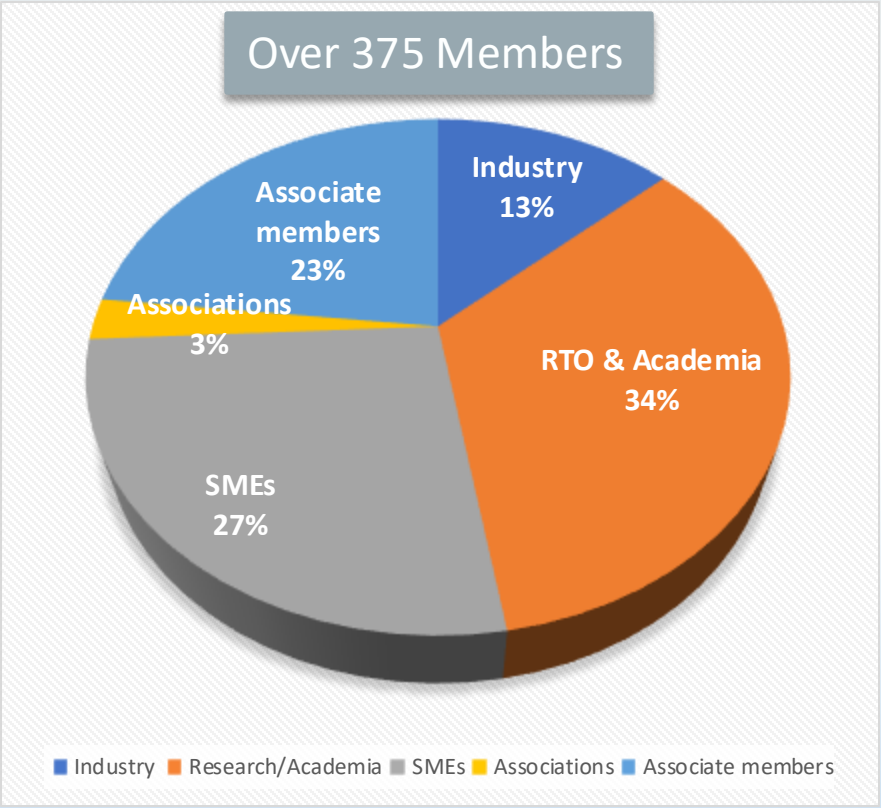
6G SNS IA European 6G Research

The Voice of European Industry and Research
for Next Generation Networks and Services

Dr. Colin Willcock,
Chairman of the Board, 6G Smart Networks and Services Industry Association (6G-IA)

The VOICE of EUROPEAN INDUSTRY for the DEVELOPMENT and EVOLUTION of 6G

www.6g-ia.eu



The 5G PPP is co-funded by the Horizon 2020 programme of the European Union

6G-IA International MoUs/Joint R&I

European - Level 6G Research

- The Smart Networks and Services Joint Undertaking is a major European 6G research program
- 1.8 B€ publicly funding for Next generation networks [equal resources from the private side and public side]

Know more here

The SNS-JU is about

Driving 6G development

Enhance European Leadership in Digital Infrastructure

Support collaboration targeting global standards

Support Societal and Environmental goals

Ensure Security, Resilience and Trust

Foster collaboration at the European and global levels

European Vision & Strategy for 6G networks


6G Infrastructure Association
Vision and Societal Challenges Working Group
Societal Needs and Value Creation Sub-Group

What societal values will 6G address?

Societal Key Values and Key Value Indicators analysed through 6G use cases

May 2022

Date: 2022-05-31 Version: 1.0

DOI 10.5281/zenodo.6557534
URL: https://doi.org/10.5281/zenodo.6557534

5GPPP Architecture Working Group

View on 5G Architecture

Version 4.0, October 2021

Date: 2021-10-29 Status: Public Release

DOI: 10.5281/zenodo.5155657
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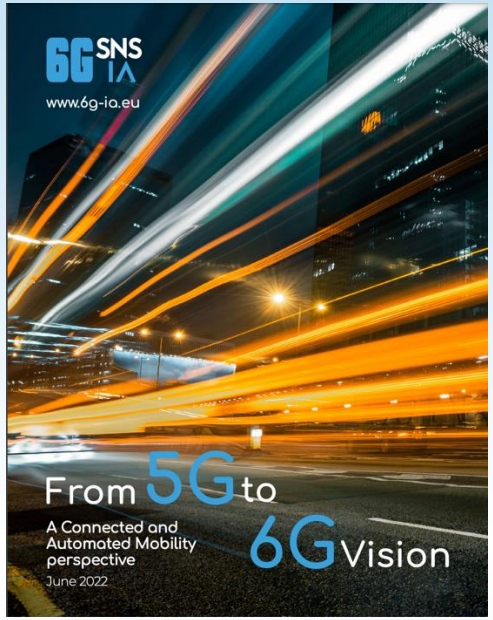
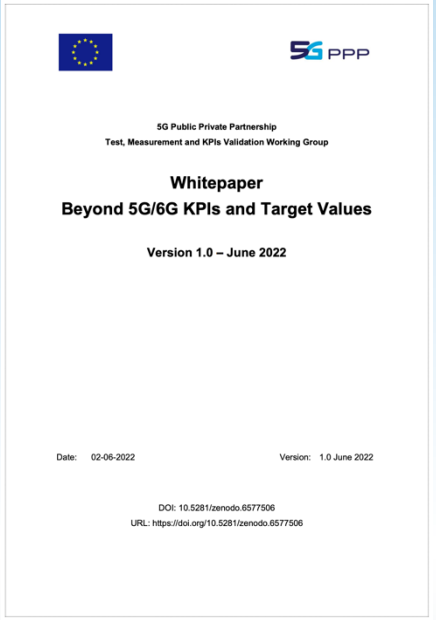
[Download the White Paper]



[Download the White Paper]

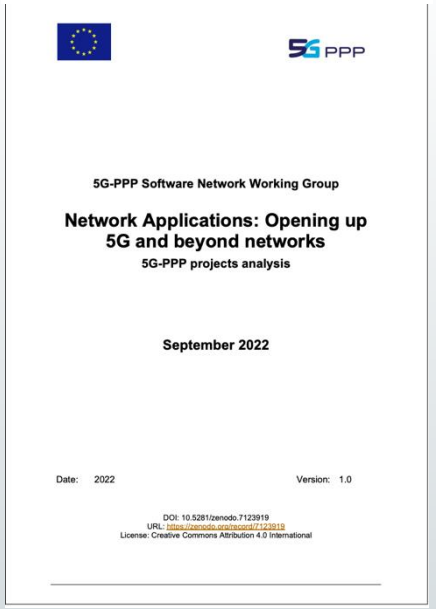

5G Public Private Partnership
Test, Measurement and KPIs Validation Working Group

Whitepaper
Beyond 5G/6G KPIs and Target Values

Version 1.0 – June 2022

Date: 02-06-2022 Version: 1.0 June 2022

DOI: 10.5281/zenodo.6577506
URL: https://doi.org/10.5281/zenodo.6577506


5G-PPP Software Network Working Group

Network Applications: Opening up 5G and beyond networks
5G-PPP projects analysis

September 2022

Date: 2022 Version: 1.0

DOI: 10.5281/zenodo.7123919
URL: https://zenodo.org/record/7123919
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More than 40 white papers. All of them are publicly available at https://6g-ia.eu/plans-papers/ and at https://5g-ppp.eu/white-papers

EU 6G Vision Connects 9 Technology Areas of Research

Examples
Non-exhaustive

Smart **Network Infrastructure** (6G capabilities)

Convergence with other adjacent technologies

6G will require significant **technological breakthroughs** to enable its ambitious goals

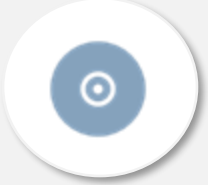
AI-Driven Architecture

- Programmability and Control
- AI governance
- Deterministic networking

Radio & Signal Processing

- Disaggregated RAN
- 6G RAN modulation
- Beamforming, RIS
- THz bands, VLC
- Harmonized Comms and Sensing

Optical Networks



- Intrinsically secure, green and flexible transport networks.
- Sustainability

Ubiquitous Computing

- Edge-Cloud Integration
- Responsiveness, reduced data flows
- Distributed microservices

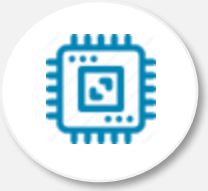
Security

- Network and Services
- Larger attack surface
- Micro-segmentation
- Security as-a-Service

Non-terrestrial Networks

- Integration with TN
- (LEO) networks
- UAM services
- Edge flying nodes

Devices & Components



- **Advanced micro-electronics**
- Efficient Tx/Rx modules
- Optical & hybrid transceivers
- Neural processing units

Special purpose (sub)-networks

- **Vertical sub-networks** such as in-body, in-robot, in-car networks, etc

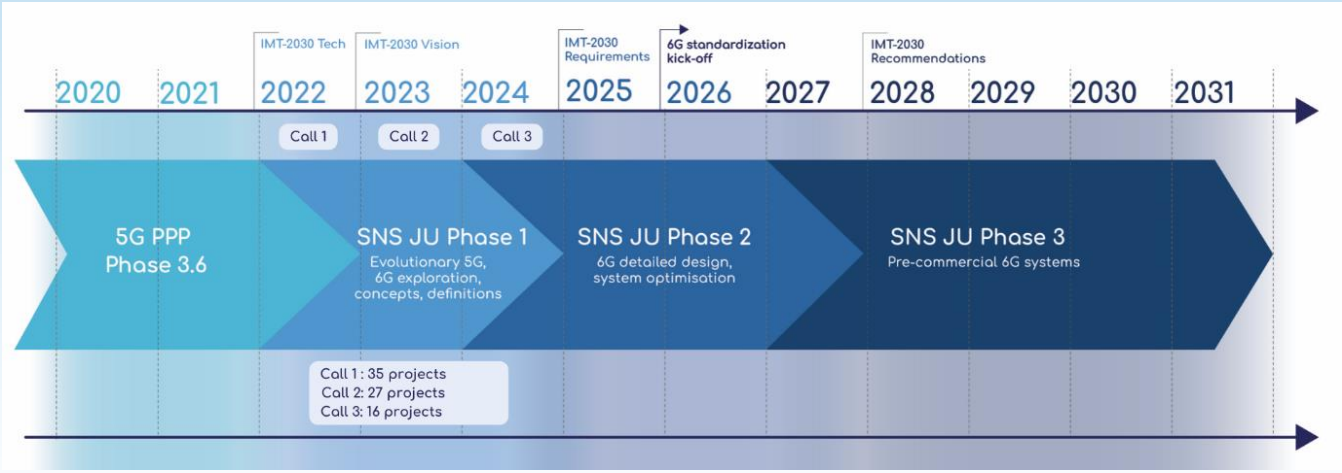
Future Emerging Technologies

- May have deep impact in the future
- Do not have a clear industrial path yet

Source: Networld Europe SRIA - https://www.networldeurope.eu/sria-and-whitepapers/

The SNS JU so far….

- 3 Calls
- 79 Funded Projects
- 501 € Million invested



- 1244 Total entities funded
- 505 Unique entities funded
- 297 6G-IA members (59% of Unique Beneficiaries)
- 26% SME participants, claiming 24% of EU funding
- 33 participating countries

European Input

- **3GPP SA1** invited **SNS** to participate in the workshop and present the envisioned 6G Use Cases based on the projects' work
- As SNS values collaboration with all EU stakeholders, it has invited EU National Initiatives to contribute to a coherent <u>European view</u>, formulated through SNS-ICE
- The following projects have contributed:

6G-NTN

6G-Shine

NANCY

FIDAL

SEASON

TrialsNet

HEXA-X-II

SNS projects

6G Platform Germany (D)

RESTART (I)

Future 6G Network Services (NL)

French Acceleration Strategy for Future Networks and Technologies (F)

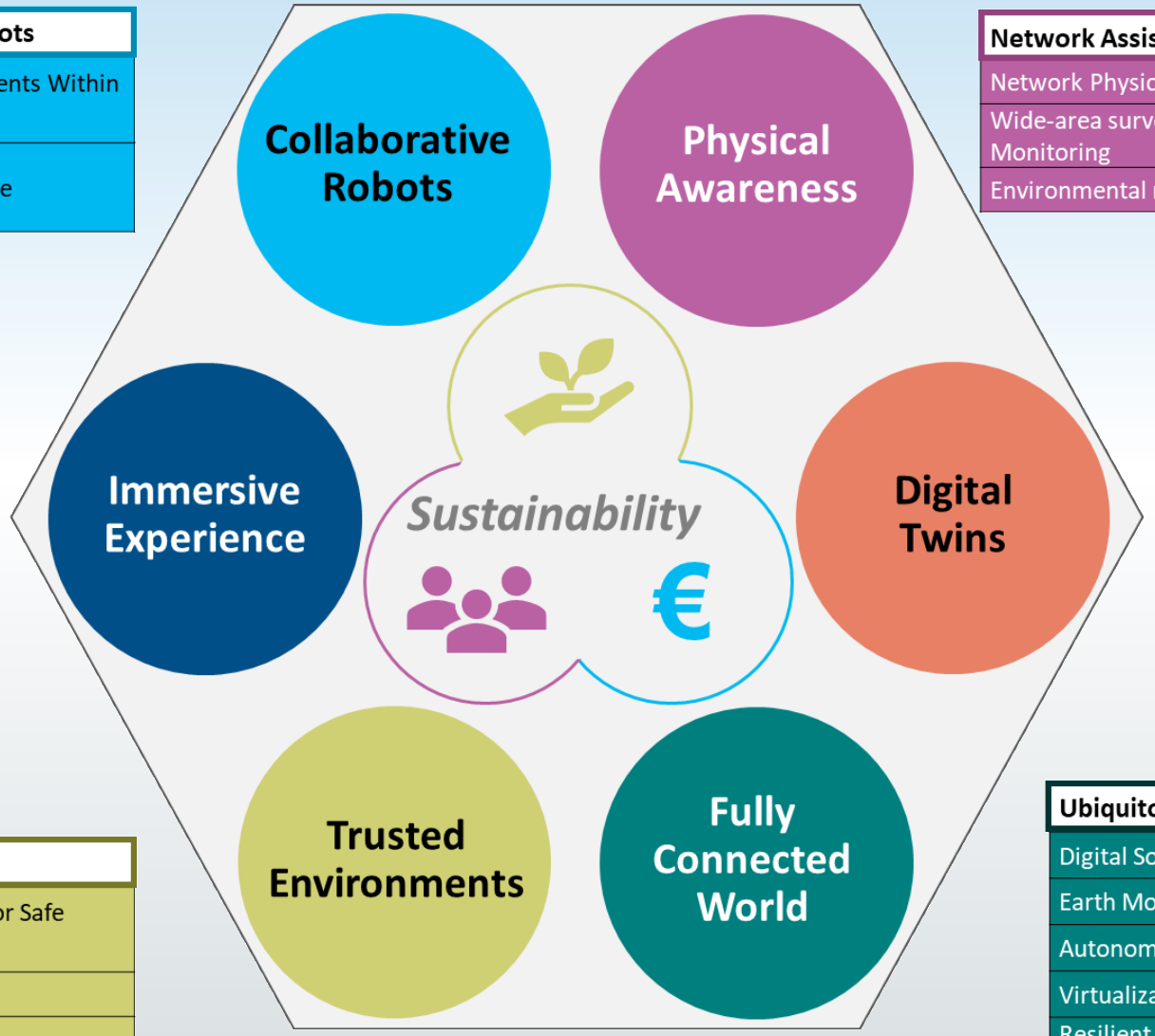
National initiatives

More detailed material available in the appendix

Use Case Families

Cooperating Mobile Robots
Autonomous Embodied Agents Within Flexible Manufacturing
Mesh Embodied Intelligence

Network Assisted 3D Mobility
Network Physical Data Exposure
Wide-area surveillance/Smart Crowd Monitoring
Environmental radio sensing



Seamless Immersive Reality
Immersive Enterprise & Industry
Immersive Education
Immersive Gaming
Live and Interactive Immersive Content Creation

Realtime Digital Twins
Cloud Continuum
Smart Maintenance
Digital Twins (Building Model)
Public Protection & Disaster Relief Digital Twin

Human-Centric Networks
Industrial Sensors Network for Safe Production & Manufacturing
Wireless In-Vehicle Network
Virtual Control Room

Ubiquitous and Resilient Network
Digital Sobriety and Enhanced Awareness
Earth Monitor, Sustainable Food Production
Autonomous Supply Chain
Virtualization of Device Functionalities
Resilient Communication for Safety critical Applications

More details available in the appendix

6GSNS | European 6G Usecase Families

Japan – EU Collaboration

- 6G-IA collabrating directly with XGMF
- MoU agreed to be signed in May
- Joint workshop planned in Tokyo during May

www.6g-ia.eu

Thanks for your attention!

Dr. Colin Willcock

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