5G PPP – Smart Connectivity beyond 5G

The work covers the long term transformation of networks into a distributed smart connectivity platform with high integration with (edge) computing and storage resources. Work should lead to solutions where processes and applications are dynamically supported depending on the information flows and application requirements. It should enable novel interaction between human and digital systems based on new terminal types embedded in the daily environment, e.g. in cars, doors, mirrors, appliances, and new interfaces recognising gestures, facial expressions, sound and haptics. Work should lead to smart connectivity infrastructure with adaptive topologies that supports a virtually infinite capacity and perceived zero latency, highly diverse device densities and highest reliability and availability[[The 5x9 availability level of 5G is being perceived as insufficient in some industrial environments, e.g. in factories for high accuracy robot control, telesurgery, or some high end applications of connected cars]]. I

The challenge is to go well beyond the 5G capabilities developed under 3G PPP release 16 that will become available early 2020. It also looks beyond 5G to prepare for the realisation of Smart Connectivity systems as a platform for a Next-Generation Internet, which should support a highly flexible connectivity infrastructure that can dynamically adapt to changing requirements of innovative applications whilst facilitating user data control and innovation friendly implementation of relevant legislation. This requires a full value-chain approach towards seamless and secure end-to-end interworking with computing resources (e.g. distributed data centres, edge computing) and with a range of innovative devices.

- Smart connectivity technologies for platforms integrating ubiquitous connectivity, storage, and computing resources opening for new service and business models.
- Smart connectivity platforms integrating technologies and architectures towards perceived zero latency.
- Network scalability towards a high number of resource-constrained (IoT) devices, multiplicity of service requirements, and new user-controlled connectivity paradigms.
- Characterisation and availability of secure and trusted environments for software based virtualised networks, including underlying hardware limitations and enabling trusted multi-tenancy.

- Innovative radio spectrum use, novel strategies for coverage/service extension, support of novel wireless technologies and use cases through platforms, usability of today unexplored spectrum.
- Heterogeneous networks with dynamic topologies for advanced mobility solutions.
- Dynamic scalability of network capabilities through availability o

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