

5G: Technology overview Challenges and Innovative Solutions

Compared to the previous generations of mobile networks, 5G will provide a significant paradigm shift by including beyond state of the art technical solutions, like very high carrier frequencies with massive bandwidths, extreme base station and device densities, and very high number of transceiver antennas. However, unlike the previous generations, it will also be highly integrative and backward compatible: combining the novel 5G air interface and spectrum together with legacy wireless systems like LTE/LTE-A and WiFi, in order to facilitate an umbrella of high-rate coverage and a seamless user experience. In order to support this advances in the radio interface, the core network will also have to reach unprecedented levels of elasticity and intelligence. Spectrum regulation will need to be rethought and significantly improved, whereas energy and cost efficiencies will become one of the key parameters that will steer the 5G design and development.

This talk will outline the 5G related topics, elaborating on the 5G vision, scenarios and technical requirements. The talk will also identify the key research challenges and solutions for the Radio Access Networks, and Core Networks. It will present the preliminary 5G standardization activities and expected timeline, and will provide a comprehensive survey of the current worldwide R&D activities.