**6G-ANNA**

**Holistic approaches for 6th generation mobile networks**

**Motivation**
Innovative communication systems are key technologies for digitization and pave the way for a hyperconnected economy and society. The future mobile communications standard 6G plays an important role in this. Before market launch, which is expected around 2030, numerous technological and societal issues still need to be resolved. It is already clear that simplified interaction between people and technology will be central to the development of 6G. Crucial for a functioning, hyperconnected world in which “everything interacts with everything” are powerful, trustworthy, and sustainable 6G systems that take the European Union’s principles of action and values into account. In international competition, it is therefore important for Germany to drive 6G research early and quickly forward to be able to exert a significant influence on the standardization of 6G.

**Goals and procedure**
The goal of the “6G-Access, Network of Networks, Automation & Simplification (6G-ANNA)” project is to develop a holistic design for the sixth generation of mobile communications that includes an end-to-end architecture. To this end, the fundamentals of radio access are first investigated, and innovative protocols and signal processing algorithms are designed and implemented. This is followed by the investigation of appropriate network management and orchestration approaches. The goal is to simplify and improve the interaction between humans, technologies, and the environment. One contribution is made by new sensors and algorithms for the recognition of human movements. For example, digital twins of complex machines in manufacturing can be precisely mapped to control them remotely. Another focus is the investigation of 6G as a “network of networks” in which - similar to the Internet - different closed networks are flexibly interconnected. Here, the focus is on security aspects and resilience. Overall, flexibility and reducing energy consumption while maintaining network performance are important goals in all research work - from individual radio access to the integration of multiple networks.

**Innovations and perspectives**
The “6G-ANNA” project is making a significant contribution to the development of technologies that will enable the introduction of 6G. The German industry can build up the relevant know-how to deploy 6G networks in a self-determined manner. Incentives are also being created to increase the production of key components in Germany and Europe. At the same time, it will be ensured that the requirements of Germany’s leading industries are incorporated into the 6G standard. In this way, 6G technologies will become part of cutting-edge technologies in the lead industries at an early stage. Overall, the results of the project contribute significantly to technological sovereignty in Germany and Europe.
6G-ANNA facts

- Start 01 July 2022
- Duration 3 years
- 38.4 Mio Euro project volume (70% funding)
- 30 partners: Large enterprises, SMEs and startups, research institutes and academia
- 4 associated partners
- Project lead: Marco Hoffmann (Nokia)

Coordinator

NOKIA

Industry

ERICSSON AIRBUS SIEMENS ROHDE & SCHWARZ BOSCH Vodafone

SMEs & startups

Mimetik PHYSEC MESHMERIZE CADAMI blackned SMART MOBILE LABS wandelbots

Research Institutes

Fraunhofer HHI Fraunhofer IPT Fraunhofer AISEC

Universities

TUHH Technische Universität Hamburg RWTH Aachen University TUM Technische Universität München KIT Karlsruher Institut für Technologie RWTH Aachen University

Associated

AIRBUS Einhell Mercedes-Benz SAP