

SPEED-5G

Project name SPEED-5G

(quality of Service Provision and capacity Expansion through Extended-DSA for 5G)

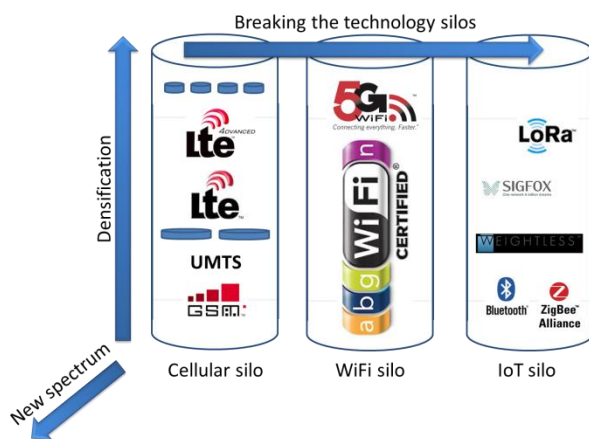
MAIN OBJECTIVES

The main objective of SPEED-5G is to achieve a significantly better exploitation of heterogeneous wireless technologies, providing higher capacity together with the ultra-densification of cellular technology, and effectively supporting the new 5G Quality of Experience (QoE) requirements.

In SPEED-5G we will develop new techniques for optimizing spectrum utilization, following three main dimensions:

- i. ultra-densification through small cells,
- ii. additional spectrum,
- iii. exploitation of resources across technologies.

In SPEED-5G this three dimensional model is referred to as extended-Dynamic Spectrum Allocation (DSA), where several spectrum bands, cells and technologies are jointly managed in order to offer improved QoE and a tremendous capacity increase in a cost-efficient manner.



USE CASES

SPEED-5G will address some key 5G use cases, namely

- The ultra-dense deployments of small cells,
- The provision of broadband access everywhere (focusing mainly on indoor and outdoor areas around buildings),
- The support of massive IoT.

TECHNICAL AND RESEARCH CHALLENGES

On the research front, SPEED-5G will investigate and develop different sets of mechanisms and techniques for dynamic capacity and coverage expansion, including:

- Combining radio technologies, spectrum and transmit energy,
- Coexistence and interference control mechanisms using emerging multicarrier waveforms,
- Operation in dirty/grey spectrum,
- Management mechanisms in support of spectrum micro-trading in lightly-licensed bands, which are currently not utilized,
- Techniques in support of centralized / distributed smart resource management.

SPEED-5G will research and develop the appropriate functionalities for addressing the mentioned challenges and a testbed to illustrate the gains that can be achieved. SPEED-5G will undertake a holistic experimentation by extending an existing 5G testbed, in particular w.r.t. spectrum and traffic management features in ultra-dense environments.

IMPACT

SPEED-5G will provide solutions answering the request for a thousand-fold increase in mobile traffic volume over a decade and for efficiently supporting very different classes of traffic and services. SPEED-5G will contribute to the ongoing effort of the European industry to drive the development of 5G standards. The project will also contribute to improving the innovation capacity in the wider ecosystem, leveraging on the European expertise network and increasing the appeal of European R&D centers.

Project Coordinator: Sistelbanda

Partners: Eurescom, British Telecom, CEA-Leti, Intel Deutschland GmbH, Intracom Telecom, Instituto de Telecomunicações, Rohde & Schwarz, University of Surrey, WINGS ICT Solutions

More information at: <https://5g-ppp.eu/speed-5g>

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