New Policy Framework for IoT?
Expectations from 14 Sept TSM Review

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Can Europe Lead in 5G?

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Precursor IoT strategy

- Before going into IoT in TSM, there was an earlier statement of IoT strategy within the DSM, April 2016
- ” Advancing the Internet of Things in Europe – A Staff Document“
- And, an EC Communication on “Digitising European Industry - Reaping the full benefits of a Digital Single Market”
- Generally, these document still reflect a search on how to proceed, calling for government – industry cooperation, and a “to-do”-list
- No comprehensive framework to address the manifold concerns (yet) but documents raised expectations of TSM

Telecom Review Results

- Several communications and initiatives presented:

- Towards Gigabit Society
- New Electronic Communications Code (major legislative package)
- New roles for BEREC – a step towards a single telecoms regulator
- Action plan for 5G
- WiFi to all Cities

Here we will focus on implications for IoT from this initiative

Implications for IoT from TSM

- Generally, no single initiative toward IoT

- But, investment broadband incentives for telecom carriers, such as:
  - less regulation if co-investment
  - less regulation if investment only for wholesale

- Broadband universal service, even if a light version

- New initiatives on numbering control

- Attention and focus on 5G as main enabler for IoT

- Several initiatives on spectrum management, with emphasis on increased harmonization among MS, a new role for BEREC and longer licensing terms (25 yrs)

Many 5G obstacles to realize IoT in EU (1)

- Need to coordinate 5G trials in the 5G action plan:
  - national 5G deployment roadmaps as part of the national broadband plans
  - preliminary trials to take place from 2017 onwards, and pre-commercial trials with a clear EU cross-border dimension from 2018
  - every Member State will identify at least one major city to be "5G-enabled" by the end of 2020 and that all urban areas and major terrestrial transport paths have uninterrupted 5G coverage by 2025

Many 5G obstacles to realize IoT in EU (2)

- Need to coordinate 5G spectrum in the 5G action plan:
  - by the end of 2016 a provisional list of pioneer spectrum bands for the initial launch of 5G services: below 1 GHz, between 1 GHz and 6 GHz, and above 6 GHz
  - agree by end of 2017 on the full set of spectrum bands (below and above 6 GHz) to be harmonised for the initial deployment of commercial 5G networks in Europe

Many 5G obstacles to realize IoT in EU (3)

- Need to coordinate 5G deployment and standardisation in the 5G action plan:
  - Set roll-out and quality objectives for the monitoring of the progress of key fibre and cell deployment scenarios, to meet the target of at least all urban areas and all major terrestrial transport paths, having uninterrupted 5G coverage by 2025
  - Ensure the availability of the initial global 5G standards by the end of 2019 at the latest, so as to enable a timely commercial launch of 5G
  - Promote efforts to support a holistic standardisation approach encompassing both radio access and core network challenges, including due consideration for disruptive use cases and open innovation

But 5G is not enough - IoT can be addressed in several ways

IoT technology use of spectrum – 5 views of *mixed networks* for the IoT:-

1. **Ideal technical match** – using multiple spectrum bands with multiple technologies to match specific network types

2. **ISM (Instrument, Scientific and Medical) harmonisation case** - Different technologies in the same band, for quite different applications – eg access control alarms and smart grids, such as in industrial, scientific and medical bands

3. **Mobile communications case** – same technology in multiple bands

4. **Pragmatic IoT case** – different bands and technologies wherever any unlicensed spectrum occurs – white spaces are an example of this

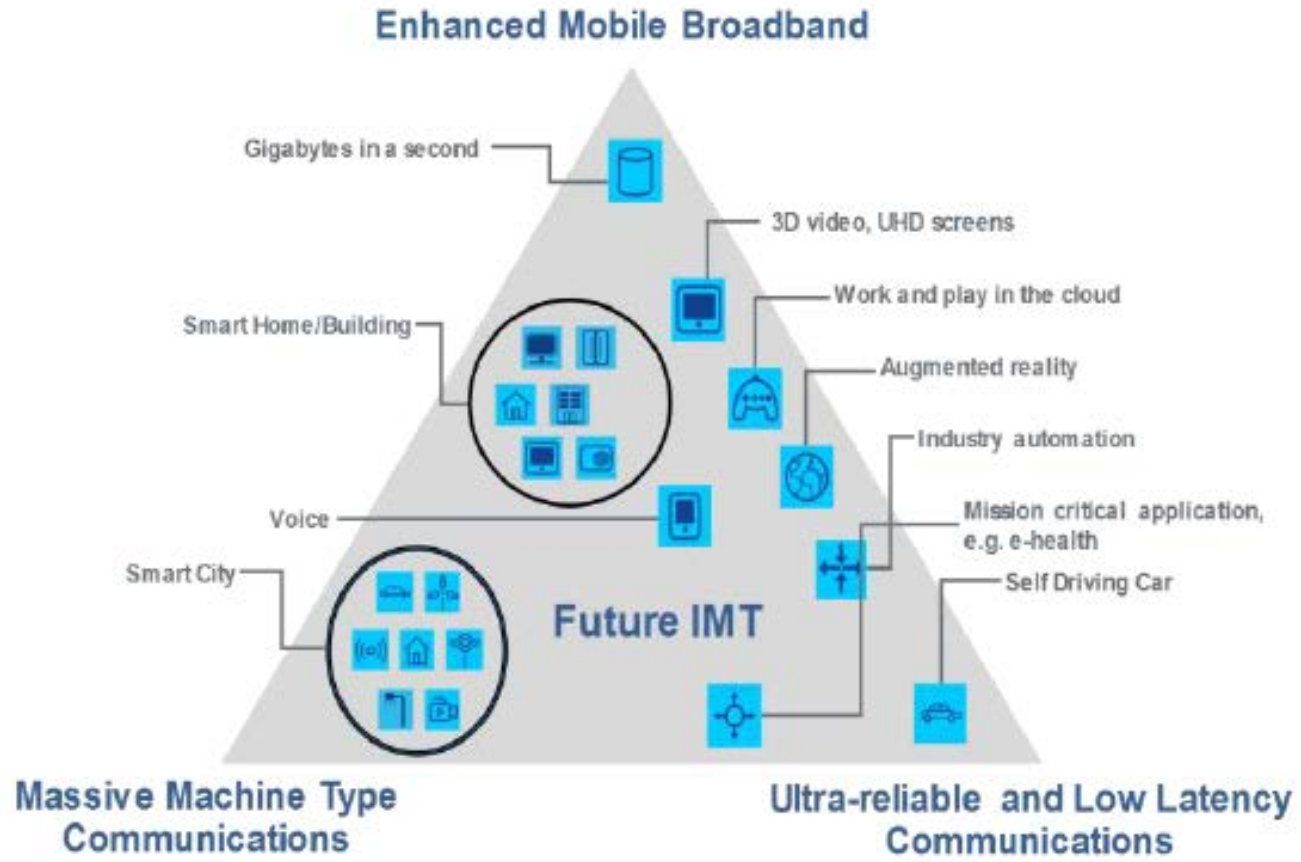
5. **Mix and match** – multiple transmission modes in the same geographical coverage area – heterogeneous technologies and networks ('hetnets') in any band available - preferably unlicensed - based on:-
   - Small cells
   - Macro cells
   - Wide-area cells and national coverage
   - Mesh networking,
   - Point to point directional

Conclusions

- Is the Telecom Single Market Review enough for a European IoT strategy?
- Moving into 5G will not solve all IoT concerns
- License exempt spectrum will need to be further addressed
- We can expect a continued discussion in the EU on spectrum policy and assignment modes, broadband connectivity, and numbering

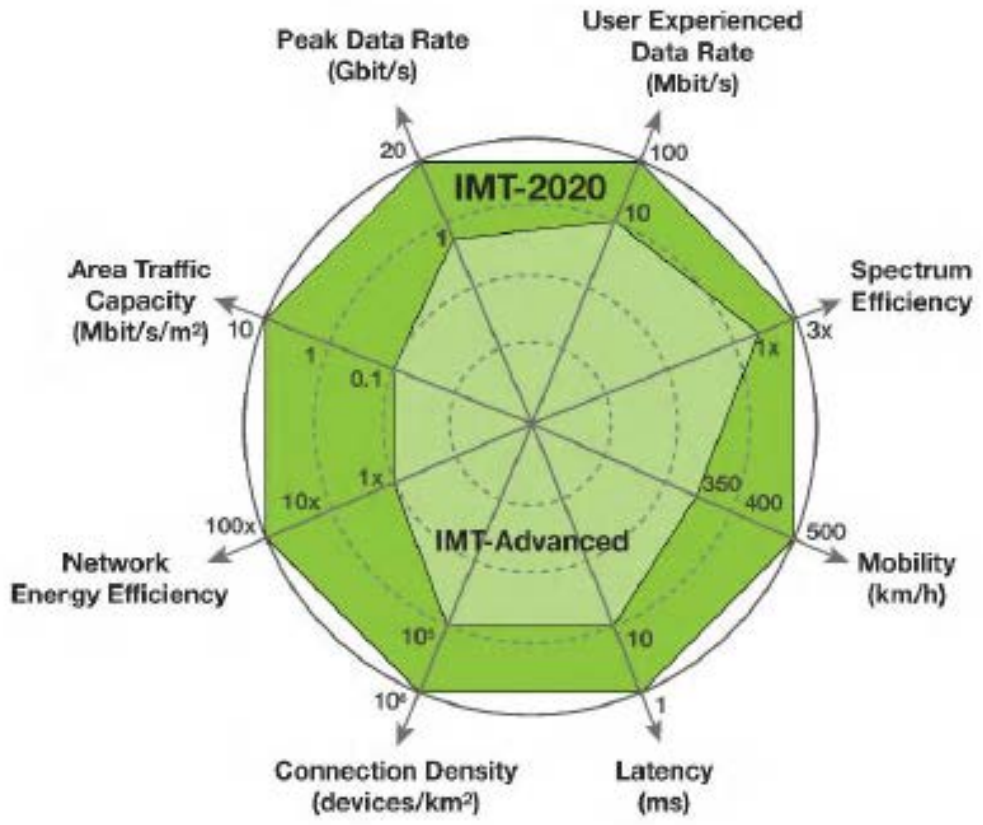
Additional slides

The ITU Triangle Vision of 5G



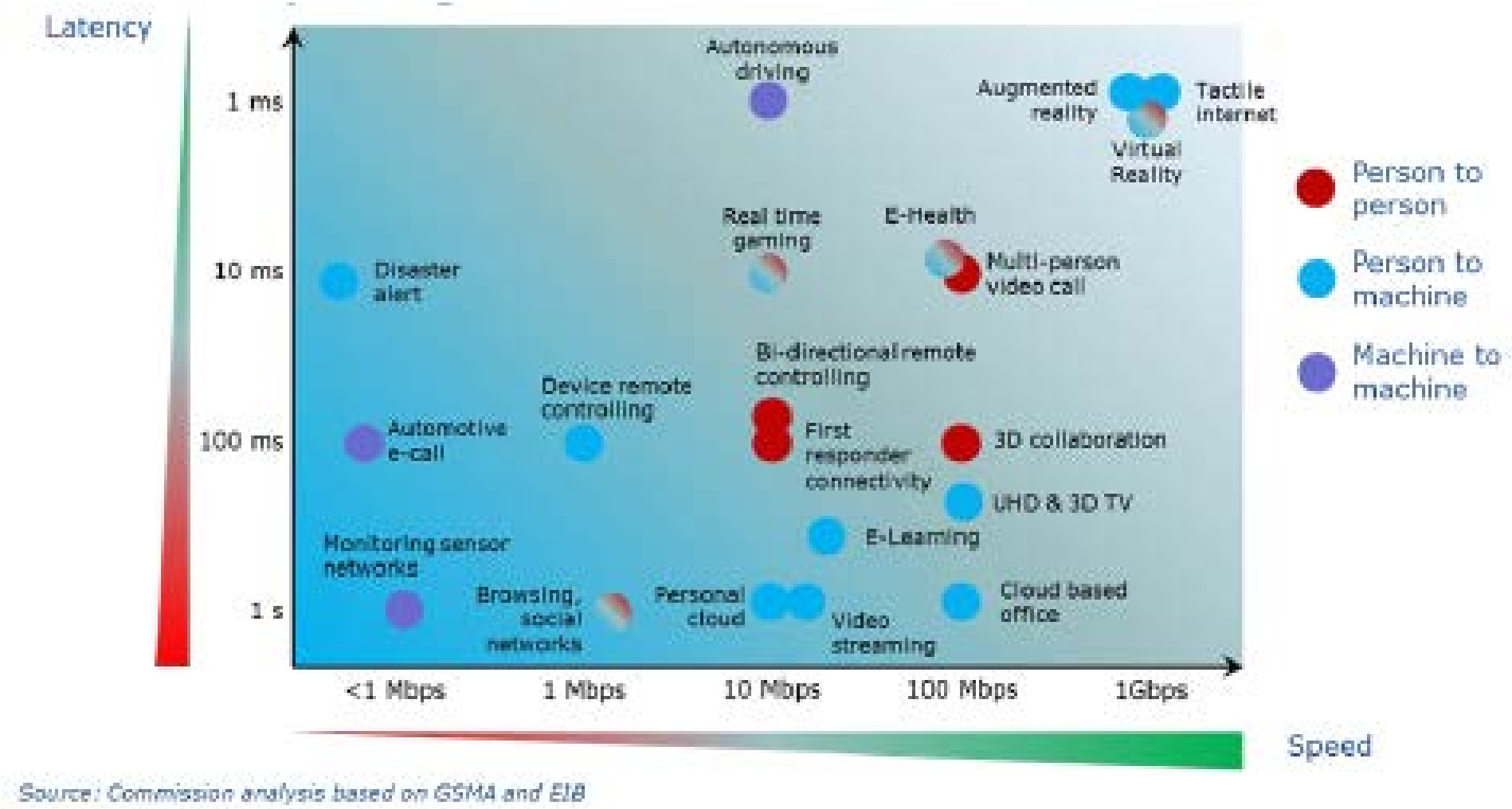
Source: ITU, EC

5G is Expected to Solve Many Constraints



Source: ITU, EC

But will 5G be able to solve all?



Source: Commission analysis based on GSMA and EIB