

FFSNSICE

Smart Networks and Services International and European Cooperation Ecosystem

SNS ICE Vertical Survey

Monday 28 April 2025

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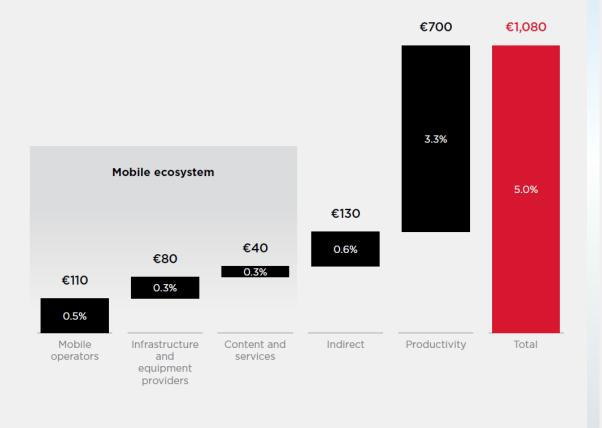


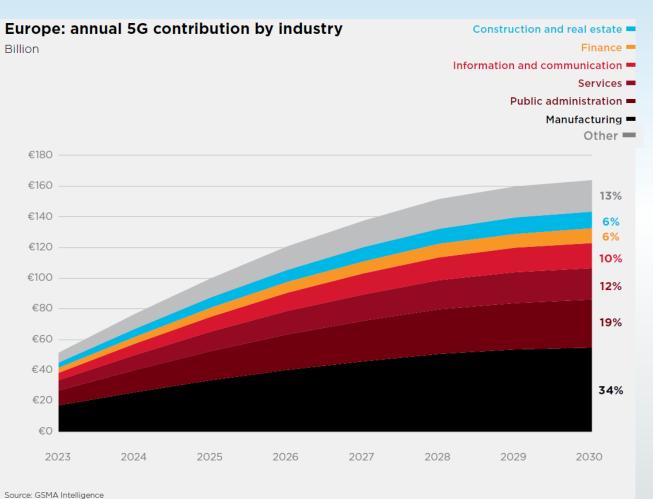
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GIGE Why verticals are important for 6G

Europe: total economic contribution of mobile, 2023

Billion, percentage of GDP





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

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, Lol)
 - 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/Lols – 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

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Enlarge the 6GIA club with new vertical partners

esa	EUROPEAN SPACE AGENCY Space
PSCEurope Public Safetu Communication Europe	Public Safety Communications Europ Public Safety
	EUROPEAN CYBERSECURITY ORGANIZATION Cybersecurity
	5G AUTOMOTIVE ASSOCIATION Automotive
F R T I C O	EUROPEAN INTELLIGENT TRANSPORTATION SYSTEMY AND SERVICES Transportation
FRU	5G MAG Media
	NEM Media
5GACIA SGAIlance for Connected Industries and Automation	5G ALLIANCE FOR CONNECTED INDUSTRY AND AUTOMATION Smart Manufacturing
	6G Health Institute eHealth
(NI;MN)	New Generation Mobile Networks Alliance ICT/Telecom
	AIOTI Agriculture
European Rail Infrastructure Managers	EIM Railways

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FG SNS 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 Healt	h Rail NTN
E	Expected t	imelines for mass deployment of C-V2X use cases	Sector	Key Trends	B5G Use Cases & Requirements
Au	dvanced Safety utomated riving (Step II)	2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 		Critical Communications to Risk & Situational Awareness - from voice centric to data centric public safety networks and services	WORK ACROSS DIVERSE STANDARDS & APPLICATIONS
Au	dvanced Safety utomated riving (Step I)	2026 Automated Valet Parking VBL+ Complex Interactions 2026 Campus / Local Area 5d Tele-Operated Diving Data Sharing of Dynamic Objects Cooperative Manevers			MAINTAIN CONTINUOUS COVERAGE OF NETWORK & SERVICES SUPPORT COMPLEX ENVIRONMENTS
Sa - T	afety Traffic Efficiency	2021 Basic Safety Intersection Safety VIU: Collective Construction Safety Awareness Configuration Construction Safety Construc	Public Safety		IMPROVE INFRASTRUCTURE
Tr	affic Efficiency	Market 2016 total Hazard and Hazard information Data Collection to +			BALANCE LOCAL, NATIONAL & EU REQUIREMENTS
- Safety	Safety Related	Take off collection and Sharing end Sharing (suitable for AVs) for HD Maps			BUILD ECOSYSTEMS, NOT NETWORKS
	SPP Specification elease Date	3GPP 3GPP 3GPP 3GPP Release 15 Release 15 Release 15 Release 16 Release 17 Release 18			ENSURING TRUST, IN ALL ITS MODULARITY CREATE SIMPLE & WORRY-FREE PROCESSES
					BE AFFORDABLE & AVAILABLE
▼ 3GPP Specification release ▼ In series-production ▼ In vehicle commercial Direct ■ Network Direct or network Network ■ Direct and network				Higher levels of vehicular automation	Extreme networks availability and reliability
	Focus Area:	Zero-emission UAM		Availability of relevant travel and traffic information	Predictability of performance
_	Mobility	TRAINING integrated in multi-modal mobility management ITS Congresses		Proliferation of connected devices	Harmonized Quality of Service (QoS) and policy
Mass Active Modelity (Cycline) Widebility Uthan Air Mobility THE Entrop ACADEMY 2035 ITS Congresses 2022 (Toulouse) Im tonnes CO2 Fully flexible and personalised mobility for all C-ITS widely deployed in cities Widespread availability of integrated				and services Digital roads	framework Enhanced network exposure
				Diverse mobility services	Device capability
1	m hours saved 0,000 lives saved	mobility solutions Mobility Network			Enhanced privacy and security
	30 - 100% achieved	2030 Management through integrated multimodality &	Automotive		Matched spectrum demands and alignment of
20,	30 - 100% achieved	SOLUTIONSPlus Automated MaaS (L4)			regulations, policies and standards
	- 75% achieved	MaaS deployed (incl. rail) at 2025 deployed at large scale System			Integrated sensing and communication
202	25 - 50% achieved	NAPCORE Number of the second s			Integrated terrestrial and non-terrestrial networks
202	20 - 00% achieved	ITS 2022 walking)			Distributed on-broad communication systems
		ERTICO City Moonshot			Refractive meta-surfaces
	- 25% achieved	100 European Climate Neutral cities Accelerating deployment of C-ITS in cities and C-ITS in cities			Data-driven networks and distributed computing
202	20 -				Novel privacy and security mechanisms
3	Societal targets	Urban Mobility 2021: SUMP guidelines		Urban Mobility	
		ITS, MaaS, UAM	Transportation	CCAM	
Europ	ean Cooper	ration Ecosystem		crean Wobility	E

Transport & Logistics

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Gruppo TIM - Uso Interno - Tutti i diritti riservati

FF SNS **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
<u>Challenges</u>: High costs and licensing barriers

Multi-domain 5G Applications

Infrastructure gaps, esp. in underserved areas, slow adoption
Al drives analytics, automation & decision-making

Low-Latency Solutions

High Demand for low-latency solutionsEdge 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
<u>Challenges</u>: Delays in standardisation & global interoperability



2

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
<u>Challenges</u>: 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
<u>Challenges</u>: UL performance & Latency still in high-demand areas

Collaboration and Growth

Cross-sector collaboration drives innovation
<u>Challenges</u>: 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
<u>Challenges</u>: 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
<u>Challenge</u>: 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



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