Grant Agreement No.: 101095811
Coordination and support action
Call Identifier: HORIZON-JU-SNS-2022-STREAM-CSA-01

SNS OPS – Supporting the SNS JU Operations

D4.1: Stakeholder Involvement and Interaction: Strategy and Plan

Version: v1.0

Deliverable type	R (Document, report)
Dissemination level	PU (Public)
Due date	30/04/2023
Submission date	05/05/2023
Lead editor	Jessica Carneiro (AUSTRALO)
Authors	Blanca Arregui (AUSTRALO), Jessica Carneiro (AUSTRALO), Lauren Chotard (Orange), James Clarke (SETU), Pierre Yves Danet (6G-IA), Bernard Hunt (UNIS), Håkon Lønsethagen (Telenor), Claudio de Majo (TRUST-IT), Rita Meneses (TRUST-IT), Margherita Trestini (Martel), Kostas Trischias (6G-IA)
Reviewers	Emmanuele Dotaro (THALES), Arda Guller (ERICSSON)
Work package, Task	WP5, Task 4.1, Task 4.2, Task 4.3 and Task 4.4
Keywords	Stakeholder Involvement, SNS, SMEs, Verticals, Working Groups, Cartography, IAFAs

Abstract

The present document describes the stakeholder engagement strategy that will be implemented by the SNS OPS project, in close alignment with the SNS JU Office. Building on the achievements in 5G PPP and the recently launched SNS JU, it focuses on the activities planned during Year 1 of the project. In addition to provide a detailed overview of the processes to identify the SNS actors, the strategy and action plan focus on the engagement with Verticals and complementary domains, Partnerships, Initiatives and Associations, the support SMEs and promotion of entrepreneurship, and the coordination of the Working Groups.

[End of abstract]

Document revision history

Version	Date	Description of change	List of contributor(s)
v0.1	24/03/2023	Chapter 1, Chapter 3 and Chapter 4	Blanca Arregui (AUSTRALO), Jessica Carneiro (AUSTRALO), Pierre Yves Danet (6G-IA), Claudio de Majo (TRUST-IT), Rita Meneses (TRUST-IT), Kostas Trischias (6G-IA)
v0.2	4/04/2023	Chapter 2, Chapter 5, updates sections 2.2.1.4, appendix	Lauren Chotard (Orange), James Clarke (SETU), Margherita Trestini (Martel), Håkon Lønsethagen (Telenor), Bernard Hunt (UNIS), Claudio de Majo (TRUST-IT),
v0.3	11/04/2023	Executive summary, conclusions, first review	Arda Guller (Ericsson), Jessica Carneiro (AUSTRALO)
v0.4	27/04/2023	Update of all sections and second review	Emmanuel Dotaro (Thales), Jessica Carneiro (AUSTRALO), James Clarke (SETU), Bernard Hunt (UNIS)
v0.5	03/05/2023	Addressing comments and final edition.	Jessica Carneiro (AUSTRALO)
v1.0	05/05/2023	Final editorial check and submit	Ellen Tallas (EURES)

Disclaimer

Acknowledgment

This report was elaborated by the SNS OPS CSA funded by the European Commission Horizon Europe programme under Grant Agreement No 101095811. The European Commission has no responsibility for the content of this document.

[1] http://creativecommons.org/licenses/by-nc-nd/3.0/deed.en_US

Executive Summary

This document presents the Smart Networks and Services (SNS) Stakeholder Involvement and Interaction: Strategy and Plan. It describes in detail the tasks and activities planned and their objectives, with a specific focus on the first year of the SNS OPS project. A short explanation of the interrelation between SNS OPS and SNS ICE, as well as the former and 6GStart in connection to the SNS Joint Undertaking (SNS JU), is provided.

The SNS ecosystem goes beyond that of 5G PPP. The higher number of stakeholders is coupled with the complexity of their interactions in an ever-changing environment. Therefore, setting the correct framework for the mapping and engagement of the SNS players is a crucial to the success of the SNS Initiative in accomplishing its mission of fostering Europe´s technology (digital) sovereignty in 6G and boosting 5G deployment in Europe.

The Strategy aims to consolidate the existing community of SNS stakeholders while setting the methodology to identify and engage newcomers. Moreover, it intends to nurture a dynamic and resilient environment where unique cross-fertilisation opportunities can emerge. It is in the edge of knowledge that breakthrough innovations happen. To this end, it provides a set of support and coordination measures that facilitate the circulation of information and the interaction among a wide array of stakeholders, providing plenty of channels for participating in the conversation and development of 6G in Europe.

To optimise the value and impact of the SNS JU programme, the Strategy also contains tailored activities for core groups of stakeholders, namely: Verticals and complementary domains, SMEs, Working Groups (WGs), and peer Partnerships, Initiatives and Associations. These actions often have a collaborative nature to ensure that all SNS stakeholders are involved and supported in the most efficient manner, whilst serving as a revulsive for the whole community.

Standardisation efforts continue to be at the centre in relation to Verticals and complementary domains. In this respect, the objective is to help SNS JU RIA projects and researchers maximise the impact and exploitation of their results thus, encouraging an early-market adoption of the technology. The engagement with Verticals is also key to ensure that the 6G SNS solutions meet their individual requirements as well as the global requirements for the green digital transition of society.

The SMEs support and engagement and the promotion of entrepreneurship are mainly addressed in the frame of the NetworldEurope SME WG. A level playing field will increase the ability to find appropriate solutions to identified and emerging challenges by enabling the materialisation of strategic collaborations. Furthermore, the active involvement of SMEs is fundamental for constituency building, necessary to advance the SNS JU ambitions.

Gathering experts from different areas and domains tasked with discussing relevant topics for the SNS community, the WGs are essential to build on the results of the SNS JU projects and formulate orientations to the SNS strategic roadmap. A set of actions, including the provision of leadership, are envisaged to continue to assist the functioning of the WGs, some of which are undergoing a transition or finalising their work.

The Strategy introduces various novel activities, remarkably the Impact Assessment and Facilitation Actions (IAFAs), which goal is to understand the relevance and impact of the SNS JU in the specific-SNS domains and to gather feedback on the expectations regarding the development of the SNS technology. The IAFAs focus on the interaction with adjacent Partnerships, Initiatives and relevant Associations to improve understanding and synergies in both directions.

In summary, the SNS Stakeholder Strategy accounts for the rising sophistication of the SNS community, compounding the SNS JU vision with a specific action plan intended to nurture a thriving ecosystem. The comprehensive involvement of all relevant players in the SNS programme activities will guarantee their impact, scalability and overall added value. Ultimately, this will be key to materialise SNS JU ambitions to position Europe as a global leader in technology.

Table of Contents

Executive Summary **3**
Table of Contents **4**
List of Figures **5**
List of Tables **6**
Abbreviations **7**
1 Introduction **9**
1.1 Supporting the SNS JU 9
1.1.1 SNS OPS and 6GStart 9
1.1.2 SNS OPS and 6GStart 10
1.2 Main objectives 10
2 SNS Stakeholder Engagement Strategy **11**
2.1 Main objectives 11
2.2 Action plan 11
2.2.1 Current status 11
3 Verticals and complementary domains **17**
3.1 Main objectives 17
3.2 Action plan 17
3.2.1 Current status 17
3.2.2 Work Plan M1-M12 20
3.2.3 Standards Tracker M7-M12 (Future steps) 23
4 SME engagement and support and entrepreneurship promotion **25**
4.1 Main objectives 25
4.2 Action plan 25
4.2.1 Current status 25
4.2.2 Work plan M1-M12 26
4.3 Action plan 26
5 Working Group coordination **30**
5.1 Main objectives 30
5.2 Action plan 30
5.2.1 Current status 30
5.2.2 Work plan 32
6 Conclusions Section **33**
Appendix A Additional info **34**
A.1 Preliminary mapping of SNS JU RIAs Vertical Sectors and Standardisation Interests 34
A.2 Preliminary mapping of SNS JU RIAs Vertical Sectors and Standardisation Interests 45

List of Figures

Figure 1: Timeline of capturing information on market opportunities from SNS communities.....15
Figure 2: Digitalisation of the European Industry journey.....19
Figure 3: Replicability process.....23
Figure 4: Example of a promotional success story banner.....27

List of Tables

Table 1: SNS OPS partners (non-exhaustive) links with SNS stakeholders 12
Table 2: Preliminary Events List.....20
Table 3: Relevant Initiatives and Organisations.....21
Table 4: Main Milestones for Standards Tracker Development 24

Abbreviations

3GPP	Third Generation Partnership Project
5G	5th Generation Wireless Systems
5G PPP	5G Public Private Partnership
5G IA	5G Industry Association
5GAA	5G Automotive Association
5G-ACIA	5G Alliance for Connected Industries and Automation
5G-MAG	5G Media Action Group
6G	6th Generation Wireless Systems
6G-IA	6G Industry Association
AI	Artificial Intelligence
AIOTI	Alliance for IoT and Edge Computing Innovation
BSCW	Basic Support for Cooperative Work
CAM	Connected and Automated Mobility
CCAM	Connected Cooperative & Automated Mobility
CEF	Connecting Europe Facility
CEPT	European Conference of Postal and Telecommunications Administrations
CSA	Coordination and Support Action
DIH	Digital Innovation Hub
EC	European Commission
ECHAlliance	European Connected Health Alliance Group
ECSO	European Cyber Security Organisation
ERTICO	European Road Transport Telematics Implementation Coordination
ESA	European Spatial Agency
ESOA	European School of Antennas and Propagation
ETP	European Technology Platform
ETSI	European Telecommunication Standards Institute
EuCNC	European Conference on Networks and Communications
EUTC	European Utilities Telecom Council
G5GE	Global 5G Event
H2020	Horizon 2020
HPC	High Performance Computing
ICT	Information and Communication Technology
IoT	Internet of Things
KPI	Key Performance Indicator
MoU	Memorandum of Understanding
MWC	Mobile World Congress

NEM	New European Media
PCG	3GPP Project Coordination Group
PSCE	Public Safety Communications Europe
R&I	Research & Innovation
SB	Steering Board
SCoDIHNet	Smart Connectivity Digital Innovation Hub Network
SDO	Standards Development Organisation
SME	Small to Medium Enterprise
SNS JU	Smart Networks and Services Joint Undertaking
TB	Technology Board
TCCA	The Critical Communications Association
ToR	Terms of Reference
UIC	International Union of Railways
VTF	Vertical Task Force
WGs	Working Groups

1 Introduction

This document details the Smart Networks and Services (SNS) Stakeholder Engagement Strategy and Action Plan, focusing on Year 1 of the SNS OPS project. In addition to the overall involvement and interaction approach to the SNS ecosystem, it encompasses the specific strategies and plans for the verticals and complementary domains, the SME engagement and entrepreneurship promotion and support, and the working groups support. Moreover, the document outlines the measures planned to ensure a seamless transition between the final stage of 6GSTART and the start of SNS OPS, following the approach presented in 6GSTART Stakeholder Engagement Strategy and Plan.

The structure of the document is as follows:

Chapter 1 – Introduction

Chapter 2 – The SNS Stakeholder Engagement Strategy

Chapter 3 – Verticals and complementary domains

Chapter 4 – SME engagement and entrepreneurship promotion and support

Chapter 5 – Working Groups

Chapter 6 – Final remarks

1.1 Supporting the SNS JU

SNS OPS is one of the Coordination Support Actions (CSAs) which prime objective is to facilitate the activities of the European SNS Initiative, in particular, its operations. The launch of SNS OPS overlaps with the final year of 6GStart, the precedent CSA that is set to end in June 2024. This creates some overlays in the timeline of various activities that were carefully addressed in the conception of this next stage. The stakeholder engagement is one of the affected domains.

Whilst the present document focuses on the SNS JU, it also provides insights on the transition plans for those activities that are common to SNS OPS and 6GStart. In this respect, an overview of the transition is provided in section 1.1.1.

The coordination of SNS OPS with SNS ICE is equally relevant. Although both CSAs are complementary, there are many synergies that can be exploited in the benefit of SNS JU and thus, require a comprehensive approach. Further details are provided in section 1.1.2.

1.1.1 SNS OPS and 6GStart

The 6GStart project will facilitate the preparation activities of the SNS JU Initiative. This work will maintain the European momentum and leadership in 5G achieved through the 5G PPP and carry it forward to the new 6G SNS JU. It will bring the relevant players together to prepare the SNS JU by building on the work done to date in the 5G PPP.

The SNS OPS CSA project role is to support and facilitate the operational activities of the European SNS Initiative. This means that the prime objective of the coordination and support work is to facilitate the activities of the European SNS Initiative as outlined in the SNS JU partnership contract. During the life of the SNS OPS project, the project activities of the SNS JU will start and approximately 38 new projects are expected to be launched in the first phase. These projects and their participants, will have to be integrated into the SNS JU operational structure, signed up for the program level collaboration agreement and invited into the cross-project workgroups and other programme level activities.

While SNS OPS has started on 1 January 2023, 6GStart will continue in parallel throughout 2023 and part of 2024. 6GStart will continue to prepare the SNS JU and facilitate a smooth handover. There is therefore a certain overlap which is however not critical as nearly all partners are involved in both 6GStart and SNS OPS, and therefore no problem is expected from these parallel activities.

1.1.2 SNS OPS and 6GStart

While SNS OPS is the main CSA project supporting the SNS JU, the peer Smart Networks and Services International and European Cooperation Ecosystem (SNS-ICE) CSA project is tasked with providing the collaboration environment for dialogues among European and global stakeholders, including relevant EC partnerships (CCAM, HPC, CHIPS, etc.), peer initiatives (ESA, EUREKA, etc.), national initiatives, European standards and open-source communities, research and development clusters and the Global 6G. It also aims to be the instrument to present, leverage, and position the SNS JU activities and achievements in major European and global fora.

All logistics, publications, and organisational aspects will be part of the SNS-OPS operational CSA activities. Moreover, SNS-OPS will be the link between SNS-ICE and the SNS projects, whilst SNS ICE CSA will play the de facto role of the SNS JU ambassador. Close cooperation with the SNS JU Office on operational aspects of the programme is also planned.

A synchronised approach between the two SNS CSA projects is critical to ensure European global leadership in 6G. Both projects fulfil complementary roles and maintaining a close collaboration to regularly exchange information, work plan and achievements, is essential to guarantee the SNS success.

1.2 Main objectives

The main goal of the stakeholder involvement and interaction strategy is to build a solid SNS community, fostering the engagement and cooperation of all the stakeholders already identified in the 5G PPP, as well as new players in the SNS domain. It aims to prepare the European industry to uptake the advanced 5G and new 6G technologies and promote entrepreneurship in the field by facilitating a conductive ecosystem, where stakeholders can learn, obtain support and jointly find solutions for potential challenges in the field.

The specific objectives are listed below.

- To **identify and engage all relevant SNS stakeholders** by means of implementing a specific set of actions with respect to Verticals and complementary domains, SMEs and relevant Partnerships, Initiatives and Associations**.**
- To **foster knowledge exchange across SNS JU verticals, complementary domains and peer partnerships**, promoting alignment on specific sector needs.
- To **support SNS JU projects and their researchers implementing their standardisation roadmaps,** helping them to maximise the impact of their activities and therefore, contributing to a strong European impact at future downstream 6G standardisation stages.
- To **promote entrepreneurship in 6G** and other related SNS domains.
- To **support market growth/change in the advanced 5G and 6G ecosystem** and related SNS domains and prepare the adoption of 6G technologies by the European Industry
- To **handle the Impact Assessment and Facilitation Actions (IAFAs)** by defining and strengthening interaction with adjacent Partnerships, Initiatives and relevant Associations to ensure relevance and synergies in both directions.
- To **facilitate the community discussions through Working Groups (WGs)** and to document achieved outcomes in form of white/position papers or other types of documents.

2 SNS Stakeholder Engagement Strategy

The SNS Stakeholder Engagement Strategy follows the Agile Stakeholder Management Framework, which has proved to be an effective approach in the previous CSAs. The flexibility of the Framework allows for it to integrate the various lessons learnt in the past years, as well as for a continuous improvement during the implementation, so that it better responds to the needs of the SNS ecosystem as it evolves.

This chapter defines the main objectives of the strategy, describes the status quo of the 5G/6G stakeholder community, and outlines the action plan for the project, with a particular focus in Year 1.

2.1 Main objectives

The SNS ecosystem is ever evolving. Therefore, the identification of stakeholders and consequently, the most adequate engagement strategies, is critical to respond to the evolution of the community and its needs. This allows for harnessing the available resources, planning the interactions and overall, provide the best support and mechanisms to allow a close collaboration.

The objectives are specified below:

- **Update the SNS stakeholder identification performed in 6GSTART.**
- **Better identify and engage the newly formed and evolving SNS ecosystem**, and make sure that coordination among all relevant initiatives is as effective as possible.
- **Demonstrate that the 5G/6G SNS capabilities will pre-empt great market changes and growth** as the new capabilities are exploited.

The objectives of the SNS Stakeholder Engagement Strategy represent a continuation with the work performed in 6GStart and previous projects in the realm of 5G PPP, while bringing some elements of novelty, such as the Impact Assessment and Facilitation Actions (IAFAs).

2.2 Action plan

This section provides a summary of the status of the different activities encompassing this task, as well as the work plan for the next 12 months.

2.2.1 Current status

The final 5G PPP stakeholder pictures, reflecting the ecosystem and its interactions, alongside a glossary, was published in March 2023. It classifies stakeholders in three different categories or layers of the ecosystem according to their role in the 5G PPP value chain, namely: the end users' ecosystem, the provisioning ecosystem organisations, and the facilitators' ecosystem[2]. During this process, some SNS stakeholders were identified, mostly limited to the new 6G-IA members. Likewise, the mapping of the SNS JU Phase 1 projects that started in January 2023 has begun.

The engagement activities are taking place as devised in the workplan laid out in 6GStart. The latest status of these actions can be consulted in 6GStart D3.2 Stakeholders Engagement Interim Report.

2.2.1.1 Identification of stakeholders in the ecosystem

Building on the pictures of the 5G PPP ecosystem, this activity aims to elaborate a comprehensive picture of the SNS ecosystem that includes all relevant players and captures their interactions.

In the first year of the project, the mapping of stakeholders will focus on identifying the new players

[2] 6Start, ¨5G-PPP stakeholders pictures and the glossary¨, available at: www.networldeurope.eu/5g-ppp-stakeholders-pictures-and-the-glossary/

involved in the SNS Phase 1 and Phase 2 projects, as well as any subsequent phase that might be launched in 2023. An initial overview of the SNS ecosystem will be elaborated by M06 (milestone 7).

A formal identification process will be implemented in Year 2. It will run from M12 to M15 and it will be similar to that implemented in 5G PPP, mixing a bottom-up and top-down approach, with due to consideration to the higher complexity of the SNS ecosystem.

For the top-down approach:

- Contributions and feedback will be requested from stakeholders representing Verticals and complementary domains that are members of 6G-IA to gather input from their new members.
- The 6G-I Steering Board, the NetworldEurope Steering Board, the 6G-IA Board, and the EC/SNS Governing Board will be requested to provide their contributions.
- Additionally, feedback and contributions will be requested from the WGs and the 6G-I Technology Board.

For the bottom-up approach:

- The ongoing SNS JU projects have been engaged to orchestrate their communication activities through the establishment of the SNS Communication Task Force, consisting of each project communication officer and led by SNS OPS WP2. As the SNS Communication Task Force meets online every month, their contribution and feedback will be solicited.

A picture will be produced at the end of the process, illustrating the SNS community and the connections among the players. This will be published in SNS OPS ¨D4.3 Stakeholder Involvement and Interaction: Final Report including WG Achievements¨, as well as in relevant media.

The identification of the SNS stakeholders will underpin the success of the engagement strategy, which will provide a targeted plan for actively involving each category of stakeholder in the SNS community.

2.2.1.2 Engagement of stakeholders in the SNS ecosystem

As defined in the 5G PPP stakeholder pictures, and considering the wider SNS ecosystem, the SNS Stakeholder Engagement Strategy will target the following categories:

- **Provisioning ecosystem**: It includes stakeholders involved in the development, deployment, and maintenance of 5G/6G infrastructure, such as network operators, equipment vendors, and system integrators, but also policymakers or standardisation bodies. These stakeholders play a crucial role in the implementation of 5G/6G technology by developing and providing the necessary hardware, software, and network infrastructure to support the deployment of these advanced networks. They work together to develop industry standards, policies, and regulations that enable interoperability and promote the widespread adoption of 5G/6G technology across different regions and markets.
- **User ecosystem:** It includes stakeholders who benefit from the deployment of 5G technology or who use 5G networks and services to deliver specific applications and services such as healthcare providers, transportation companies, and smart city developers. Early 6G adopters will be considered.
- **Enablers/Facilitators Ecosystem**: It includes stakeholders who provide a variety of support services that enable and facilitate the provisioning and use-case ecosystems to operate effectively.

Most SNS OPS partners have well-established relationships with the central players in each category listed above. All these connections will be systematically leveraged to establish discussion pipes that support the objectives of the SNS JU.

Table 1 illustrates the relationships between SNS OPS partners and key SNS stakeholders.

Table 1: SNS OPS partners (non-exhaustive) links with SNS stakeholders

Category	Sub-category	Stakeholder	Partner
Users´ ecosystem	Vertical associations	5GAA	NSN

Category	Sub-category	Stakeholder	Partner
		ERTICO	6G-IA
		5GACIA	NSN
		ECSO	TELENOR, THALES
		PSCE	6G-IA
		NEM	6G-IA
	Complementary domains associations	AENEAS	6G-IA
		KDT-Chips JU	6G-IA, NSN
		Photonics 21	6G-IA, NSN
		AIOTI	6G-IA
		NESSI	6G-IA
		Transcontinuum	6G-IA
		5 Horizon Europe missions	6G-IA
Provisioning ecosystem	5G/6G related associations	NetworldEurope	ITAV, EURESCOM
	Standardisation	ETSI	ITAV
Facilitators ecosystem	Deployment	CEF 2 programme	6G-IA
	DIHs	SCoDIHNet	6G-IA

Notably, due to its forefront position in SNS JU, 6G-IA has extensive relationships with most of the stakeholders identified as key for the initiative. Many of these relationships are formalised in Memorandums of Understanding (MoU). Furthermore, 6G-IA´s role in SNS ICE places it in a privileged position for promoting the SNS initiative across the wider SNS community at national, European and international levels.

Furthermore, most SNS OPS partners also enjoy a long-standing collaboration with the principal SNS stakeholders. Some of these partners are also a fundamental part of the SNS ecosystem themselves, with the influence to agglutinate other players around them. Again, many are partners in SNS ICE and flagship projects such as Hexa-X-II, as well as members in several Working Groups (WGs) and Task Forces.

Building on this strong foundation, the engagement strategy will seek to involve newcomers while ensuring a smooth coordination among the many SNS-related initiatives. This will strengthen the existing ecosystem, as it will guarantee that new actions can be effectively deployed, enriching the support provided. It will also continue to foster a dynamic of cooperation between the different actors across the value chain, that keeps them active and committed, ultimately setting the conditions for the European SNS to flourish, become a reference, and strengthen its leadership worldwide.

2.2.1.3 Impact Assessment and Facilitation Actions

The **"Impact Assessment and Facilitation Actions"** (IAFAs) are research-based activities targeting relevant Partnerships, Initiatives and Associations. They have a twofold objective: to evaluate the impact of the different activities carried out in the scope of the SNS JU and to ensure their relevance for the SNS community and beyond.

In Year 1, efforts will be centred on the fine-tuning of the IAFAs concept, which will likely be discussed at higher level (i.e., 6G IA Board), and the planification of their implementation through a series of workshops. These will serve to collect and contrast information, to disseminate and communicate about the SNS JU, and to engage related Partnerships, Initiatives, Associations and Verticals. Raising awareness about the main SNS JU contributions to their domains and understanding whether their expectations are being met is crucial to guarantee the relevance of the SNS JU work within the wider European context.

The workshops will look closely at the main objectives of the SNS JU:

1. **Full industrial digitisation and support of vertical industries**: to provide and validate (in trials and pilots) the enablers and solutions for full digitisation of the European vertical industries to improve the business operation.
2. **Integration of new technologies and support to emerging applications:** to research, develop and validate the next generation of telecommunications networks and support emerging services, while enabling networks to efficiently support any service to be provisioned under all relevant environments.
3. **Boost Europe´s share on the global market:** to ensure European leadership in the ICT sector and mobilise cross-disciplinary private sector forces to build solutions that will improve the operation of European vertical industries.
4. **Societal, environmental and political challenges**: to foster the development and adoption of technologies and solutions that can contribute to i. EU Green Deal's targets and United Nations SDGs; ii. Empower Europe´s digital autonomy and technology sovereignty; iii. Ensure that digitisation of our society will be done in a secure way to retain Europe's leading position in trust and privacy; and iv. Create high-skill jobs and social inclusive technologies.

Cybersecurity is one of the forefront challenges that faces the SNS community and as such, an example of the matters that will be tackled by the IAFAs. Integrating relevant stakeholders in the areas of resilience and capabilities to prevent, deter and respond to cyberattacks is key to a safe Internet. This demands a strong coordination of a complex ecosystems mixing SNS WGs (Security, Strategic), the European Cybersecurity European Cyber Security Organisation (ECSO), the European Cybersecurity Competence Centre (ECCC) and its Network of National Competence Centres, as well as regulation and certification bodies such as ENISA.

The thematic of the workshops will cover the expected impact of SNS JU, highlighting the most significant aspects in relation to the target audience. For instance, in the case of cybersecurity, SNS OPS partners will mobilise their connections with the abovementioned organisations to address strategic issues, concerning the alignment of priorities in relation to cybersecurity developments, as well as operational aspects, where where technological and market issues will be addressed.

Approximately 10 workshops will be organised during the duration of the project, each targeting one organisation or a small group of organisations in the same domain, according to the relationship of the SNS JU with adjacent Partnerships, Initiatives and Associations (Table 1). Nevertheless, the number of workshops can vary and more SNS stakeholders could be included, as the identification of players progresses, and the plan is refined. Ad-hoc workshops and follow-up sessions could also be considered.

Given this activity is very resource-intensive, responsibilities for leading the workshops have been distributed among partners, leveraging their current relationships and ongoing interactions with the different stakeholders. The SNS OPS partners links to the Partnership´s objectives will also be considered.

The workshops will be organised mainly online. The structure and topics will be adjusted to the target stakeholders and relevant projects will be invited as speakers to convey their developments first-hand. A short report (no longer than five pages) will be produced for each workshop, summarising the key outcomes and lessons learnt. The latter will be used to progressively improve the workshops.

The promotion of the IAFAs will be coordinated closely with WP2 to ensure participation and wide dissemination of the results across the SNS JU website, social media and press. The recording of the workshops will be made available on the SNS JU YouTube channel.

The IAFAs will contribute to establish appropriate mechanisms to empower strategic collaboration with other Partnerships, Initiatives and Associations, in alignment with SNS ICE and other SNS JU related actions. Likewise, the outcomes will feed into various of the SNS actions such as the European 6G market analysis or the SNS JU Strategic Research and Innovation Agenda (SNS JU SRIA).

2.2.1.4 The impact of SNS technologies in Europe: a business case

This activity focuses on "demonstrating that the 5G/6G SNS capabilities will pre-empt great market

changes and growth as the new capabilities are exploited". The project will work with the wider SNS JU community to determine the most impactful future market opportunities that will motivate investments and allocation of resources. To accomplish this, the project is undertaking the collection and sharing of data, key success factors, and market insights across projects and further developing them within WGs, while actively communicating them to gather feedbacks via appropriate channels and thought leaders.

The scope of the work covers the anticipated economic, societal and environmental impacts of advanced 5G and 6G in the market; in addition, it is expected to address potential ethic and legislative issues. The collection of data for this work will be carried out by a number of activities, described in more detail below.

A questionnaire is being developed to gather feedback from SNS projects on technologies, vision and market impacts expected from SNS technologies and innovation in Europe (and beyond), as to get a better understanding of the work planned to be performed in each of the projects, the challenges being addressed and the expected outcomes. The questionnaire is divided in three sections: Vision, Market and Technology.

In the Market section, the questionnaire is gathering data on the foreseen biggest market changes expected in domain/market areas with the advent of 6G, elaboration on the technologies/innovations expected to play an important role in the telecommunications market in the coming years, expectations on which vertical sectors are affected the most with the advent of 6G, how to validate business opportunities in the vertical sectors, what are the greatest obstacles for the deployment of 6G networks, novel market sections that 6G may enable, and Key Exploitable Results (KER) expected from the impacts related to 6G technologies and innovations.

Inputs from WGs looking at these issues in both EU and beyond will also be collected. In particular, the 6G IA WG Vision and Societal challenges has contributed with visions for the 6G ecosystem, and also embraces work on the business, social and environmental domain. The WG invites and unites experts in the 5G/6G SNS community to share the best of their knowledge and best practises to achieve the high ambitions with 6G. This has resulted in white papers, events, and dissemination of insight. As such, the WG is a means for driving the European 6G evolution. SNS OPS will interact and align with the Vision WG to collect and develop relevant information. The SME WG will also contribute providing their specific perspective on the subject.

Relevant projects such as SNS ICE, Hexa-X-II and the future Societal Challenges CSA will also be consulted. In the case of SNS ICE, the discussion will focus on the global overview of 5G/6G, providing a context for the position of Europe worldwide, whereas Hexa-X-II and Societal Challenges can contribute to enrich the data related to the societal, environmental and ethical aspects. Feedback from Verticals, Partnerships, Initiatives and Associations will be mostly gathered by means of the IAFAs.

Ultimately, the data will be analysed and further reported in two versions of a white paper as the projects mature. As shown in the timeline in Figure 1, the living document will be discussed in dedicated WGs´ sessions and comments will be integrated to produce an interim version in Month 12 and a final version in Month 24, which will be enriched with feedbacks from the wider communities in projects, WGs and submission of a dedicated workshop at EuCNC & 6G Summit 2024.

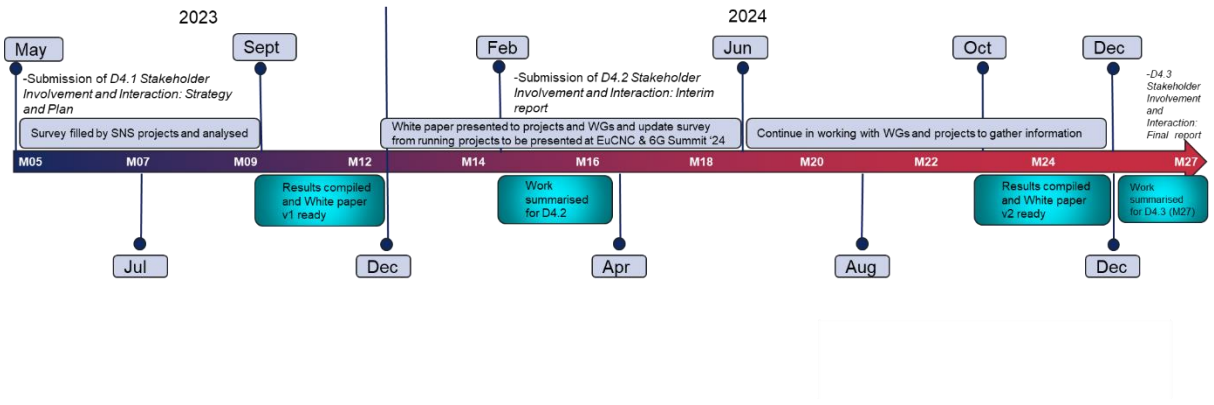

Figure 1: Timeline of capturing information on market opportunities from SNS communities

Once ready, the white papers will be disseminated through the SNS JU website and social media channels and both versions will be summarised in ¨D4.2 Stakeholder Involvement and Interaction: Interim report" and "D4.3 Stakeholder Involvement and Interaction: Final report". Moreover, the whitepaper will be made available for the press, encouraging media interviews with SNS JU EC officers. Last but not least, the whitepaper will be published on the SNS JU Zenodo account and promoted at relevant events' presentations.

3 Verticals and complementary domains

3.1 Main objectives

SNS OPS focuses on driving engagement across various vertical sectors, building on close relationships established through the "5G User Webinar Series: supporting Industry Verticals on the Road to 5G Standardisation, highlights and impacts"[3] aimed at ensuring requirements from industry verticals feed into 5G standardisation by encouraging the community to embrace verticals, optimally capture end-user requirements and support contributions to the standardisation process. Engaged associations include 5GAA, 5G-ACIA, 5G-MAG, ECHAlliance, ERTICO, ESOA, EUTC, IALA, UIC, NEM, PSCE, TCCA, and others. The goal is to support SNS JU RIA projects in their engagement with these associations, mapping their common requirements and standardisation processes, and helping them maximise their efforts' impact despite limited resources.

In addition, SNS OPS aims to increase awareness and knowledge exchange across a variety of complementary domains and peer partnerships, such as IoT, cloud and edge, AI, and CCAM. This involves defining synergies and enabling alignment on priorities, such as dedicated workshops and co-location with the most relevant standards meetings. The aim is to ensure that there is alignment on specific sector needs and to help influence their inclusion in standardisation processes.

Another key aspect is to support EU researchers in the SNS JU in implementing their standardisation roadmaps. This will involve helping researchers to understand why, how, and when to plan their inputs and to valorise them to derive the most impact. The goal is to encourage stakeholders to pursue a needs and gap analysis approach and draw on relevant recommendations in the EC's Scoping study for supporting researchers on standardisation [1].

Last but not the least, this activity will also continue and develop the Replicability and Scalability initiative in order to contribute and facilitate the digitalisation of the European Industry (Digital Europe Programme). The objective is to reuse use cases/solutions developed by SNS projects in real situation though the Digital Innovation Hubs.

3.2 Action plan

This section provides a summary of the current status of the different activities, as well as the workplan for the next 12 months, to achieve the goals listed in xx

3.2.1 Current status

This section provides a summary of the current status of the different activities, as well as the workplan for the next 12 months, to achieve the goals listed in chapter 3.1. The vertical and complementary domains engagement action plan followed two paths in the first three months of the SNS OPS project. On the one hand, it picked up the baton from Global5G[4] and 6GStart[5] projects, establishing links with verticals and monitoring trends in 6GStart[6] and SNS ICE[7]. This meant examining the projects' vertical cartography identifying the vertical sectors to focus on, by liaising with some key associations from each vertical: 5GAA, 5G-ACIA, 5G-MAG, ECHAlliance, ERTICO, ESOA, EUTC, IALA, UIC, NEM, PSCE, and TCCA. Moreover, a preliminary mapping of SNS JU RIAs standardisation interests was carried out following the information provided by the projects at the "ETSI Research Conference:

[3] 5G User Webinar Series, available at: https://5g-ppp.eu/5g-ppp-user-webinar-series-supporting-industry-verticals-on-the-road-to-5g-standardisation-highlights-and-impacts/

[4] Global5G, see at: https://global5g.5g-ppp.eu/

[5] 6GStart, see at: https://5g-ppp.eu/6gstart/

[6] 6GStart, Vertical Cartography, available at: https://verticals-cartography.5g-ppp.eu/

[7] SNS ICE, see at: https://smart-networks.europa.eu/csa-s/#SNS-ICE

Maximizing the Impact of European 6G Research through Standardisation"[8].

After a mapping based on desktop research and the main inputs from the conference, the key preliminary trends were identified.

Key preliminary vertical trends

- Energy: energy sustainability, blockchain, and disaster scenarios.
- Manufacturing: increasing automation, digitization, and data protection.
- Transportation: efficiency, reducing emissions, and incorporating new technologies.
- Entertainment: incorporation of new technologies like augmented reality and media.

Key preliminary standardisation interests' trends

- Emphasis on coordination and collaboration: several projects highlight the importance of coordinating with standardisation bodies and experts, as well as with other projects and partners. This suggests a trend towards greater collaboration and coordination across different stakeholders in the standardisation process.
- Focus on open and disaggregated networks: there is a recurring theme of open and disaggregated networks, particularly in the context of optical networks and 5G fixed networks. This suggests a trend towards greater openness and flexibility in network architectures and technologies.
- Integration of AI/ML and automation: many projects mention the integration of AI/ML and automation in various aspects of network management and orchestration. This suggests a trend towards greater automation and intelligence in network operations.
- Interest in new frequency bands and technologies: many projects mention research and standardisation efforts related to new frequency bands, such as C and Q/V bands, as well as new technologies such as regenerative satellite systems and deterministic communication innovations. This suggests a trend towards exploring and standardising new technologies and frequency bands to enable new use cases and applications.
- Alignment with ongoing standardisation work: many projects emphasise the importance of aligning with ongoing work in relevant standardisation bodies, such as 3GPP and ETSI. This suggests a trend towards greater collaboration and alignment with existing standards and specifications.
- Promotion and adoption of open-source: many projects mention the promotion and adoption of open-source licenses for software development related to standardisation activities. This suggests a trend towards greater use of open-source software and the promotion of open-source development practices in the standardisation process.

Key preliminary standardisation technologies trends

- Integration of terrestrial and non-terrestrial networks for more cost-effective and efficient communication
- AI-driven networking operations and management for more intelligent and automated systems
- Use of advanced technologies such as offloading engines, regenerative payloads, and federated learning approaches for better performance and resource utilization
- Focus on security and privacy issues in AI for edge computing and distributed systems
- Development of new technologies such as THz communications and printed electronics for more advanced and versatile systems

[8] "ETSI Research Conference: Maximizing the Impact of European 6G Research through Standardisation" (2023), see at: www.etsi.org/events/2130-etsi-research-conference#pane-2/

- Emphasis on sustainable and trustworthy AI/ML based control and programmable networks for future generations of wireless networks.

Key preliminary standardisation bodies trends

- The projects moving towards a more open and collaborative approach to standardisation, with the involvement of multiple bodies such as O-RAN, ONF, and TIP.
- 3GPP and NGMN are so far considered as the primary players in the development of standards in 5G and 6G technologies.
- Edge computing and network automation are becoming increasingly important, as evidenced by the involvement of ETSI ISG MEC and O-RAN WG6.
- The development of zero-touch network and service management is a priority, with ETSI ZSM playing a leading role in this area.
- There is an emphasis on security and privacy, with various bodies such as 3GPP SA3, ETSI TC-CYBER, and IETF RATS working to develop secure orchestration, management, and attestation solutions.
- The industry is also exploring new technologies and use cases, such as THz communications and metaverse-ready architectures for open transport.

The complete preliminary mapping is included in Appendix A.1.

Initiated in the 6GStart to serve the 5GPPP projects, SNS OPS will continue to boost the acceleration of the digitalisation of European Industry through the **Smart Connectivity Digital Innovation Hub Network** (SCoDIHNet). A central objective of this initiative is to set up an instrument that facilitates the replication of use cases/solutions developed and experimented in SNS projects in other locations, with the support of Digital Innovation Hubs (DIH).

A number of projects funded under the SNS JU are developing use cases/solutions to validate the technologies they are developing. These developments are then collected in order to populate the Replicability Catalogue. When an end user industry is willing to introduce a new digital function is their process, the DIH could have a look to the Replicability Catalogue and check if a similar use case/solution has been already developed.

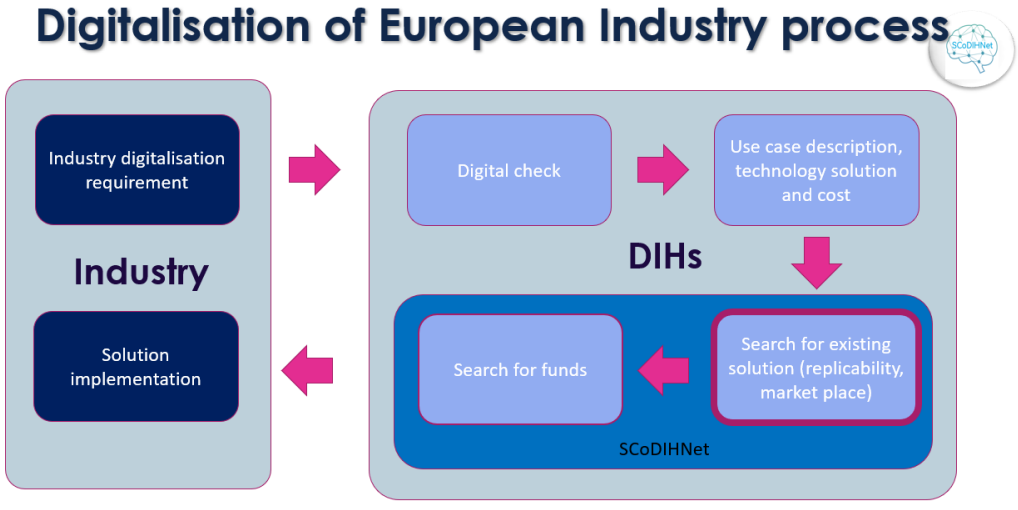

Figure 2: Digitalisation of the European Industry journey

By following this action plan, the team will effectively identify and engage with verticals and create synergies with the vertical industry webinars and the vertical cartography.

3.2.2 Work Plan M1-M12

3.2.2.1 Engagement Roadmap M4-M6 (Future Steps I)

Crafting a comprehensive offering for supporting EU researchers in the SNS JU to implement their standardisation roadmaps. This will require encouraging all stakeholders involved to pursue a needs and gap analysis approach. This approach will help identify gaps in standardisation that need to be filled and ensure that researchers have the tools and resources to implement standardisation effectively. As part of this process, impact reports with infographics on stakeholder profiling will be drafted. These can include information on stakeholder groups, vertical sectors, organisational types, professional roles, and geographical locations. This information will be crucial in identifying the specific needs of each stakeholder group and developing targeted solutions to meet those needs. These activities will be carried out by liaising with Pre-standardisation WG from 6G-AI. More precisely, they will start following the insights from the event *A 6G Vision Webinar – What will 6G offer to vertical industries & Future perspectives*[9] held on April 20, 2023.

Table 2: Preliminary Events List

Event Title	Event Date	Vertical Sector	Event Location	SNS-ICE partner
A 6G VISION Webinar – What will 6G offer to vertical industries & Future perspectives	20 April 2023	ALL	Online	6G IA - ICE
ESA Workshop	16 March 2022	Space	Online	6G IA
PSC Europe Conference	12-13 May 2023	ALL	Athens, Greece	TIM
ITS European Congress	22-24 May 2023	ALL	Lisbon, Portugal	TIM
EuCNC	6-9 June 2023	ALL	Gothenburg, Sweden	TIM
ESA Vertical Workshop	TBD	Space	TBD	6G IA
5G Techitory	18-19 October 2023	ALL	Riga, Latvia	VASES
ITS World Congress	16-20 Sept. 2024	Transportation	Dubai, UAE	TBD
EuCNC	TBD	ALL	TBD	VASES
5G Techitory	TBD	ALL	TBD	TBD

Identifying relevant standards-setting organisations and the timelines and deadlines for any submissions to working groups. This will ensure that researchers clearly understand the standardisation landscape and can effectively navigate the standards-setting process. After drawing a preliminary mapping, these resources will be published in the Standards Tracker, a platform which should be ready by early 2024 (M12-13). A first step consisted in identifying relevant EU standards bodies from the EU such as CEN-CENELEC and ETSI. The former has also been mapped in detail (see Appendix A2).

Promote the benefits of standardisation to researchers. A webinar series on research results maximisation through standardisation will be proposed. Due to the proliferation of similar events linked to previous 5G/6G CSAs as well as activities carried out by 6G-IA pre-Standardisation Working Group, activities in the following months will primarily consist in attending and collecting info on already ongoing events (see Table 2), understanding how to place SNS OPS within the current landscape strategically and the gaps that must be filled. This will enable researchers to take advantage of existing efforts and leverage the resources and expertise of the group to support their standardisation efforts. Potential engagement channels to promote the projects' have been identified through the creation of a preliminary community database which will be continuously updated.

[9] "A 6G Vision Webinar – What will 6G offer to vertical industries & Future perspectives" (2023), available at: https://5g-ppp.eu/event/a-6g-vision-webinar-what-will-6g-offer-to-vertical-industries-future-perspectives/

Table 3: Relevant Initiatives and Organisations

Organisation	Organisation Type	Country	Area
6G SNS - Smart Networks and Services Joint Undertaking (SNS JU)	Public-Private Partnership	Belgium	5G and 6G networks and services
HSbooster.eu	EU-funded project	Europe	Europe's Standardisation
6G SNS IA	NPO	Europe	voice of European Industry and Research for SNS
6G Flagship	Research	Finland	first 6G research program
CCAM Connected, Cooperative & Automated Mobility	NPO	Belgium	Digital Mobility
Networld Europe	NPO	.	Communications networks and services
ECSO European Cyber Security Organisation	NPO	Belgium	Cybersecurity
Next G Alliance	NPO	USA	5G
Hexa X	EU-funded project	Europe	6G
3GPP	Partnership Project	Worldwide	3G unites seven telecommunications standard development organisations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC)
NEOM Future City	Initiative	Saudi Arabia	Land of the Future
ESA European Space Agency	Government Initiative	Europe	Space
5GAA	Association	Worldwide	Automotive
5G-ACIA	Association	Worldwide	Connected Industries and Automation
5G-MAG	NPO	Worldwide	ICT 5G Media
ECHAlliance	NPO	Worldwide	Health & Social Care
ERTICO	Public-private partnership	Belgium	Intelligent Transport Systems and Services
GSOA	Global Satellite Operators Association	Belgium	Satellite operators
ENISA	Government Initiative	Belgium	Cybersecurity
TCCA The Critical Communications Association	Association	UK	Standard mobile critical communications technologies
PSCE Public Safety Communication Europe	NPO	Europe	Public Safety Communications
NEM New European Media	Initiative	.	European Network for Media and Creative Industries
UIC	NPO	France	Railway
IALA International Association of Marine Aids to Navigation and Lighthouse Authorities	NPO	France	Marine, Lighthouse & navigation
EUTC - European Utilities Telecom Council	NPO	Belgium	Zero carbon future
IETF Internet Engineering Task Force	SDO	USA	Internet Standard
5G Forum	NPO	Korea &	5G

Organisation	Organisation Type	Country	Area
		Worlwide	
5GMF – Japan	NPO	Japan & Worlwide	Fifth Generation Mobile Communications Systems
5G Americas	NPO	USA & Worlwide	5G and LTE for the Americas
TSDSI	NPO	India	Indian Telecom Industry
CELTIC-NEXT – Next Generation Telecommunications	Initiative	Germany	Next-Generation Communications for the Digital Society
SCoDIHNet	Initiative	Europe	5G/6G, IoT, Cybersecurity and artificial intelligence
BDVA Big Data Value Association	NPO	Belgium	Data and Artificial Intelligence
EPOSS European Technology Platform on Smart Systems Integration	NPO	Germany	Smart Systems Integration
ETP4HPC – the European Technology Platform (ETP) for High-Performance Computing (HPC)	NPO	Netherlands	HPC
EU-Maths-In	NPO	Netherlands	Leverage the impact of mathematics on innovations in key technologies
KDT JU	Public-Private Partnership	Belgium	Funding innovation in electronic components and systems
EVOLVED 5G	EU-funded project	Europe	VErtical inDustries in 5G
ESNA Europe Startup Nations Alliance	NPO	Portugal	Startup Nations Standards and Entrepreneurship
DIH4AI Artificial Intelligence Network	EU-funded project	Europe	AI
DIH4industry	EU-funded project	Europe	Manufacturing - Digital Innovation Hubs with a regional Smart Specialisation in Manufacturing
EUBIC Connecting Business Innovation Leaders	NPO	Belgium	Global Innovation Partner Network
Danish Standards	SDO	Denmark	Standardisation

Support the project's needs. The first will be focused on facilitating interaction with already existing standardisation-enabling initiatives. A second step will consist in creating support mechanism aimed at creating standardisation opportunities. SNS OPS will leverage on partners' portfolio of standardisation-linked initiatives (e.g., StandICT.eu 2026[10] and HSbooster.eu[11]) as well as other SNS JU interim flagship initiatives (Hexa-X-II[12]) in order to create and facilitate standardisation opportunities among SNS RIAs. These services provide researchers with access to a range of tools and resources that can support their standardisation efforts and help them to achieve their goals more efficiently.

Develop and experiment a professional replicability concept. The goal is to continue to populate the replicability catalogue with additional use cases/solutions developed and experimented by SNS projects.

[10] StandICT.eu 2026, see at: www.standict.eu

[11] HSBooster, see at: https://hsbooster.eu/

[12] Hexa-X-II, see at: https://hexa-x-ii.eu/

A specific focus will be made on the Stream D projects that have the objective to develop vertical use cases. In order to professionalise the process, AIOTI and SCoDIHNet are working on a Replicability and Scalability assessment tool with the objective to better qualify the replicability level of a use case / solution in terms of technology, market, IPR, ...). With this tool, we shall be able to analyse each use case / solution develop by one or the other project and give a replicability level which can help DIHs to choose the most appropriate solution for a specific function required by end user industry.

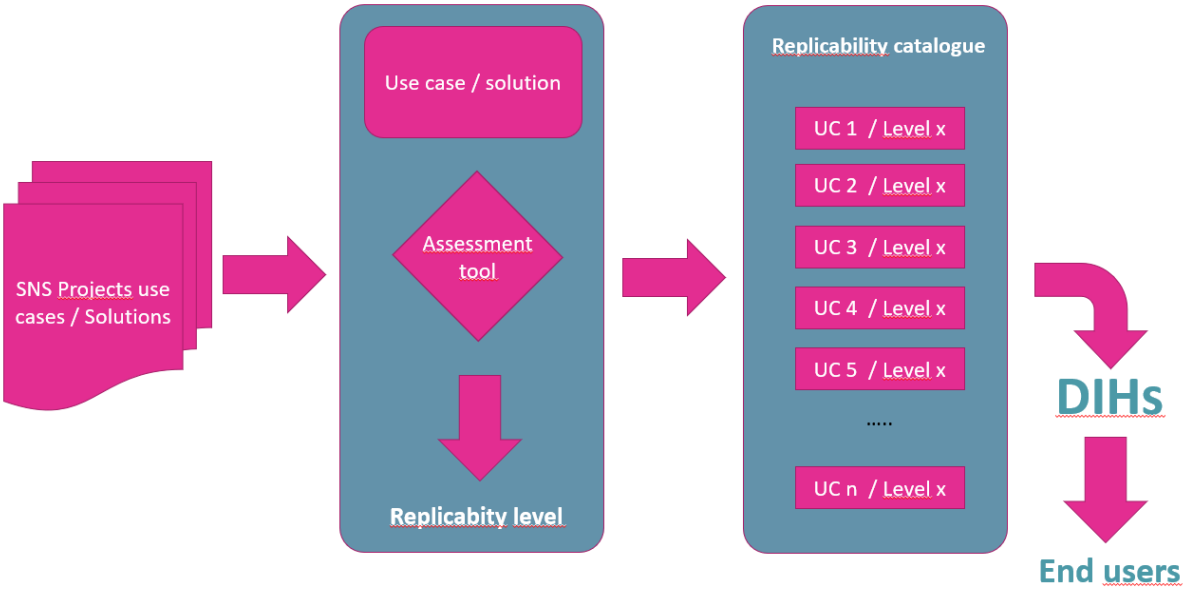

Figure 3: Replicability process

This activity will made in cooperation with the Horizon Result Platform and Horizon Result project as the replicability is one of the objectives of the European Commission.

To achieve this objective, the work plan will be the following:

1. Development of the replicability assessment tool based on the white paper under development by the AIOTI.
2. Collection of use cases/solutions developed by SNS projects.
3. Identification of the replicability level of collected use cases.
4. Running a pilot with a few DIHs which have real development with end users' industry.
5. Analysis of the feedback of the pilots and fix the potential issues.
6. Decide the follow-up of this initiative including the development of a label (level of replicability)

The collection of SNS projects use cases will be done in coordination with the vertical cartography update in order to avoid multiple requests to projects.

3.2.3 Standards Tracker M7-M12 (Future steps)

To facilitate these activities, an online Standards Tracker will be created. The Standards Tracker constitutes a single-entry point for both vertical sectors and SNS JU projects. Its main aim is to help stakeholders navigate an evolving standardisation landscape and showcase their inputs. The value proposition of the tracker will be reflected in impact reports that include infographics reporting on stakeholder profiling in terms of stakeholder group, vertical sector, organisational types, professional roles, and geographical locations. The current version constitutes an expansion of the information/initiative gathering activity carried out for the Global5G.eu[4] project and later rebranded for

6GStart[13].

The tool will include not only compelling initiatives within the standardisation landscape aimed at supporting SNS JU RIA projects in their standardisation endeavours, it will also gather inputs from the ¨5G User Event series¨ and from the Pre-Standardization WG, e.g., the EU success stories and the 3GPP Plenary Briefings. Its ultimate goal will be to create a centralised platform for 6G standardisation, especially 3GPP and ETSI, sector-specific requirements, mapping of common vertical requirements and other activities related to the 3GPPP MRP virtual event series and EU success stories from 5G PPP projects.

The data-gathering process and qualitative analysis methodology for the construction of this tool will stem from the action plan carried out during M4-6 (section 3.2.2.1), complemented by the activities envisioned for M7-12. These include the creation of draft impact reports with infographics that report on stakeholder profiling. This involved the identification of various stakeholder groups, including regulators, industry players, researchers, and end-users, among others.

Additionally, the vertical sectors and organisational types will also be considered. This will help identify the various industries and organisations that could benefit from 6G technology and standardisation, and how the 6G standards tracker could cater to their specific requirements. Verticals taxonomies will be created in synergy with SNS ICE WP3 which will create a cartography mapping SNS JU RIAs use cases bringing them in relation with vertical sectors and relevant associations. The professional roles and geographical locations of SNS JU use cases will also be analysed to gain a deeper understanding of the specific perspectives and needs of stakeholders based on their professional backgrounds and geographic locations. This will help to ensure that the 6G standards tracker is designed to cater to a diverse range of stakeholders, regardless of their location or professional expertise.

By M12, the first preliminary version of the online Standards Tracker will be launched. This milestone will involve close coordination with the work already underway within 6GStart regarding the online standards tracker, which is currently undergoing revisions and updates. This milestone will mark an important step towards enhancing the effectiveness of the SNS JU RIA projects outcomes, providing a more comprehensive and accessible repository of information related to 5G standardisation.

As the SNS JU RIAs began to produce results, more roadmap initiatives and pre-standardisation workshops will be organised and their input will further enrich the Standards Tracker, whose final version will be documented in D4.3 (M27).

Table 4: Main Milestones for Standards Tracker Development

Period	Actions	Milestone
M01-M06	Data collection & identify main trends and standardisation interests	Preliminary Mapping of Standardisation interests
M07-M12	Attend relevant verticals & standardisation events	Collect data for publication
M12-M15	Organise first events	Standards Tracker (preliminary version)
M16-M26	Enrich Standards Tracker, organise events series	Standardisation events organisation
M27	Release final version of Standards Tracker	Standards Tracker

[13] Standards Tracker, available at: https://standards-tracker.5g-ppp.eu/

4 SME engagement and support and entrepreneurship promotion

This chapter focuses on the small and medium-sized enterprises (SMEs) within the SNS ecosystem. SMEs are the backbone of the European economy, employing 48.4% of the workforce and accounting for 98.9% of the EU business and contributing some 35.3% of the value added in 2019[14]

Given the significance of SMEs, a set of actions targeting have been designed to help them to unlock their potential in relation to the SNS, guaranteeing that the conditions of the ecosystem are inducive to the equal participation of all actors in the SNS value chain.

4.1 Main objectives

The principal goal is to strengthen the SMEs engagement in the SNS community, by providing them with the best support possible, including the necessary assistance to overcome specific SME-related challenges, and promoting entrepreneurship.

The specific objectives are listed below.

- To **analyse SME involvement in the SNS JU calls for projects**, striving to reach a 20% SME participation, and to encourage SME involvement in the SNS JU beyond projects, for instance, promoting their contribution to strategic activities such as SNS work programmes.
- To continue to **support and expand the SME Working Group**, in conjunction with the overall NetworldEurope, the European Technology Platform (ETP) for the telecommunications sector, and SNS strategy.
- To **revise the strategy for promoting the skills and expertise of SMEs** within the SNS ecosystem to find new avenues to gain visibility for SMEs.
- To **strengthen the engagement with SMEs involved in vertical sectors and in complementary domains** (in liaison with Task 4.2), as well as to **manage specific interactions with European SME initiatives** such as SCoDIHNet, as well as **relevant international actions supporting SMEs** in the SNS domain (in liaison with SNS ICE).

4.2 Action plan

This section provides a summary of the current status of the different activities encompassing this task, as well as the work plan for the next 12 months.

4.2.1 Current status

The activities concerning the SME engagement were mainly performed in the context of the NetworldEurope SME WG and its various responsibilities in the whole SNS ecosystem (i.e., 5/6G-IA Board), as well as SCoDIHNet.

Significant accomplishments have been recorded between May 2022 and April 2023 in relation to SMEs and the three main objectives that had been identified, namely: to ensure SMEs are continuously encouraged to participate in the SNS JU; to continuously identify and engage with “newcomers”; and, to boost the R&I investments in the SNS domain, thus facilitating investments into SMEs. More information is available in 6GStart D3.2.

[14] Eurostat, EU small and medium-sized enterprises: an overview, available at : https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20220627-1(last seen 10 April 2010). Note that figures refer to non-financial business economy.

4.2.2 Work plan M1-M12

The work plan for Year 1 of the project concerning SMEs will be mostly developed in the scope of 6GStart, as many of the activities are already running within this framework. After 2023, all the activities will be handed over to SNS OPS. Therefore, the work plan detailed below will mostly focus on the new actions designed for SNS OPS.

4.3 Action plan

This section provides a summary of the current status of the different activities encompassing this task, as well as the work plan for the next 12 months.

4.3.1.1 Identify and engage SMEs new to the SNS ecosystem.

The analysis of the SME participation in the SNS JU Phase 1 call is being carried out as part of 6GStart. Phase 2 call, which deadline is set at the end of April 2023, will also be examined under 6GStart. An early assessment of SMEs is key to understand the characteristics of the players. It is equally important to detect trends in the participation (number of SMEs, country of origin, number of applications in which a company has participated, etc.), potential gaps (relevant SMEs in the SNS domain not partaking in the call, geographical unbalance, etc.), the economic weight of SMEs, and other relevant factors.

An in-depth analysis of these variables is highly valuable to design effective methods to engage newcomers in the SNS ecosystem, as well as to evaluate whether the identification and involvement strategy is appropriate. If necessary, it also provides the data to reorient the workplan and implement correcting actions timely.

The identification of SMEs and their characteristics that participate in the SNS JU calls for projects will rely on various sources, namely: public data made available by the European Commission in the Horizon Europe Dashboard, and data provided by the 6G-IA and the SNS JU Office, as not all relevant information is publicly available. The data will be handled with the utmost respect to confidentially and GDPR principles. Data will be anonymised and aggregated.

With respect to the engagement, the communication with SMEs regarding the launch of new calls and the provision of assistance that facilitates their participation, for example by finding a consortium to join, will continue to be a priority. This communication is ensured through various channels. Opportunities to participate in different activities and events in the SNS JU will be widely promoted and a conscious effort will be made to involve SMEs at all levels of discussion (see section **Error! Reference source not found.**.).

4.3.1.2 SME WG

NetworldEurope is the European Technology Platform (ETP) for the telecommunications industry in Europe. The NetworldEurope SME WG aims to become the reference body for SMEs in the SNS domain, continuing the role it has played in 5G PPP and previous initiatives. As such, the WG is at the centre of the SNS engagement strategy relative to SMEs.

As previously mentioned, the activities planned for the SME WG for Year 1 will be mostly carried out in the context of 6GStart. The support actions are divided in four main categories:

- **Organisation and logistics** refer to the daily management of the SME WG, including the handling of the membership, the maintenance of the resources linked to the WG, and the organisation of the WG meetings, including scheduling, drafting the agenda and the minutes, and assisting with the follow-up actions.
- **Content** refers to all the undertakings linked to information sharing, elaboration of and contribution to papers, participation of SNS JU strategic actions (i.e., work programmes), facilitating matchmaking and overall, any other endeavour in which the SME WG is actively contributing to shape the SNS ecosystem.
- **Cooperation with other initiatives, partnerships and associations dedicated to SMEs** to join forces, align objectives and activities, exchange knowledge, foster high-level and peer to

peer collaboration, and so on. In this respect, the cooperation activities are detailed in section **Error! Reference source not found.**.

- **Visibility** comprises all the promotion and dissemination actions concerning SMEs and the SME WG such as attending and presenting in events and conferences organised within the SNS ecosystem and its complementary domains, raising awareness about the SMEs capabilities r, and disseminating the materials produced by the SME WG, among others.

At the end of Year 1, these activities will be handover to SNS OPS.

The "Find the SME you need" section, the SME success stories, and the SME brochure.

The SME brochure, success stories and "Find your SME" section are central instruments to boost the visibility of the SME WG, its members and its work thus, all will be promoted on social media on an ongoing basis. Moreover, some new tools, especially in the realm of social media, will be explored to support the sharing of information in a more dynamic pace.

The objective is to raise awareness about the capabilities and expertise of the SMEs and favour their participation in the SNS JU projects and other activities organised by it. In turn, it is expected that the SME WG membership grows whilst reinforcing the commitment of the existing members. For this purpose, the following strategies will be implemented:

- **Share visually appealing graphics:** Create eye-catching graphics that highlight the key points of the SME brochure, success stories and "Find your SME" section will help to gain visibility to the SMEs. Figure 4 shows and example of a promotion banner of one SME success story.

Figure 4: Example of a promotional success story banner

- **Craft compelling messages:** the use of persuasive language will help to drive traffic to the SME brochure and using the "Find your SME" section. Users will be encouraged to click on the link to the website for more information.
- **Relevant hashtags:** Some relevant hashtags will be included in the social media posts to increase the visibility to users who may be interested in SMEs or related topics. For example: #NetworldEuropeSMEwg, #NetworldEurpeSMEsSuccessStories, #5Gtechnologies, #6Gtechnologies, #EUSMEs
- **Leverage different social media platforms:** Share the SME brochure, success stories and "Find your SME" section on different social media platforms to reach a wider audience. The work on the SME WG Twitter account will be continued as the results of the past months have shown a great engagement from the community. Previous approval of the SME WG, a YouTube channel will be created to upload the webinars and workshops in which the SMEs participate and make them readily accessible for all, including the general public. A LinkedIn page is also planned to be created to promote the NetworldEurope SME WG. The general aim is to diversify

the sources of information, limiting the circulation of information via email, and optimise the channels for engaging with the community. If positive, the experience could be shared with other WGs.

- **Monitor and engage:** the social media channels will be regularly monitored for mentions, comments, and messages related to your SME brochure, success stories and "Find your SME" website section. The plan is to respond promptly to the messages, comments, etc. This will help build relationships, foster engagement, and generate more impact on the SMEs results.

This is also an effective way to generate awareness about the NetworldEurope and the SNS JU websites. In this respect, feedback will be gathered on the revamped “Find your SME” section and the overall, NetworldEurope website during Year 1, to decide whether the enhancements implemented have been helpful and to identify new aspects for improvement. At the end of this first year, the preparations to update the SME brochure and the “Find the SME you need” section will start.

4.3.1.3 Promotion of entrepreneurship in the SNS sector

Entrepreneurship is vital for a thriving SNS ecosystem. It drives innovation and triggers a positive dynamic in which opportunities are seized, allowing for the development of valuable solutions that respond to a wide range of challenges. Actions to remove or minimise potential obstacles and to incentivise the participation of SMEs are therefore a priority.

SNS OPS partners are strongly committed to foster entrepreneurship by disseminating information about available opportunities, from open calls to participate in SNS JU projects to workshops or events, by facilitating networking among SMEs and other actors in the ecosystem (i.e., encouraging the use of the “Find the SME you need” section), or by cooperating with other SME-dedicated initiatives.

Gender equity and businesswomen engagement is a cornerstone of the strategy to promote entrepreneurship. To this end, the consortium will leverage its experience to support businesswomen in the SNS domain. In line with the “*Femmes Entrepreneuses*”, a start-up network developed for businesswomen in France, SNS OPS will examine the possibility to offer co-development workshops to share ideas and experiences, online and in-person workshops to help participants develop their skills and business, dedicated coaching with managers and senior executives, etc.

The elaboration of a paper detailing the specific situation of the SMEs in the SNS ecosystem alongside a set of actions to support the advent of European champions in 6G is also envisaged. This paper will include a gender perspective to empower women entrepreneurship in 6G. The scope will focus on learning experiences and feedback from SMEs engaged during Phase 1 and 2; 6G technology trends and key verticals, and value creation and potential opportunities for SMEs. The SME WG will be closely involved in the elaboration of the document.

The drafting process will start by building on the findings obtained through the different project activities carried out and the SME WG members experience. Contributions will also be collected from other relevant actors. The publication is planned for Year 2. It will be accompanied by dissemination and communication activities that could include materials such as presentations and a one pager. All project and network partners will be encouraged to take their role in the dissemination at local, national, and European level.

Dissemination events will also be a major asset for promoting entrepreneurship in the SNS sector, including related conferences, workshops, and networking events.

4.3.1.4 Engagement with relevant SME initiatives: SCoDIHNet

The Smart Connectivity DIH network activities will follow a similar way as it has been made during the previous period in the 6GStart project. The main objective is to facilitate cooperation between technology providers, DIHs and end users. For that purpose, a number of cooperation with clusters and pan European SME organisations have been established and will be developed in order to build a catalogue of technology providers, end users, test beds and DIHs that we will position on a map to help all stakeholders to quickly know which are the relevant organisations at local level and facilitate development of collaborations between SMEs. We are planning to collect SMEs organisations from NetworldEurope, AIOTI, 6G-IA, EEN, ESNA, SCoDIHNet taking care of the GDPR, the only organisation listed in the catalogue will be those which explicitly agree to be in the catalogue.

The work plan will be the following:

1. Extension of cooperation with SMEs organisations
2. Completion and update of the SNS stakeholders' catalogue
3. Cooperation with the CEF 5G for Smart Community platforms
4. Cooperation with the AIOTI test beds
5. Cooperation with other DIHs Thematic networks (Photonics, Robotics, AI, ...)
6. Operation of the 2 service platforms supporting the DIHs operations

With such a workplan, we shall help SNS SMEs to cooperate with all stakeholders in order to facilitate collaborations in the context of the digitalisation of the European Industry and push innovative technologies but also to collect end user industry requirements to feed the research agenda.

5 Working Group coordination

This chapter focuses on the small and medium-sized enterprises (SMEs) within the SNS ecosystem. SMEs are the backbone of the European economy, employing 48.4% of the workforce and accounting for 98.9% of the EU business and contributing some 35.3% of the value added in 2019 [1].

Given the significance of SMEs, a set of actions targeting have been designed to help them to unlock their potential in relation to the SNS, guaranteeing that the conditions of the ecosystem are inducive to the equal participation of all actors in the SNS value chain.

5.1 Main objectives

The main objective of this task is to facilitate the community discussions through Working Groups (WGs) and to document achieved outcomes. This will predominantly be achieved by the following activities:

- Supporting the transition of WGs from the 5G PPP to SNS programmes.
- Providing a suite of support services to the WGs
- Taking on senior/leadership roles in some of the WGs
- Coordinating with other SNS OPS WPs relating to the management of WGs
- Collecting and publishing details of the WG activities and outcomes

5.2 Action plan

This section provides a summary of the current status of the different activities encompassing this task, as well as the work plan for the next 12 months.

5.2.1 Current status

5.2.1.1 Supporting the transition of WGs from the 5G PPP to SNS programmes.

It is one goal of SNS OPS to support a minimally disruptive transition from 5G PPP to SNS JU. Under 5G PPP there were three categories of WG supported by the relevant CSAs:

1. **5G IA initiated WGs.** These were open to members of 5G IA, as well as to members of projects participating in 5G PPP on an adhoc/invitation basis.

   Pre-Standardization; 5G Spectrum; Vision and Societal Challenges; Trials; Open Smart Networks and Services; Security; 5G for CAM

2. **5G PPP project initiated WGs**. These were proposed by 5G PPP projects where a need was foreseen, and traditionally were only open to those organisations participating directly in 5G PPP projects.

   5G Architecture; Test, Measurement and KPIs Validation; Software Networks

3. **NetworldEurope WGs**. Although not formed by, or reporting to, 5G IA/5G PPP there was close liaison and interworking between 5G PPP and NetworldEurope, and support has been given to these WGs from the 5G PPP/SNS.

   SME, Expert group, Satcom

Under the SNS JU there are expected to be four categories of WG which will be supported by SNS OPS during its lifetime.

1. **6G IA initiated WGs.** These are open to members of 6G IA, as well as to members of projects participating in SNS JU on an adhoc/invitation basis.
   a. The existing 5G IA initiated WGs have migrated directly into 6G IA with only minor

updates to their ToR required: Pre-Standardization; 5G Spectrum; Vision and Societal Challenges; Trials; Open Smart Networks and Services; Security; 5G for CAM.

b. New 6G IA WGs could be initiated as and when required by the 6G IA Governing Board

2. **SNS JU project initiated WGs.** These will be proposed by SNS JU projects where a need is foreseen, and typically will only be open to those organisations participating directly in SNS JU projects. The previous 5G PPP project WGs (5G Architecture; Test, Measurement and KPIs Validation; Software Networks) will not migrate directly into the SNS JU. They will be closed under 5G PPP. It is possible that WGs on similar topics will be proposed under SNS JU projects, but even in this case they will need to be proposed and agreed as new WGs under the SNS Steering Board.
3. **NetworldEurope WGs**. The existing good relations between 5G IA/5G PPP and NetworldEurope are fully expected to continue between 6G IA/SNS JU and NetworldEurope, and support will continue to be offered to NetworldEurope WGS, namely: SME, Expert group, Satcom.
4. A new category of **"Strategic" WGs** will be introduced in SNS JU. These will be determined by the SNS Governing Board in which the EC is also represented, enabling the EC to suggest the formation of WGs to work on aspects for which some coordination appears required or beneficial from their point of view.

No special transition activities are required for the 6G IA initiated WGs or NetworldEurope WGs, they will just benefit from the ongoing support activities as indicated in the following sections.

The proposal of SNS JU project WGs is dependent on two factors:

1) The SNS projects should be sufficiently far into their work to identify those topics on which there is a requirement or benefit to having a cross project WG on a particular topic.
2) The SNS Steering Board needs to be running in order to approve proposed new WGs. However, the SNS SB cannot be set up until at least 70% of projects have fully signed up to the Collaboration Agreement.

So far these criteria have not been met, and no SNS JU project WGs have been proposed. Similarly, no Strategic WGs have been proposed so far either. SNS OPS will support the formation and ongoing running of any such WGs once they are proposed.

5.2.1.2 Providing a suit of support services to the WGs

SNS OPS will provide a full suite of support to the WGs. This includes:

- Communications infrastructure
- Document repository
- Publication Service
- Audio conference/WebEx facilities
- Election/Voting Support
- Creation of new WGs or closure of WGs[15].
- Organising and hosting Consultations (stakeholder, public etc.)
- Organising Workshops & Meetings
- Initiation of WG ToR reviews and updates

[15] Note that SNS OPS will not support the closure of 5G PPP project WGs.

- Supporting document and publicity material preparation and news announcements

The infrastructure to provide this support has been setup, and activities are being migrated from the 5G PPP infrastructure in a piecemeal fashion.

5.2.1.3 Taking on senior/leadership roles in some of the WGs

SNS OPS member organisations currently hold senior/leadership roles in the following WGs (SNS, 5G PPP, and NetworldEurope):

- Pre-Standardization
- Security
- Vision and Societal Challenges
- 5G Architecture
- Software Networks
- SME

5.2.1.4 Coordinating with other SNS OPS WPs relating to the management of the WGs

Some of the support is provided in collaboration with other WPs within SNS OPS.

- Liaison with WP3 on creation of new WGs and approval of ToR
- Liaison with WP4 on election of officers for new WGs
- Liaison with WP5 on creation of email lists and document repositories for new WGs

The first two of these are awaiting the formation of the SNS SB/TB and the potential creation of new WGs. The infrastructure to host email lists and document repositories for new WGs is in place, and those WGs which can transition from 5G PPP to SNS JU are in the process of being migrated.

5.2.1.5 Collecting and publishing details of the WGs activities and outcomes

SNS OPS collects, collates and distributes regular activity/achievement updates and future plans from the WGs to enable coordination between WGs and strategic oversight by the 6G IA, SNS Steering Board and SNS Technology Board.

SNS OPS also prepares annual summaries of WG activities and achievements to be presented to the EC.

5.2.2 Work plan

The Work Plan for Task 4.4 will encompass the actions detailed above.

There is no fixed time plan for these, but rather the support activities will need to be reactive to the needs and desires of the WGs and of the programme. For example, much of the transition from 5G PPP to SNS JU is reliant on the projects' ascension to the Collaboration Agreement, without which the Steering Board and Technology Board cannot start their activities, including initiation of new SNS JU WGs.

It is fully anticipated that the transition from 5G PPP to SNS JU will be completed during the first phase of this project, and these activities will not need to continue into year 2. Whilst experience of 5G PPP suggests that it is unlikely, it is possible that one or more WGs may complete their activities during the lifetime of SNS OPS. In this case, SNS OPS will assist the closure of these WGs. Most likely the process will be similar to that in 5G PPP whereby the WG will propose closure of the WG to the SB, with supporting evidence. Should the proposal be accepted, the WG will prepare a closure report to the SB, and their electronic presence will be archived. Note that WGs primarily under the NetworldEurope platform have their own closure process.

Other support activities will continue as and when required by the WGs.

6 Conclusions Section

The document provides a comprehensive description of the "**Stakeholder Involvement and Interaction: Strategy and Plan"**. It details the foundations and objectives of the Strategy and the corresponding activities for the duration of the SNS OPS project, whilst focusing on the first year of the project, running from January 2023 to December 2023.

The envisioned Strategy is a continuation of the work performed in the previous years, building on the milestones achieved such as the vertical cartography, while integrating a novel set of actions aimed to respond to the demands of the new SNS community. Alignment with all the SNS OPS tasks and the 6GStart and SNS ICE CSAs has been carefully considered to optimise efforts.

Some of the main critical actions encompassed in the Strategy is expected to contribute to boost the European leadership in the ICT sector worldwide. For this purpose, SNS OPS will engage with relevant Partnerships, Initiatives and Associations to establish synergies that allow for an in-depth understanding of the impact of the new SNS technologies in the different sectors, as well as the potential future orientations of the SNS JU to better anticipate and serve their demands. Likewise, SNS JU will communicate its work and needs to the relevant domains in order to progress on its own objectives. One of the results of this work will be the elaboration of a business case for SNS technologies, including societal and environmental aspects.

Verticals and complementary domains are tackled through various actions as their engagement is pivotal for strengthening European capacities in key parts of digital, enabling and emerging technologies, sectors and value chains, accelerating the digitisation of the European industry. In this respect, the support to the implementation of standardisation roadmaps and the Replicability and Scalability initiative are central. Some preliminary standardisation trends have been identified and the work on the Replicability and Scalability tool has started, contributing to a stable experimental framework.

The support to NetworldEurope SME WG will remain focused on encouraging and facilitating the active involvement of its members in the SNS ecosystem. Reaching a 20% SME participation in the SNS JU projects is one of the targets in this area, along with their contribution to high-level discussions, so that the specific circumstances of SMEs are duly considered. The cooperation with SCoDIHNet will be strengthened to facilitate cooperation between technology providers, DIHs and end users. Similarly, new avenues for collaboration with the European Digital SME and other SME-dedicated initiatives will be explored. Entrepreneurship will be encouraged by means of several initiatives that tackle aspects such as visibility or assistance to obtain funding. There is also a specific action to help promote women entrepreneurship.

Finally, the Strategy encompasses the provision of support to the WGs, which are the main instrument to structure the community discussions. The transition of some WGs, the conclusion of some others and the establishment of new ones, including the strategic ones, will be the main goal for the first year of SNS OPS, in close collaboration with 6GStart.

Appendix A Additional info

A.1 Preliminary mapping of SNS JU RIAs Vertical Sectors and Standardisation Interests

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
BeGREEN	Energy Urban	offloading engine, rApp based RU controlling scheme, AIbased DPD and envelope tracking, and CU-UP PDCP HW acceleration ORAN based Intelligent Plane, AI-assisted rApps and xApps, explainable AI and federated learning approaches	Coordinating the project and standardisation groups seizing opportunities to push contributions into ongoing specifications coordinating with standardisation experts to draft contributions continuously promoting the project at standardisation related workshops, panels, and summits.	3GPP RAN1, O-RAN WG1, O-RAN WG2, O-RAN WG3, SCF, ETSI, TIP
5G-STARDUST		Architecture design for integrated TN/NTN implementing regenerative payloads A unified radio interface towards a cost-effective TN-NTN network integration multi-connectivity models to ensure effective data distribution through terrestrial and non-terrestrial networks AI-driven networking operations	5G-STARDUST will contribute to the inclusion of regenerative satellite systems and the related 5G NR enhancements as expected in the roadmap of 3GPP Rel. 19 and 20 To influence Rel. 20 and following in what regards the convergence of 6G and NTN	3GPP Rel. 19 and 20
SEASON	Transportation Energy Entertainment	Multi-Band over Space Division Multiplexing (SDM) Integration of optical networks with the packet and computing layers AI-driven self-managed control & orchestration Energy-efficient high-capacity solutions	1. Data modes/Manifest files in support of Optical Transport devices (e.g., transponders, pluggables)	OpenConfig, OpenROADM, ONF (ODTN/ONOS/ OTCC), OpenXR forum
			2. Requirements and architectures for open, disaggregated, multi-vendor optical networks	Telecom Infra Project (TIP) • Mandatory Use Case Requirements for SDN for Transport (MUST) subgroup • Metaverse ready Architectures for Open Transport (MANTRA) subgroup (former

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
				CANDI)
			3. Gap analysis of ETSI OSM integration with Transport SDN and OSM plugins to interwork with the TAPI NBI of Optical Transport SDN controllers, to dynamically provision end to end connectivity services. ETSI Industry Specification Group on 5th generation fixed network, to support three main features: full-fibre connection (FFC), enhanced fixed broadband (eFBB) and guaranteed reliable experience (GRE)	ETSI
6Green	Energy-Constraint Disaster Scenarios			
VERGE	Manufacturing Transportation	VERGE edge platform VERGE orchestration layer Intra-node, split computing and distributed frameworks VERGE cognitive framework for closed-loop automation Distributed task-based scheduling and computation offloading Federated split learning and robust federated learning AI-empowered RAN resource management AI-empowered relay-extended multi-access RAN/edge Multi-level multi-agent E2E AI solutions under edge constraints Security and privacy issues of AI4Edge Secure Data sharing and DLT technologies Explainability and semantic AI	Analyse the standardisation potential of key VERGE innovations Identify standardisation targets and plan contributions to target SDOs Keep track of the open-source initiatives, identify relevant targets where the project can contribute and coordinate the contributions.	ETSI ZSM (Zero-touch network and Service Management) ETSI MEC (Multi-access Edge Computing) 3GPP mainly the WGs Service and System Aspects (SA) and Radio Access Network (RAN) ONF (Open Network Foundation) NGMN 6G Use Cases O-RAN WG6. GSMA Operator Platform Group NGMN (Network Automation and Autonomy based on AI Working Group). AIOTI Standardization WG 6G-IA Pre-standardization WG

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
NANCY	Energy AI Blockchain	B-RAN architecture AI-based B-RAN orchestration functionalities Security and privacy blockchain-based mechanisms Experimental-driven B-RAN and attacks modelling Network information framework development Semantic & goal-oriented communication schemes Self-evolving AI Model Repository Functionalities Computational offloading and user-centric caching Resource elasticity enabling techniques Trustworthy grant/cell-free cooperative access Self-healing and self-recovery mechanisms Explainable AI features	Identify the related standardization bodies, fora and clusters Closely monitor their activities and reports with relation to the GA Transfer the gained knowledge and experience to said bodies Foster the adoption of open-source licenses for the developed software	16 different SDOs and industry fora: 6G-SNS, 3GPP, IEEE, NGMN, IETF, ONF, ETSI, WWRF, O-RAN, OSM, One6G, ECO6G, DAIRO, AI4EU, NIST/PQC, EOSC
ACROSS	Education Entertainment Transportation Energy Manufacturing	Ultra-scalable cross-domain service deployment and orchestration through standardised and vendor agnostic cross-domain integration fabric Deep end-to-end telemetry on open programmable infrastructures, from both RAN-to-Core infrastructure and the service layer Real-time analytics and AI for next-generation end-to-end orchestration, exploiting complex graph relationships and AI for TE principles Full-Stack cross-domain zero-touch provisioning (ZTP), enabling both Vertical (App-to-Hardware) and Horizontal (RAN-to-Core) automation Secure & trusted orchestration mechanisms in fields of TEE, efficient and secure enclave management, improved sec-VNF	Test case 1 on Policy-driven zero-touch orchestration (secure device onboarding, service telemetry, service management, security) Test case 2 on Infra-driven zero-touch orchestration (UPF provisioning/decommissioning, UPF migration, slice adaptation) Test case 3 on Intelligence-driven zero-touch orchestration (anticipatory detection, analysis, and prevention of congestion problems, Smart energy-aware TE, Smart QoS-aware TE, SLA preservation, heavy-hitter prediction for DDoS prevention) Test case 4 on Holistic zero-touch orchestration (expansion of [multi-domain e2e orch. , NFV orch., SDN controller instances], device discovery and onboarding, telemetry, service	ETSI ZSM, ETSI TFS, P4.org, IETF OAM ETSI ZSM ETSI ZSM, ETSI ENI, ETSI SAI ETSI ZSM, ETSI NFV, TMF, 5GPPP ETSI ZSM, ETSI NFV, TMF, 5GPPP ETSI ZSM

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
		placement	onboarding, UPF provisioning, SLA preservation)	
DETERMINISTIC6G	Manufacturing Robotics	Concept & solutions development toward 6G-DetCom (6G, TSN, DetNet), OPC UA enhancement	Exploit wireless-friendly deterministic communication innovations towards standardization activities	3GPP, IEEE TSN working group, OPC UA, IETF DetNet
ADROIT6G	Architecture	Immersive XR - Holographic Teaching Terrestrial 6G IIoT NTN for low-bitrate IIoT Collaborative robots (cobots) in construction	Crowdourcing AI MLaaS solution to minimize AI/ML carbon footprint and enable efficient AI/ML training and inference in distributed systems Contributions related to distributed closed loop automation in AI-driven Management & Orchestration frameworks for multi-stakeholder ecosystems. "contributions will be made in OSM events showing the usage and/or the extensions of the innovative concepts validated in the project. OpenAirInterface Software Alliance: Contribute to the software development of the 5G/6G network stack through ADROIT-6G developments (e.g., UE-VBS and NTN modules)	ETSI ENI WG ETSI ZSM and ETSI MEC WG ETSI OSM
DESIRE6G	Augmented reality Digital Twin			
PREDICT-6G	Manufacturing	3GPP TSC Rel19 Wi-Fi 7/8 IEEE 802.1 TSN IETF DetNet/RAW AI Digital Twin	Formation and operation of a Standardization Advisory Committee Creation of a Standardization Roadmap based on continuous monitoring on SDO activities relevant to PREDICT-6G focus Impact SDOs with most relevant project findings Promote the project concept and solutions at standardization-related events	3GPP ETSI ZSM ETSI ENI O-RAN IEEE 802.11 IETF DetNet, RAW, TEAS IRTF NMRG
TERA6G	Logistics Surveillance			
TERRAMETA	Industry Mobility & Logistics	CMOS/memristors/microfluidics switches, multi-functional RISs (i.e., T-RIS, R-RIS, hybrid RISs with sensing capability, dynamic metasurface	• Definition of scenarios and use cases • THz channel measurements and modelling in scenarios with RISs	• ETSI ISG THz • ETSI ISG RIS • IEEE 802 SC THz • ITU-R (Preparation of

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
		antennas and holographic MIMO)	• RF impairment modeling of RISs	WRC 2027, ITU-R SG3)
6GTandem	Manufacturing Transportation Logistics Public Spaces			
CENTRIC	Communication	• Design of signalling and interfaces to enable AI training and monitoring • Development of testing and validation frameworks for AI-based wireless networks components • Definition and/or evaluation of baseline AI-based algorithms (e.g., for CSI enhancement, beam management, etc.)	Goals: to leave a footprint on future communication network standards and products, thus maximizing the project's technical and commercial impact. Strategy: • Leveraging the strong position of our industrial partners in the targeted SDOs • Intra-project coordination of the technical proposals and result submission to SDOs • Alliance with other industrial partners and SNS-JU projects to propose Study Items in 3GPP.	Primary targets: • 3GPP (RAN1, RAN2, SA1, SA2) • ETSI: ISGs on THZ, RIS and potential others. Other: IEEE 802.11 WNG & TGbf, O-RAN
TIMES	Robotics Big Data AI	THz communications, intelligent mesh networking with IRSs, integrated sensing/communications	Simulation scenarios THz channel measurements and modelling in industrial scenarios Technology enablers for industrial THz communications	ETSI ISG THz ETSI ISG RIS IEEE 802 SC THz ITU-R (Preparation of WRC 2027, ITU-R SG3) COST-INTERACT one6G 3GPP
FLEX-SCALE				
ETHER	IoT Communication Mobility & Logistics	ETHER MANO: Individual components of the ETSI OSM will be updated to account for both the aerial and space layers AI-Based ETHER Joint Communication, Computational and Storage Resource Allocation Framework: Expansion of these algorithms to also account for both aerial and space layers AI-Based ETHER Monitoring Framework for Integrated MultiRAT Traffic: NetAI's Microscope traffic	Two-fold objective: • Ensuring that ETHER work is well aligned with the on-going work at SDOs • Promoting ETHER approaches and innovations into the evolution roadmap of the relevant standards	3GPP SA1 (SIOT, UBW) 3GPP SA2 (SIOT, AVA, UBW) 3GPP SA5 (UBW) 3GPP RAN WGs (SIOT, UBW) ETSI SES/SCN (AVA, UL) ETSI ZSM (NBC, I2CAT, UL) ETSI MEC (NBC, UL) ETSI ENI (NBC, UL) IEEE P1918.1

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
		monitor will be extended to account for heterogeneous terrestrial, aerial, and space traffic apart from terrestrial ETHER Core Network: The proof-of-concept core network with store-and-forward capability for discontinuous link operation will be expanded to account for the satellite dynamics, relative mobility and UEs location management ETHER MEC Orchestrator: Nearby's MEC Orchestrator will be extended to allow integration with NTNs and zero-touch automation ETHER Flexible Payload System: Integrating the flexible payload system in an SDR board, also incorporating the ETHER MANO ETHER UE Antenna for Direct Handheld Device Access at the Ka Band: Design of a handheld device antenna for broadband communication across the 3 layers		(LIU) SatCom Working NetworldEurope Group (AVA) Eurocontrol, EASA, EUROCAE, RTCA (CA) O-RAN WG1-WG10 (NBC, NETAI) ITU-T SG13 (OPL) 5G-PPP (UBW, SIOT, AUTH) AIOTI Standardization WG (UBW, UL) 6G-IA (UBW, AUTH, UL, MAR, NBC, SIOT, CA, I2CAT, NCSRD, OPL)
6G-NTN		"Design of a 3D multilayered NTN component (space and ground segments) Flexible waveform design for 6G's unified radio access network Spectrum coexistence analysis Design of a reliable and accurate positioning function for the 6GS Dynamic Orchestration and autonomous monitoring Security aspects"	Features enabling flexible waveform for the different deployment scenarios including the 3D NTN architecture. Multi connectivity between different network nodes at different altitudes. Mobility procedures for zero interruption. Enablers for AI driven integrated Radio resource management. Enhanced RAN sharing concept resulting in Integrated RAN combining seamlessly mobile and satellite access technologies. Research on C and Q/V bands as new NTN bands including spectrum coexistence studies, RF	ETSI 3GPP ITU-R WP4B

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
			performance and RRM specifications. High accuracy and reliable positioning method.	
SUPERIOT	Logistics Manufacturing Healthcare Consumer market	Dual mode operation/reconfiguration • Communications (Tx/Re solutions, protocols, network selection algorithms, etc.) • Energy harvesting and management (Energy-sharing approaches, AI-based energy management, etc.) • Positioning Printed electronics solutions (components, inks, sub-systems, etc.)	The standardization related activities are planned to start once the project has sound evidence of the developed concepts. Possible solutions and standard-related technologies will be investigated and evaluated in the project's initial part. Standardization activities will take place during the second half of the project.	IEEE802.15 (Bluetooth, UWB, optical WPAN) IEEE80211bb, ITU-T G.9991 (VLC/LiFi) ETSI IEC on Printed Electronics.
CONFIDENTIAL6G	Predicting maintenance Privacy Mobility & Logistics	Confidential Computing and Privacypreserving Technologies		
RIGOUROUS	Data Protection Smart Cities Digital Twins Public Protection & Disaster Relief	LNVO's Distributed Ledgers and EDGE Services (ETSI PDL / ETSI MEC); prediction of the performance of the physical devices and dynamic task allocation (IEEE P2413); IoT security architecture for trusted IoT devices (AIOTI WG5); Machine Learning applied for 5G/6G Network Management (ITU 5GMLFG)	Ensuring RIGOUROUS outcomes are aligned with relevant standards' directions, to ensure their market competitiveness	ETSI ISG MEC, ISG ZSM, ISG NFV, PDL IEEE ComSoc IoT Emerging Technologies Subcommittee AIOTI Standardization WG 5G-PPP / 6G-IA 3GPP (CT1 / SA2 / SA3 / SA5 /SA6) ITU 5GML FG
HORSE	Light transportation Extended reality	Smart open security management and monitoring Edge technologies NFV secure orchestration AI-enabled network management techniques & Digital Twins Network service total automation / Autonomous Networks Security implications of applying AI	EC clustering initiatives and develop cooperative liaisons with related ECfunded projects, with special focus on those supported by the 6GIA (Pre-Standardization and Security groups) and the SNS JU.	IETF WGs (I2NSF, SACM, ACME, PPM) ETSI MEC, NFV, ENI, ZSM, SAI 3GPP, SA3 (security) and SA5 (management aspects) ITU-T FGAN (Focus Group on Autonomous Networks) Open source: Linux Foundation ONAP,

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
				Akraino, Anuket, ETSI OSM and TFS Open source / open specs: OpenConfig, O-RAN
PRIVATEER	Mobility Smart Cities	Decentralized Robust Security Analytics Trustworthy network topology Privacy-aware orchestration Infrastructure and service attestation Distributed identities and verifiable credentials Privacy-friendly CTI sharing and anonymization	Innovative security enablers for 6G networks addressing concerns in: 1) the processing of infrastructure and network; 2) usage data for security analytics; 3) the slicing and security orchestration processes; 4) infrastructure and service attestation, and integrity check procedures; 5) cyber threat intelligence (CTI) sharing	Security enablers: 3GPP: SA3; ETSI: ETI, MEC, PDL, TC-CYBER; IETF: PPM, SAAG Secure orchestration and management: 3GPP: SA5; ETSI: NFV, ZSM; IETF: I2NSF, NMRG Integrity and attestation: ETSI: SAI; IETF: RATS, SCITT
Hexa-X-II	Robotics Telepresence Construction Digital Twins Energy & Sustainability	Sustainable trustworthy AI/ML based control. Programmable Networks 6G radio interface and protocols Digital twin for system-level security and resilience	3GPP – R20/R21 releases onwards: • SA1: use cases and requirements • SA2: modular architecture, use of AI/ML, RAN-CN interface. • SA3: Security • RAN: intelligent radio, flexible spectrum access, JCS • SA5: flexible network configuration. Sustainability. ITU-R/T (started in Hexa-X): • Sustainability. • Flexible spectrum use and access. • Requirements ETSI (started in Hexa-X): • Towards THz communication. • Real-time zero-touch control loop automation. • Trustworthy management and integration fabric. • Inter-domain and intercomputing management.	3GPP, ITU-T/R, ETSI, O-RAN, IETF and other relevant industry fora
6G-SHINE	Manufacturing Robotics	PHY/MAC enablers: e.g., ultra-reliable low latency communication, predictive schedulers,	6G-SHINE counts on partners intensively participating in standardization (Nokia,	3GPP SA1 3GPP, ETSI ISG THz 3GPP RAN1,

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
	Mobility & Logistics Entertainment	subTHz communication, RIS, analog hybrid beamforming/beamfocusing, intra-sub-network macro-diversity - RRM enablers: centralized/distributed/hybrid radio resource management, jamming detection and mitigation - Management of traffic, spectrum and computational resources: coordination of operations of sub-networks in the same entity (e.g., same vehicle); traffic offloading techniques with computational resource profiling	IDE, Sony, Apple, Keysight, Bosch, UMH) to support transferring 6G-SHINE contributions to standardization bodies. • Focus on pre-standardization, input for coming releases • Possibility of providing input already to Rel-19 (e.g., initial use cases for sub-networks) • Preparation of white papers	ETSI TG28 3GPP RAN1, IEEE WNG, ETSI DECT NR 3GPP RAN1, ETSI ISG RIS 3GPP RAN1, ETSI, IEEE 802.11 WNG 3GPP RAN1, RAN2 ETSI TC ITS, IEEE 802.1 TSN TG, C2C-CC, 5G-ACIA, 5G-AA ETSI TG28 3GPP RAN2 ETSI ISG MEC 3GPP RAN2, IEEE 802.11 WNG
6G-SANDBOX	Traffic Entertainment	Experimentation methods to measure 6G KPIs (relevant with ETSI TR 103 761) AI-based Resource Allocation & Reshuffling (relevant with ETSI ISG NFV) vRAN advancements: Intelligent xApps (O-RAN) Optimizations for Telepresence / XR+touch senses: XR APIs, based on Network as a Code concept Reconfigurable Intelligent Surfaces (RIS): Develop a novel 28 GHz RIS “tile” employing low latency technology (relevant with ETSI ISG RIS) CAPIF implementation and possible extensions (relevant with 3GPP SA6)	Apply applicable standards to ensure the 6G experimentation platform is compliant Identify/promote innovations and contribute to relevant SDO such as: ETSI INT, ETSI NFV, ETSI RIS, 3GPP SA2/SA5, O-RAN	3GPP: 6G-SANDBOX Project timeframe overlaps with Rel-19, Rel-20 & Rel-21 (Service Requirements). Main target: (a) 3GPP Rel-20 service requirements & studies, and (b) 3GPP Rel-21 (6G) service requirements (~ Sep. 24 – Sep. 25) • Other: ETSI RIS/INT/NFV, O-RAN (RIC & xApps), ITU-T (e.g. for interoperable testbed federations)
6G-BRICKS	Metaverse Manufacturing	Distributed multi-band cell-free RIS integration within OAI gNB Distributed OTA synchronization Joint Communication and Sensing Explainable AI and Machine Reasoning for Unified, Zero Touch	Interdigital (WG chair) to contribute the RIS related technical outcomes (e.g., JCAS, OAI integration, etc.), potentially propose PoCs and work items ICOM to propose a PoC showcasing XAI and MR technologies in explainable automation and root-cause analysis scenarios	ETSI RIS WG: Energy efficiency, reducing blockage in the mmWave spectrum ETSI ENI WG: OPEX reduction for telcos, reduction in

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
		Orchestration PaaS abstractions for Cloud-Edge-Device continuum infrastructures	Pursue the integration of RIS, cell-free to the Overall Architecture and standardization of the new O-DU interface Pursue standardization of Near-RT RIC functions for distributed cell-free Contribute the 6G-BRICKS PaaS abstraction framework, facilitating the integration of IoT devices at the Cloud-Edge Continuum Monitor standardization activities in RAN1 and RAN4 and give input on monitoring interfaces and test requirements that can be utilized by experimenters. Potential active participation via liaison statements and white papers. Monitor relevant activities of the MPEG group and contribute to the standardization of Metaverse related outcomes	service creation and validation time O-RAN WGs 3GPP WG1 ISO/IEC JTC1 SC29
6G-XR	Digital fabrication Digital twinisation			
TARGET-X	Energy Robotics Cloud Construction Automotive			
TrialsNet	Infrastructure Healthcare Entertainment Transportation			
FIDAL	Media Public Protection & Disaster Release	The FIDAL Service Orchestrator and OSS/BSS, are based on two mature assets: • the Kubernetes-based VAO and • the OpenSlice OSS/BSS that will be integrated and upgraded with Zero Touch functionality for the first time within FIDAL	Follow the 3GPP standardisation releases R17, R18 and beyond. • SA4: on the Media vertical. • SA6: on PPDR, and API exposure (CAPIF) Identify areas in which there is a need for standardisation, especially related to the open interfaces for the provision of concurrent and multiple service offerings across 5G evolution networks. Identify standardisation	3GPP • Project Coordination Group (PCG) • Radio Access Network (RAN) • Systems Architecture (SA) • Communications and Services (CT) • SA WG4 - Multimedia Codecs,

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
			gaps and contribute to the relevant standardisation bodies (e.g., 3GPP, ETSI MANO, NGMN, ITU), validating the results of these groups by real field trials with real end-users. Devise a solid dedicated standardisation action plan, identifying relevant standardization, industry forums (e.g., TM Forum), and regulatory bodies. Contribute to 6G-IA WGs (pre-Standardization, TMV, Trials) with at least five (5) white papers. Feed all produced results from the large-scale trials, as well as from Open Calls, as impactful contributions to standardization bodies.	Systems and Services • SA WG6 - Application Enablement and Critical Communication Applications 5G-PPP • Pre-Standardization WG • Test, Measurement and KPIs Validation • Trials WG ETSI • 5G Radio Access Networks (5G-RAN) • 5G Core Network and Terminals (5G-CORE) • 5G Evolutions (5G-E) • SmartM2M • Cybersecurity (CYBER) • Mobile Edge Computing (MEC) • 6G MPEG • WG02: MPEG Requirements • WG03: Systems • WG05: JVET • WG04: Video
IMAGINE-B5G	Public Protection & Disaster Release Education Manufacturing Media Healthcare Agriculture Mobility & Logistics	IMAGINE-B5G PPDR-related use-case pilots and showcases will serve to influence governments, organisations and public sectors in the adoption of advanced 5G for an enriched and improved public protection and disaster relief solution. Other topics include the deployment and operation of PNI-NPNs (including O-RAN-based networks) through their lifecycle, zero-touch management for network orchestration, edge	IMAGINE-B5G aims to demonstrate the value of the targeted B5G solutions to the 5G community to enable new synergies in standardisation and open-source activities. IMAGINE-B5G targets the promotion of showcases results and outcomes which are strategically selected and distributed along the entire project lifetime to demonstrate the value of the advanced 5G solutions developed within the project and to foster their adoption.	3GPP, ETSI (ZSM, MEC, ENI, NFV), O-RAN OS, IETF, 5G-MAG. Regarding the open-source communities and industry fora, i.e., ETSI OSM, OpenBaton, OPNFV, OpenTAP and ONAP.

Project	Verticals	Key Standardisation Technology	Standardisation interests	Potential Bodies
		computing technologies to improve network scalability and reduce response time, among others.		

A.2 Preliminary mapping of SNS JU RIAs Vertical Sectors and Standardisation Interests

Name	Standard Body	Domain	Technical bodies
Digital Society	CEN-CENELEC	ICT	CEN/TC 224Personal identification and related personal devices
Digital Society	CEN-CENELEC	ICT	CEN/TC 225 AIDC Technologies
Digital Society	CEN-CENELEC	ICT	CEN/TC 251 Health informatics
Digital Society	CEN-CENELEC	ICT	CEN/TC 294 Communication systems for meters
Digital Society	CEN-CENELEC	ICT	CEN/TC 428 ICT professionalism and Digital competences
Digital Society	CEN-CENELEC	ICT	CEN/TC 434 Electronic invoicing
Digital Society	CEN-CENELEC	ICT	CEN/TC 440 Electronic Public Procurement
Digital Society	CEN-CENELEC	ICT	CEN/TC 468 Management and preservation of digital content
Digital Society	CEN-CENELEC	ICT	CLC/TC 65X Industrial-process measurement, control and automation
Digital Society	CEN-CENELEC	ICT	CEN-CLC/JTC 19 Blockchain and Distributed Ledger Technologies
Digital Society	CEN-CENELEC	ICT	CEN-CLC/JTC 13 Cybersecurity and data protection
Digital Society	CEN-CENELEC	ICT	CEN-CLC/JTC 21 Artificial Intelligence
Construction	CEN-CENELEC	Construction	CEN/TC 89 - Thermal performance of buildings and building components
Construction	CEN-CENELEC	Construction	CEN/TC 127 - Fire safety in buildings
Construction	CEN-CENELEC	Construction	CEN/TC 247 - Building Automation, Controls and Building Management
Construction	CEN-CENELEC	Construction	CEN/TC 288 - Execution of special geotechnical works
Construction	CEN-CENELEC	Construction	CEN/TC 340 - Anti-seismic devices
Construction	CEN-CENELEC	Construction	CEN/TC 341 - Geotechnical Investigation and Testing
Construction	CEN-CENELEC	Construction	CEN/TC 371 - Energy performance of buildings
Construction	CEN-CENELEC	Construction	CEN/TC 442 - Building Information Modelling (BIM)
Defence and security	CEN-CENELEC	Defence and cybersecurity	CEN/TC 72 Fire detection and fire alarm systems
Defence and security	CEN-CENELEC	Defence and cybersecurity	CEN/TC 263 Secure storage of cash, valuables and data media
Defence and security	CEN-CENELEC	Defence and cybersecurity	CEN/CLC/WS ZONeSEC Interoperability of security systems for the surveillance of widezones

Name	Standard Body	Domain	Technical bodies
Defence and security	CEN-CENELEC	Defence and cybersecurity	CEN-CENELEC/JTC 13 Cybersecurity and data protection
Defence and security	CEN-CENELEC	Defence and cybersecurity	CLC/BTTF 157-1 Public address and general emergency alarm systems
Energy and Utilities	CEN-CENELEC	Energy	CEN/CLC/ETSI/SEG-CG CEN-CENELEC-ETSI Coordination Group on Smart Energy Grids
Energy and Utilities	CEN-CENELEC	Energy	CEN/CLC/ETSI/SMCG CEN-CENELEC-ETSI Coordination Group on Smart Meters (disbanded)
Energy and Utilities	CEN-CENELEC	Energy	CEN/CLC/JTC 10 Energy-related products - Material Efficiency Aspects for Ecodesign
Energy and Utilities	CEN-CENELEC	Energy	CEN/CLC/JTC 14 Energy management, energy audits, energy savings
Energy and Utilities	CEN-CENELEC	Energy	CEN/CLC/JTC 15 Energy measurement plan for organizations
Energy and Utilities	CEN-CENELEC	Energy	CLC/SR 122 UHV AC transmission systems
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 10 Lifts, escalators and moving walks
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 114 Safety of machinery
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 123 Lasers and photonics
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 142 Woodworking machines - Safety
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 143 Machine tools - Safety
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 153 Machinery intended for use with foodstuffs and feed
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 176 Thermal energy meters
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 182 Refrigerating systems, safety and environmental requirements
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 186 Industrial thermoprocessing - Safety
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 188 Conveyor belts
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 267 Industrial piping and pipelines
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/TC 334 Irrigation techniques
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/WS 097 Articulated industrial robots - Elastostatic compliance calibration
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/CLC/WS Monsoon Predictive management of data intensive industrial processes
Mechanical and Machines	CEN-CENELEC	Manufacturing	CEN/CLC/WS ZDM term Zero Defects in Digital Manufacturing Terminology
Mechanical and Machines	CEN-CENELEC	Digital Machines	CLC/BTTF 128-2 - Erection and operation of electrical test equipment
Mechanical and Machines	CEN-CENELEC	Digital Machines	CLC/TC 44X - Safety of machinery: electrotechnical aspects
Mechanical and Machines	CEN-CENELEC	Digital Machines	CEN/CLC/WS Monsoon - Predictive management of data intensive industrial processes
Mechanical and Machines	CEN-CENELEC	Digital Machines	CEN/CLC/WS ZDMterm - Zero Defects in Digital Manufacturing Terminology

Name	Standard Body	Domain	Technical bodies
Mining and Metals	CEN-CENELEC	Mining	CEN/WS MODA Materials modelling terminology, classification and metadata
Mining and Metals	CEN-CENELEC		CEN/WS NATEDA Nanoindentation Test Data
Occupational Health and Safety	CEN-CENELEC	Health and Safety	CEN/TC 79 Respiratory protective devices
Defence and Security	CEN-CENELEC	Security	CEN-CENELEC /JTC 13Cybersecurity and data protection
Digital Society	CEN-CENELEC	ICT	CEN-CLC/BTWG 6 'ICT standardization policy'
Electric Motors and Transformers	CEN-CENELEC	Power	CLC/TC 38 'Instrument transformers'
Electrotechnology General	CEN-CENELEC	Electromagnetic energy	CLC/BTWG 154-1 - EMC standardization in the EU regulatory framework
Healthcare	CEN-CENELEC	Medical data protection	CEN-CLC/TC 3 - Quality management and corresponding general aspects for medical devices
Healthcare	CEN-CENELEC	Medical data protection	CLC/TC 62 - Electrical equipment in medical practice
Healthcare	CEN-CENELEC	Medical data protection	CEN-CLC/JTC 16 - CEN-CENELEC Joint Technical Committee on Active Implantable Medical Devices
Low voltage electrical equipment and installations	CEN-CENELEC	Electric performance	CLC/TC 205 'Home and Building Electronic Systems (HBES)'