6G Architecture WG – On the Way to 6G

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What to expect?

5G PPP ARCHWG → 6G SNS ARCHWG

- Five White Papers so far
- Wide Participation from 5GPPP

1. White Papers by Arch WG

2. 5GPPP Collaboration

- Supporting other 5GPPP Initiatives
- White Papers & Dissemination thereof

5G PPP ARCHWG

3. WG Dissemination

- Workshops & Special Sessions
- Webinars

EUCNC 2019 June 18-21
European Conference on Networks and Communications | Valencia, Spain

5GArch 2019:
International Workshop on 5G Architecture

4. 5GPPP Disseminations

- Webinars
- Bilateral Workshops, e.g., with Next GA

Workshop on "Architectural Evolution Toward 6G Networks: A European View"

2nd Workshop 2022 "Architectural Evolution toward 6G Networks – 6GArch"

- Collaborative Platform
- Global Footprint
- Cross-5GPPP Dissemination & Exploitation
- **6G Book (74K+ Downloads, May 2024)**

6G SNS IA 6G SNS ARCHWG

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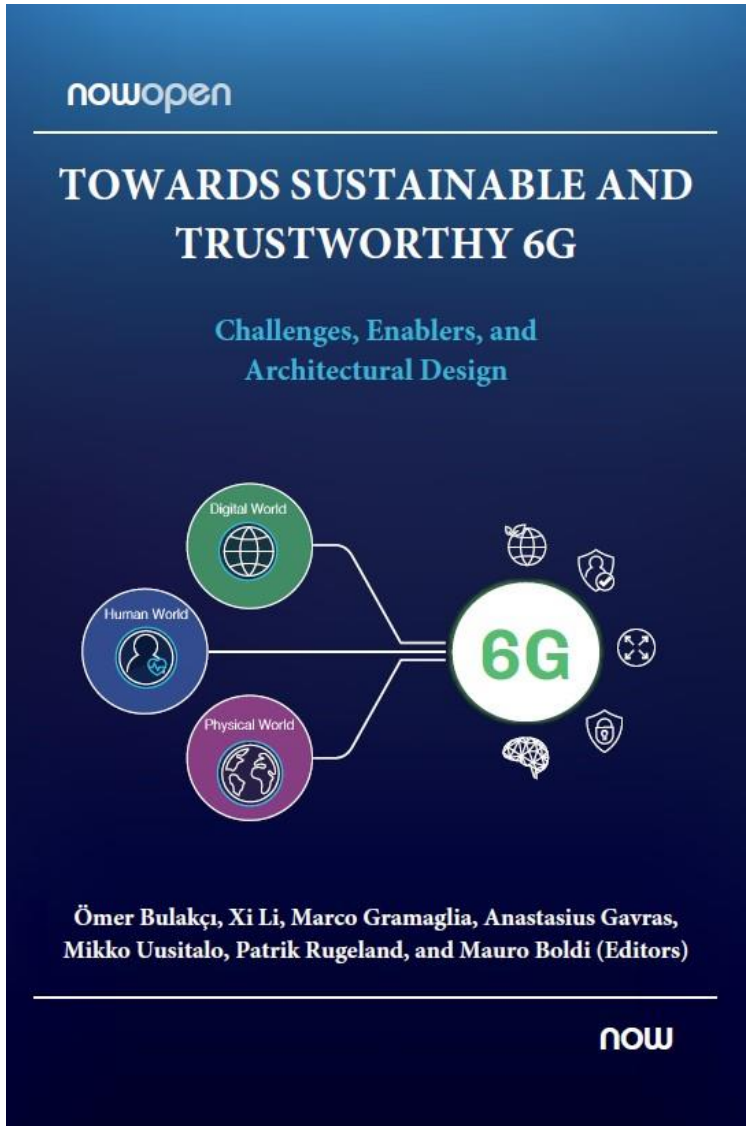

- Led jointly by the 5G PPP Architecture WG and the Hexa-X project
- Input from **16 projects** and **183 contributors**
- **Released on 06 June 2023 at EuCNC**

TOWARDS SUSTAINABLE AND TRUSTWORTHY 6G
Challenges, Enablers, and Architectural Design

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5G PPP ARCHWG

Hexa-X

74K+ Downloads
(27 May 2024)

SNS JU 6G Architecture WG: Framework

1

Capitalize on

Proven well-running machinery since 2015

Existing work, e.g., white papers & the 6G book

2

Unite

Bring SNS projects together to attain the European view

Consolidate views on technical directions & concepts for the 6G architecture design

3

Disseminate

White Papers have been very successful

Disseminate via international events & via established Architecture Workshop series, i.e., 5GARCH & 6GARCH

4

Initiate

Consolidation is challenging

Already started the work as early as possible to timely align and adapt subjects

5

Collaborate

Strengthen cross-WG collaboration further

Promote cross-WG white papers & events

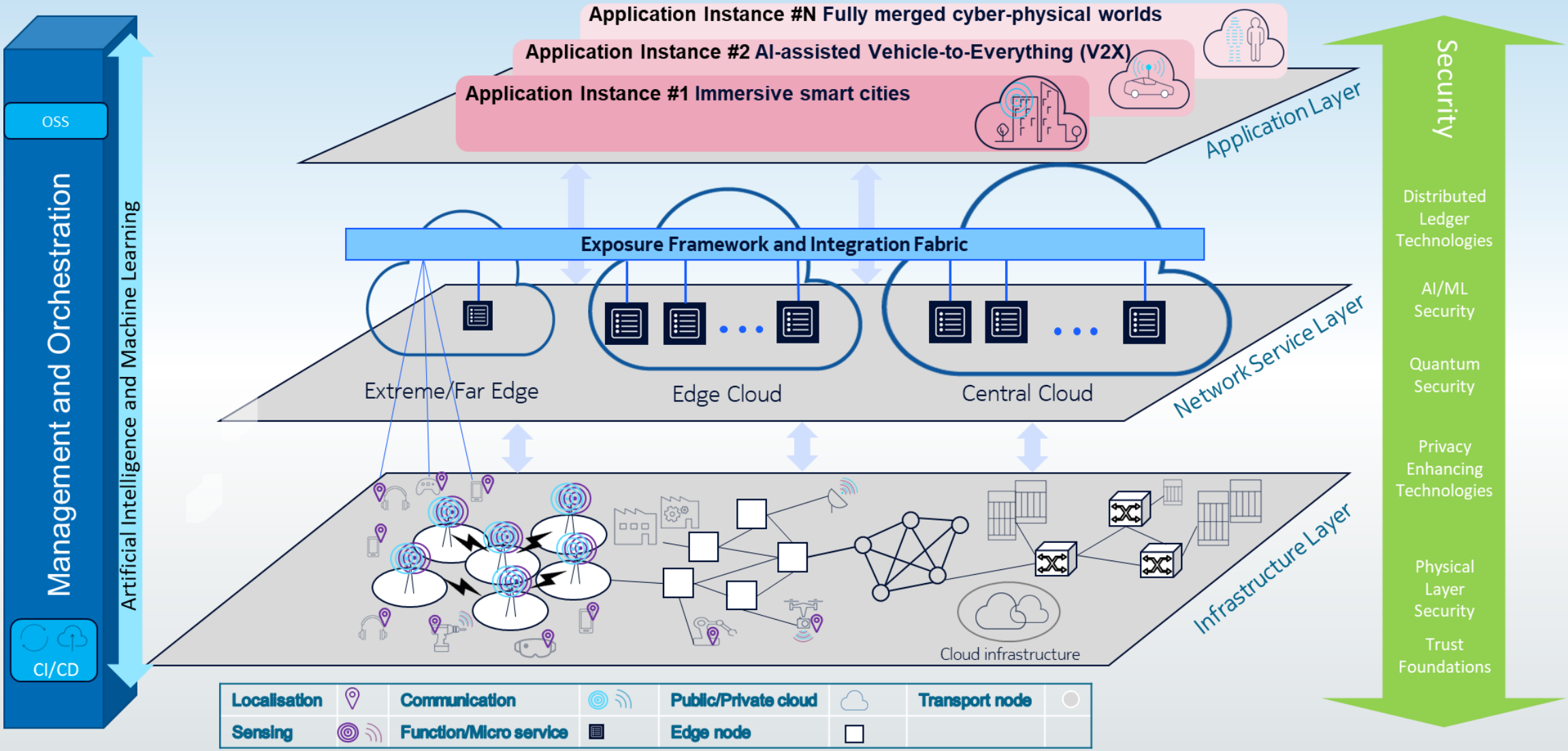
6

Expand

Global Footprint via bilateral workshops with research fora

Include 6G-IA members (non-voting if not project participants)

6G E2E Architecture Foundation: System View



6G E2E Architecture Foundation: SNS Innovation Areas

AI-powered Immersive Communication

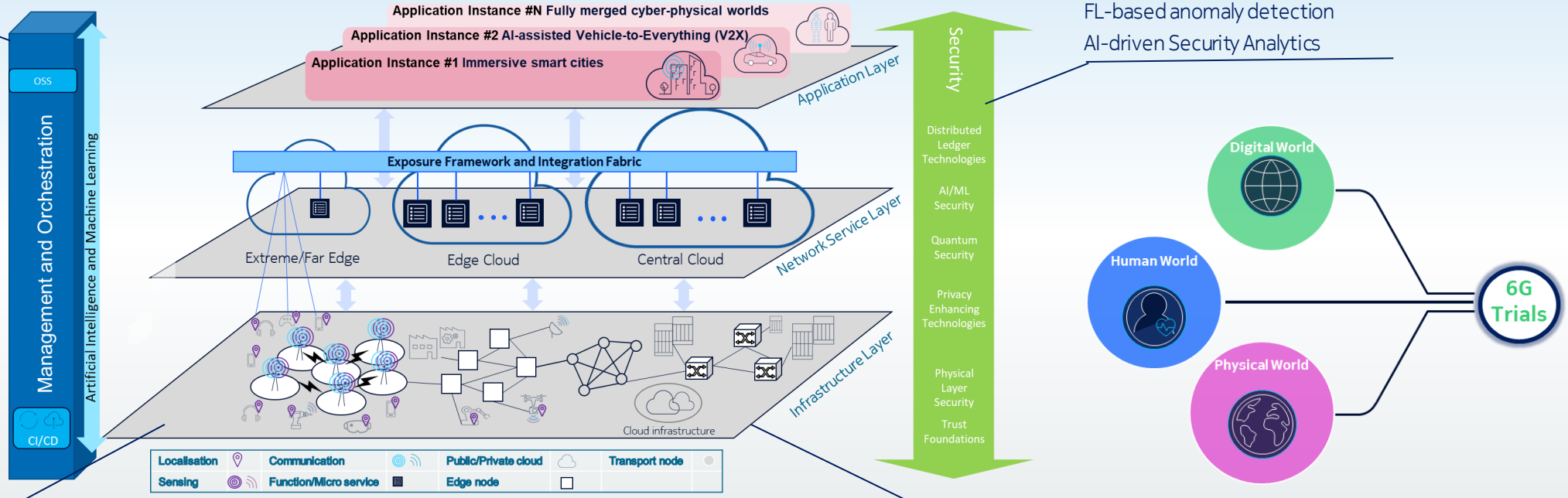
Support for Immersive XR, e.g., holographic teaching
Joint computing & networking resource allocation
AI & Analytics Engine Orchestration

Sustainable Massive Communications

Low-density LEO for massive IoT
Decentralized implementation of UPF-CU-DU
GPU-based acceleration for DU/RU Offloading

Secure, Reliable and Trustworthy AI & Communication

E2E Multi-domain Slicing as Mitigation Enabler
PQC
FL-based anomaly detection
AI-driven Security Analytics



Ubiquitous Connectivity

TN-NTN Integration
Unified RAN & Radio Interface
Multi-link Connectivity
RIS

Dependable & Resilient Communications

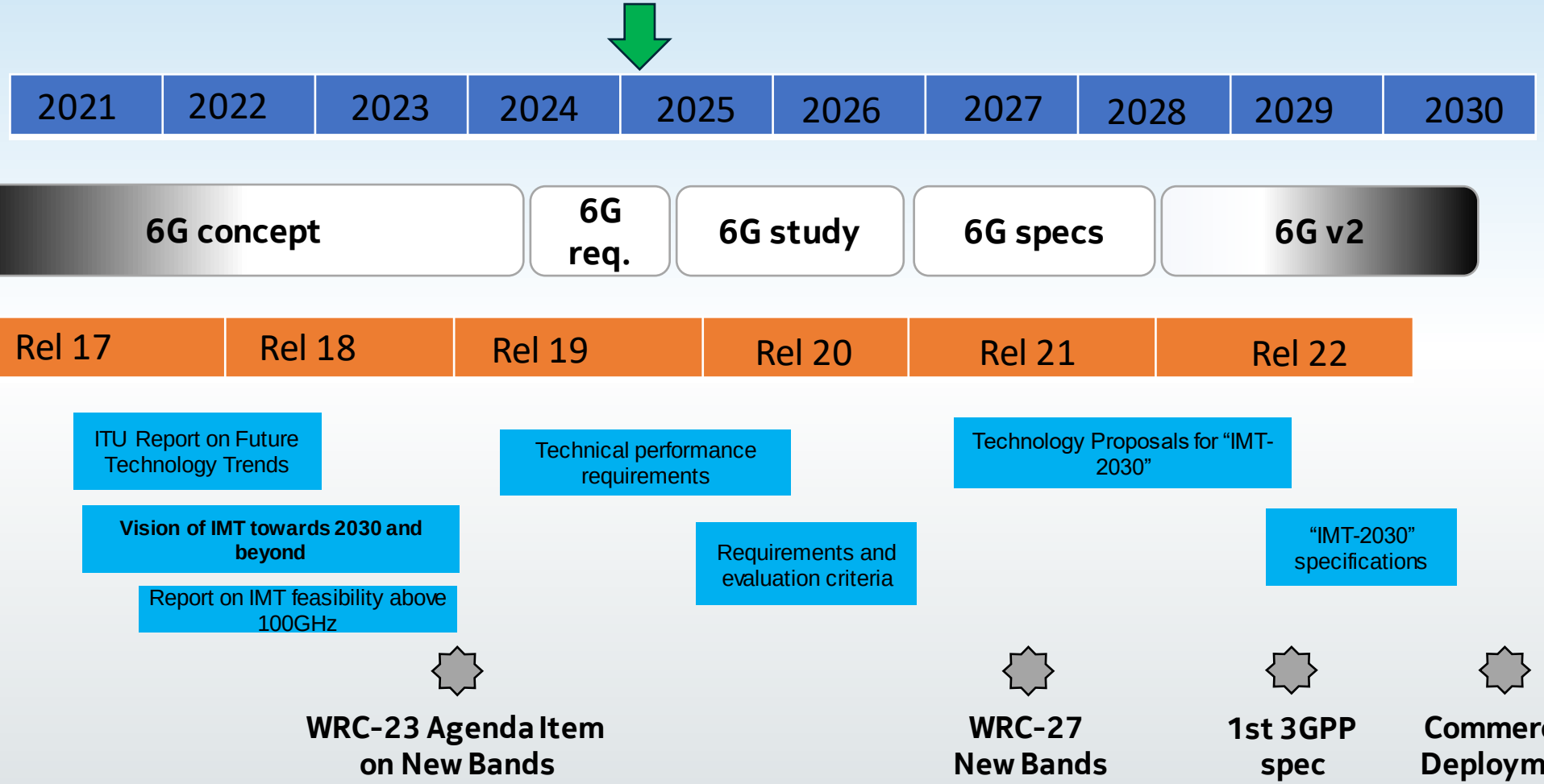
Time-critical Automation
Efficient & real-time network monitoring
Multi-domain & multi-technology Deterministic Communications
Predictable Packet Delay
In-X Subnetworks

Integrated Sensing and Communications-Enabled 6G Networks

Enabling new use cases, e.g., beam tracking, VRUs sensing
Joint Sensing & RIS Operation

6G E2E Architecture Foundation: Timeline

Arch WG First White Paper from SNS JU



SNS 6G Arch WG: Contributing Projects

6G SNS IA 6GSNS ARCHWG

6GSNS

6TH GENERATION SMART NETWORKS & SERVICES

THANK YOU FOR YOUR ATTENTION

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