



# **EU-Brazil 5G Cooperation**

**EUB-03-2017**

**EU-Brazil 5G Networks joint call**

**Brussels, 20 April 2016**

**Network technologies (E1), DG CONNECT**

## EUB-03-2017: Scope of Joint Call

***Type of Action: Research and Innovation action  
Test and validation of technologies currently  
contemplated for early 5G standardisation, primarily at  
radio access level, but with a clear "use case" focus***

- Examples of potential vertical business sectors: health care, automotive, smart factories, energy, smart cities, agribusiness, etc.
- Could address more specifically connectivity aspects of Massive Machine-to-machine communication mMTC, Ultra-Reliable and Low Latency Communications (URLL).
- Or alternatively illustrate the efficient coverage of low population density areas (different spectrum options)

## EUB-03-2017: Challenges & Budget

### **Challenges:**

- *Go beyond 4G: new services, multiple applications*
- *Relatively wide scope for a limited budget (flexibility for industry but need to focus)*
- *Standardisation will take place in parallel between now and 2020 at ITU, 3GPP*
- *Must be industry-led*

### **Budget:**

- *€2 million (50% EU/50% Brazil, funding rate: 100%)*
- *Possible synergies with joint call on IOT, 3 pilots (EUB-02-2017 (RIA) €4.50 million total budget)*



# **EU-Brazil 5G Cooperation**

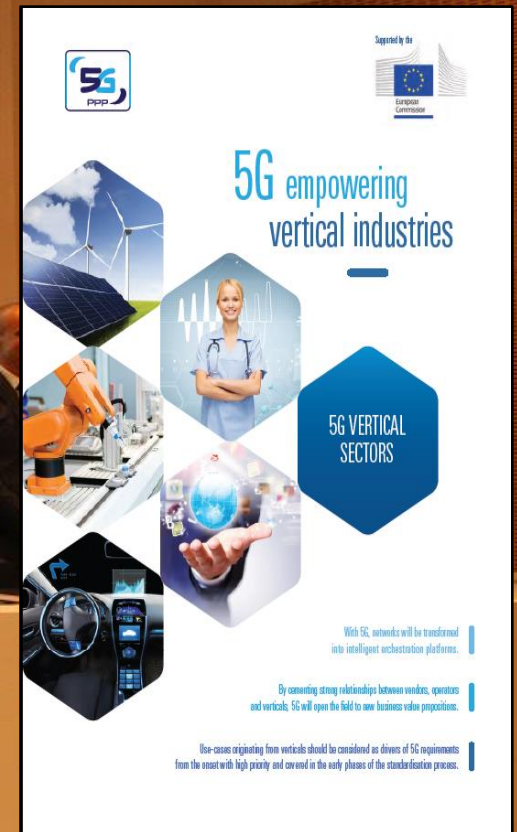
## **Standards & Spectrum**

**Brussels, 20 April 2016**

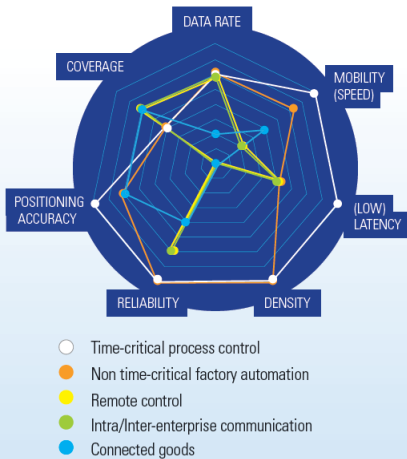
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## Vision & Standards – Proposed priorities

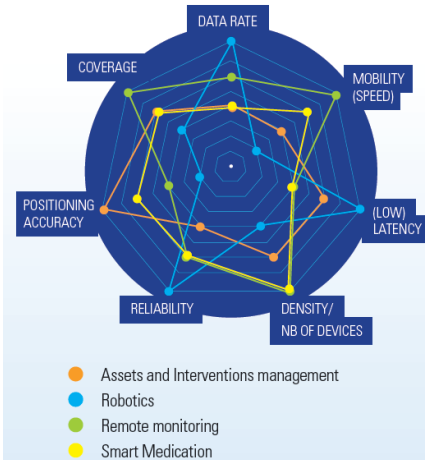
- ***Identify synergies regarding future use cases & 5G vision***
  - Reinforce mutual understanding regarding Vertical requirements
  - Try to converge on the broad definition/scope of 5G
    - JP/ROK give priority to video/VR distribution/ shorter time frames
    - China more aligned on EU re. Vertical Industries
    - Brazil/ US ?
  - Exchange information on work towards the future system architecture for 5G
- ***Global unicity of network operability standards***
  - Address any divergence of position in context 3GPP
  - Discuss other standardisation requirements



## Factories

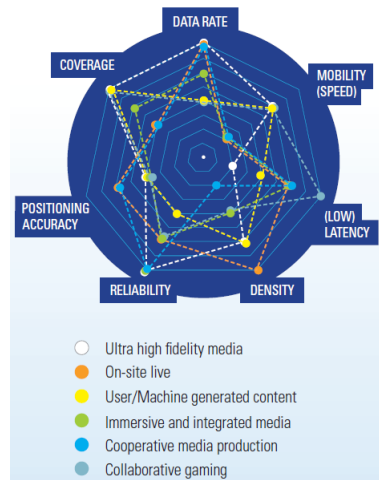


## eHealth



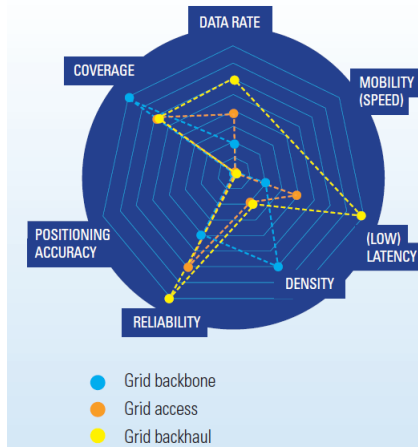
# Vertical Requirements

## Media & Entertainment

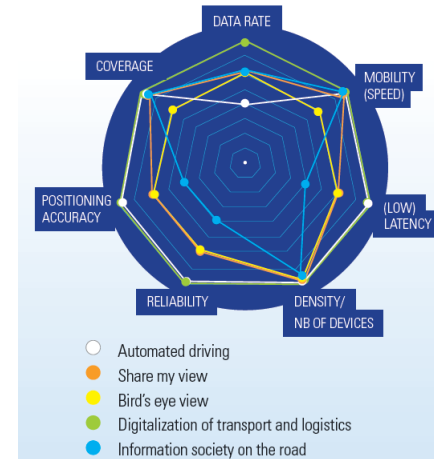


Source: White Paper, "5G Empowering the Vertical Industries, February 2016.

## Energy

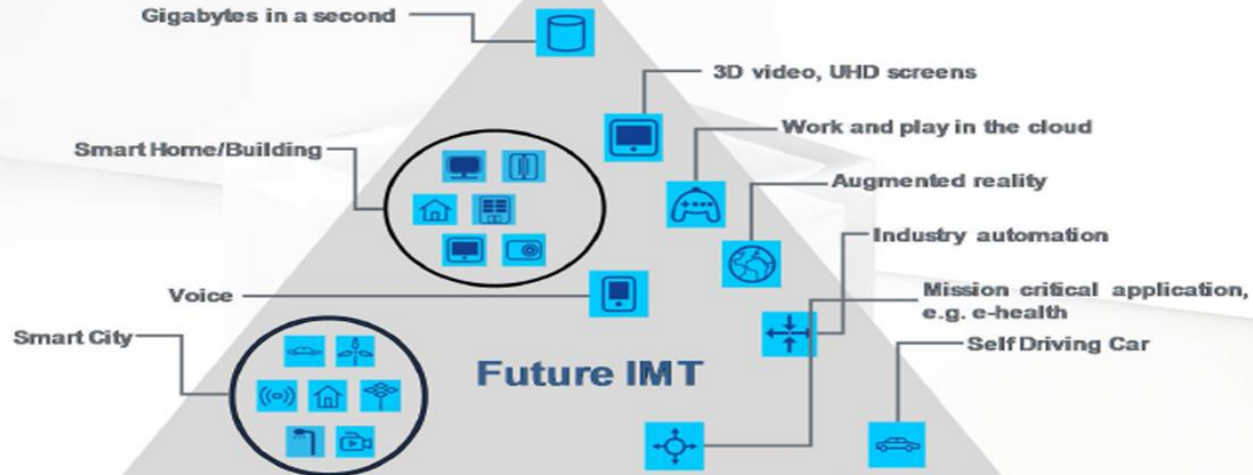


## Automotive



## Scope of requirements/functionalities

### 1. Enhanced Mobile Broadband

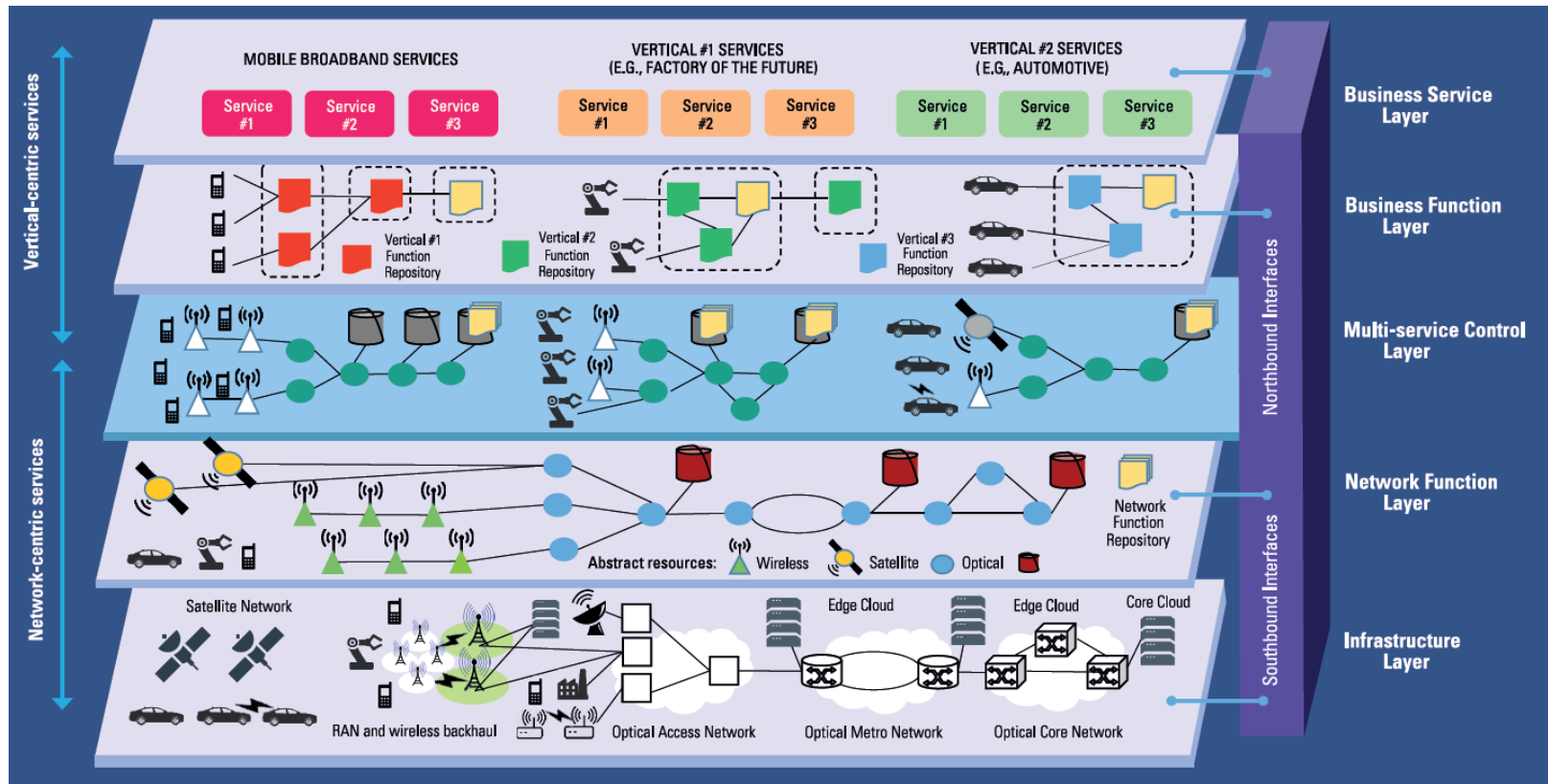


### 2. Massive-Machine Type Communication

### 3. Ultra-reliable and Low Latency Communication



# Future paradigms



## Spectrum for 5G

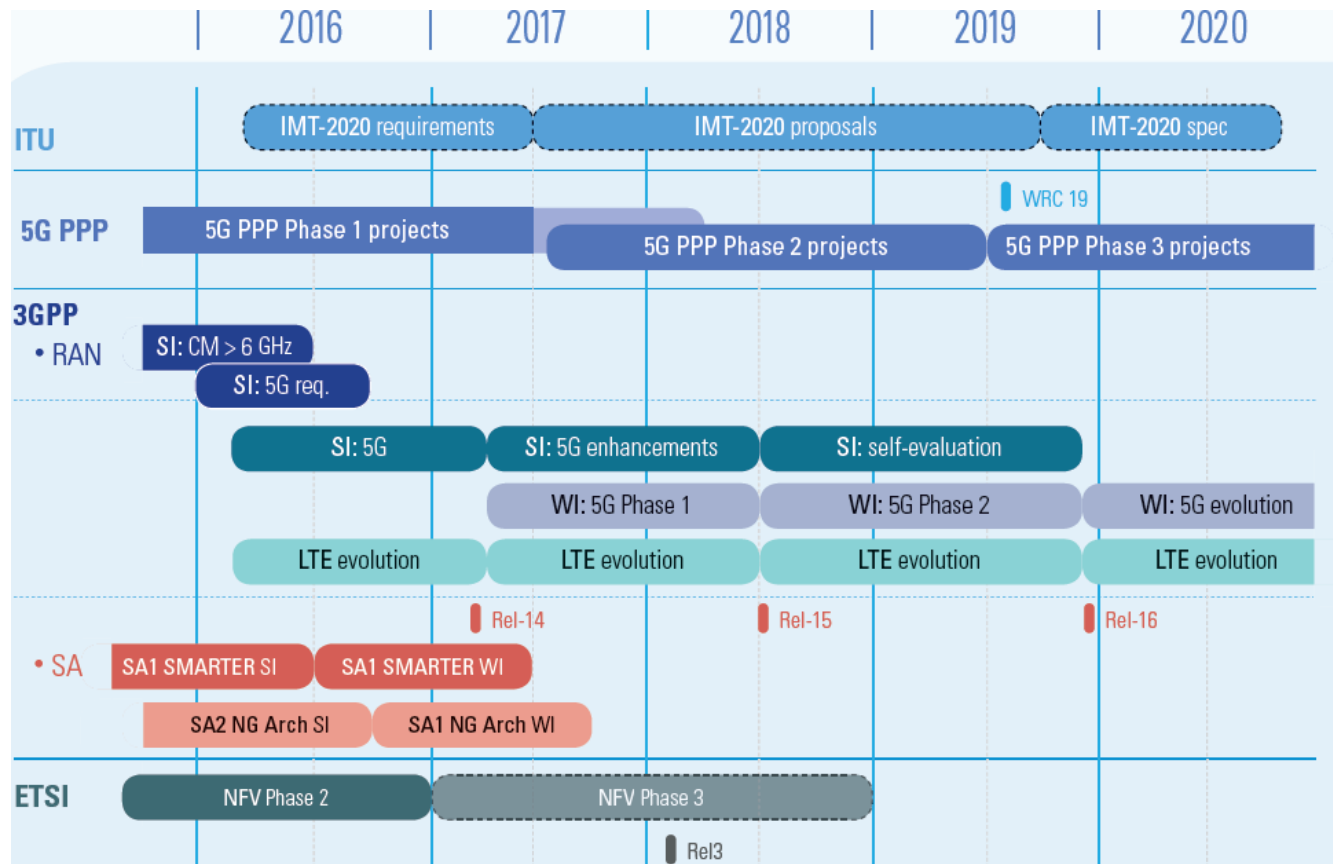
### ***High level exchange on key issues***

- Early identification of "starting" bands below 6Ghz (capacity, frequencies, etc)
- Innovation in terms of sharing/assignment methods
- Overall strategy to open up millimetre waves (follow-up WRC-15)
- Exploratory discussions on future of the UHF ?

### ***Considering joint actions re. ITU developments***

- Information exchange (involving CEPT/RSPG)
- Possibility to align input in specific cases

# Technical Agenda

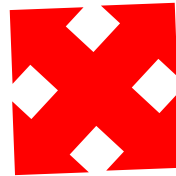


## 5G Action Plan for timely EU deployment

**5G "Master"  
Calendar for  
the EU**

**Spectrum**

**Strategy to  
involve Vertical  
Industries**



**Key  
functions/  
Standards**

**Infrastructure/  
Fibre**

**Regulations**