

**6G SNS**

**6G SNS  
OPS**

 **HSbooster.eu**



# First Steps: **6G Research & Vision**

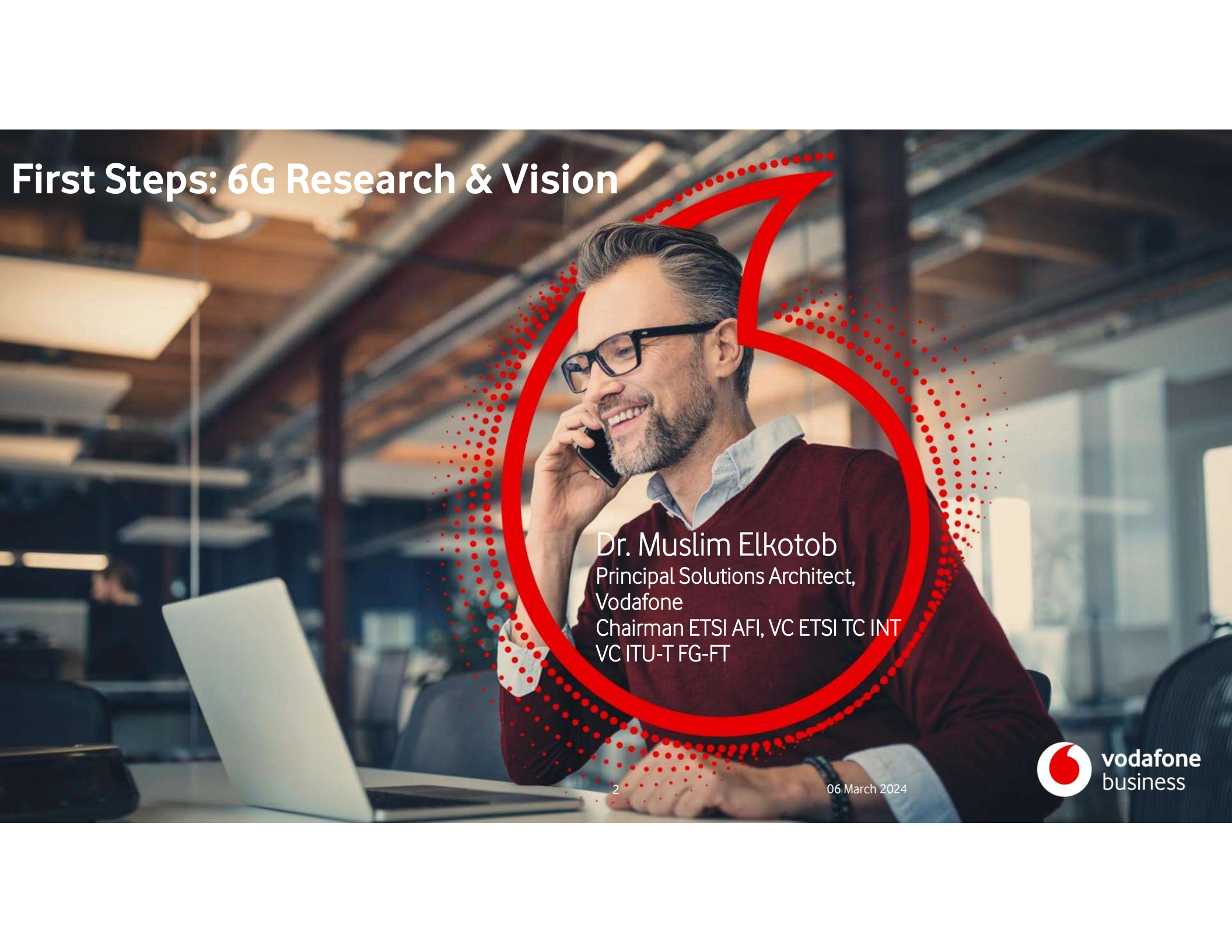
Event series #4 (1) - 12 March 2024, 11 CET

**Impact Assessment  
and Facilitation Action (IAFA)**



The text "6G" is written in a large, bold, dark blue font. Above the "6G" are three curved lines representing a signal or radio waves. The "6G" is positioned on top of a white, block-like structure that resembles a cliff or a platform.

# First Steps: 6G Research & Vision



Dr. Muslim Elkotob  
Principal Solutions Architect,  
Vodafone  
Chairman ETSI AFI, VC ETSI TC INT  
VC ITU-T FG-FT

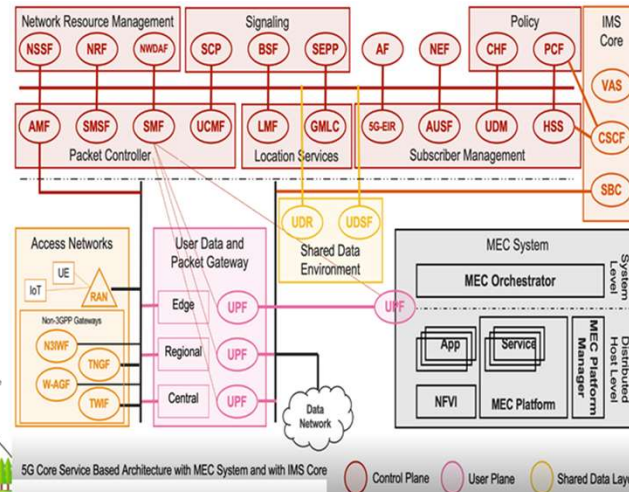
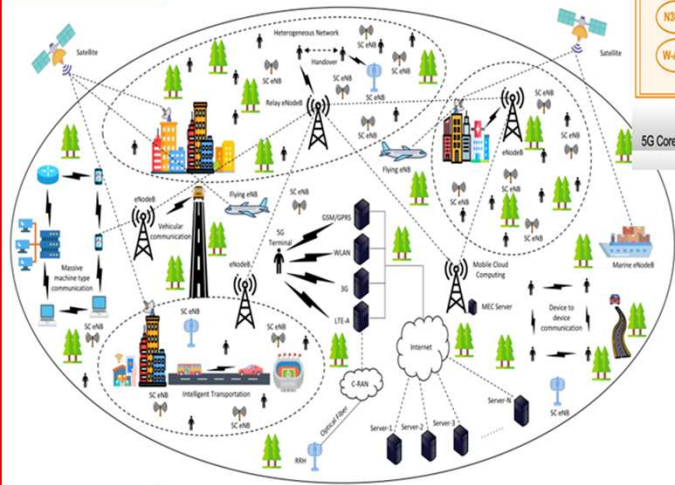
## In our session today

- From 5G to 6G, Potential, Challenges & Opportunities
- Use Cases and Trends across Verticals
- Ecosystem Evolution & CSP Strategy with B5G & 6G
- Poll 1 on Use-Cases
- Moving from 5G towards 6G
  - Technology & Architecture Perspective
  - Native Features
  - Use Cases & Business Models Perspective
  - Standardization & Regulation Perspective
- Poll 2 on 6G vs. 5G



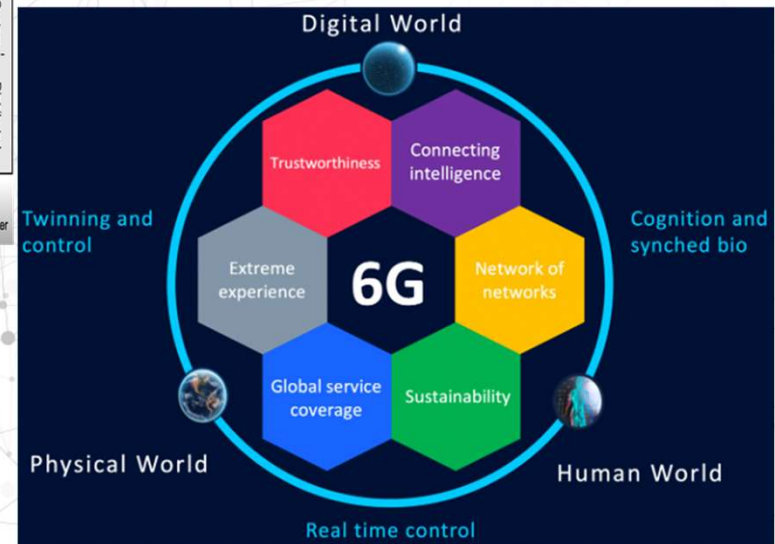
# From 5G to 6G, Potential, Challenges & Opportunities

5G NSA (NR)



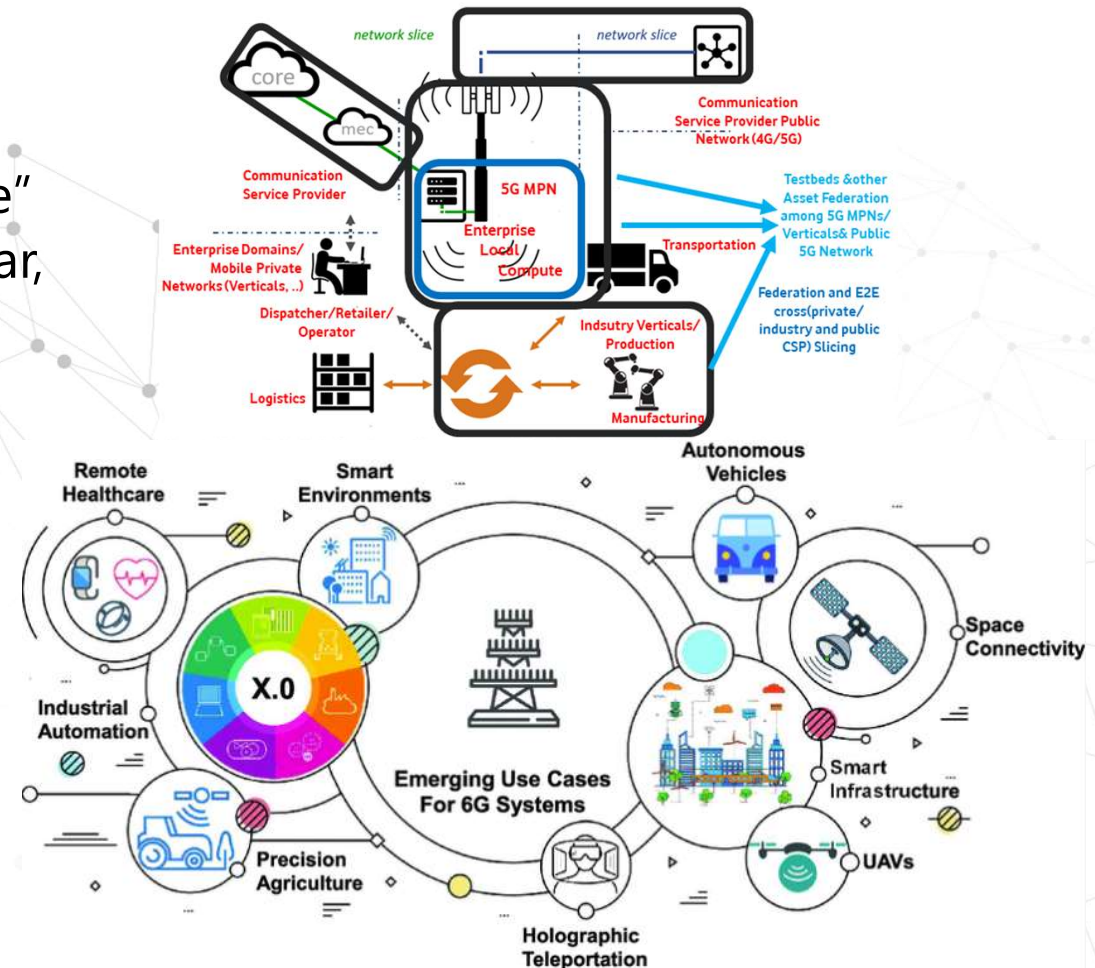
5G SA

6G

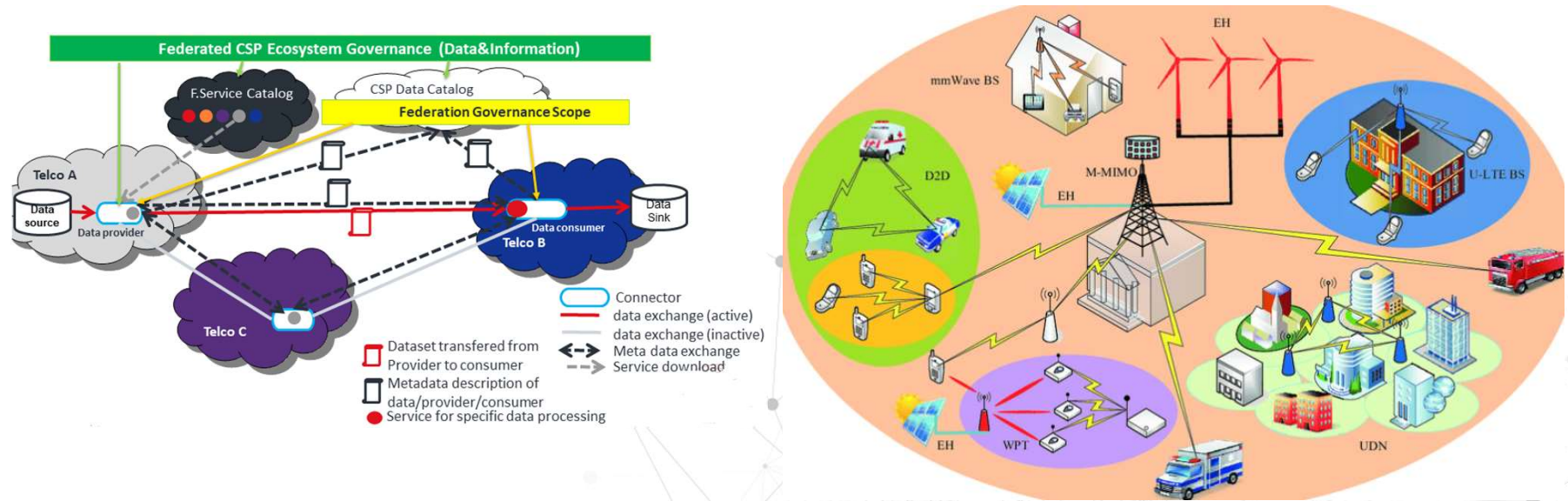


# Use Cases and Trends across Verticals

- Smart Premium Connectivity
- Submersion/Merged Discourses/AR&VR/"Metaverse"
- Seamless Integration of Cellular, IoT, & Space/Satellite
- Mobile Private Networks (Campus, Enterprise)
- Telco Data Sharing
- Open Inclusive Ecosystems (Disaggregation, OpenRAN, VRAN, Multi ISV, SME..)
- Smart Edge



# Ecosystem Evolution & CSP Strategy with B5G & 6G



- Service spectrum opening through SW; inclusive for ISVs, AISVs, SMEs
- „Mix&Match“ strategy for best-in-class players (e.g. ISVs) to fit in
- Lock-ins (vendor, CSPs) being broken; n:m relationships among stakeholders
- Federation, openness, selectivity, and collaboration gaining pace



## Poll Question 1:

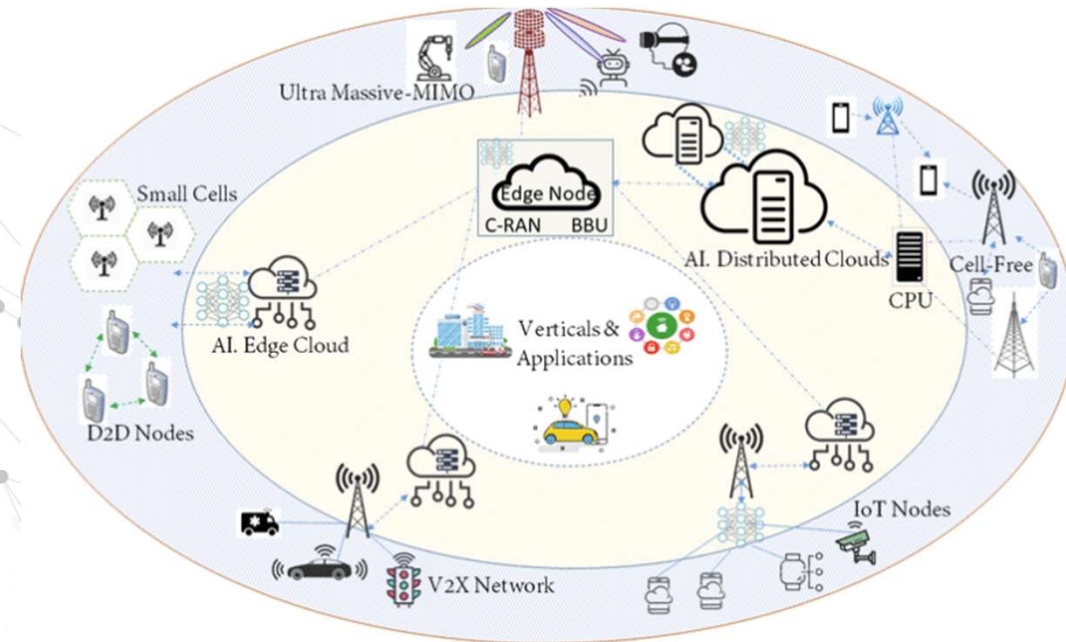
What are, in your view, the most promising use-case pairs in 5G and 6G respectively

- Autonomous Driving, Telesurgery
- Augmented/Virtual Reality, Metaverse
- Autonomous Driving, Metaverse
- Augmented/Virtual Reality, Telesurgery
- Campus Network/Light Automation, Complex Industrial Workflow Automation



# Technology & Architecture Perspective

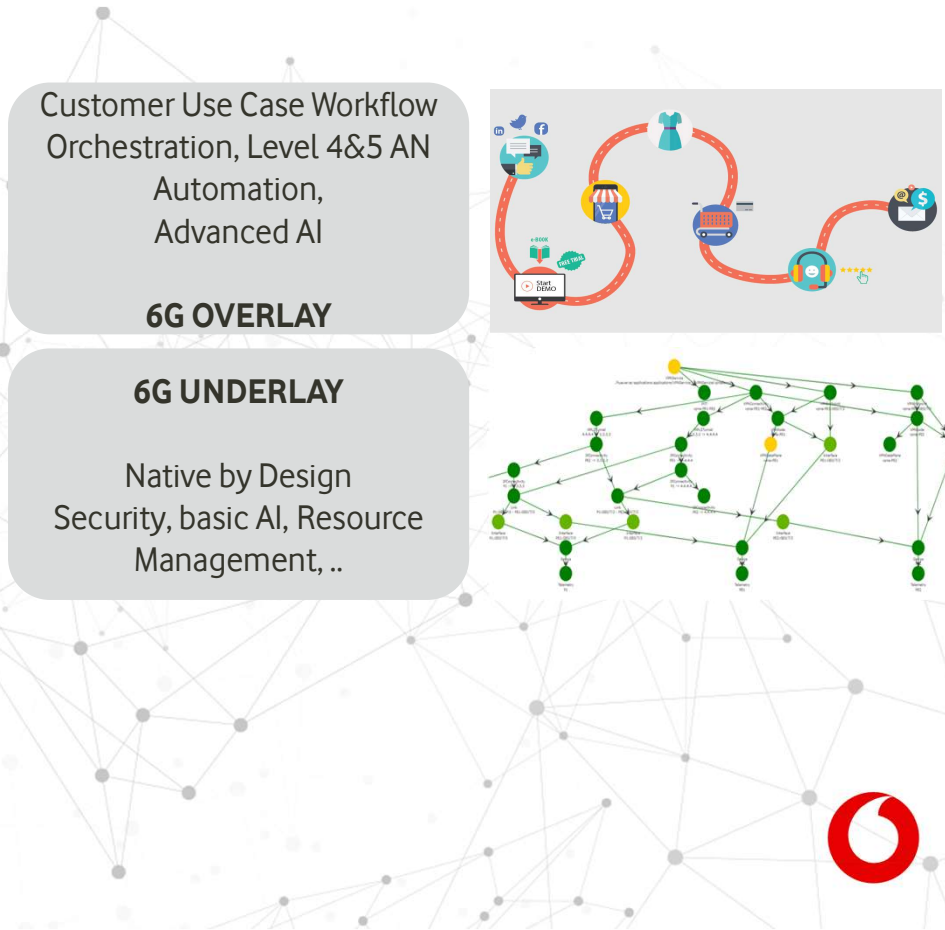
- **Speed and Bandwidth:** higher speeds; UHD video streaming, VR&AR, massive IoT
- **Latency:** UL lat., RT Apps: remote surgery, autonomous driving, immersive gaming
- **Spectrum Usage:** higher freq. bands, spectrum sharing, THz, adv. spectrum mgmt
- **Energy Efficiency:** sustainability, intelligent power mgmt, DSA, LowP device architectures
- **AI Integration:** optimize network perf., automate network mgmt, intelligent services. AI-driven orchestration&optimization, enhanced reliability, security, and efficiency.





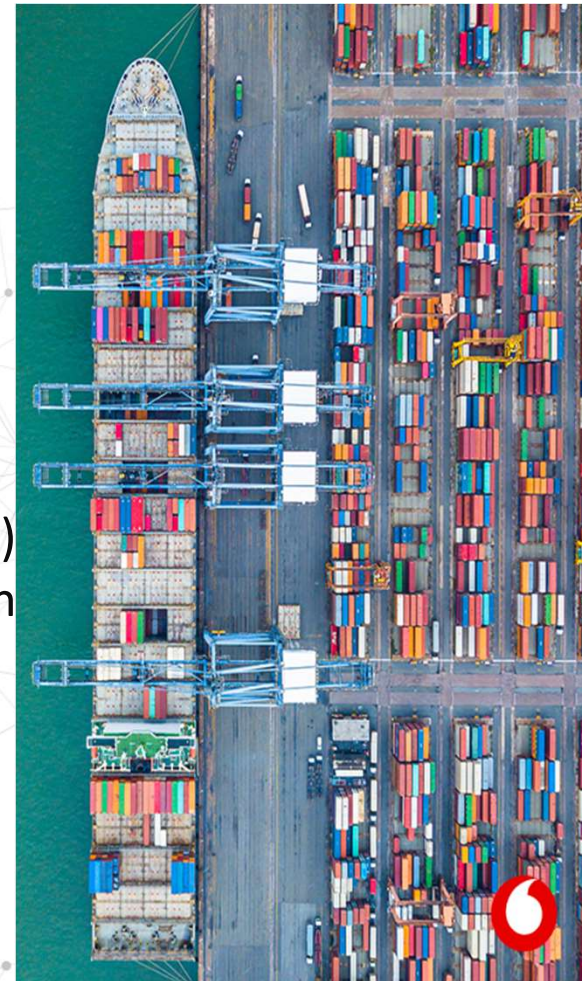
# Native Features

- In 6G vs.5G, many features are becoming native as part of 6G **Underlay**
- By-design (native) features: security, basic automation, resource mgmt, elementary AI
- **6G Overlay:** complex mechanisms, customized features, use-case workflow orchestration, complex AI, data-driven services
- Splitting AI and Automation into UL and OL enables a robust basis (UL) for efficient & precise use-case execution in the OL



# Standardization & Regulation

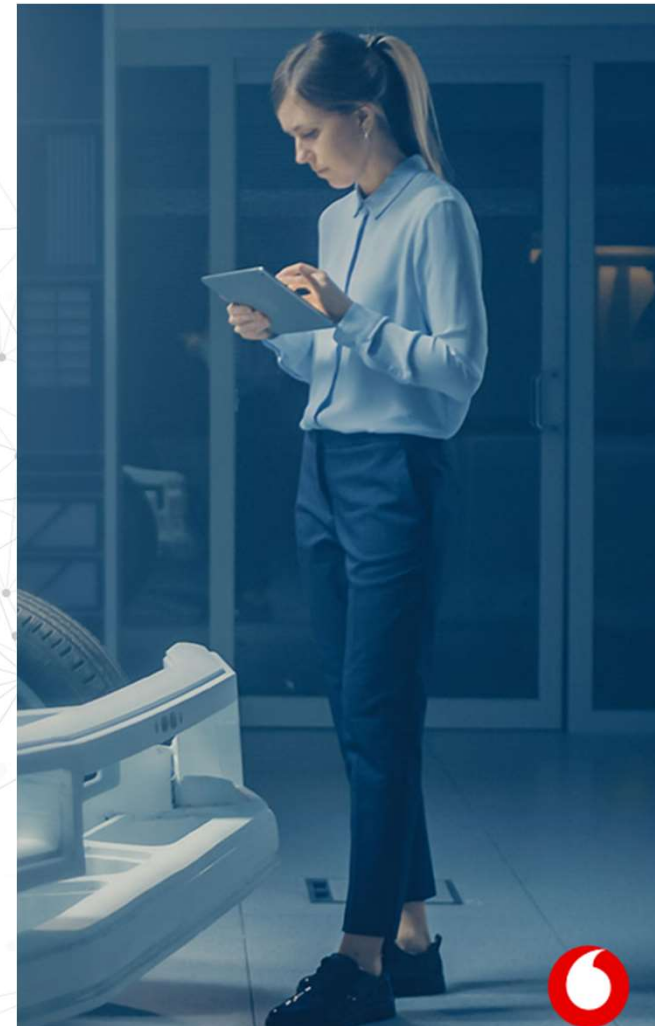
- **5G** SDOs cover: RAN, core, architecture (SBA), slicing, URLLC, MMTC, eMBB, spectrum mgmt, security, interoperability, protocols, ..
- **6G**: a step further, with spectrum mgmt & automation; security → enhanced with privacy; automation & native features streamlined (part of Underlay)
- **5G** → foundation for transformative tech & applications
- **6G** → step further: applications tailored to verticals (slices) collaborative ecosystems; cognitive operation (AI-backed) in the UL and the Edge (Edge AI)



## Poll Question 2:

What can the 6G community learn from the potential shortfalls of 5G to do a better job?

- Improve compatibility and tailoring to multiple industry sectors and verticals
- Foster better synergies and clearer work-scope split among SDOs
- Implement/integrate sustainability aspects (energy efficiency, climate neutrality, ..) early enough into the design of standards and specifications
- Build a better bridge between the outputs of the R&D community and the Standards producers (SDOs)



Backup





## Kontakt

**Vorname Nachname**

Position

Telefon:

E-Mail:

Vodafone GmbH  
Ferdinand-Braun-Platz 1  
40549 Düsseldorf