
ACADEMY OF FINLAND
FLAGSHIP PROGRAMME
6G
FLAGSHIP
UNIVERSITY
OF OULU
INTRODUCING FINNISH 6G FLAGSHIP:
WORLD'S FIRST 6G RESEARCH PROGRAMME
Dr.Sc., Ph.D. Marja Matinmikko-Blue
University of Oulu
6GFLAGSHIP.COM | #6GFLAGSHIP

Vision

6G

6G Flagship Vision Video for 2030:

https://www.youtube.com/watch?v=T6ubRoZCeVw

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.

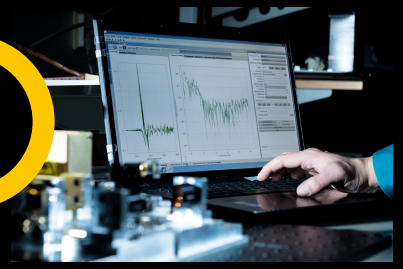
World's first 6G research program

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 UNIVERSITY OF OULU

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

1. 

Wireless Connectivity

2. 

Devices & Circuits

3. 

Distributed Computing

4. 

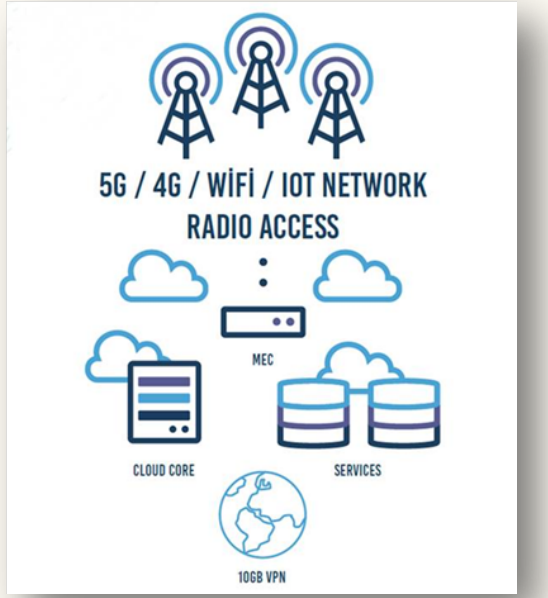
Services & Applications

6G Flagship Goals

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

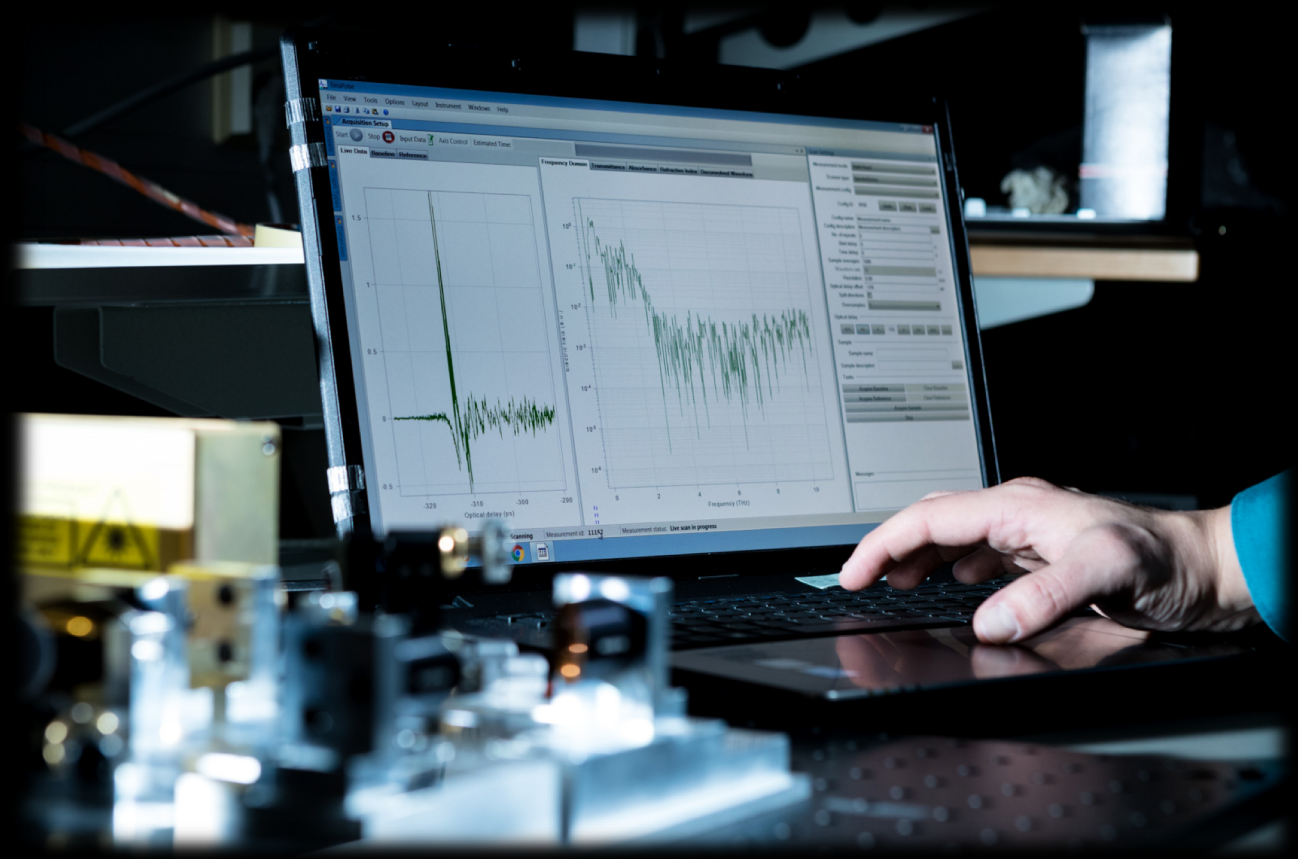
- To develop the **fundamental technology components to enable 6G** systems.

- 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
2.
3.
4.



6G Flagship Strategic Research Areas

1.

2. **Devices & Circuit Technology**
   THz communications materials and circuits

3.

4.

6G Flagship Strategic Research Areas

1.

2.

3. **Distributed Computing**
   Mobile edge intelligence

4.

6G Flagship Strategic Research Areas

1.

2.

3.

4. **Applications and Services**
Multidisicplinary research across verticals

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WORLD'S FIRST 6G WHITE PAPER

Published 9th of September 2019
http://urn.fi/urn:isbn:9789526223544

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6G White Paper Process

- World's first 6G Wireless Summit gathered major telecom players to throw ideas around 6G including speeches from Nokia, Ericsson, Orange, Telia, NTT DoCoMo, Samsung, MediaTek, and China Telecom, among others, in Levi, Finland in March 2019.
- 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.

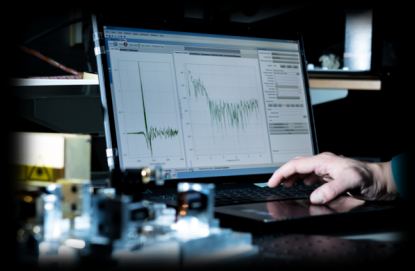
https://www.6gsummit.com/
http://urn.fi/urn:isbn:9789526223544

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

PRODUCTIVITY IN VERTICAL INDUSTRIES

Health • Manufacturing • Finance Technologies Society 5.0 • Transport • Global Affordable Coverage • Education • Agriculture • Energy FinTech

SOCIETAL CHALLENGES

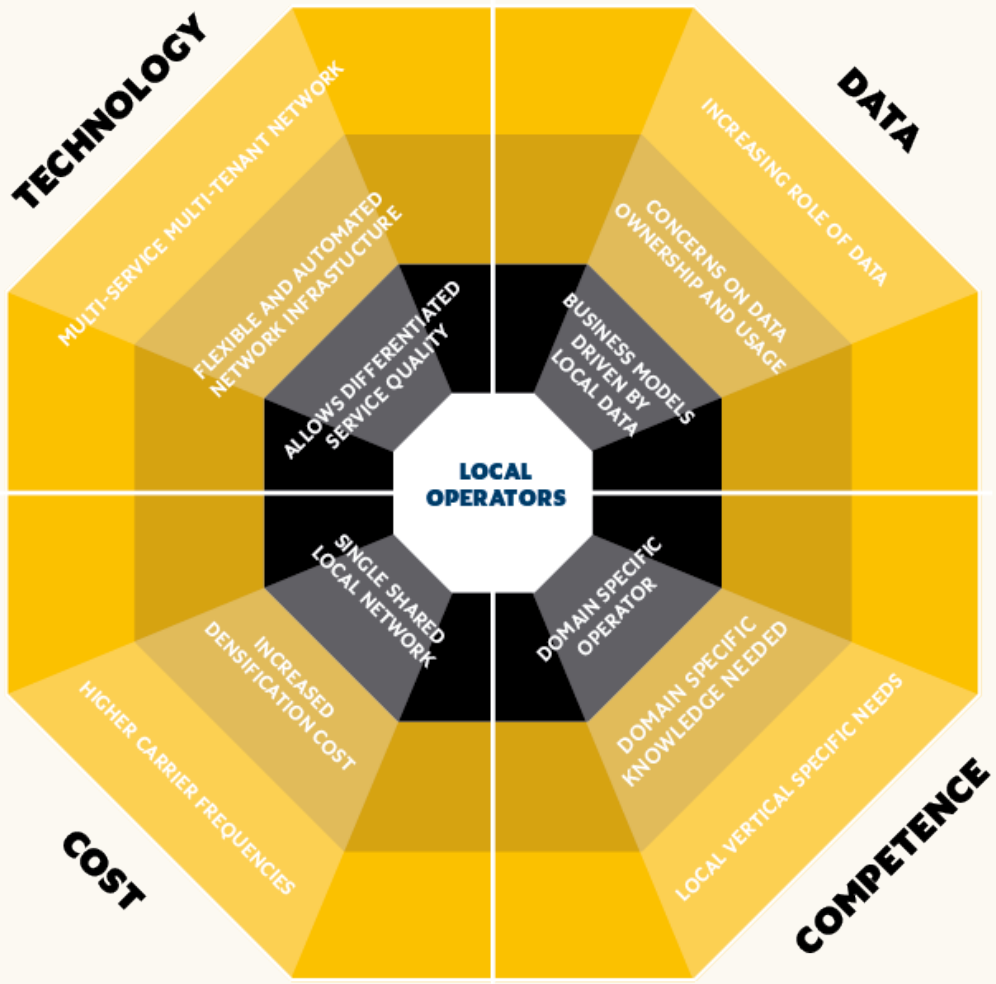
Education Innovations • Societal Services Health and Wellbeing Services • Urbanisation vs. Remote • Infrastructure • Work Life Change Data Security and Privacy • Automation Personalisation

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

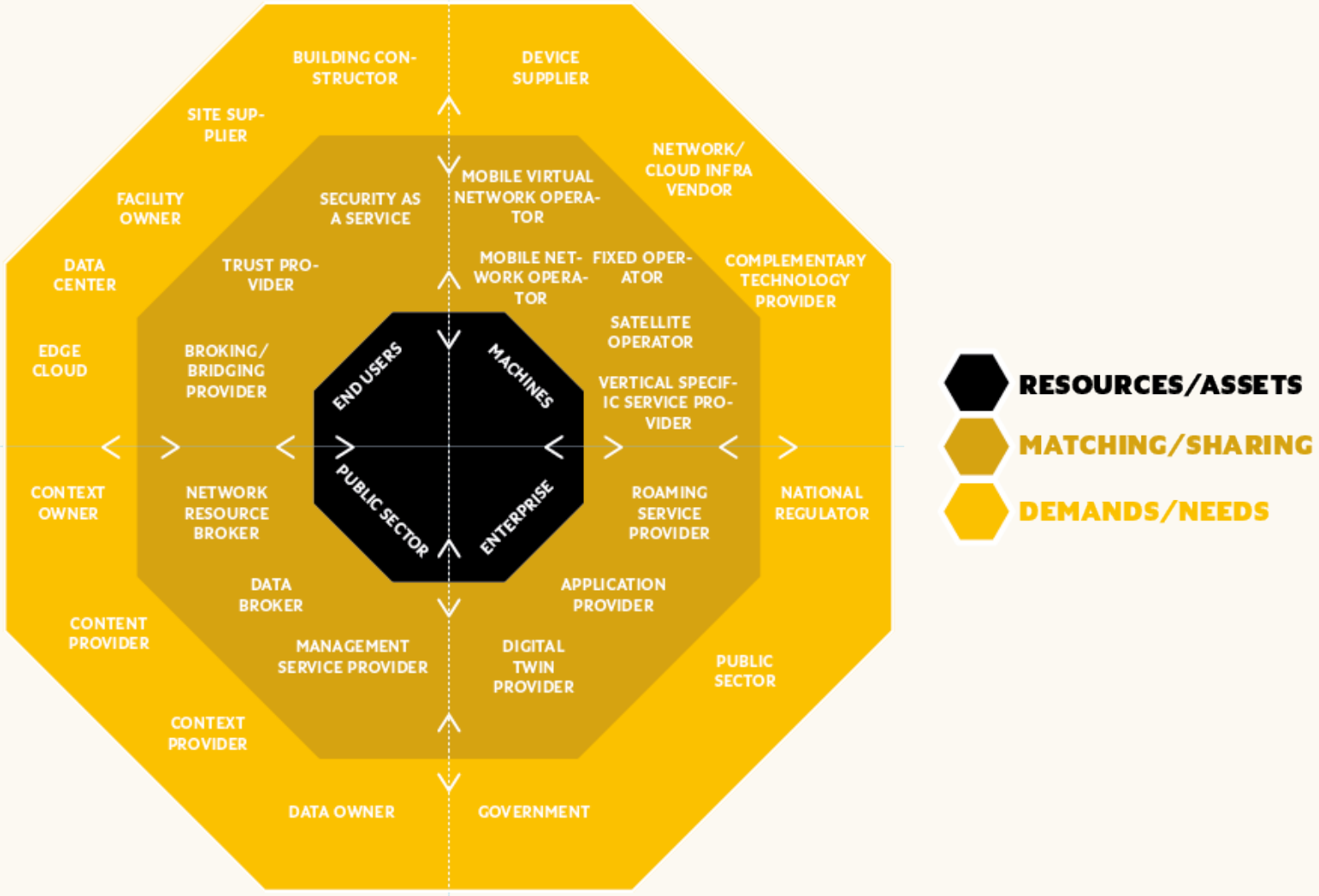
Towards Local Operator Paradigm

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.



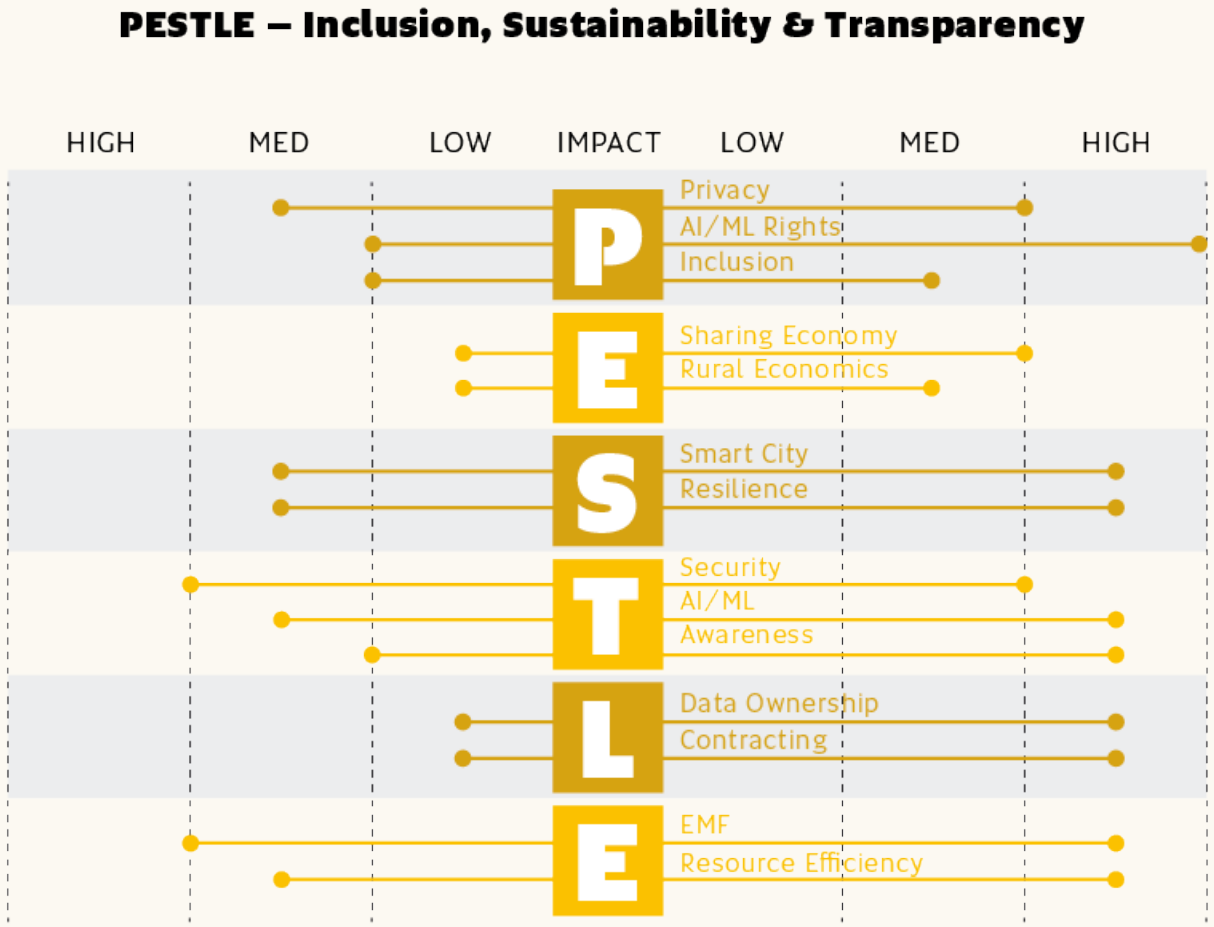
Future 6G business ecosystem

Stakeholder roles in 6G will change compared to the current mobile business ecosystem and new roles will emerge.



6G PESTLE Analysis

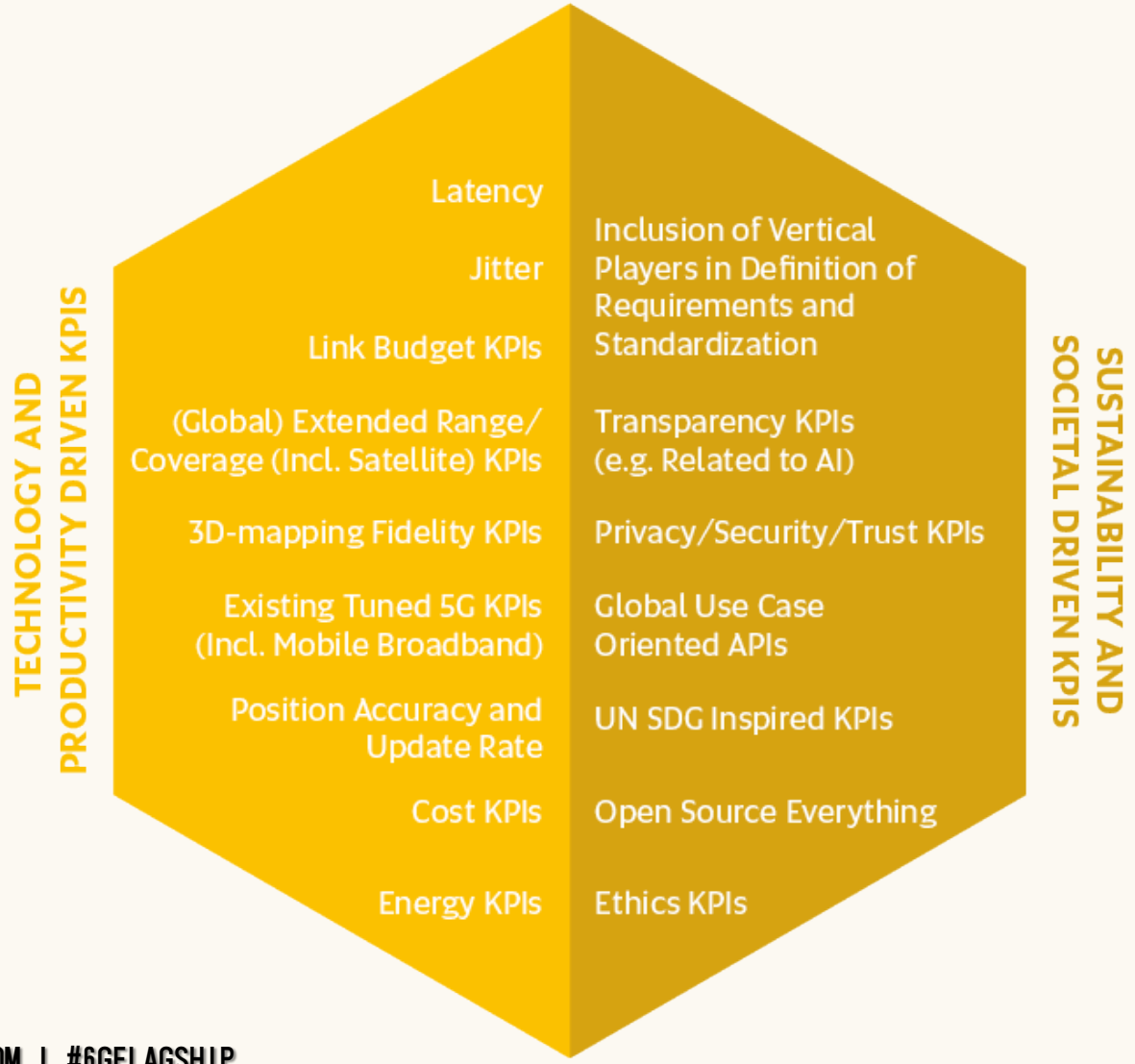
We are moving towards a data sharing / data market economy where issues with data ownership and contractual policies require special attention.



PESTLE - political, economic, social, technological, legal and environmental analysis

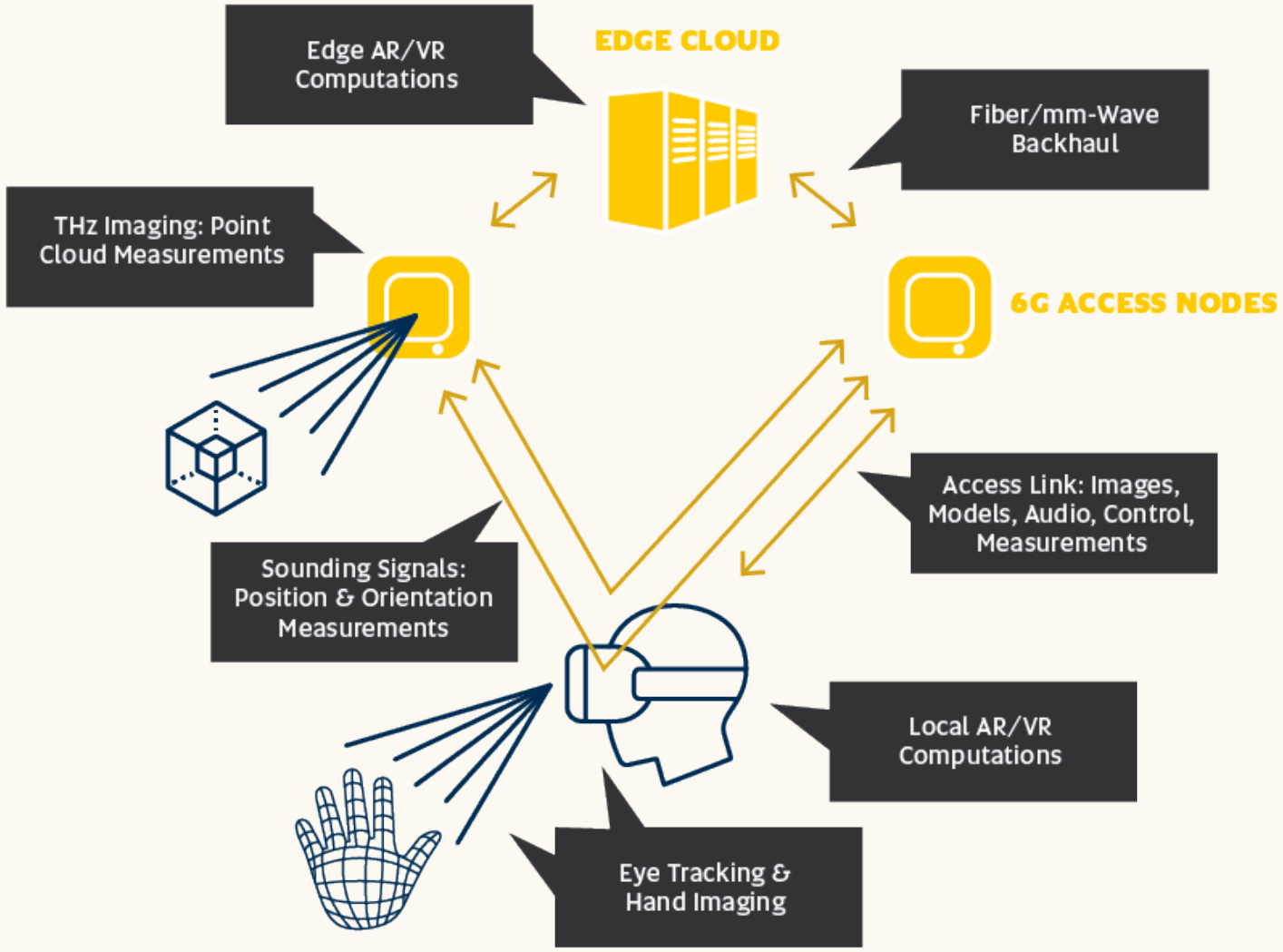
Initial 6G Key Performance Indicators (KPIs)

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.



6G Merges Communications with New Applications

Integration of sensing, imaging and highly accurate positioning capabilities with mobility opens a myriad of new applications in 6G.



6G WIRELESS SUMMIT

17-20 MARCH 2020

LEVI, FINLAND

www.6Gsummit.com

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THANK YOU!
QUESTIONS?

marja.matinmikko@oulu.fi

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