



5G PPP
Stakeholders event
From Phase 1 to Phase 2

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European Commission

5G PPP



- Public Private Partnership (PPP) research programme
 - Up to 700 million € public funding
 - Matched by expected private funding of about 3.5 billion €
- Covers policy areas too
 - Pre standardisation
 - Spectrum
 - International cooperation
- Implementation through an Industrial Association, 5G-I-A
- 3 Phases until 2020





5G-PPP Key ambitions

- 5G-PPP Program aims at delivering technologies, architectures and solutions to future 5G communication infrastructures
- Support of 5G-PPP targeted outcomes in global standards is a priority
- Program Ambitions: Key Challenges / High-level KPIs
 - Providing 1000 times higher wireless area capacity and more varied service capabilities compared to 2010
 - Saving up to 90% of energy per service provided. The main focus will be in mobile communication networks where the dominating energy consumption comes from the radio access network
 - Reducing the average service creation time cycle from 90 hours to 90 minutes
 - Creating a secure, reliable and dependable Internet with a “zero perceived” downtime for services provision
 - Facilitating very dense deployments of wireless communication links to connect over 7 trillion wireless devices serving over 7 billion people
 - Enabling advanced user-controlled privacy



5G Vision

What 5G is about



5G-PPP Approach



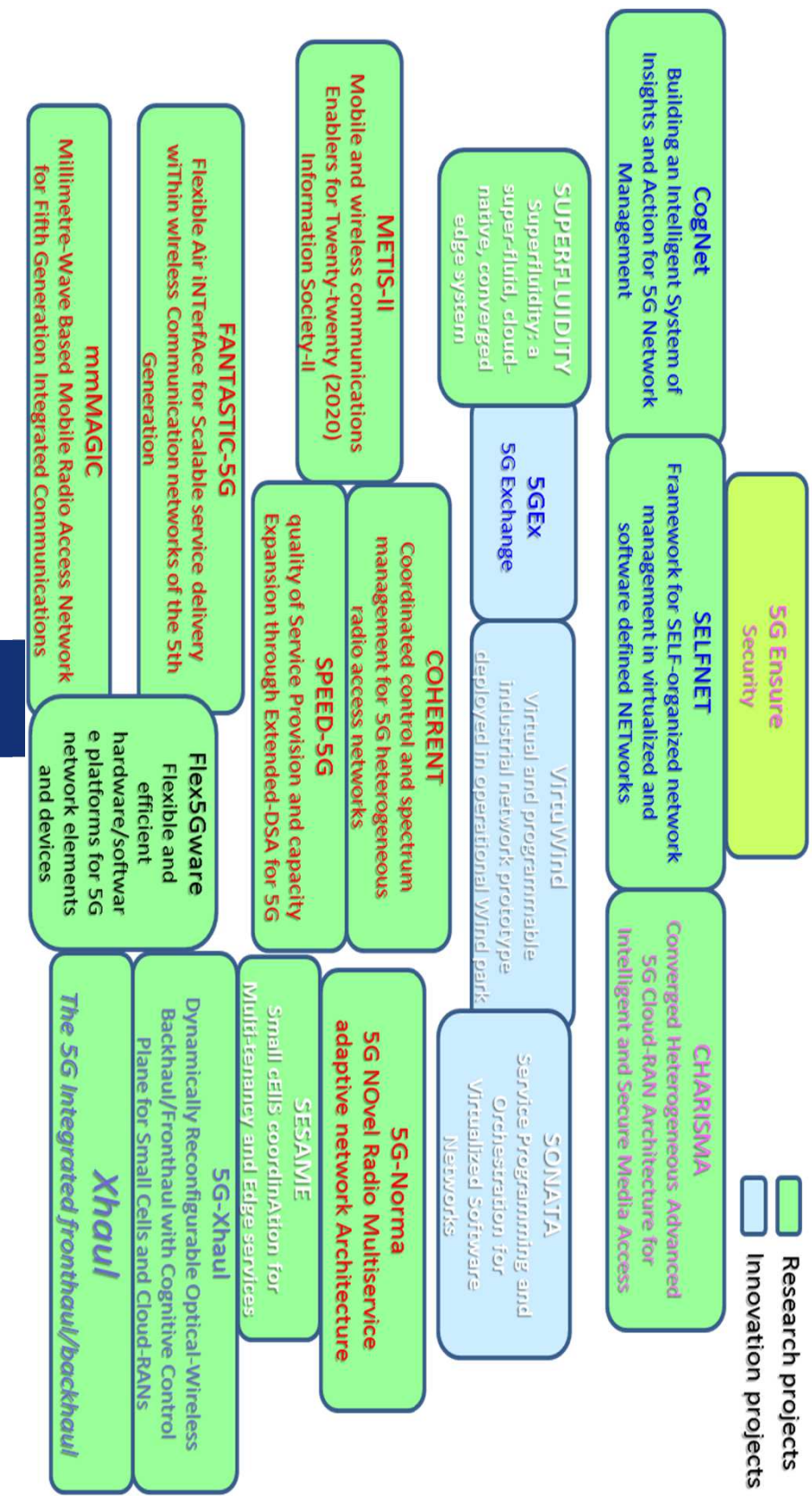
- 5G = digital infrastructure supporting **ecosystem for business innovation**
- Value-added **services**
 - Immersive user experience
 - Expanded Internet of Things
 - New mission critical services (low latency, high reliability)
- **Unified and programmable infrastructure**
- Support of **multi tenancy and network resource slicing models**
- Design to be a **sustainable and scalable technology**
- **Commercial deployment of 5G systems in years 2020+**
 - Field trials from year 2018 onwards, *not yet based on commercial products*
 - First commercial roll-outs expected to start in year 2020



<http://5g-ppp.eu/wp-content/uploads/2015/02/5G-Vision-Brochure-v1.pdf>



5G-PPP R&I Projects



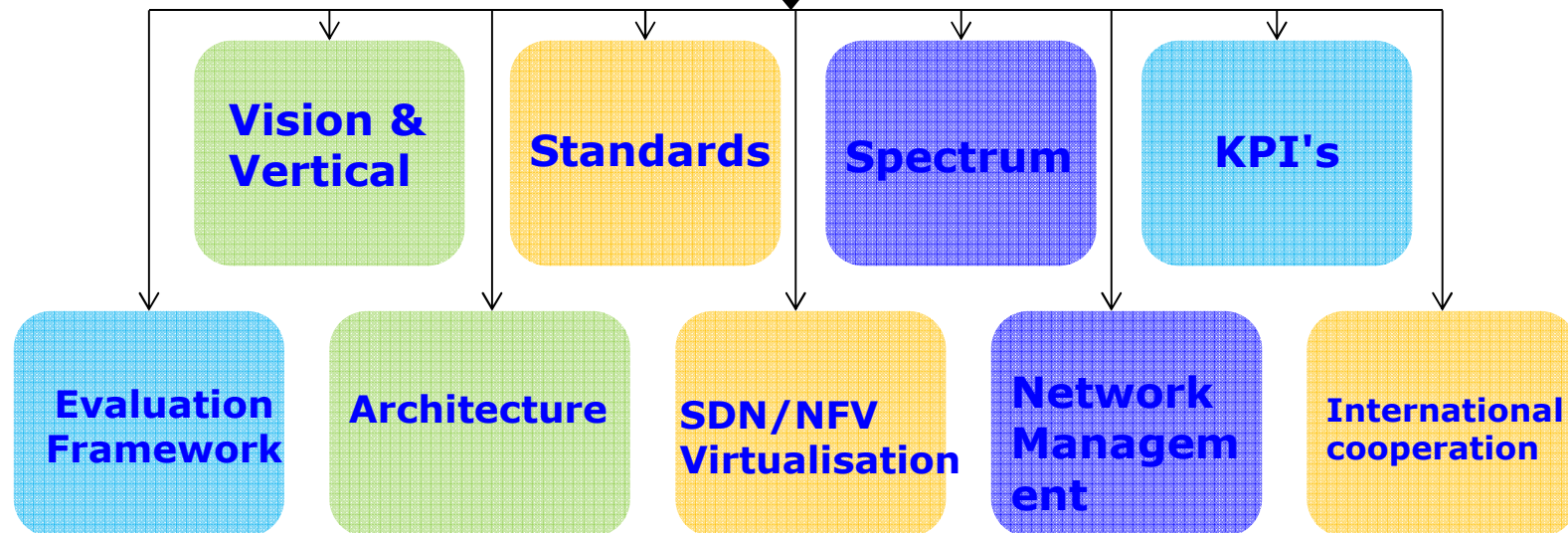
Launch: 1st of July 2015

Projects vs KPI's



Requirement	Peak data rate	Mobile data volume	E2E Latency	Reliability	Service deployment time	Energy efficiency	# of devices	Mobility
Project								
CHARISMA		✓	✓	✓				
SESAME		✓	✓					
SPEED-5G	✓	✓		✓			✓	✓
CogNet				✓	✓	✓		
SELFNET				✓	✓			
SUPERFLUIDITY		✓	✓	✓	✓	✓		
METIS-II	✓	✓	✓	✓	✓	✓	✓	✓
5G-NORMA	✓	✓	✓	✓	✓	✓	✓	✓
FANTASTIC-5G	✓	✓	✓	✓	✓	✓	✓	✓
5G-Xhaul		99.99%	99.99%	99.99%	✓		500km/h	
COHERENT		✓		✓	✓	✓	✓	✓
Flex5Gware		✓		✓	✓	✓	✓	✓
mmMAGIC	✓	✓	✓	✓	✓	✓	✓	✓
Xhaul	✓	90 minutes	✓	✓	✓	✓	1 M/km ²	✓
VirtuWind		✓	✓	✓	✓	✓		
SONATA				✓	✓	✓		
5GEx					✓	✓		
5G-Ensure		✓	✓	✓	✓	✓	✓	✓

Integration and Working Groups



Trailblazing Verticals



Graphic: Harvard Business Review Sept. 2015

- **5G Vision Paper published MWC 2015**
- **EC Study on socio-economic impact 5G**
- ***EU White papers on key verticals for MWC 2016 (5G-PPP)***
- **Phase 2 PPP**



White Paper Overview



- Automotive
- Energy
- Factory
- Healthcare
- Media

Graphic: Harvard Business Review Sept. 2015

RESEARCH Focus	Automotive	Energy	Factory	Health	Media
Ultra fast					X
Reliability/high capacity	X	X	XX	XX	XX
Low or ultra-low latency	X	X	XX	X	
Security	X	X		X	
Innovative business models	X	X	X		
Spectrum efficiency		X			X
Seamless user experience / heterogeneity / user context			X	X	XX
Deep indoor coverage / Localization/ Universal accessibility	X		X	X	X
Energy efficiency			X	X	
Innovative trial methodologies (testing usability & acceptability)				X	

5G R&I phase 2:



2017-2019



Focus on *Proof of Concepts, Experiments, Verticals*

Critical technologies and Systems (€100 m)

- Radio Network and Architectures
- Optical Core
- SDN/NFV, architecture, net mgt;

Convergent technologies (€45 m)

- Optical support to access
- Network apps
- Research cooperation in access nets (Taiwan)

***International cooperation* (6M€ for 5G with SK and JP);**

Support Action (€3m)





Some highlights

- Phase 2 = re-inforced programme dimension
- Testbeds and testing with verticals
- SME participation >20%
- Holistic perspective
- Satellite

Main 5G Call planning



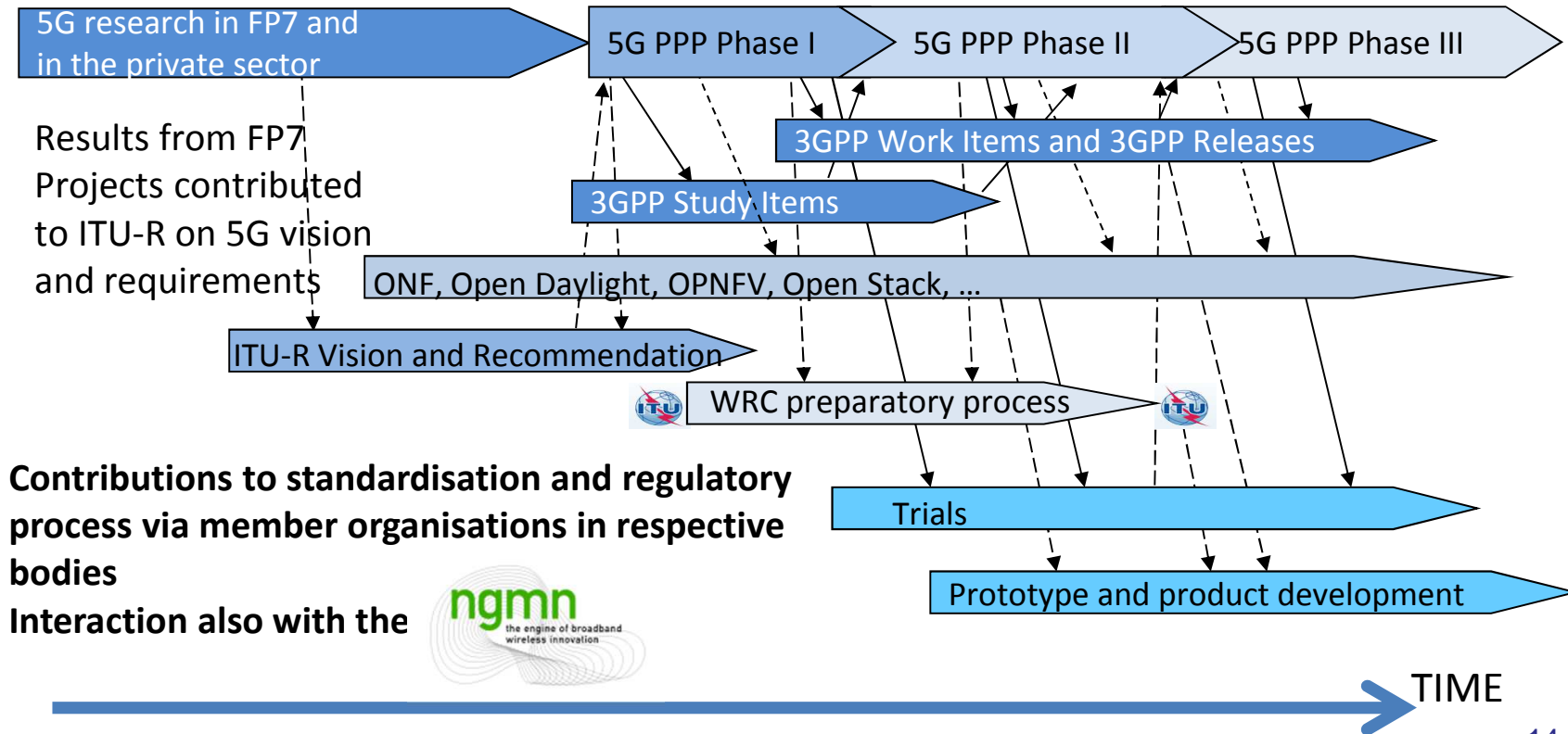
ICT-07-2017 & ICT-08-2017:

Opening: 10 May 2016

Closing: 08 Nov 2016



Designed to impact



International Cooperation



5G Joint Declarations signed with:

- South Korea
- Japan
- China



Mirrored by MoU at 5G-I-A level with

- 5G Forum
- 5G MF
- IMT 2020 (5G) Promotion Group

Other

- MoU US 4G america; FCC discussions
- Taiwan, Joint Research agreement

