

http://5g-ppp.eu/



5G PPP in Horizon 2020 of the EU



5G PPP is a research program in Horizon 2020 of the EU dedicated to 5G system research

- Budget for 2014 2020 time frame
 - Up to 700 million € public funding

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5G Infrastructure PPP

 Matched by private side including leveraging factor 5 of additional private investment results in private value of about 3.5 billion €

Research program is addressing all building blocks of a future communication network and a huge number of huge cases from vertical sectors

5G Infrastructure Association vision paper published at Mobile World Congress 2015 in Barcelona http://5g-ppp.eu/wp-content/uploads/2015/02/5G-Vision-Brochure-v1.pdf



- First set of projects started on July 1, 2015
- 23/10/2015 Source: 5G Infrastructure Association.

Key challenges



PPP Program that will deliver solutions, architectures, technologies and standards for the ubiquitous 5G communication infrastructures of the next decade

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

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ommunication networks













5G PPP Vision and Requirements 5G will have disruptive capabilities



5G will provide an order of magnitude improvement in performance in the areas of more capacity, lower latency, more mobility, increased reliability and availability

5G infrastructures will be also much more efficient in terms of

energy consumption

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- service creation time
- hardware flexibility









Horizon 2020 5G PPP Call 1 objectives 125 million € Funding



Radio network architecture and technologies

Support anticipated 1000 fold mobile traffic increase and very different classes of traffic/services

- Network architecture, protocols and radio technologies capable of at least a ten times increase in frequency reuse and new frequency ranges above 3,6 GHz
- Versatile low cost ubiquitous radio access infrastructure equally supporting low rate IoT and very high rate (>> 1 Gbit/s) access
- Flexible and efficient radio, optical or copper based backhaul/fronthaul with low latency
- Innovative architectures for 5G transceivers and micro-servers
- Experiment based research preparing for large scale demonstrator and test-beds

Convergence beyond last mile

Support integration of a ubiquitous access continuum composed of cooperative, cognitive fixed and heterogeneous wireless resources, with fixed optical access reaching at least the 10 Gb/s range

- Solving the management heterogeneity of different fixed and heterogeneous wireless networks
- Architectures to optimize reuse and sharing of functionality across heterogeneous access technologies and networks

Network management

Challenge to radically decrease network management Opex through automation whilst increasing user perceived quality of service, of experience and security

- Novel simplified (low Opex) approaches to overall management of the network (e.g. Self-organizing networks –SON) and service level management
- Combination of software defined network implementations with autonomic management of resources
- Network security across multiple virtualized or SDN domains

Network virtualization and Software Networks

Highly flexible, manufacturerindependent model of controlling reconfigurable resources supporting changing/emerging application requirements

- Virtualization of network functionalities at infrastructure level and implementation of network services
- Orchestration logic (SDN), enabling network programmability, automation of cross domain network configuration, simplification and programmability of devices
- Tighter integration between application/service layers and networking layers
- Support of open network functionalities for dynamic integration with third party and OTT cloud environments





Source: 5G PPP Annex to contractual arrangement.

Relation to vertical sectors

- White papers on
 - 5G and Factories of the Future
 - 5G and Healthcare
 - 5G and Energy
 - 5G and Media
 - 5G and Automotive
- Identification of

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communication networks

- main use cases and
- areas for research and innovation



Conclusions



5G PPP is a research program in Horizon 2020 of EU Commission dedicated to 5G system research and development

- 5G PPP is open for international participation
- Collaborative research as means for consensus building to prepare future standards
- 5G PPP vision and requirements similar to views in other regions and international bodies and associations
- Large project portfolio or cooperating projects, which are addressing major elements and building blocks of a future communication network
- Relations to vertical sectors are currently being established
- Research results are expected to be contributed by project participants to the international standardisation and regulatory process

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23/10/2015 Source: 5G Infrastructure Association.

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