Policy Recommendations to create a Digital Single Market for the Internet of Things

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Drivers of growth in the IoT market

The value creation for customers is clear

- Revenue growth opportunities from new business models and products
- Cost saving opportunities from automating manual processes
- Greater environmental protection, green credentials and lower CO^2 emissions
- End-consumers are demanding more & better information from their 'machines'. The SME sector in particular has high potential and we are already seeing increased take-up here, with particular demand for energy saving, smart monitoring and security applications.

The technology is enabling

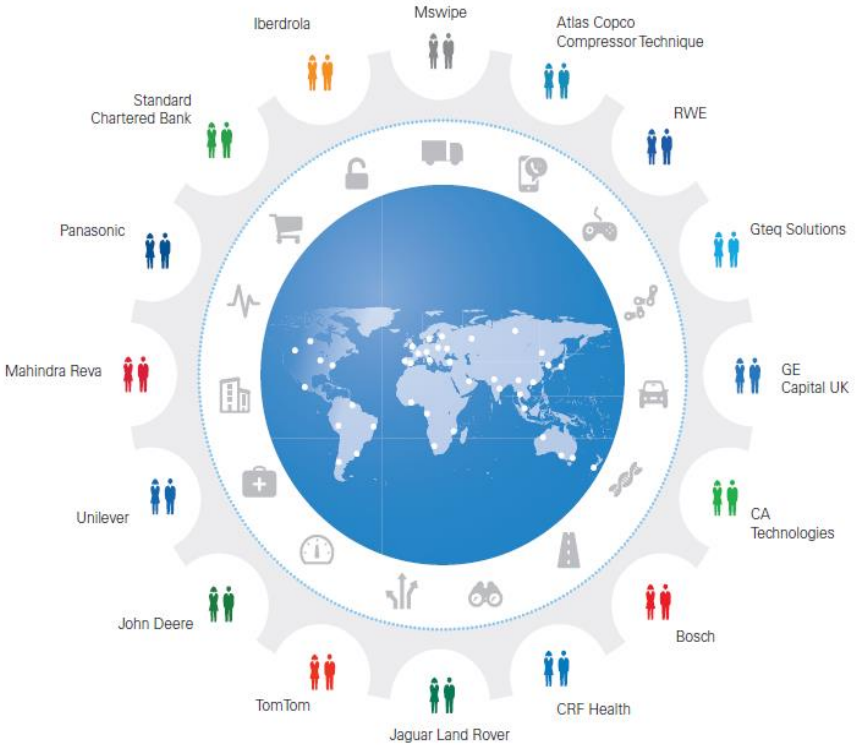
- M2M hardware and communications costs are declining, and M2M technology is becoming mainstream and part of critical business processes
- Programmable / embedded SIMs (e.g. eUICC) are being developed and deployed
- Multiple connectivity technologies are available.

The right regulatory framework

- BEREC's consultation and the Framework Review provide an important opportunity.

A regulatory framework that benefits citizens and customers

- An approach to **Numbering** (*involving use of ITU allocated E.164 numbering for example*) and **Roaming** (*relying on existing roaming agreements between operators*) that enables customers and end-users to benefit from certainty, economies of scale and cost and time savings. 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 and it is not possible to know where the machine will end up when the Global M2M SIM is installed during the production process.



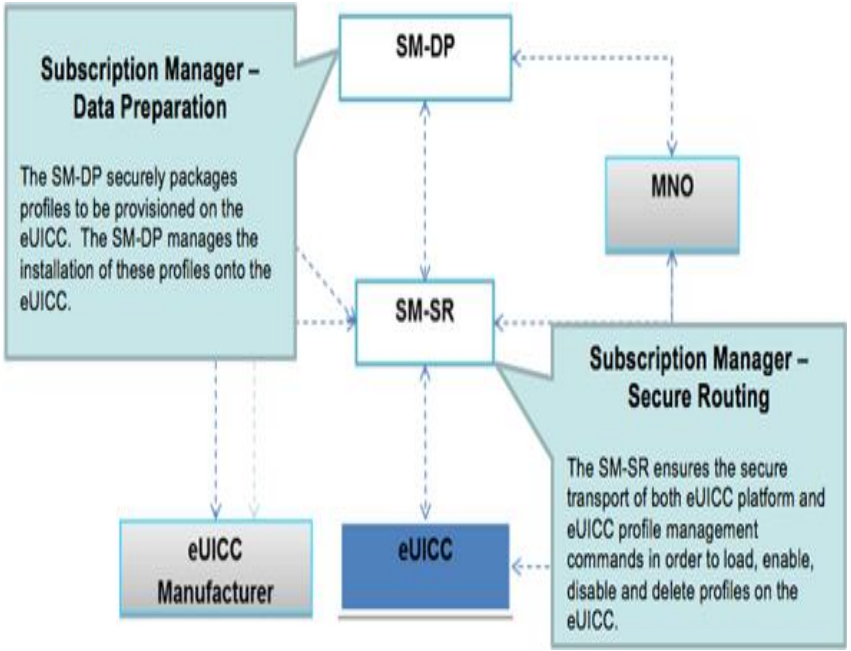
Source: KPMG Report for Vodafone ('Securing the Benefits of Industry Digitisation') available at https://www.vodafone.com/content/dam/vodafone-images/public-policy/policy-papers-and-news/Vodafone-Industry-Digitalisation-Report-051115.pdf

A regulatory framework that promotes harmonisation

- We believe there is scope for the creation of an **Pan-EU Authorisation** for M2M to reflect customer demand and facilitate pan-EU service provision:
  - We see a strong demand for Pan-EU service provision and the Commission (as part of the Framework Review) and BEREC should consider the creation of a Pan-EU authorisation for M2M and IoT.
  - Applicants to the central EU authorisation entity (which could be BEREC) must demonstrate that the ITU has agreed for such numbers to 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.

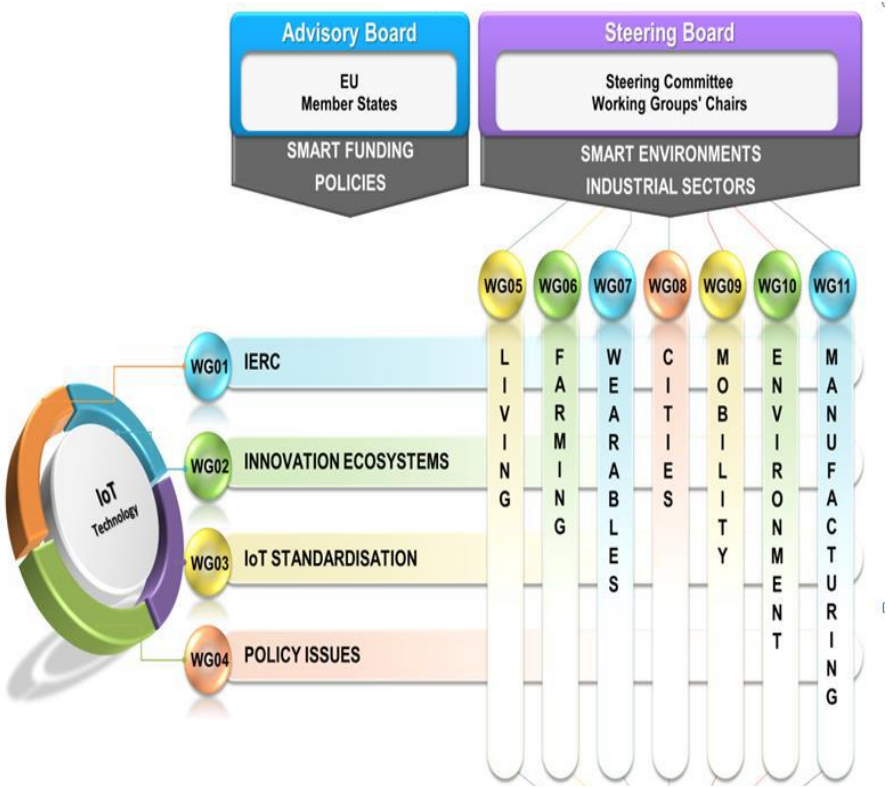
A regulatory approach that recognises existing self-regulatory initiatives

- There is much ongoing activity with regard to **OTA Provisioning** and **Switching** between MNOs:
  - The GSMA has recently published enhancements to the standards that enable customers to re-program a SIM from one mobile operator to another
  - The GSMA has also published guidelines which specify the business processes that will be executed when changing operators
  - The adoption of the specification is progressing rapidly, with deployments of the specification already live and the GSMA driving further commercial implementation during 2016 (for example through open test fests which are being organised to promote adoption by vertical sectors).
- The technology will evolve as the market does, driven by customer demand.



Source: GSMA at http://www.gsma.com/connectedliving/embedded-sim/how-it-works/

A regulatory approach that reflects the 'horizontal' nature of IoT



AIOTI Structure – for further information see www.aioti.eu/

- The Alliance for Internet of Things Innovation (AIOTI) is a good example of this. The AIOTI Policy Working Group recently made cross-cutting recommendations on:
  - **Privacy** - ten policy recommendations to address key concerns, ranging from European Commission sponsorship of an accredited Privacy engineering program to adoption of Privacy by Design best practice
  - **Security** – identification of key challenges, for example in relation to diverse stakeholders, technology and also societal acceptance and trust, recommendations made in respect of each
  - **Liability** – analysis of the extent to which IoT technology may raise issues for current legal regime, emphasis put on policy approach
  - **Net Neutrality** - case studies to help inform the activities of NRAs in light of the finalised text on net neutrality as set out in Telecoms Single Market package.
- AIOTI Policy Recommendations report available at http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=11815

Thank you