



6th Japan-EU Symposium on ICT Research and Innovation

ICT Strategies and Japan-EU Cooperation

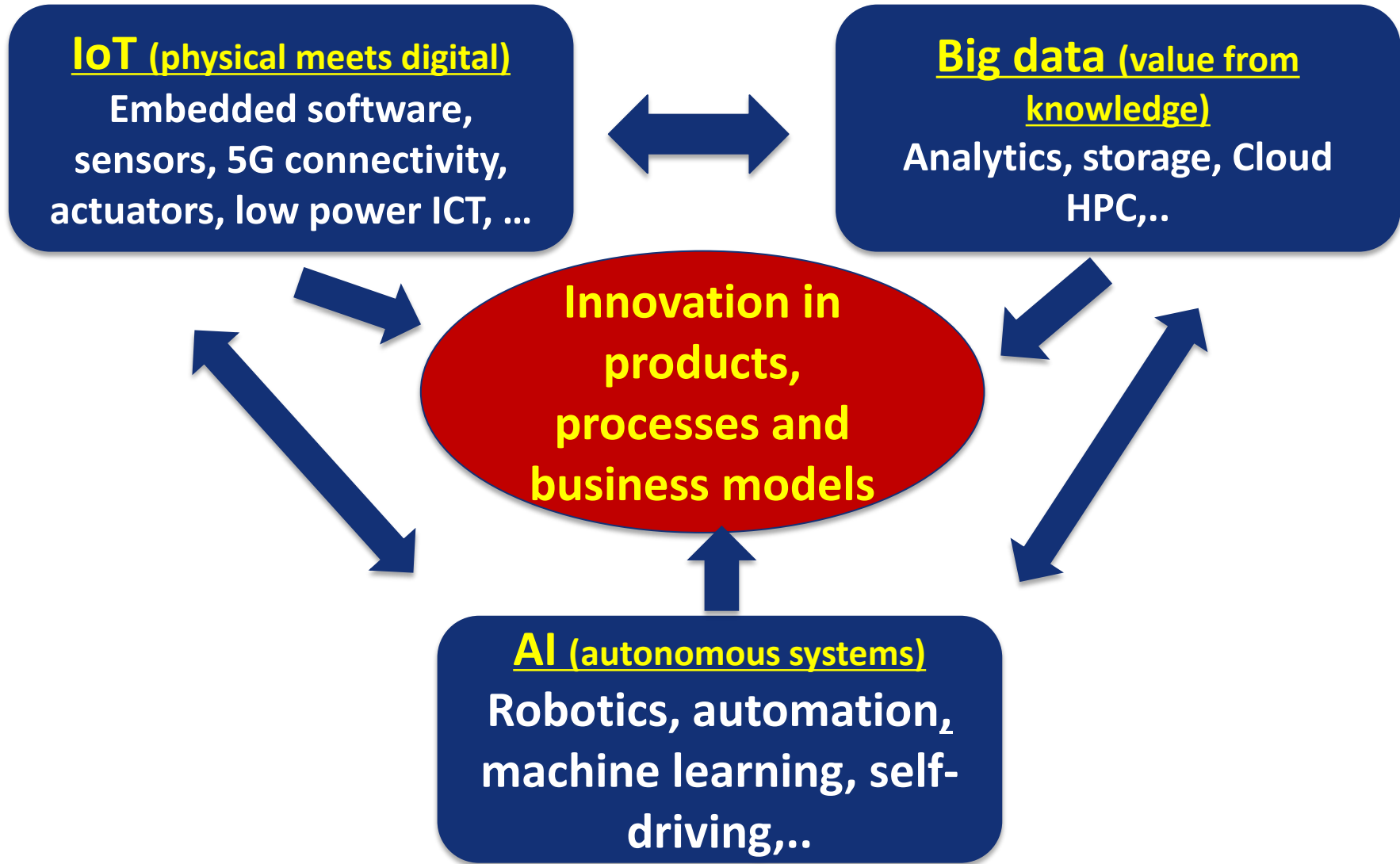
Tokyo, 6 October 2016

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European Commission
Acting Head of Unit, DG CONNECT E1
Future Connectivity Systems



- Digital Single Market
- Digitisation of European Industry, DEI package adopted by the Commission on 19 April
- Core Enabler 5G, cloud, cybersec, data, IoT
- Focus, links with vertical industry and IoT applications

Technologies driving the change



Digitising European Industry

A total of ~ 50 B€ pooled over 5 years

	EU (planned)	MS (A digital focus)	Industry
INNOVATION HUBS	€500m	€5bn (ESIF, regional budgets)	(matching funds already accounted for in the industry PPP contribution)
PPP's (including ECSEL & focus area IoT) mentioned in DEI	Close to €4bn (from H2020)	Close to €1bn (ECSEL contribution)	Close to €17bn (industry to invest at least 4x more)
Focus of national policies on strategic priorities	€0	€15bn (national programmes foreseen on digitisation)	(matching funds already accounted for in the industry PPP contribution)
IPCEI on electronics	€300m in ECSEL	€1bn – From a number of MS, of which FR, DE, NL, AT, IT – full list still to be confirmed at the time of project submission to DG COMP	€5bn
European Cloud initiative	€600m from e-Infrastructure, FET and CEF		
TOTAL	Close to ~€ 5.5bn	Close to 22bn	Close to 22bn

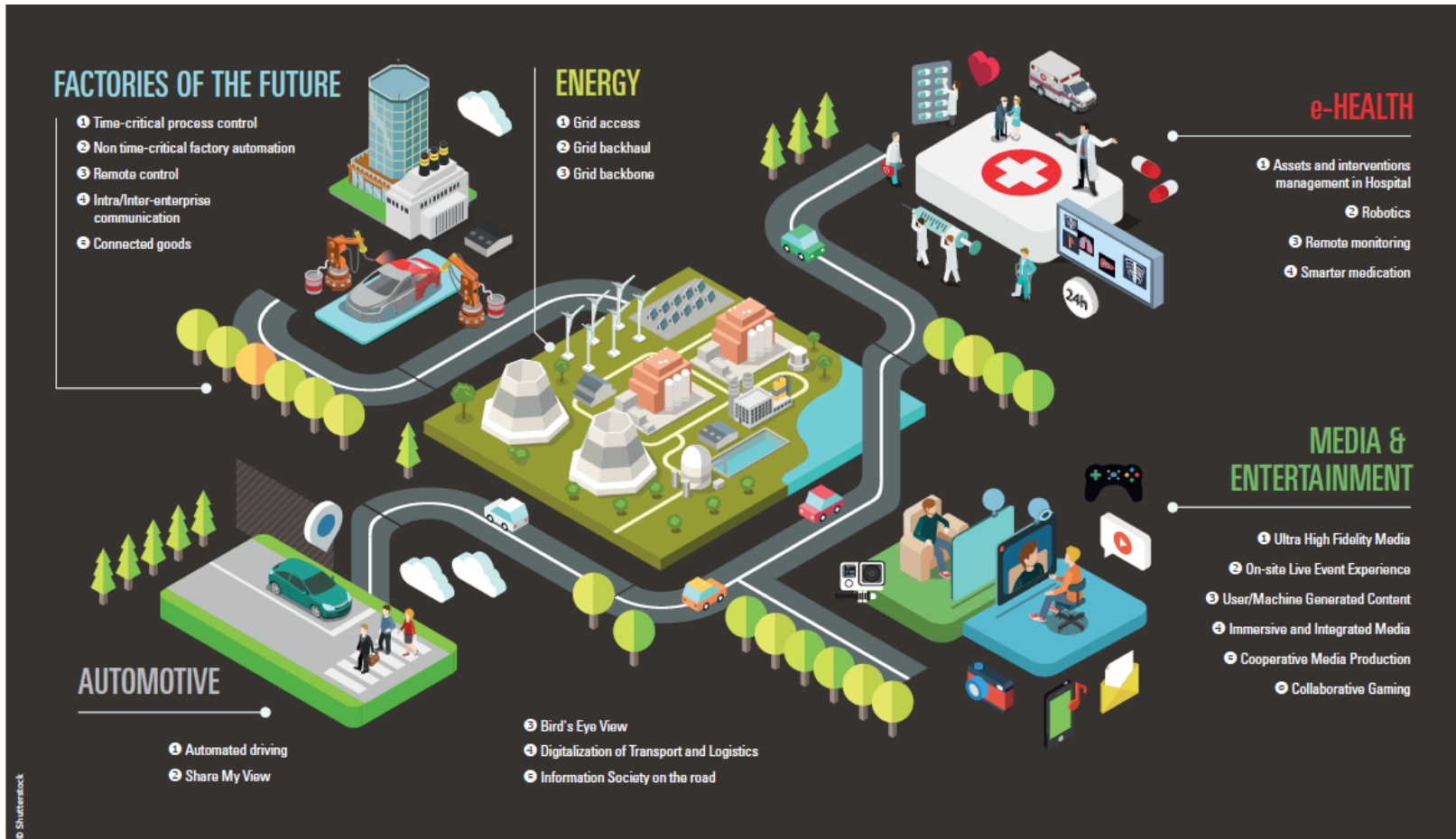
The "14 September package"

- 1. New 2025 Gigabit broadband objectives:** Commission Communication -> *Reference point and common vision*
- 2. The 5G Action plan:** Commission Communication -> *to support European industrial leadership*
- 3. Wi-Fi for Europe: targeted voucher scheme:** Regulation amending CEF -> *to bring direct benefits to citizen (8000 communities)*
- 4. The Review of the Telecoms Regulatory Framework:** European Electronic Communications Code -> *REFIT modernisation*

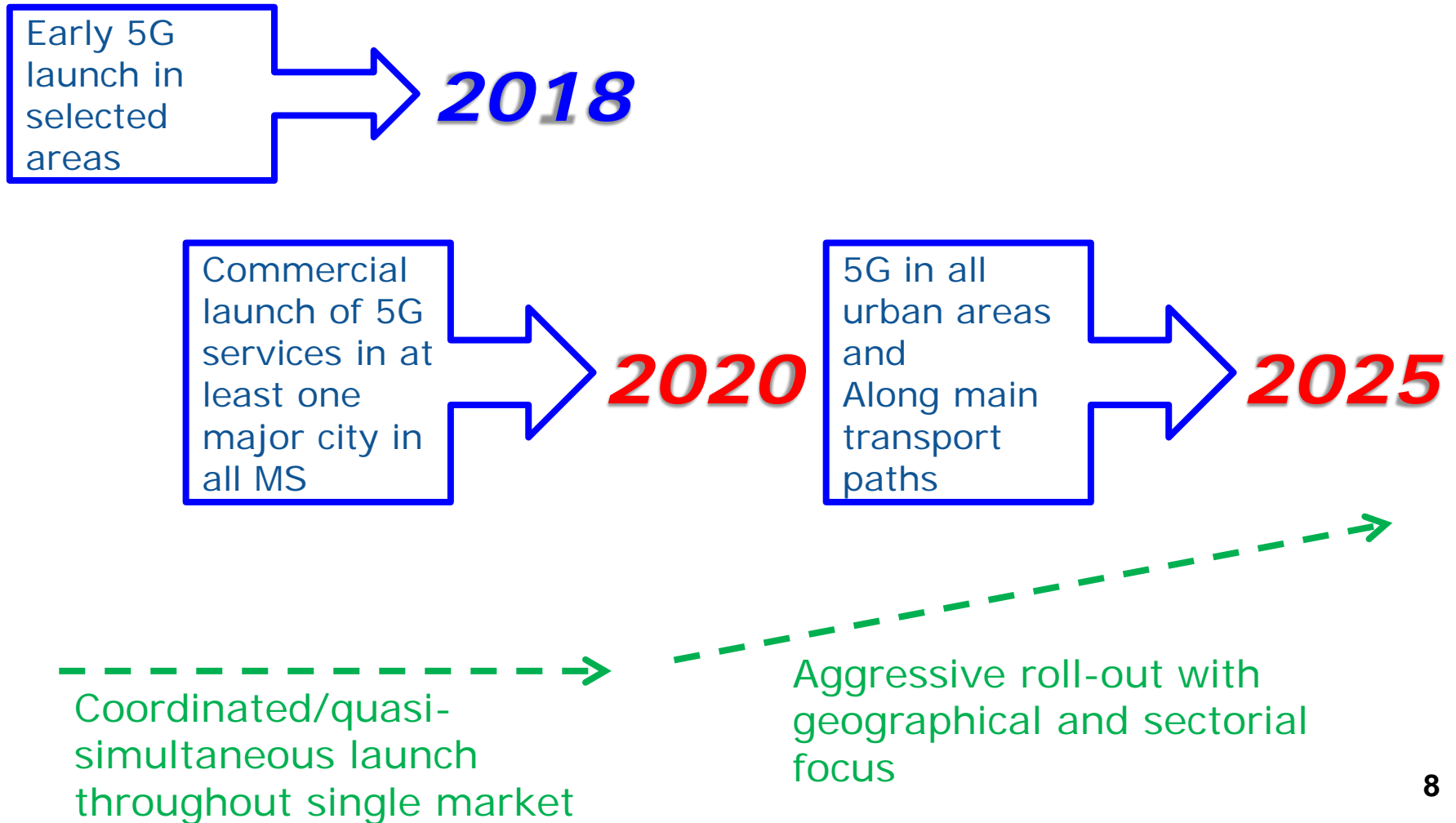
Mutually supportive elements – harvesting commitment and providing longer term reference point and objectives to and from policy makers, market actors, regulators and investors.

5G:

"Pervasive fixed and mobile connectivity"



"Single Market" approach to EU 5G Introduction



June – November 2016: scoping paper

- **27 April: guiding principles and first discussion**
- **21 June: first ideas for LEIT scoping paper at ICTC meeting**
- **8 September: discussion of draft scoping paper**
- **28 September: endorsement of LEIT-ICT scoping paper at ICTC meeting of Bratislava**
- **November: endorsement of strategic programme by H2020 Programme Ctee**

November 2016 – 3Q 2017: preparation of WP2018-20

- **22 November 2016: first discussion on WP2018-20 at ICTC meeting**
- **Jan-Sept 2017: development of WP**
- **Autumn 2017: adoption and publication of the WP**



- ✓ Pursue and consolidate the innovation drive
- ✓ Further develop synergies between H2020 pillars
- ✓ **Contribute to the DEI strategy**
 - **Better connect and align with/to MS activities**
 - **Better leverage PPPs as coordinators of EU and MS industrial strategies**
 - **Mainstream hubs while respecting sector-specific requirements**
 - **Support large cross-sector pilots and platforms**
- ✓ Keep enough flexibility to support new issues

International Cooperation Take away

- ✓ Support broad policy line, DEI;
- ✓ Industrial (LEIT) spin offs:
 - ✓ industry consensus
 - ✓ standards/interop
 - ✓ spectrum
 - ✓ Policies
- ✓ Multiple tools



European
Commission



5G Action Plan Timeline



5G Action Plan: Motivations

- ***New EU Market potential, usages, actors***
- ***DSM support***
- ***Technology maturity***
- ***Acceleration of 5G agenda***
- ***Learning our lessons.***

Measures to support 5G roll-out in EU

EU ahead in the race": EU calendar for the introduction of 5G ->

- *Common timetable and objectives*
- *Coordination of National 5G Plans under Broadband national plans by end of 2017*
- *Support through pre commercial trials from 2018 onwards*
- *Framing objective, all urban areas and major terrestrial transport paths have uninterrupted 5G coverage by 2025*

Measures to support 5G roll-out in EU

"A 5G-ready Europe": Key pre-requisites - spectrum & fibre connectivity

- *Fast track for EU spectrum identification, pioneer bands based on RSPG opinion, 2016;*
- *Full set of bands by end of 2017, technical usage options*
- *Mapping required fiber capillarity towards coordinated investment planning to increase fibre capacity for 5G backhauling, using political target for 5G connectivity along route corridors and train connections by 2025*
- *Best practice for cost reduction of dense cell deployment (emission limits, local taxes, etc), leveraging CODE general authorisations*

Measures to support 5G roll-out in EU

"5G in support of Growth": Innovative "ecosystems" & vertical industries ->

- *Commission as facilitator of cross-sector business synergies;*
- *Business acceleration through flagship pilot projects (EU support);*
- *Public service as lead users (e.g. adopt 5G platform for public safety)*
- *Venture fund to stimulate new actors and take up, open ecosystems*

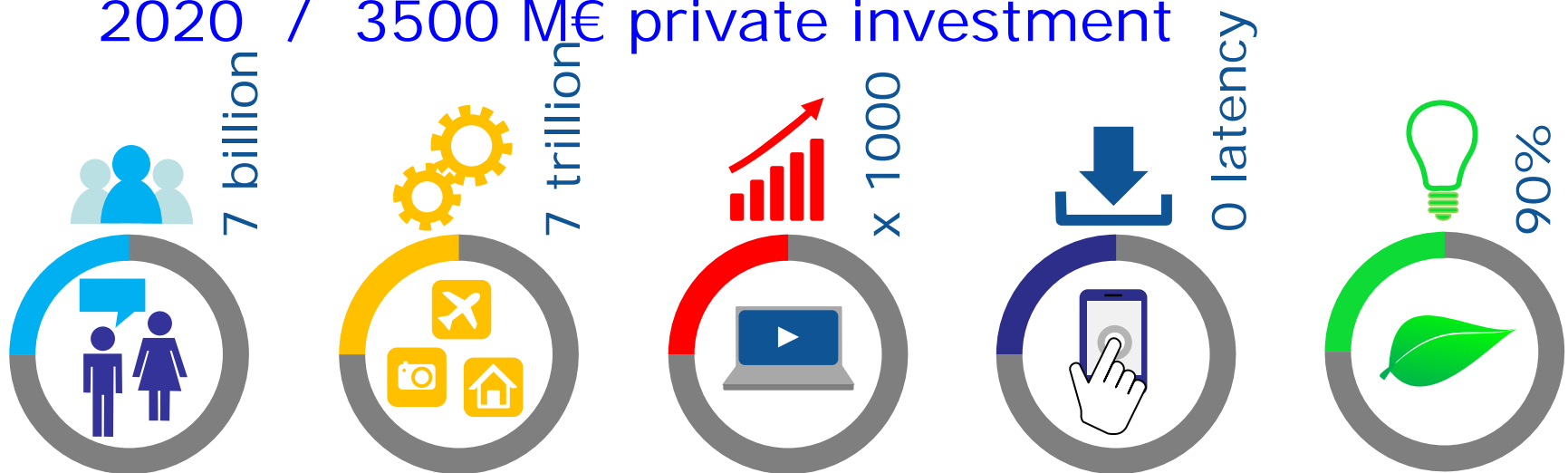
Measures to support 5G roll-out in EU

"Preserving 5G Global Interoperability for consumers": Standards and industrial policy challenges - >

- ☞ *Unite on vision, an act together in standardisation and other international matters*
- ☞ *Leverage international partnerships*
- ☞ *Promote emergence of efficient "fully fledged" 5G standards by end of 2019*

Supporting Actions: 5G PPP

- **5G Public Private Partnership launched in Dec. 2013**
 - Objective-driven (technical, economic, social) ⇒ contractual KPIs / 700 M€ public funding 2014-2020 / 3500 M€ private investment



5G PPP Collaborative Achievements

<https://5g-ppp.eu/white-papers/>

Moving on beyond Vision: 5G for verticals



5G empowering vertical industries

5G VERTICAL SECTORS

With 5G, networks will be transformed into intelligent ecosystem platforms.

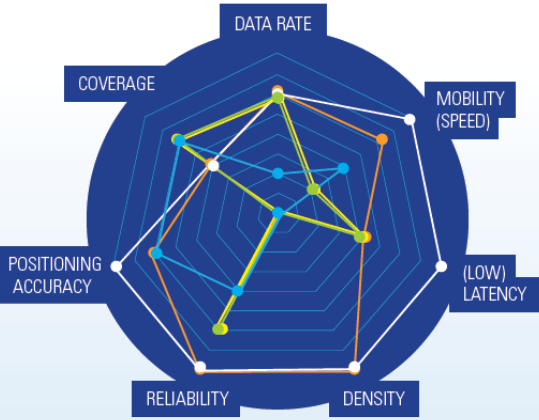
By connecting strong relationships between vendors, operators and verticals, 5G will open the field to new business value propositions.

The cases originating from verticals should be considered as drivers of 5G requirements from the onset with high priority and covered in the early phases of the standardisation process.

MOBILE IS EVERYTHING

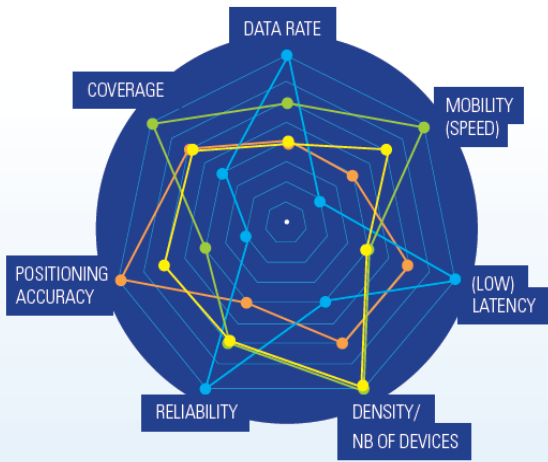
GSMA MOBILE WORLD CONGRESS

FACTORIES



- Time-critical process control
- Non time-critical factory automation
- Remote control
- Intra/Inter-enterprise communication
- Connected goods

EHEALTH

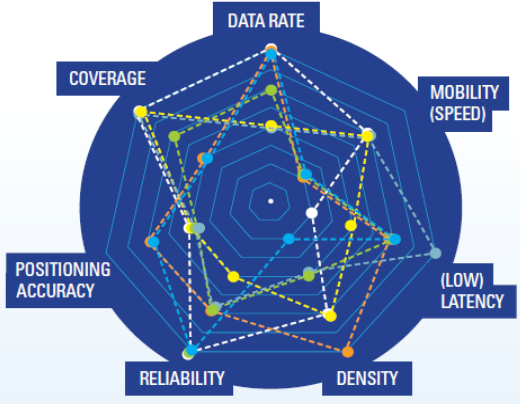


- Assets and Interventions management
- Robotics
- Remote monitoring
- Smart Medication



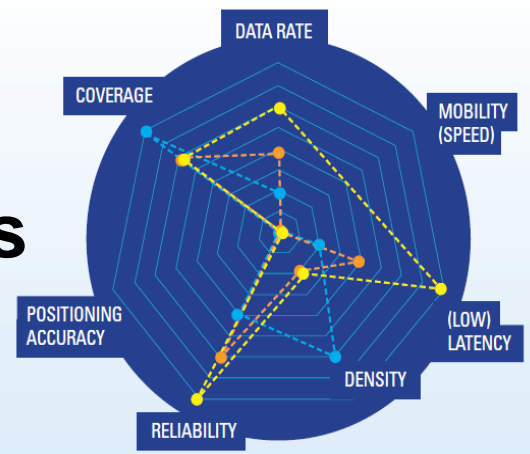
Vertical Requirements

MEDIA & ENTERTAINMENT



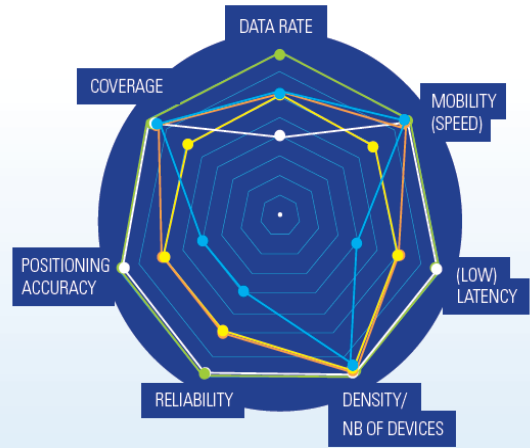
- Ultra high fidelity media
- On-site live
- User/Machine generated content
- Immersive and integrated media
- Cooperative media production
- Collaborative gaming

ENERGY



- Grid backbone
- Grid access
- Grid backhaul

AUTOMOTIVE



- Automated driving
- Share my view
- Bird's eye view
- Digitalization of transport and logistics
- Information society on the road

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



Preparing 5G PPP Phase 3 (WP18-20)

Survey on user needs,
studies on applications/services

Early 5G introduction
Lower frequency bands

Later 5G introduction
Higher frequency bands

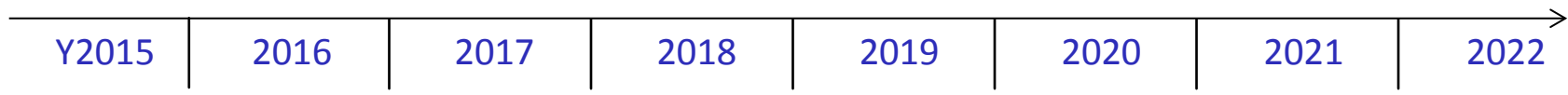
Phase 3 b) Integrated Verification Trial
services/functions
- radio+network+applications -

Phase 3 a) Verification
Demo/Trial
- Integration radio+ network


Phase I Core Techs

Phase 2 - Demos
PoC- Core Techs
Components

Work in Progress





 is inviting you to the
5G Global event in Rome, Italy
on November 9 and 10, 2016



The 5G Action plan

□ *What:*

Industry deployment of advanced 5G networks as from 2020 in a coordinated manner throughout the DSM, as a strategic driver for EU competitiveness.

□ *How:*

Proposing to MS the timely implementation of a **comprehensive set of operational steps to accelerate investments** in the following areas: very dense cellular coverage, superfast fibre backhauling, vertical industry driven connectivity services, new digital innovation ecosystems.



5G PPP Collaborative Achievements

<https://5g-ppp.eu/white-papers/>

- **5G PPP 5G Architecture - (White Paper) Updated July 2016**

This is the updated version of the 5G PPP View on 5G Architecture after incorporating the results of public consultations and discussions.

- **5G-PPP Stakeholders Survey. June 2016**

The Euro-5G project, in consultation with the other 18 5G-PPP projects, has produced this overview of the domains and sectors being considered by the projects as the target consumers of the solutions and technologies being addressed by the projects. >

- **5G-PPP use cases and performance evaluation modeling_v1.0 - April 2016**

This document provides an overview of the use cases and models that were developed for an early evaluation of different 5G radio access network concepts originating from various 5G-PPP phase 1 projects.

- **5G-PPP Pre-standards-WG Issues Paper - October 2015**

To come: 5G deployment scenarios

Towards 5G PPP Phase 2

research and innovation actions

- Critical technologies and Systems
- Radio Network and Architectures

106 M€

- Optical Core
- SDN/NFV, architecture, net mgt;
- R&I access nets (Taiwan)

Innovation actions

Optical support to access
Network apps

40M€

advanced
5G network
infrastructure

Support Actions

programme
integration,
monitoring

3M€

Keys: Verticals, experiments, demos