6G-ANNA
6G-Access, Network of Networks, Automation and Simplification

A lighthouse project to advance 6G in Germany and Europe

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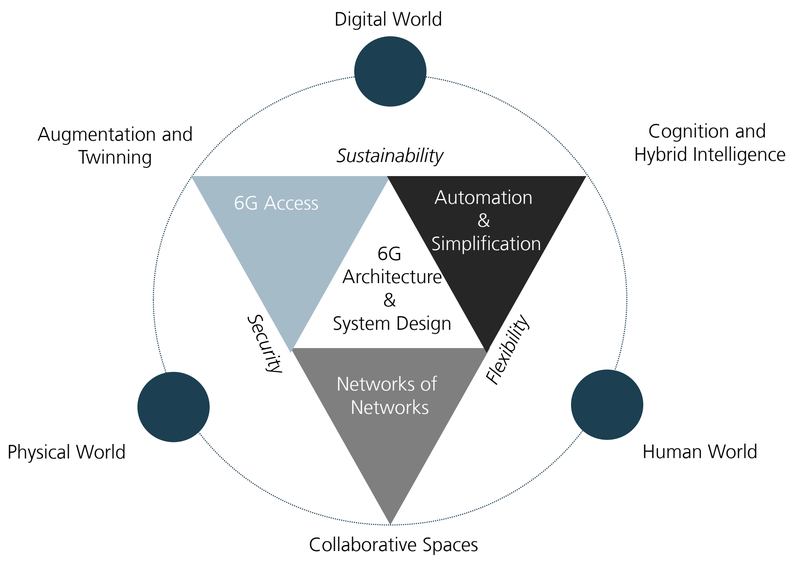
6G-ANNA (6G-Access, Network of Networks, Automation & Simplification) aims to deliver a holistic system approach for 6G mobile systems. A broad consortium of industrial companies, both from communications industry and from companies on the application side (including SMEs and startups), and proven academic experts have come together to take a pioneering role in the development of 6G communications technologies for Germany and thus also Europe, in line with the High-Tech Strategy 2025 of the Federal Republic of Germany.

Objective of 6G-ANNA

The goal of 6G-ANNA is the conceptualization and validation of a holistic 6G system that puts people at the center. In concrete terms, this means enabling them to interact with other people and machines in a novel way, for example with the help of holographic communication and extended reality (XR) tools. The three sub-worlds of the digital ("Digital"), the physical ("Physical") and the human-biological ("Human") form the starting point for the solution path to a 6G system that enables such future applications. They will be combined within the framework of the innovative application areas described.



6G-ANNA: Combining the digital, physical and human world

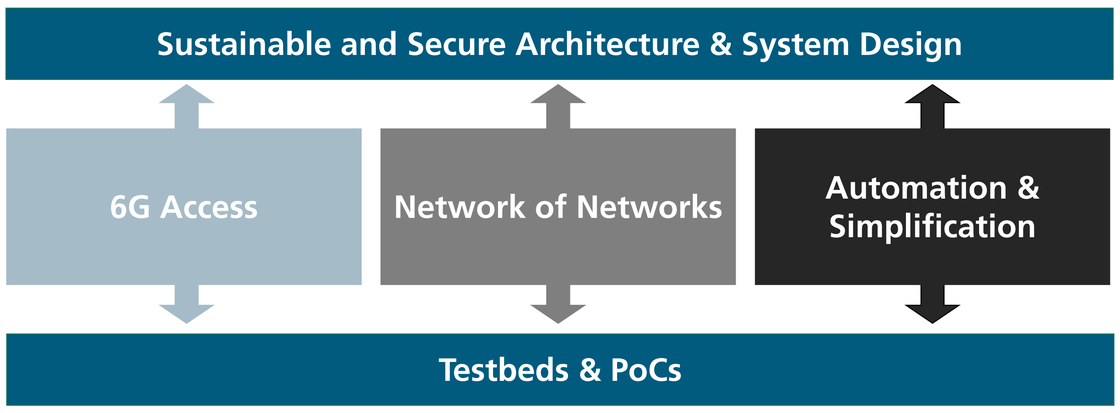
Application areas

Augmentation and Twinning
deals with the fusion of the digital and physical world, e.g., digital images and variants of the real world, as well as the enrichment of the real world with virtual objects (XR).

Cognition and Hybrid Intelligence
The increasing interconnectedness of humans and digital systems enables continuous, reciprocal learning. Examples of applications include AI-supported learning in schools, universities and in-company training and further education centers. This interaction, which puts people first, also creates the necessary trust and acceptance of a 6G system

Collaborative Spaces
focuses on human-machine interaction, e.g., collaboration between robots and humans in industrial production, in selected scenarios of nursing and elderly care, or in the home.

Project structure of 6G-ANNA



6G Architecture & System Design
Application areas and requirements for future 6G networks are evaluated and extended. Focusing on application areas where a 6G network can essentially improve sustainability for other industrial fields and society. A functional 6G architecture and system design will be developed with sustainability as an essential part.

6G Access
New and improved concepts for the physical and access layer of the 6G system are developed to meet the high future requirements of mobile communications in the next decade, especially with regard to energy efficiency and security and reliability, which are particularly important for industrial applications.

Networks of Networks
Integration and interaction of different subnets must consider security aspects as well as fail-safety. Today's networks are very diverse, i.e., they use different protocols and serve different requirements. In 6G, the dynamics of the networks are expected to increase significantly.

Automation & Simplification
Novel management and orchestration approaches such as AI-native management, real-time digital twins, the reduction of the immense data volumes, and the support of extended reality (XR) are being researched and tested for flexible, secure, trustworthy and sustainable networks and end devices

Testbeds & PoCs
Test sites including the Fraunhofer IPT production hall, and mobile radio testbeds are provided to test the developed concepts.

6G-ANNA

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