are live deployments and the GSMA is organising test fests to promote adoption of its embedded SIM specification by vertical sectors.
  - In February 2016 Vodafone announced that it will soon launch the Samsung Gear S2 classic 3G smartwatch in Germany, which will contain an eSIM. This will pave the way for more connected devices to have stand-alone mobile connectivity for the first time.
  - Given the variety of IoT applications, end-users should have the flexibility to select the SIM model that best suits their requirements.

A regulatory framework that promotes harmonisation

- M2M/IoT is dynamic and has a significant cross-border dimension. M2M/IoT can play a central role in stimulating EU economic growth, as part of a Digital Single Market.
  - The development of a regulatory policy that requires sign-off by the 'domestic' and 'visited' NRAs where non-national numbering is being used for M2M/IoT applications would raise serious administrative challenges for both MNOs and their customers.
  - It would also seem out of step with BEREC's views on a possible relaxation of the notification obligation.
- We believe there is scope for the creation of a light-touch **Pan-EU Authorisation** for M2M/IoT to reflect customer demand and facilitate pan-EU service provision:
  - Applicants to the central EU authorisation entity (which could be BEREC) must demonstrate that the numbering resource can be used for M2M and M2M-related applications across the EU;
  - The authorisation criteria would ask the applicant to specify whether the applicant is seeking to roll-out different categories of service, specifically:
    1. Communications between machines only (e.g. between a vending machine and a server);
    2. Communications between machine with strictly limited human interaction (not peer-to-peer voice, e.g. eCall), and
    3. Communications between machines which also includes configuration of an open-internet consumer service (e.g. a car with an M2M SIM which is used for both vehicle diagnostics and to create a Wi-Fi service for passengers in the car).
  - For reasons of practicality, we do not propose that the pan-EU authorisation provides for any peer-to-peer voice functionality, given the increased range of national regulatory obligations (e.g. number portability) that may apply to such services.

eCall – case study



eCall functionality has to be fitted to all new models of cars and light vans in the EU by 31 March 2018

- Use of supranational ITU E.164 numbering resources will ensure no depletion of national numbers and is consistent with the OEM supply chain.
- We still need an agreed process for identifying End of Vehicle life (permitting recycling of E.164 numbers)
- Extra-territorial use of E.212 numbers will address any possible concerns regarding CLI availability in LSS mode
- A number of Member States still need to provide routing tables to MNOs to ensure eCall testing in advance of deployment target.

The flexibility to meet customer Quality of Service requirements

Examples of M2M services requiring differentiated Quality of Service

Low QoS

- Consumer white goods
- Fitness/training
- Street Lighting
- Vending machines
- In-Vehicle entertainment and internet access
- Modems, Routers & Femtocells

Medium QoS

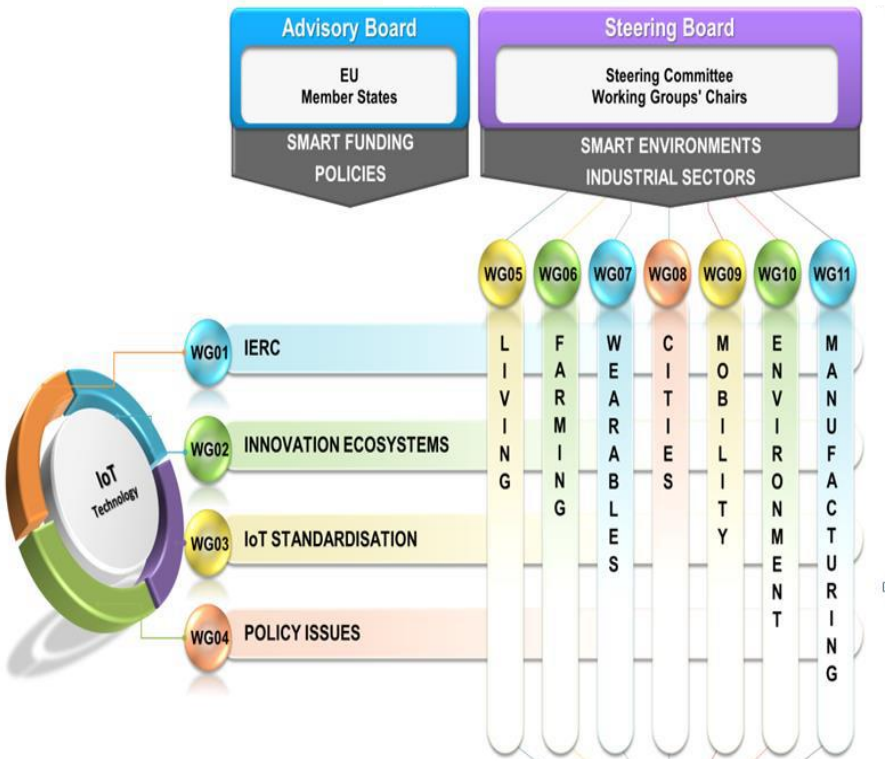
- Vehicle Diagnostics/Navigation
- Roadside assistance
- Pet tracking
- Connected medical dispensers
- Fire alarms
- Smart Cities
- Public transport applications
- Residential Heating, Ventilation and Air Conditioning devices

High/Stringent QoS

- Smart Meters (Water, electricity, Gas)
- In-vehicle congestion/toll devices/emergency call services
- Stolen vehicle recovery
- Usage-based insurance (e.g. for vehicles)
- Clinical remote monitoring applications (e.g. heart monitors)
- Electronic point of sale

Source: Machina Research (2015), DNA of M2M, www.machinaresearch.com; Machina Research and Aegis Spectrum Engineering for Ofcom (April 2014), M2M applications characteristics and their implications for Spectrum

A horizontal approach to Privacy and Security is required



- The Alliance for Internet of Things Innovation (AIOTI) is a good example of this. The AIOTI Policy Working Group recently published cross-cutting recommendations on:

Privacy

- Article 29 Working Party IoT opinion as context
- 10 specific recommendations, including in relation to:
  - More widespread awareness of Privacy Engineering
  - Use of an accepted Privacy by Design methodology
  - More widespread use of pseudonymised and anonymised data 'by default' (which can be modified through a Privacy Impact Assessment)
  - Proactive sharing of best practices by industry
  - Repurposing of data.

Security

- Recommendations in relation to the technological, societal and stakeholder challenges identified.

AIOTI Structure – for further information see www.aioti.eu/ and Policy report at http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=11815