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Federal Ministry of Education and Research

6G Platform Germany

The German 6G Program

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Hans D. Schotten

German 6G Program

6G program announced in April 2021

- 6G Platform, October 2021 – 2025
- Four 6G Research Hubs, 2021 – 2025
- Eighteen 6G Industry Projects, 2022 - 2025
- Projects on Resilience of Communication Infrastructures, 2023 – 2025
- AI-NET, 2021 - 2024

6G Platform Germany

Our Mission

- Umbrella organisation and networking platform for 6G program
- Managing liaisons and collaboration with other international 6G programs
- Harmonisation of concepts and results for joint dissemination
- Creating an innovation network with SMEs and start-ups
- Ensuring acceptance of 6G concepts in society by a bidirectional science communication process
- Creating a skilled worker force
- Creating harmonized German contributions to UN SDGs

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WG1
Science Communication

Bidirectional communication process
with society and stakeholders
in order to

- understand and harmonize expectations and key requirements,
- create transparency on planned concepts and applications,
- raise acceptance and adoption of technological innovations,
- attract the next generation of communication engineers.

WG 1 Science Communication

WHY?

5G has raised concerns in society on electromagnetic exposition and privacy issues (and technological sovereignty and coverage in rural areas).

Adoption of 5G in some vertical industries is slow.

6G?

The use of new frequency bands, the integration of sensing capabilities in networks, the required investments, some new applications might result in similar concerns.

Vertical user groups are today reluctant to support 6G processes.

How?

Early dialogue with all stakeholders, press, political decision makers, vertical user groups.

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WG2

Societal perspective

Sustainability and participation

WG3

Maximising impact

Involving vertical industries, SMEs, innovation management

WG4

Building a global 6G vision

Vision, use cases and roadmaps

WG5

Security, Resilience, and Trustworthiness

WG2 „Sustainability and participation“

- Sustainability of 6G (i.e., Green 6G), 6G as key enabler for a sustainable digitalisation (e.g., by digital twins); participation (rural areas);

WG3 „Innovation Management“

- Organising workshops and discussions with industry associations and vertical industry representatives, e.g., automation, PPDR, PMSE, … in order to align roadmaps, coordinate standardization, manage expectations, …

WG4 „Vision and Use Cases“

- Contributing to a global process, aligning innovation cycles (e.g., with ME)

6G Research Hubs

- Four 6G research hubs with an overall budget of approx. 250 M Euro started in 2021
- 160 research groups at overall 21 universities and 15 research institutes
- More than 40 SMEs are already part of the research network

6G Industry Projects

18 projects starting in H2, 2022, all lead by industry

Overall around 70 industry partners, 20+ universities, and 9 research institutes are involved.

Industry participation includes

- major infrastructure vendors,
- globally active MNOs,
- test- and measurement equipment and service providers,
- major semiconductor manufacturers,
- OEMs in automotive, airplanes, drones, robots, automation equipment, commercial vehicles, medical equipment, …
- infrastructure operators (factories, airports, …),
- more than 40 small and medium companies with products completing the 6G ecosystem or benefiting from 6G connectivity.

6G Industry Projects

Focus **use case scenarios and application areas** are

- Campus networks (automation, campus logistics, …),
- Medical scenarios (hospitals, emergency, operation theatre, …)
- Mobility (automotive, commercial vehicles, drones, …)
- Global coverage (rural areas, in-X networking, …)

Almost all **components** and many new **system engineering concepts for 6G systems** will be addressed with a focus on

- Joint Communications and Sensing,
- Realtime and sync'ed networking,
- D2D, infrastructure-less, nomadic and organic networking,
- Device management, authentication, security concepts,
- Disaggregation, Open RAN evolution, OpenXG, open interfaces for third parties, …,
- Massive usage of AI everywhere,
- RF components (antennas, modulators, microelectronics),
- mmW and THz technology integration,
- Energy-efficient Terabit and other specialized transceiver technologies.

6G Industry Projects

6G ANNA (lead Nokia) is the German 6G flagship project.

- Strong industry representation in IT and OT domains.
- Focus on integration of concepts, system engineering, … .
- 6G-Access, Network of Networks, Automation & Simplification
- Collaboration with EU flagship

6G TakeOff (lead: Deutsche Telekom)

- 3D networking – satellites, HAPs, LAPs, drones
- Deep integration of 6G non-terrestrial networks (NTN)

6G Campus (lead: NXP)

- Open XG, device management and new authentication concepts,
- JCS for campus networks, AI usage

6G Health (lead: Vodafone)

- Smart hospital, tele-medicine, remote patient monitoring
- Integration of sensing, privacy, resilience, XR, massive computing

6G Industry Projects

6G NEXT (lead Deutsche Telekom)

- Real-time and reliable 6G support for demanding, massive XR applications
- E2E solution with high-speed software layer integrating data processing and connectivity
- Air-traffic anti-collision system and holographic 3D communication

6G ICAS4Mobility (lead: Bosch)

- Integrated Communication & Sensing for Mobility using sidelinks,
- Mobility scenarios with cars, AGVs, drones, …, security and privacy.

6G-Terafactory (lead: ADVA)

- Out-of-the-box campus network (non-public network, secure zero-touch operation)
- Open RAN based, open interfaces for specialized third party functionality

… and eleven more projects …

Contact Information

Prof. Dr. Hans D. Schotten

6G Platform Office

German Research Center for Artificial Intelligence (DFKI)

and University of Kaiserslautern

Email: schotten@dfki.de

Mob: +49 173 388 9470