THE FINNISH 6G APPROACH

Panel 1: The 6G Race
Joint EuCNC & 6G Summit, Grenoble, France

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The Finnish 6G Flagship Approach (2018-2026)

6G Flagship vision for 2030:
Data-driven sustainable future society enabled by near-instant, unlimited wireless connectivity

Strategic Research Areas (SRAs)

1. Wireless connectivity solutions
2. Device and circuit technologies
3. Distributed intelligent wireless computing
4. Sustainable human-centric services and applications

Goals for phase 2 (2022-2026)

- 6G technology enablers
- 6GTest Network (6GTN)
- 6G vertical applications
- 6G vision leadership

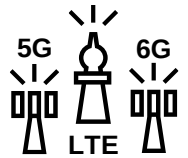
Impact Actions

A. 6G-enabled Sustainable Society

B. Strategic Vertical Areas (SVAs)
- Health
- Industry
- Vehicular
- Energy

C. Global 6G Collaboration

D. Research infra-structures – 6GTN



www.6gflagship.com

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6G Finland

Founding Members

- Aalto University
- Nokia Bell Labs
- University of Helsinki
- University of Oulu
- University of Tampere
- Lappeenranta-Lahti University of Technology
- Oulu University of Applied Sciences
- VTT Technical Research Center of Finland
- Finnish Defence Research Agency
- BusinessOulu

- A **coalition** of world-leading Finnish companies and research institutes established in **May 2022**
- Aims to **advance the impact of Finnish 6G expertise** globally; **build new international partnerships**; and **intensify national 6G development** efforts towards secure, safe, sustainable, and inclusive 6G
- New members only by invitation on a content basis
- https://6gfinland.fi; @6GFinland

The 6G Flagship Led 6G Research Globally

6G Summit

2019-2020

2020-2021

EUCNC | 6G Summit

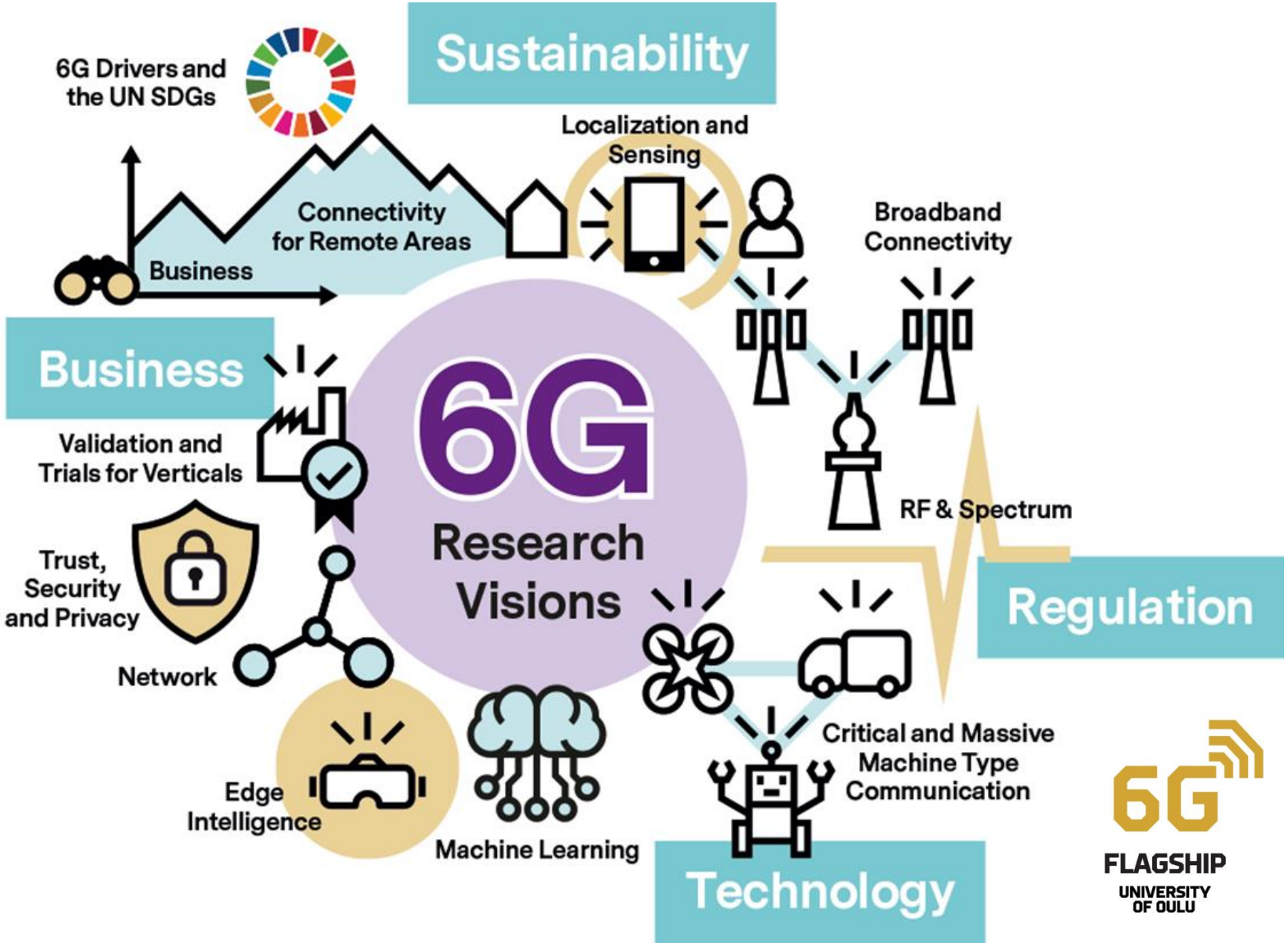
Grenoble, France ▪ 7-10 June 2022

2021=>

6G Flagship On-Going Agenda

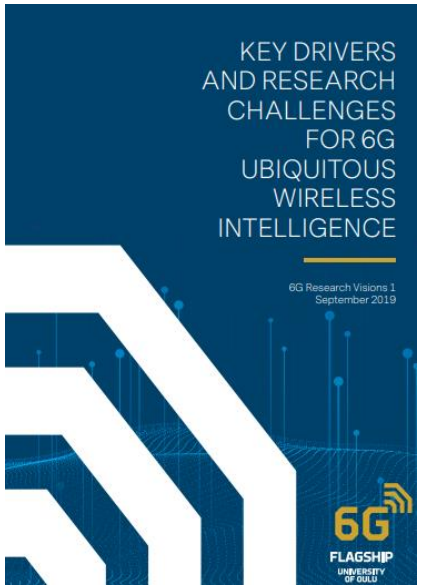
- Multi-disciplinary research roadmap
- Multi-stakeholder collaboration: academia, industry, and public sector
- UN SDGs identified as global drivers for 6G R&D
- Contributions to ITU-R technology trends and vision

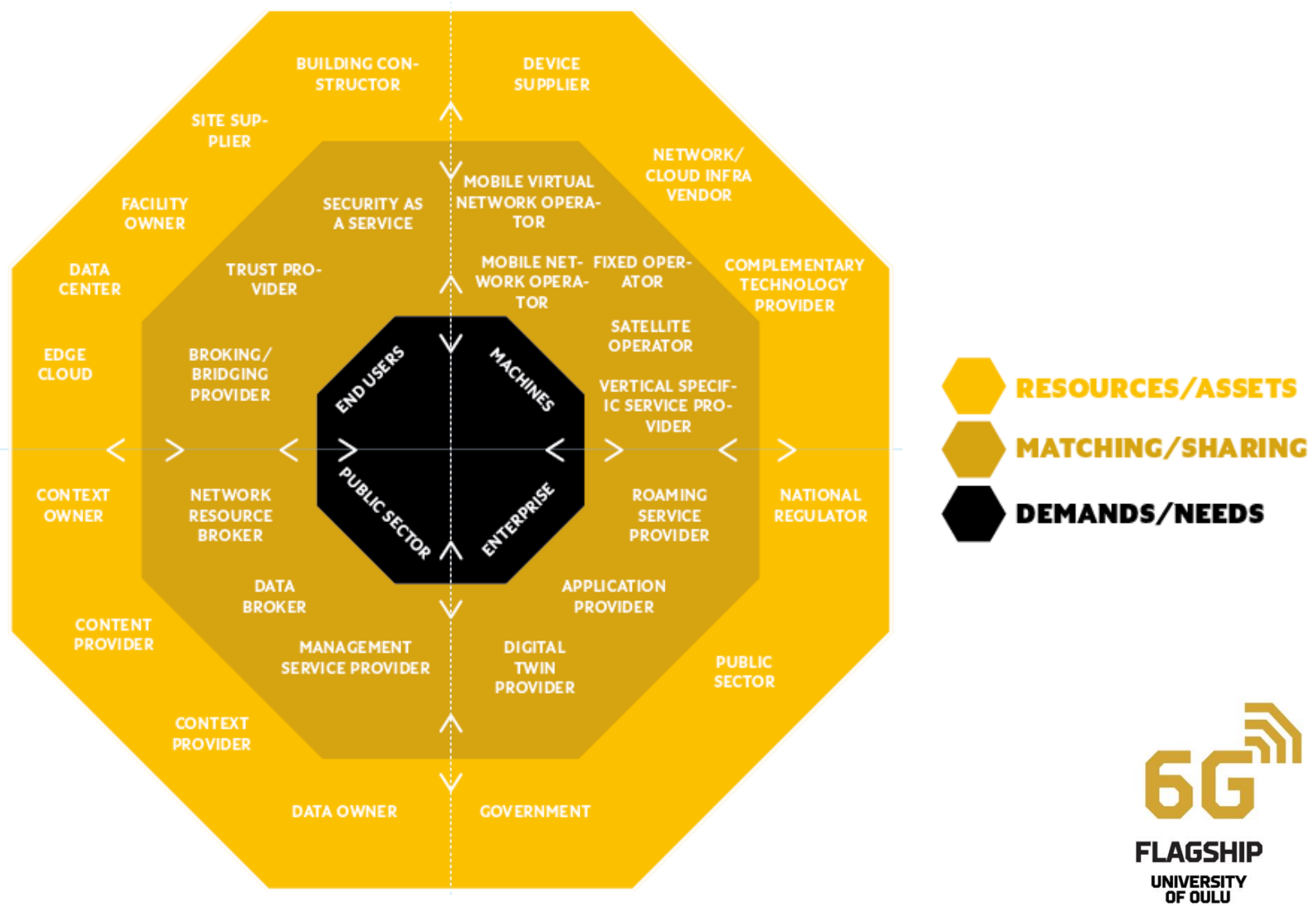
- Example of success: 5G and beyond (micro) operator concept for local (private) networks



Future 6G Business Ecosystem

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





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Towards Local Operator Paradigm

- **Different stakeholders can deploy their own local 5G/6G networks[1], independent of mobile network operators, through local spectrum access rights[2].**
- **This opens many business, regulation and technology related aspects to consider. Divergence between countries is high, leading to market fragmentation[3].**

[1]M. Matinmikko, et al. (2017) **Micro operators to boost local service delivery in 5G**. Wireless Personal Communications, 95(1), 69-82.
[2]M. Matinmikko, et al. (2018) **On regulations for 5G: Micro licensing for locally operated networks**. Telecommunications Policy, 42(8), 622-635.
[3]M. Matinmikko-Blue, et al. (2019). **Analysis of Spectrum Valuation Elements for Local 5G Networks: Case Study of 3.5-GHz Band**. IEEE Transactions on Cognitive Communications and Networking, vol. 5, no. 3, pp. 741-753, Sept. 2019.

Preliminary action plan on 6G and the UN SDGs

Users

Inclusion of a variety of users into human-centric 6G development.

Governmental, regulatory and standardization organizations

Lead in pro-active manner with long-term visions of the role of ICT/6G in achieving UN SDGs and formulate policies.
Develop new indicators to complement pure technical performance indicators.

Research and educational organizations

Conduct unbiased research and facilitate stakeholder interactions.

6G

ICT industry

Flexible approaches to serving different challenge areas.
Develop cost and consumption optimized solutions.
Develop services matching the varying level of skills of people.

Verticals

Early engagement in 6G development to transform their operations towards UN SDGs.

https://www.6gchannel.com/portfolio-posts/6g-white-paper-6g-drivers-un-sdgs/

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Thank you!

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