INTRODUCING FINNISH 6G FLAGSHIP: WORLD’S FIRST 6G RESEARCH PROGRAMME

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Vision for 2030

Our society is data-driven, enabled by near-instant, unlimited wireless connectivity.

6G will emerge around 2030 to satisfy the expectations not met with 5G, as well as, the new ones fusing AI inspired applications in every field of society with ubiquitous wireless connectivity.

6G Flagship Vision Video for 2030:

https://www.youtube.com/watch?v=T6ubRoZCeVw
6G Enabled Wireless
Smart Society & Ecosystem

- National Flagship for 2018-2026
- Volume 251 M€
- Operated by University of Oulu
- Collaboration with Nokia, VTT, Aalto University, BusinessOulu, OUAS.

6G Flagship was elected as Finland’s high-tech Flagship, by Finnish Government through Academy of Finland
6G Flagship Goals

• To support companies in **finalisation of the 5G** standard by carrying out technology and system pilots.

• To develop the **fundamental technology components to enable 6G** systems.

• To speed up **dependable, robust and secure digitalisation of society via 5G and 6G**.
6G Flagship Strategic Research Areas

1. Wireless Connectivity
   Ultra-reliable low-latency communications
6G Flagship Strategic Research Areas

1. Devices & Circuit Technology
   THz communications materials and circuits
6G Flagship Strategic Research Areas

1. Distributed Computing
   Mobile edge intelligence
6G Flagship Strategic Research Areas

1. Applications and Services
   Multidisciplinary research across verticals
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The Summit launched 6G White Paper development with 70 experts from around the world representing different stakeholders.

New version of 6G White Paper will be prepared annually.

https://www.6gsummit.com/
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Cornerstones of 6G Research Vision

1. 6G technologies will bring to life the data-driven and hyper-connected future society.

2. Major drivers for 6G include sustainability goals and societal challenges on top of productivity targets and technology enablers.

3. Numerous business and societal players together create the new 6G infrastructure, products and services.
Drivers for 6G Research

**SUSTAINABILITY GOALS**
- Quality Education • Clean Water and Sanitation
- Gender Equality • No Poverty • Good Health and Well-being • Climate Action • Sustainable Cities and Communities • Peace, Justice, and Strong Institutions
- Zero Hunger • Industry, Innovation and Infrastructure • Reduced Inequalities
- Responsible Consumption and Production • Decent Work and Economic Growth

**SOCIETAL CHALLENGES**
- Education Innovations • Societal Services
- Health and Wellbeing Services • Urbanisation vs. Remote • Infrastructure • Work Life Change
- Data Security and Privacy • Automation Personalisation

**TECHNOLOGY ENABLERS**
- Non-device Centric Communications
- Accurate Positioning • Data Sharing
- Novel Sensing • Small Data AI • Distributed Trust
- Cyber-physical Security • Terahertz Technologies
- 4D-Imaging • Haptic Remote Telepresence
- Photonic Signal Processing • Proactive Decision Making
- Pervasive User Identification
- Zero-energy Communications • AI Inspired Air Interfaces

**PRODUCTIVITY IN VERTICAL INDUSTRIES**
- Health • Manufacturing • Finance Technologies
- Society 5.0 • Transport • Global Affordable Coverage • Education • Agriculture • Energy FinTech
Transition to higher frequencies and increasing role of indoor networks will boost network sharing in cities and indoor spaces, and drive the “local operator” paradigm.
Stakeholder roles in 6G will change compared to the current mobile business ecosystem and new roles will emerge.
6G PESTLE Analysis

We are moving towards a data sharing / data market economy where issues with data ownership and contractual policies require special attention.

PESTLE - political, economic, social, technological, legal and environmental analysis
Many of the KPIs used for 5G are valid also for 6G. However, the KPIs must be critically reviewed and new KPIs must be seriously considered.
Integration of sensing, imaging and highly accurate positioning capabilities with mobility opens a myriad of new applications in 6G.
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www.6Gsummit.com
THANK YOU!

QUESTIONS?

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