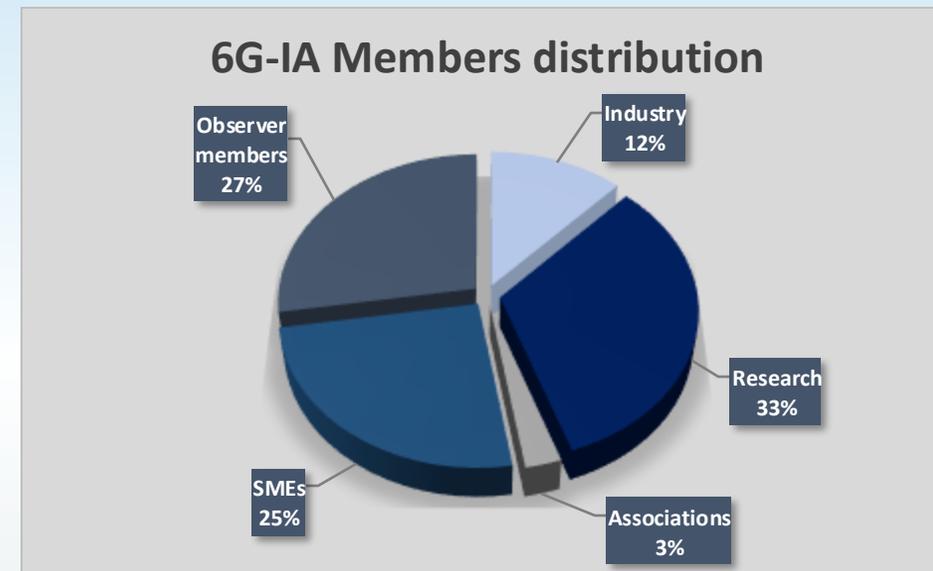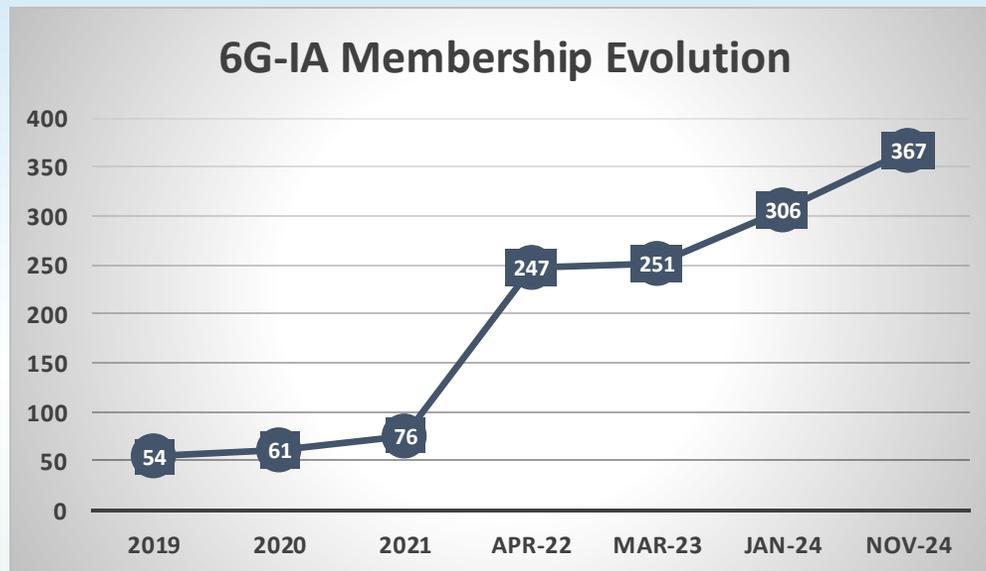# Hexa-X-II Workshop Opening
6G-IA

Dr. Colin Willcock,

Chairman of the Board, 6G Smart Networks and Services Industry Association (6G-IA)
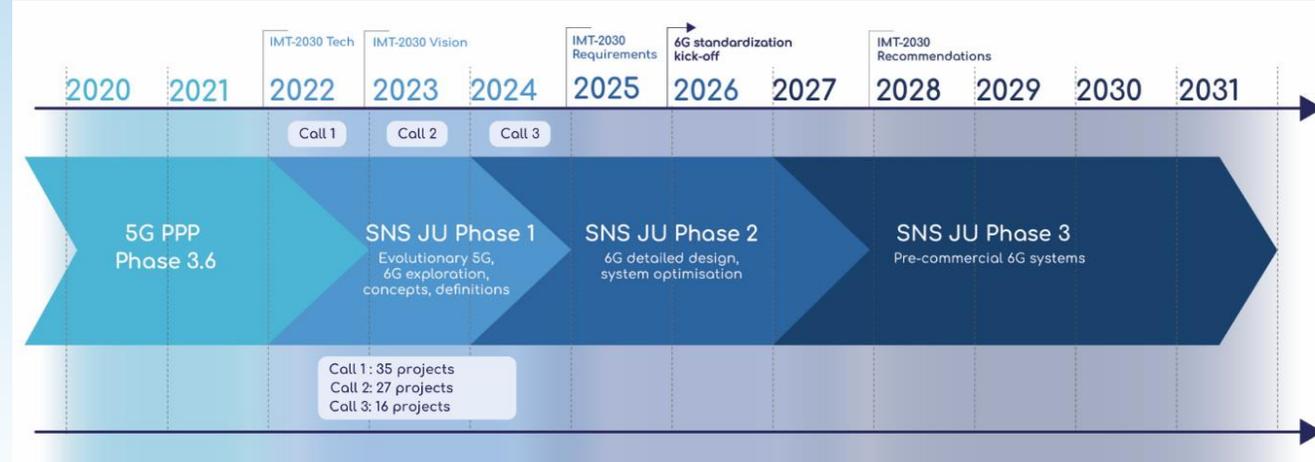
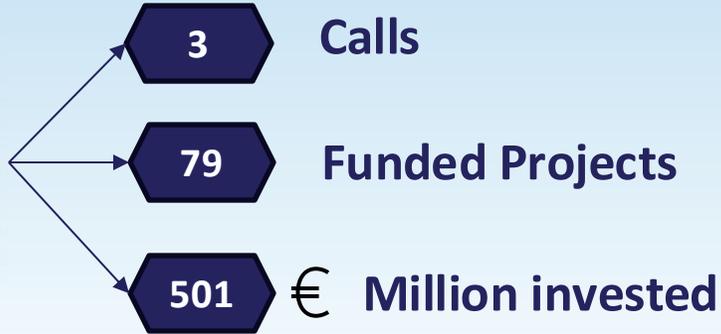# European 6G R&I, strong Commitment of Stakeholders

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

6G-IA Membership Evolution

Year	Members
2019	54
2020	61
2021	76
APR-22	247
MAR-23	251
JAN-24	306
NOV-24	367

6G-IA Members distribution

- Observer members 27%
- Industry 12%
- Research 33%
- Associations 3%
- SMEs 25%

6G-IA members include all main vendors, European operators, Verticals, top universities and research centers, a significant number of SMEs, and other associations related to the ICT

Critical mass of members for impactful results has been achieved and ready for expansion

domain.

6GSNS

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

2020 2021 | IMT-2030 Tech 2022 | IMT-2030 Vision 2023 2024 | IMT-2030 Requirements 2025 | 6G standardization kick-off 2026 2027 | IMT-2030 Recommendations 2028 2029 2030 2031

Call 1 | Call 2 | Call 3

5G PPP Phase 3.6

SNS JU Phase 1
Evolutionary 5G, 6G exploration, concepts, definitions

SNS JU Phase 2
6G detailed design, system optimisation

SNS JU Phase 3
Pre-commercial 6G systems

Call 1 : 35 projects
Call 2: 27 projects
Call 3: 16 projects

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

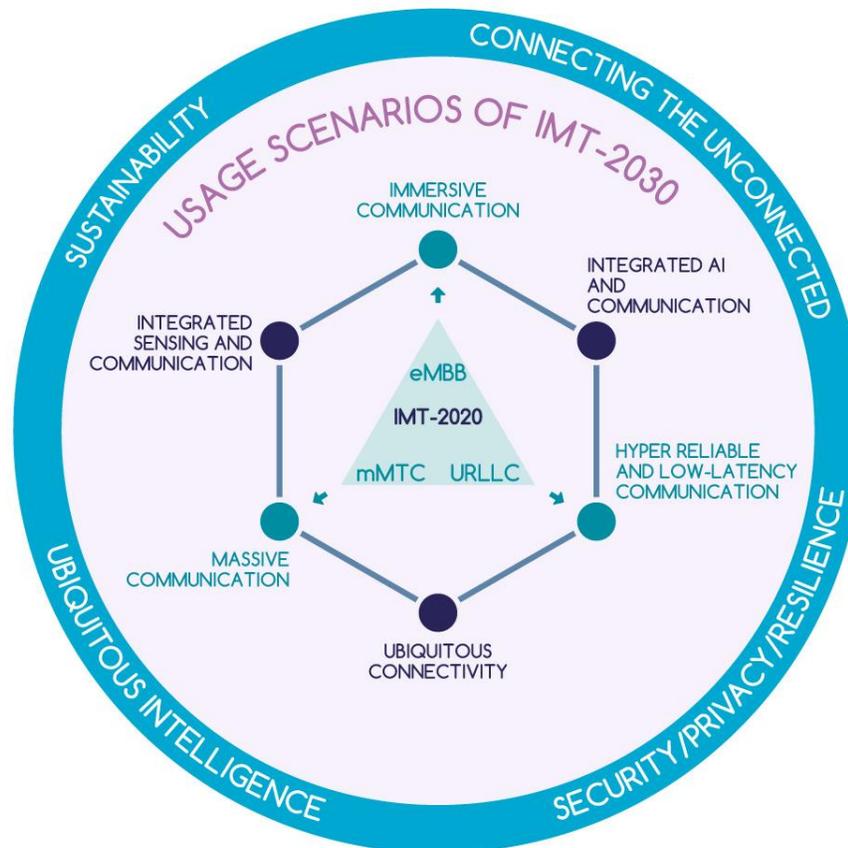## INTEGRATED SENSING AND COMMUNICATION

- Distributed sensing services
- Compact & Complete Data Representation
- Sensing control functions
- Continuity of sensing service
- mmWave spectrum blocking
- ISAC functionalities distribution across network elements
- Waveform and signalling optimization
- Deployment limitations (cost, power, size)
- Object/Target Management Function

INTEGRATED AI AND COMMUNICATION

- Data-driven Architecture
- AI model trustworthiness
- Intelligence at the edge
- AI framework & conflict management
- AI for RAN energy efficiency
- Self-evolving autonomous systems
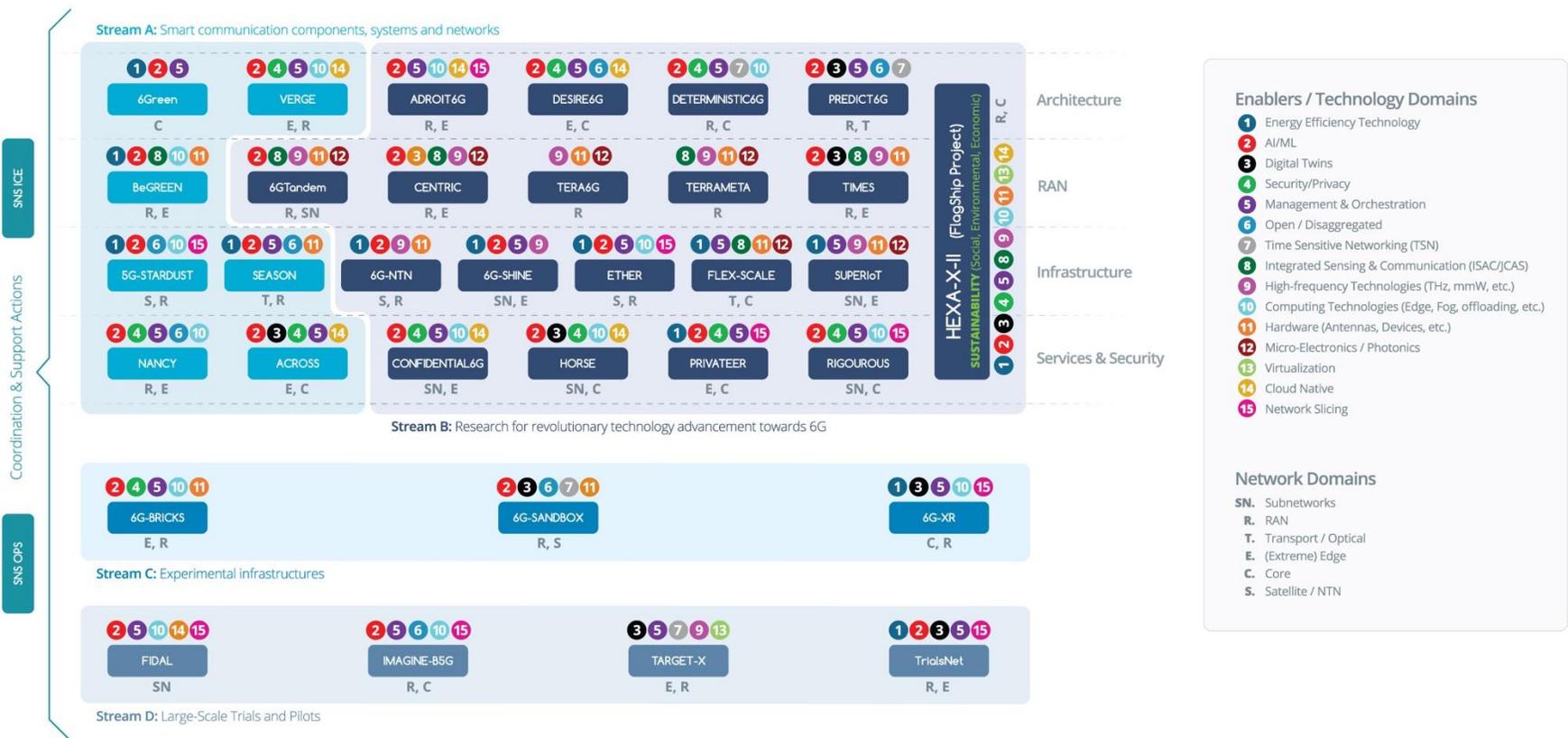
UBIQUITOUS CONNECTIVITY

- Global, Open Service APIs
- Trust models
- Integration with NTN
- Integration of AI-solutions
- Federation
- User-centric approach
- Management plane centralization

USAGE SCENARIOS OF IMT-2030

CONNECTING THE UNCONNECTED

SUSTAINABILITY

SECURITY/PRIVACY/RESILIENCE

UBIQUITOUS INTELLIGENCE

- IMMERSIVE COMMUNICATION
- INTEGRATED AI AND COMMUNICATION
- HYPER RELIABLE AND LOW-LATENCY COMMUNICATION
- UBIQUITOUS CONNECTIVITY
- MASSIVE COMMUNICATION
- INTEGRATED SENSING AND COMMUNICATION

eMBB
IMT-2020
mMTC   URLLC

IMMERSIVE COMMUNICATION
HYPER RELIABLE AND LOW-LATENCY COMMUNICATION
MASSIVE COMMUNICATION

- Flexible Service-Centric Design
- Minimized MIMO Processing Complexity,
- Efficient Orchestration (of Orchestrators)
- Energy-Efficient RAN
- Excellent Interoperability of RAN Components
- Integration of Localized Networks
- Optimization of Control Plane Signalling
- Alignment of Network Intelligence with network infrastructure
- Seamless Connectivity
- Quantum-Resilient Security
- Sustainable RAN Virtualization
- Reconfigurable Multi-Connectivity
- Optimization of RU Energy Consumption
- Programmable Transport

Reference Figure (SNS Technical Board)

https://smart-networks.europa.eu/interactive-map-of-sns-projects/

smart-networks.europa.eu

- Projects Reference Figure (TB)

- 35 Phase 1 projects

  - 15 Key Enablers

  - 6 Network Domains

  - 1 Flagship project

  - 2 Coordination & Support Actions

- Interactive version of RF2024 available in the SNS JU website

The SNS JU so far....

SNS Annual Questionnaire	Vertical Engagement Tracker	Standards Tracker	Trials & Pilots Brochure
• Assistance with the collection of critical data to monitor project output & achievements	• Assistance with the collection of SNS Use Cases, Vertical sectors & trialling information	• Assistance with the collection of SNS project standards contributions & link to relevant standards	• Initiation of the 1st Trials & Pilots Brochure for SNS

Recently Released

More than 40 white papers. All of them are publicly available at https://6g-ia.eu/plans-papers/

Call 4

130 MM €
&
16 Projects

Stream B
Research for radical technology advancement towards **6G definition**

B1. 6G/6G Advanced	**24 M**	€
B2. Wireless Tech.	**16 M**	€
B3. Infrastructure/Devices [1]	**16 M**	€
B4. Reliability & Security	**16 M**	€
B5. Microelectronics [2]	**15 M**	€

Stream C
Experimental infrastructures and Platforms

15 M €

C. Edge Cloud

Stream D
Large Scale Trials and Pilots with Verticals

25 M €

D. Large Scale Trials

(1): Non-terrestrial networks and Photonics   (2): Front-end Module (FEM)

6G Use Cases	Networld Europe SRIA 2022	5G Americas / Next G Alliance	Huawei (China)	B5G Consortium (Japan)	TSDSI (India)	MediaTek (Taiwan)	Survey Paper	ITU IMT-2030
Holographic Communications	✓	✓	✓	✓	✓	✓	✓	✓
Cyber-Physical Systems, DT, Manufacturing	✓	✓	✓	✓	✓	✓	✓	✓
Multi-Sensory extended Reality (XR), Gaming/Entertainment	✓	✓	✓	✓	✓	✓	✓	✓
Tactile/Haptic Communications	✓	✓	✓	✓	✓	✓		✓
Medical/Health Vertical, Telesurgery	✓	✓	✓	✓	✓	✓	✓	
Cooperative Operation among a Group of Service Robots / drones	✓	✓	✓	✓	✓		✓	✓
Imaging and Sensing	✓	✓	✓	✓	✓			✓
Transportation Vertical (automotive, logistics, aerial, marine, etc.)	✓	✓	✓	✓	✓		✓	
Space-Terrestrial integrated network	✓	✓		✓	✓		✓	✓
Intelligent Operation Network	✓		✓		✓		✓	✓
Critical Infra, Government/National Security	✓	✓		✓				
First Responder/Emergency Services		✓		✓	✓			
Smart Buildings			✓	✓	✓			
Agriculture / Smart Farming				✓	✓			

Source: K. Trichias, A. Kaloxylos and C. Willcock, "6G Global Landscape: A Comparative Analysis of 6G Targets and Technological Trends," EuCNC&6G Summit, June 2024.

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Tactile/Haptic Communications	✓	✓						
Medical/Health Vertical, Telesurgery	✓							
Cooperative Operation among a Group of Service Robots / drones							✓	✓
Imaging and Sensing					✓			✓
Transportation Ve... (automotive...)				✓	✓		✓	
Sp... ne...		✓		✓	✓		✓	✓
Inte...	✓		✓		✓		✓	✓
Critic... Gover... Security	✓	✓		✓				
First Responder/Emergency Services		✓		✓	✓			
Smart Buildings			✓	✓	✓			
Agriculture / Smart Farming				✓	✓			

Target for a global standard

Source: K. Trichias, A. Kaloxylos and C. Willcock, "6G Global Landscape: A Comparative Analysis of 6G Targets and Technological Trends," EuCNC&6G Summit, June 2024.

Thanks for your attention!

Dr. Colin Willcock

Chairman of the Board 6G Smart Networks and Services Industry Association (6G-IA)
Vice-Chairman of the Board Smart Networks and Services Joint Undertaking (SNS-JU)
Vice-Chairman of the Board European Telecommunications Standards Institute (ETSI)

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