Smart Networks and Services International and European Cooperation Ecosystem

SNS ICE Vertical Survey

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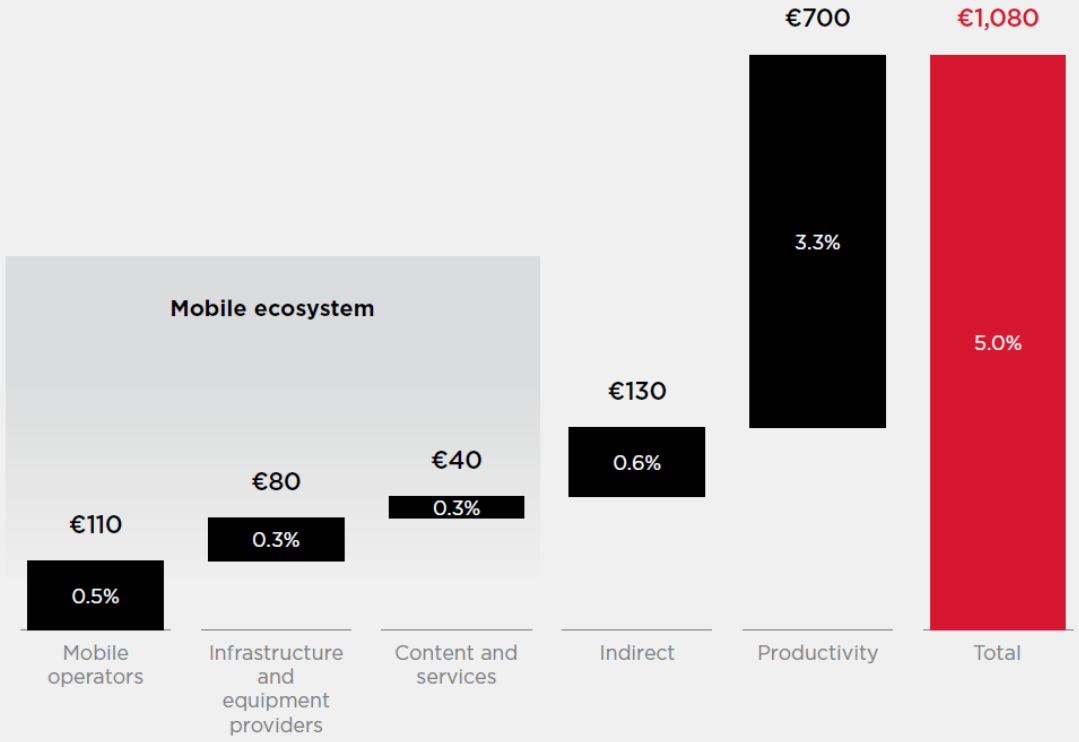
Coordinator of the Board Vertical Engagement Task Force

Why verticals are important for 6G

Europe: total economic contribution of mobile, 2023

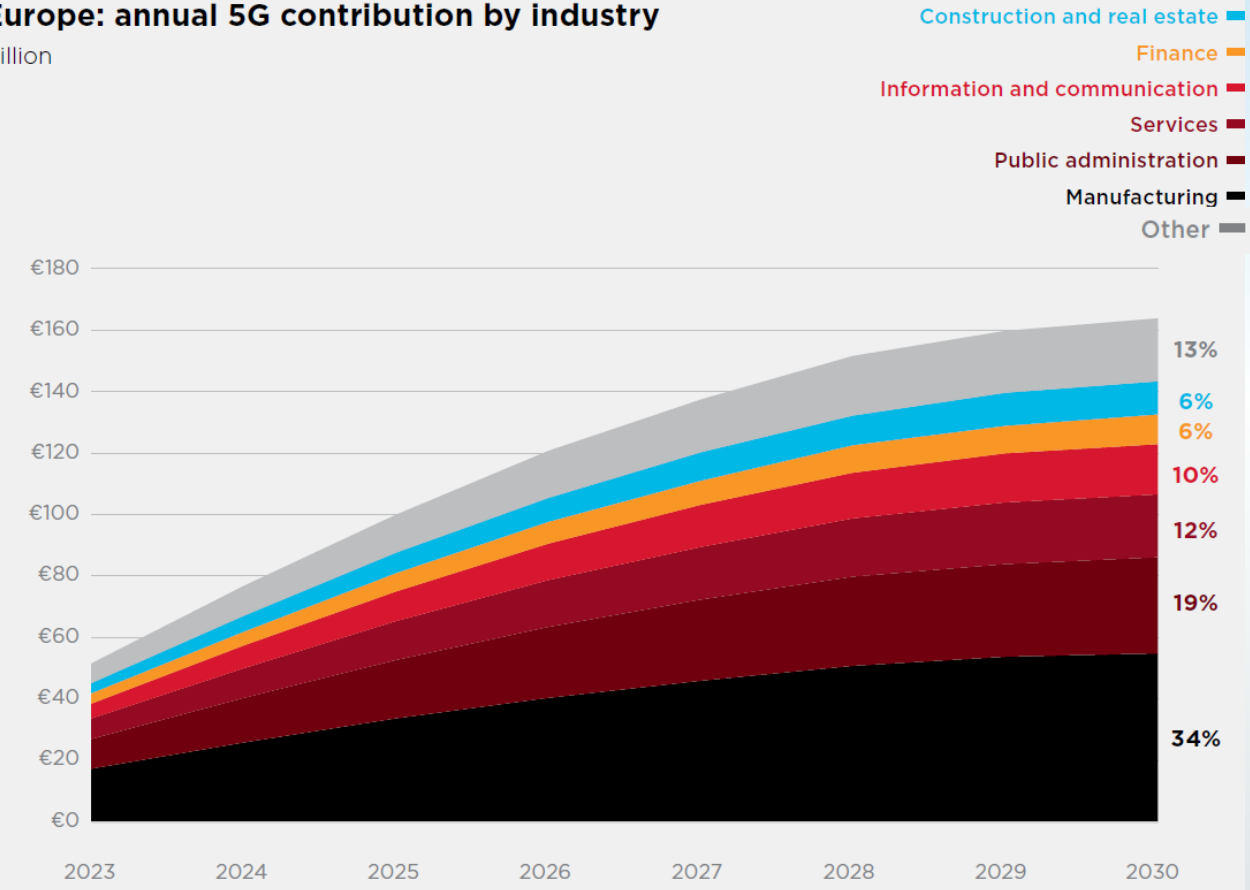
Billion, percentage of GDP



Note: Totals may not add up due to rounding.
Source: GSMA Intelligence

Europe: annual 5G contribution by industry

Billion



Source: GSMA Intelligence

SNS ICE Vertical Engagement approach

- **Vertical Engagement** activities are Board-driven in **6GIA** though a special **Vertical Engagement Task Force** (“VTF”)
- Main objective of the VTF are:
  - **Partnerships** with industry associations (eg. MoU, LoI)
  - Vertical **events** participation with qualified speakers
  - Map vertical related **projects** (eg. Vertical Tracker)
  - Orchestrate **whitepapers** and brochures

VERTICAL EVENTS: 7 events/webinars attended in 2024

Key 6GIA events: **EUCNC, 5G Techritory**

Key vertical events: **Transportation, Smart Manufacturing, Media** and **Agriculture webinars**

PARTNERSHIPS– 1 new MoUs signed for a total of 11 partnerships, new MoUs on the radar

- Key vertical sectors engaged though **MoUs/LoIs – ESA** (Satellite), **PSCE** (Public Safety), **ECSO** (Cybersecurity), **NEM** and **5GMAG** (Media), **5GAA** (Automotive), **5G ACIA** (Manufacturing), **ERTICO** (Transportation), **NGMN (ICT)** are established partners **AIOTI**, **ESA, 6G Health Initiative** and **PSCE** are also Associate Members (PSCE elected in the Board)
- **European Railway Infrastructure Managers (EIM) is** the new MoU partner

CARTOGRAPHIES

- A **Vertical Engagement Tracker (VET)** is a new web tool to track 6GIA projects focusing on verticals

PAPERS – 1 new Whitepaper, 1 whitepaper planned

Agriculture

Energy (planned)

Enlarge the 6GIA club with new vertical partners

EUROPEAN SPACE AGENCY
Space

Public Safety Communications Europ
Public Safety

EUROPEAN CYBERSECURITY ORGANIZATION
Cybersecurity

5G AUTOMOTIVE ASSOCIATION
Automotive

EUROPEAN INTELLIGENT TRANSPORTATION SYSTEMY AND SERVICES
Transportation

5G MAG
Media

NEM
Media

5G ALLIANCE FOR CONNECTED INDUSTRY AND AUTOMATION
Smart Manufacturing

6G Health Institute
eHealth

New Generation Mobile Networks Alliance
ICT/Telecom

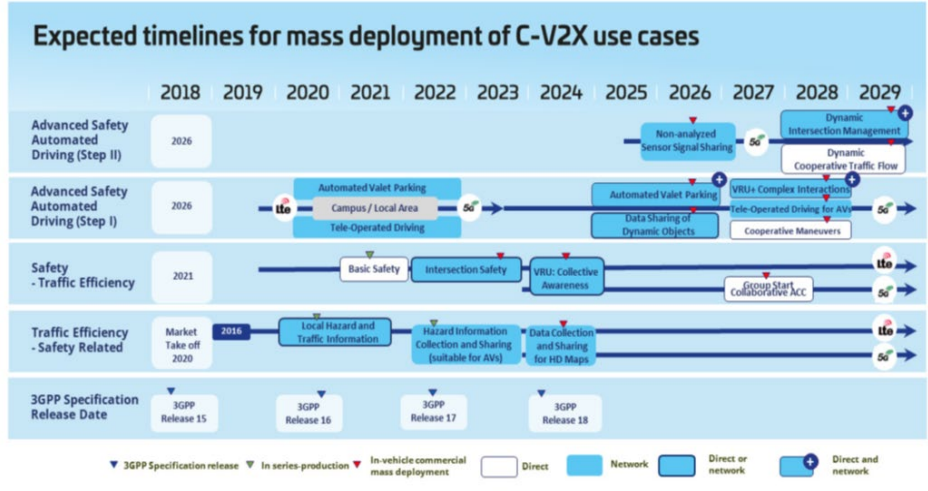
AIOTI
Agriculture

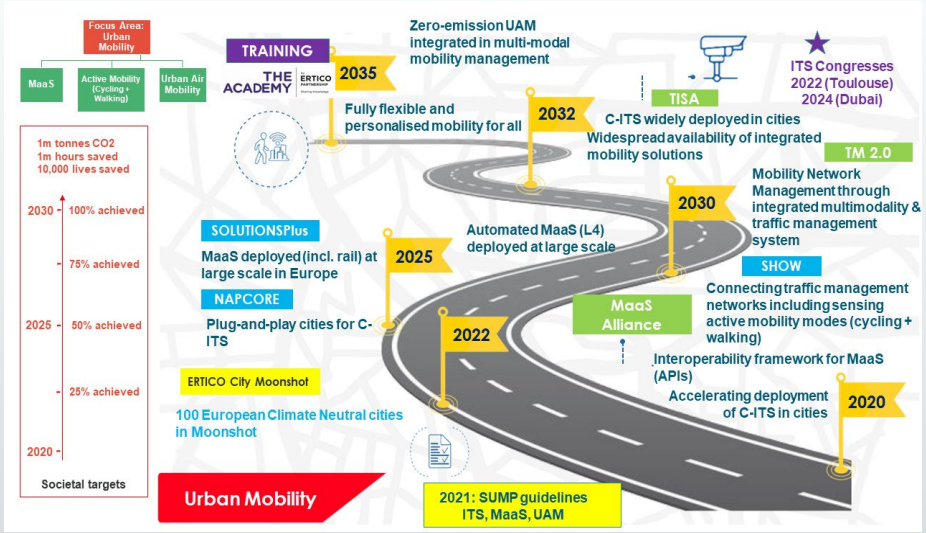
EIM
Railways

Analysis of Vertical Trends

- Detailed Analysis of the trends of **9 key Vertical Sectors**
  - Based on direct input from Vertical Associations & partners
- Analysis of **Technological Challenges** in each Sector
- **Key Trends** vs **Future Use Cases**

Public Safety | **Automotive** | **Transportation** | **Manufacturing** | **Media** | **Agriculture** | **Health** | **Rail** | **NTN**





Sector	Key Trends	B5G Use Cases & Requirements
Public Safety	Critical Communications to Risk & Situational Awareness - from voice centric to data centric public safety networks and services	WORK ACROSS DIVERSE STANDARDS & APPLICATIONS
		MAINTAIN CONTINUOUS COVERAGE OF NETWORK & SERVICES
		SUPPORT COMPLEX ENVIRONMENTS
		IMPROVE INFRASTRUCTURE
		BALANCE LOCAL, NATIONAL & EU REQUIREMENTS
		BUILD ECOSYSTEMS, NOT NETWORKS
		ENSURING TRUST, IN ALL ITS MODULARITY
		CREATE SIMPLE & WORRY-FREE PROCESSES
		BE AFFORDABLE & AVAILABLE
Automotive	Higher levels of vehicular automation	*Extreme networks availability and reliability*
	Availability of relevant travel and traffic information	*Predictability of performance*
	Proliferation of connected devices and services	*Harmonized Quality of Service (QoS) and policy framework*
	Digital roads Diverse mobility services	*Enhanced network exposure* *Device capability* *Enhanced privacy and security* *Matched spectrum demands and alignment of regulations, policies and standards* *Integrated sensing and communication* *Integrated terrestrial and non-terrestrial networks* *Distributed on-broad communication systems* *Refractive meta-surfaces* *Data-driven networks and distributed computing* *Novel privacy* and *security mechanisms*
Transportation	Urban Mobility CCAM Transport & Logistics	

Extended Vertical Survey (1/2)

- Collect detailed **insights** from key stakeholders across various vertical sectors
- Understand the current landscape and identify critical **trends, gaps**, and **opportunities**

- **Part 1**: 5G Adoption and Use Cases & **Part 2**: Future Expectations for 6G
- **18 unique stakeholders** from different vertical sectors responded incl. Automotive / Transport, Media, Healthcare, Public Safety, IoT, Space (NTN)

5G ADOPTION

Adoption & Impact
- Significant variations across Industries
- Challenges: High costs and licensing barriers

Multi-domain 5G Applications
- Infrastructure gaps, esp. in underserved areas, slow adoption
- AI drives analytics, automation & decision-making

Low-Latency Solutions
- High Demand for low-latency solutions
- Edge cloud and IoT support real-time analytics & monitoring

Smart Integrations
- Integration of NTN remains limited resulting in reduced coverage
- Digital twins aid predictive maintenance, and resource optimisation

6G EXPECTATIONS

Simplicity & Maintainability
- Simplified network management with automated configuration
- Challenges: Delays in standardisation & global interoperability

Global Coverage
- Connectivity in underserved / remote areas for critical applications
- Satellite connectivity for ubiquitous coverage

Very Low Latency
- Real-time capabilities crucial for many critical applications
- Challenges: High development costs & limited edge device suppliers

AI-Powered Services
- Intelligent automation, analytics, etc. stand to revolutionize services
- Satellite connectivity for ubiquitous coverage

Extended Vertical Survey (2/2)

5G ADOPTION

Enhanced Infrastructure
- Improved networks enable seamless connectivity
- Challenges: UL performance & Latency still in high-demand areas

Collaboration and Growth
- Cross-sector collaboration drives innovation
- Challenges: Financial & regulatory barriers, limited SME access

Economic Contribution
- Significant GDP contributions projected for 5G, but deployment complexity slows down scaling
- Network slicing and APIs enable scalable, customisable solutions

6G EXPECTATIONS

Sufficient Bandwidth
- Support for data-intensive applications and dense device networks
- Challenges: Limited network availability and spectrum allocation

Security and Resilience
- Vital for mission-critical use cases
- Cloud-native networks ensure robust & secure operations

Economic Sustainability
- Reduced deployment and operational costs are necessary
- Low-energy communications are sustainable and cost-effective
- Challenge: Limited funding for early-stage technologies

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Thank you for you attention!

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https://smart-networks.europa.eu/csa-s/#SNS-ICE

https://linkedin.com/company/sns-ice

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