

Grant Agreement No.: 101192650

Type of action: HORIZON JU Research and Innovation

Topic: HORIZON-JU-SNS-2024-STREAM-B-

Call: HORIZON-JU-SNS-2024



D7.1 DISSEMINATION, STANDARDIZATION, AND EXPLOITATION PLAN

Work package	WP7
Task	T7.1 (also concerning T7.2 and T7.3)
Due date	31/03/2025
Submission date	31/03/2025
Deliverable lead	MAR
Version	1.0
Dissemination level	Public
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<p>Abstract</p>	<p>This document presents UNITY-6G's Dissemination, Standardization, and Exploitation Plan, designed to maximize the project's visibility and impact. It outlines the strategic steps that the UNITY-6G consortium will follow throughout the project's duration. The document establishes a framework for communication, dissemination, community-building, standardization, and exploitation activities, ensuring alignment among partners and providing clear guidelines for outreach, engagement, and knowledge transfer. It will be periodically updated to reflect evolving priorities, opportunities, and stakeholder needs.</p>
<p>Keywords</p>	<p>Communication, dissemination, stakeholder engagement, outreach, liaisons, standardization, exploitation</p>

Document Revision History

Version	Date	Description of change	List of contributors
V0.1	20/02/2025	ToC and first draft shared with co-authors for initial feedback.	Klaudia dos Santos (MAR)
V0.2	23/02/2025	Second draft.	Klaudia dos Santos (MAR) Gil Kedar (CER) Matteo Pagin (KEY)
V0.3	24/02/2025	Document shared with the consortium, requesting input from individual partners.	All project partners
V0.4	24/03/2025	Incorporation of input from project partners. Document sent for internal review.	Klaudia dos Santos, Paula Ando (MAR)
V0.5	27/03/2025	Internal review.	Selva Vía (CTTC) Adrian Kliks (RMD) Carla Amatetti (UNIBO)
V0.6	28/03/2025	Document incorporating the reviewers' feedback sent to PC for final validation.	Klaudia dos Santos, Paula Ando (MAR)
V1.0	31/03/2025	Submission of the final version to the EC.	Selva Via (CTTC)

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Co-funded by the European Union



Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

The **UNITY-6G** project has received funding from the [Smart Networks and Services Joint Undertaking \(SNS JU\)](#) under the European Union's [Horizon Europe research and innovation programme](#) under Grant Agreement No *101192650*. This work has received funding from the [Swiss State Secretariat for Education, Research, and Innovation \(SERI\)](#).

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EXECUTIVE SUMMARY

This document presents a strategic framework designed to maximize the UNITY-6G's visibility and long-term impact. It defines the key activities, methodologies, and tools that will guide the consortium in effectively communicating about the project and its advancements, fostering collaborations, and ensuring the uptake of project results across industry, academia, and policy stakeholders. The plan covers three main interconnected pillars:

- **Communication and dissemination:** Outlining targeted outreach efforts, promotional and dissemination materials, and engagement tactics to raise awareness and share knowledge with target audiences.
- **Standardization:** Identifying opportunities for contributing to relevant technical discussions and standardization efforts.
- **Exploitation:** Ensuring that UNITY-6G's results lead to tangible benefits, including innovation adoption and commercialization pathways.

By establishing this framework early in the project, the UNITY-6G consortium aims to create a strong foundation for impact creation, ensuring consistency, alignment, and active participation from all partners.

The document will be periodically updated to reflect emerging opportunities and evolving stakeholder needs. Further insights into the plan's implementation and effectiveness will be provided in Deliverable D7.2 *Intermediate Report on Standardization, Dissemination, and Exploitation of Results* (M18).

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ABBREVIATIONS

AI	Artificial Intelligence
ATIS	Alliance for Telecommunications Industry Solution
CCAMP	Common Control and Measurement Plane
CSA	Communication and Support Action
D	Deliverable
DLT	Distributed Ledger Technology
EC	European Commission
EMTEL	Emergency Telecommunications
ENI	Extreme Network Infrastructure
ETSI	European Telecommunications Standards Institute
GREEN	Getting Ready for Energy-Efficient Networking
GSMA	Groupe Speciale Mobile Association
FG-AINN	Focus Group on Artificial Intelligence Native for Telecommunication Networks
ICT	Information and Communications Technology
IEA	International Energy Agency
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IoT	Internet of Things
ITU-T	International Telecommunication Union – Telecommunication
KPIs	Key Performance Indicators
LTE	Long Term Evolution

M	Month
MEC	Mobile Edge Computing
ML	Machine Learning
NMRG	Network Management Research Group
NPN	Non-Public Networks
NTN	Non-Terrestrial Networks
O-RAN	Open Radio Access Network
ONF	Open Networking Foundation
PoC	Proof of Concept
RAN	Radio Access Networks
R&D&I	Research, Development and Innovation
RIA	Research and Innovation Action
SDO	Standards Development Organization
SMEs	Small and Medium-Sized Enterprises
SNS	Smart Networks and Services
TEAS	Traffic Engineering Architecture and Signalling
TIP	Telecom Infra Project
TN	Terrestrial Networks
UBBA	Utility Broadband Alliance
WBA	Wireless Broadband Alliance
ZSM	Zero Touch Network and Service Management
2G	Second Generation Technology

3G	Third Generation Technology
3GPP	Third Generation Partnership Project
4G	Fourth Generation Technology
5G	Fifth Generation Technology
6G	Sixth Generation Technology
6GIA	6G Smart Networks and Services Industry Association

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

This document defines the communication, dissemination, stakeholder engagement, standardization, and exploitation strategy for UNITY-6G. It outlines activities designed to enhance the project's visibility, promote its achievements, and drive the uptake of its results. These efforts include engaging diverse stakeholders, publicizing research findings, and showcasing UNITY-6G innovations.

Additionally, it provides guidelines for project partners to ensure impact creation activities are coherent, consistent, and aligned with the project's objectives. The strategy will be continuously evaluated and refined as needed, with updates documented in periodic reports.

1.2 STRUCTURE OF THE DOCUMENT

This document is structured into six sections:

- **Introduction**, which provides the background and mission of UNITY-6G and outlines the document's structure and purpose.
- **Communication, dissemination, and stakeholder engagement**, which presents the project's key stakeholders and details the outreach tools, channels, and activities.
- **Standardization**, which explores the project's contributions to standardization efforts. It highlights relevant standardization bodies, working groups (WGs), and initiatives that align with the project's scope. Additionally, it describes how the project aims to influence or contribute to the development of technical standards and regulatory frameworks.
- **Exploitation**, which focuses on how the project results will be leveraged beyond its duration. It covers strategies for knowledge transfer, commercialization opportunities, intellectual property considerations, and potential adoption pathways for key innovations by various stakeholder groups.
- **Impact assessment**, which describes the indicators and methodologies that will be used to monitor and assess the effectiveness of UNITY-6G's outreach and impact creation efforts.

- **Conclusions**, which summarizes the key points of the document and provides final remarks on the project's impact creation strategy.

1.3 BACKGROUND AND CHALLENGES

Energy efficiency and sustainability have become central concerns in the development of next-generation communication networks. According to the International Energy Agency's (IEA) World Energy Outlook, as globalization and technological advancements drive increased reliance on information and communication technology (ICT) systems, the energy consumption of communication networks is projected to reach 20% of the world's electricity usage by 2025¹. This raises significant environmental, economic, and social concerns, making sustainability a fundamental consideration in the design of 6G networks. Future networks must integrate renewable energy sources, optimize resource allocation, and adopt energy-efficient protocols to mitigate their environmental impact. Furthermore, emerging 6G applications introduce new requirements for low latency, high bandwidth, and high reliability, necessitating novel network architectures and management strategies. To address these challenges, the convergence of AI, edge-cloud computing, and network softwarization is becoming increasingly relevant. Concepts like software-defined networking, network function virtualization, and distributed AI are transforming network management by enabling intelligent, adaptive, and scalable solutions, while the edge-cloud continuum allows for efficient task allocation, reducing latency and improving service quality. However, these advancements bring technical and operational challenges that must be overcome. The complexity of managing dynamic and heterogeneous networks, ensuring quality of service for mission-critical applications, and maintaining interoperability across diverse technologies are critical issues. Additionally, optimizing resource allocation—including computing power, bandwidth, storage, and energy—is essential to achieving scalable and sustainable 6G networks. Moreover, integrating AI-driven automation introduces challenges related to data privacy, model accuracy, energy consumption, and real-time decision-making in highly dynamic network environments. As AI continues to shape the future of networked systems, the development of robust, efficient, and secure AI-driven solutions will be crucial to ensuring the long-term viability of 6G networks. Addressing these challenges will require innovative architectures, advanced computing mechanisms, and cross-domain collaboration, ultimately paving the way for a more intelligent, sustainable, and resilient communication infrastructure.

¹ <https://www.iea.org/reports/world-energy-outlook-2024>

1.4 VISION AND MISSION

UNITY-6G aims to address challenges related to energy efficiency and sustainability for networked services by pursuing sustainability in the context of ongoing developments in 6G. More specifically, UNITY-6G aims to create a highly sustainable and scalable integrated AI-native architecture that supports the diverse requirements of 6G networks by relying on advanced technologies, such as distributed ledger technology, semantic communications, and digital network twinning, to enhance the performance, cost-efficiency, and trustworthiness of integrated 6G network services and applications. The focus will be on scalability and sustainability for integrated networks (NTN and TN, xHaul, open RAN, NPN, edge, core, and cloud). Furthermore, UNITY-6G aims to evolve into a real-time, distributed, and network state-aware Open RAN that can leverage the integration of distributed applications within the integrated architecture. This will enable fine-grained, data-driven management and control by incorporating dApps—distributed applications that complement existing xApps/rApps and support use cases with stricter timing requirements in an integrated network. Common interfaces and protocols will be defined to ensure seamless communication between heterogeneous domains. To better guide the design, UNITY-6G will also apply service-based architecture principles for integrated networks and leverage digital twins for network evaluation.

2 COMMUNICATION, DISSEMINATION, AND COMMUNITY BUILDING

2.1 IMPACT CREATION PHASES

Effective outreach and impact-creation activities are essential to ensuring UNITY-6G's results reach and benefit relevant stakeholders. To maximize visibility and impact, the UNITY-6G outreach and impact creation efforts have been structured into three distinct phases, each aligned with the project's progress.

Stage 1: Awareness Creation and Strategic Planning (M01-M06) – Establishing the communication and dissemination foundation, refining stakeholder engagement strategies, and launching initial outreach activities.

Key activities: launch of the project website and social media channels; mapping and categorizing target groups; development of the outreach and impact creation strategy; production of first promotional materials (roll-up banner, brochure); participation to relevant events to present the project concept; active outreach to related projects and initiatives to explore collaboration opportunities, such as co-organizing events and joint dissemination efforts; distribution of the first project newsletter.

Stage 2: Community Engagement and Initial Results Dissemination (M07-M18) – Expanding outreach to key stakeholders, disseminating first findings, and fostering collaboration with related initiatives.

Key activities: development of further promotional materials, including graphics and videos; publication of project results in open access journals; publication of research snapshots for non-technical audiences; participation in relevant conferences and industry events and forums to present project progress and first results; distribution of the project newsletter; co-organization of events (workshops, webinars) with related projects and initiatives.

Stage 3: Wide Outreach and Sustainable Impact (M19-M36) – Scaling up dissemination efforts and driving adoption of project results to ensure its long-term impact.

Key activities: development of further promotional materials; publication of further openly accessible scientific papers and technical reports; continued development of research snapshots for non-technical audiences; participation in relevant conferences and industry

events and forums to present project progress and results; distribution of the project newsletter; co-organization of events (workshops, webinars) with related projects and initiatives.

Each phase builds upon the previous one, ensuring a strategic, structured, and effective approach to maximizing UNITY-6G's visibility, adoption, and impact.

2.2 STRATEGIC COLLABORATION AND STAKEHOLDER ENGAGEMENT

2.2.1 Target groups and key messages

The identification and engagement of diverse stakeholder groups are fundamental to the UNITY-6G's outreach and impact creation strategy. To ensure effective stakeholder interactions, the project will follow a structured approach to mapping and categorizing target groups based on their interest in and influence over the project.

The consortium has already conducted an initial stakeholder mapping exercise (using the stakeholder map presented in Figure 1) to visualize the relationships between different target groups and assess their level of influence and interest in the project. This mapping process enabled the consortium to:

- Identify key individuals, organizations, and groups that could impact or be impacted by the project, ensuring that no important stakeholders are overlooked.
- Classify stakeholders based on their level of power or influence over the project and their level of interest in the project to ensure that engagement efforts are strategically planned, focusing on high-power, high-interest stakeholders for close collaboration while managing communication with others appropriately.
- Determine initial engagement strategies, including the intensity and frequency of interactions, tailored to the position of each stakeholder group on the map.

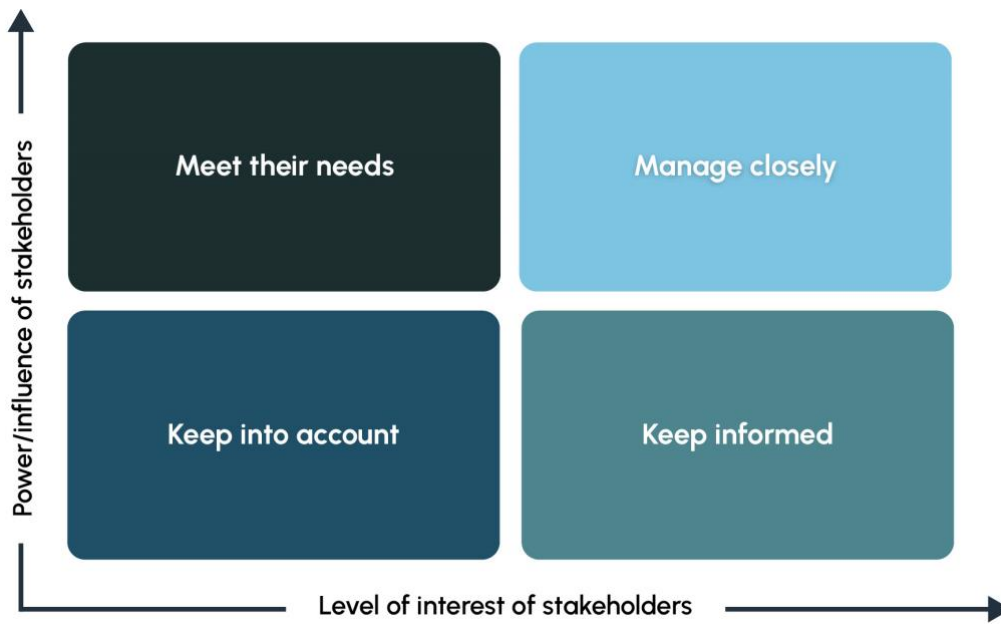


Figure 1 UNITY-6G stakeholder map

The x-axis represents a stakeholder’s level of power or influence over the project while the y-axis indicates their level of interest in the project. A stakeholder’s position on the map determines how the consortium engages with them, including the intensity and frequency of engagement.

The most relevant target groups, their position on the stakeholder map, and the respective engagement strategies are described in the communication matrix presented in Table 1.

Table 1 UNITY-6G communication matrix

Target audience	Position on the stakeholders map	Outreach and engagement goals	Outreach and engagement instruments	Outreach frequency
<p>Relevant R&I projects, especially within the contexts of NetWorldEurope, 6GIA, and SNS JU (RIAs under HORIZON-JU-SNS-2024-STREAM-B-01-01 and 6G4Society CSA)</p>	<p>This group of stakeholders has been placed on the “manage closely” square on the stakeholder map.</p>	<p>Create liaisons and synergies to foster fruitful and sustainable cooperation.</p>	<p>Project content (white papers, deliverables news items, videos, posters) promoted via the project website and social media channels; Presentations and networking at relevant events; Distribution of printed promotional material at events; Invitations to project workshops and webinars; Publication of key findings and project results in open access journals.</p>	<p>Sharing research outputs on the project website and in online databases (ad-hoc); Animation of social media channels (weekly); News items published on the project website (bimonthly); Newsletter sent out to subscribers (biyearly); Active participation in activities coordinated by SNS JU, NetWorldEurope, and 6G-IA, e.g., monthly participation in the SNS Communication Task Force; Invitations to workshops organized by the project; Presentations delivered at relevant events.</p>

<p>Researchers and academics in the following domains: 6G communication, cloud/edge, AI/ML, energy/renewable energy</p>	<p>This group of stakeholders has been placed on the “keep informed” square on the stakeholder map.</p>	<p>Foster collaboration and knowledge exchange.</p>	<p>Project content (white papers, deliverables news items, videos, posters) promoted via the project website and social media channels; Presentations and networking at relevant events; Distribution of printed promotional material at events; Invitations to project workshops and webinars; Publication of key findings and project results in open access journals.</p>	<p>Sharing research outputs on the project website and in online databases (ad-hoc); Animation of social media channels (weekly); News items published on the project website (bimonthly); Newsletter sent out to subscribers (biyearly); Presentations delivered at relevant events (ad hoc); PoC demonstrations at events (e.g., MWC, IoT World Congress, Smart City Expo World Congress, Integrated Systems Europe, INFOCOM, EuCNC).</p>
<p>Industrial players including SMEs in the following domains: cloud/edge, AI/ML, smart grid</p>	<p>This group of stakeholders has been placed on the “manage</p>	<p>Foster industry partnerships and collaborations.</p>	<p>Project content (white papers, deliverables news items, videos, posters) promoted via the project website and social media channels; Presentations and</p>	<p>Sharing research outputs on the project website and in online databases (ad-hoc); Animation of social media channels (weekly); News items published on the project</p>

	<p>closely” square on the stakeholder map.</p>	<p>Drive innovation and adoption of project outcomes.</p> <p>Explain how industry can benefit from UNITY-6G technologies and resources to minimize time-to-market for applications and services.</p>	<p>networking at relevant events; Distribution of printed promotional material at events; Organization of events to disseminate results and gather first-hand feedback from industrial stakeholders; Publication of key findings and project results in open access journals.</p>	<p>website (bimonthly); Newsletter sent out to subscribers (biyearly); Presentations delivered at relevant events (ad hoc); PoC demonstrations.</p>
<p>Public authorities, public and private initiatives, policymakers (e.g., EC, national and local governments)</p>	<p>This group of stakeholders has been placed on the “meet their needs” square on the stakeholder map.</p>	<p>Raise awareness and understanding of societal and economic impact of UNITY-6G.</p> <p>Provide policymakers with insights to help them make informed strategic decisions and</p>	<p>Project content (white papers, deliverables news items, videos, posters) promoted via the project website and social media channels; Presentations and networking at relevant events; Distribution of printed promotional material at events; Publication of</p>	<p>Sharing research outputs on the project website and in online databases (ad-hoc); Animation of social media channels (weekly); News items published on the project website (bimonthly); Newsletter sent out to subscribers (biyearly); Presentations delivered at relevant</p>

		plan targeted activities, investments, and calls.	key findings and project results in open access journals.	events (ad hoc); PoC demonstrations.
Standardization and open-source bodies and initiatives (e.g., ETSI, 3GPP, IETF, ITU-T, MEC, ZSM, ENI, O-RAN)	This group of stakeholders has been placed on the “meet their needs” square on the stakeholder map.	<p>Contribute to and influence the evolution of standards and monitor open-source initiatives.</p> <p>Ensure project outputs align with and contribute to standardization efforts.</p> <p>Promote the project’s insights regarding the uptake and deployment of satellite network concepts and technologies.</p>	<p>Publication of key findings and project results in open access journals; Presentations and networking at relevant events; Distribution of printed promotional material at events; Contributions to relevant SDO groups, where the project will: (i) push forward several PoC; (ii) push forward its architecture and interfaces; (iii) create an open data set for ML according to the defined use-cases.</p>	<p>Sharing research outputs on the project website and in online databases (ad-hoc); Presentations delivered at relevant events (ad hoc); Active participation in relevant SDO groups, including their periodic meetings; PoC demonstrations.</p>

<p>Media and the public</p>	<p>This group of stakeholders has been placed on the “keep into account” square on the stakeholder map.</p>	<p>Ensure media coverage of key project milestones by providing journalists with clear, relevant, and engaging materials.</p> <p>Showcase what public money is invested in and explain why it matters.</p> <p>Increase understanding of the importance and potential of Pan-European collaboration.</p> <p>Raise awareness and interest in the subject of wireless communication.</p>	<p>Distribution of press releases covering major project milestones; Publication of interviews with the project partners shedding light on UNITY-6G work and advancements; Engaging content published on the project website and social media channels (white papers, deliverables, news items, communication campaigns, videos); Publication of key findings and project results in open access journals.</p>	<p>Press releases distributed via Prowly (ad-hoc); Interviews with partners published on the project website and promoted via social media (ad hoc); Sharing research outputs on the project website and in online databases (ad-hoc); Animation of social media channels (weekly); News items published on the project website (bimonthly); Newsletter sent out to subscribers (biyearly).</p>
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Mapping and understanding stakeholder positions will support the project's success in several ways:

- **Prioritizing engagement efforts:** By identifying high-impact stakeholders, the consortium can focus communication and dissemination efforts on those who are most influential or significantly affected by UNITY-6G's developments.
- **Tailoring communication strategies:** A clear understanding of stakeholder interests enables the customization of outreach efforts to ensure relevant messages reach the right audiences.
- **Anticipating and addressing concerns:** Early identification of potential areas of concern or resistance allows the consortium to proactively address challenges before they become risks.

2.2.2 Liaisons and collaboration with related initiatives

UNITY-6G is committed to maximizing outreach and impact through leveraging existing networks and partnerships of its partners and will establish close coordination with various related projects, industry forums, and national/international associations, including, but not limited to:

- [6G-NTN](#) – Several UNITY-6G partners, including CTTC, MAR, UNIBO, DLR, and Orange are part of the 6G-NTN consortium. The two projects will exchange knowledge, and various outputs from 6G-NTN will be leveraged within UNITY-6G.
- [6G for Society](#) – MAR is a common project partner. The two projects will collaborate on knowledge exchange and joint activities, such as a webinar on environmental sustainability in 6G.
- [5G-STARDUST](#) – Several UNITY-6G partners, including MAR, DLR, CTTC, ORA, and UNIBO (through CNIT) are part of the 5G-STARDUST consortium. The two projects will exchange knowledge for what regards the architecture definition and the general system concept. Joint workshops between the two projects are also planned to better exploit synergies and share of results.
- [HEXA-X II](#) – Nokia is a common project partner. The two projects will exchange knowledge and discuss joint activities.
- [NexaSphere](#) – DLR and SRS are common project partners. The two projects will exchange knowledge about the architecture definition and the exploitation of the ORAN concepts,

especially for what concerns the NTN components. In turn, joint dissemination opportunities (papers, workshops' organization, etc.) will be explored and accordingly planned.

- [QUBIP](#) – LINKS is as a common partner. The two projects will exchange knowledge and discuss joint activities.
- [one6G Association](#) – an association dedicated to advancing 6G research, standardization, and ecosystem development. MAR, CTTC, and UNIBO are members, contributing to discussions on 6G research and deployment strategies. The consortium will explore the possibility of exhibiting at the yearly one6G Summit, and project partners will consider contributing UNITY-6G-related work to relevant one6G Work Items.
- [The Utility Broadband Alliance \(UBBA\)](#) – an alliance that brings together a variety of utility organizations to enhance the reliability and resilience of utility networks. CER, as a member of UBBA, will leverage the UBBA platform and exhibitions to promote UNITY-6G architecture.

By collaborating with these initiatives, UNITY-6G aims to enhance knowledge exchange, promote best practices, and contribute to the broader 6G ecosystem. Beyond these collaborations, UNITY-6G remains committed to actively engaging with other research initiatives and industry alliances to ensure the project's contributions are widely disseminated and effectively integrated into the future 6G landscape.

2.3 OUTREACH MEANS AND ACTIVITIES

2.3.1 Visual identity

A strong and cohesive visual identity is essential for ensuring that the project is easily recognizable and leaves a lasting impression on its audience. Visual identity encompasses all design elements that define the project's look and feel, including the logo, color scheme, typography, and branded templates. A well-defined identity helps maintain consistency across all communication channels, reinforcing credibility and professionalism.

The UNITY-6G project has established a clear visual identity, with the following key assets:

- A clearly defined colour palette.
- A logo and icon available in multiple variations to suit different use cases.
- A typography style that ensures readability and a professional appearance.

- Templates for press releases, deliverables, presentations, and other outputs.

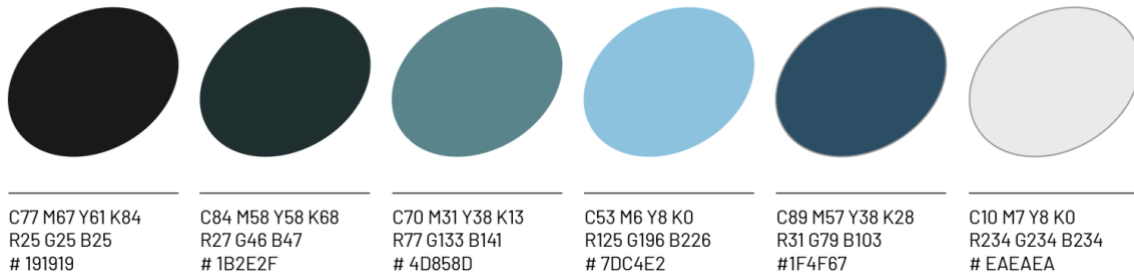


Figure 4 UNITY-6G color palette

These elements will be incorporated into all materials produced throughout the project’s lifespan and will be consistently applied by all partners in their outreach activities. Ensuring visual coherence across presentations, reports, social media, and other communication channels and materials will strengthen UNITY-6G recognition and enhance engagement with stakeholders.

2.3.2 Website

The UNITY-6G website plays a key role in supporting the project’s outreach strategy by serving as the primary reference for content shared across social media and other communication channels. It follows responsive design principles, adapting to different devices and screen sizes for an optimal user experience.

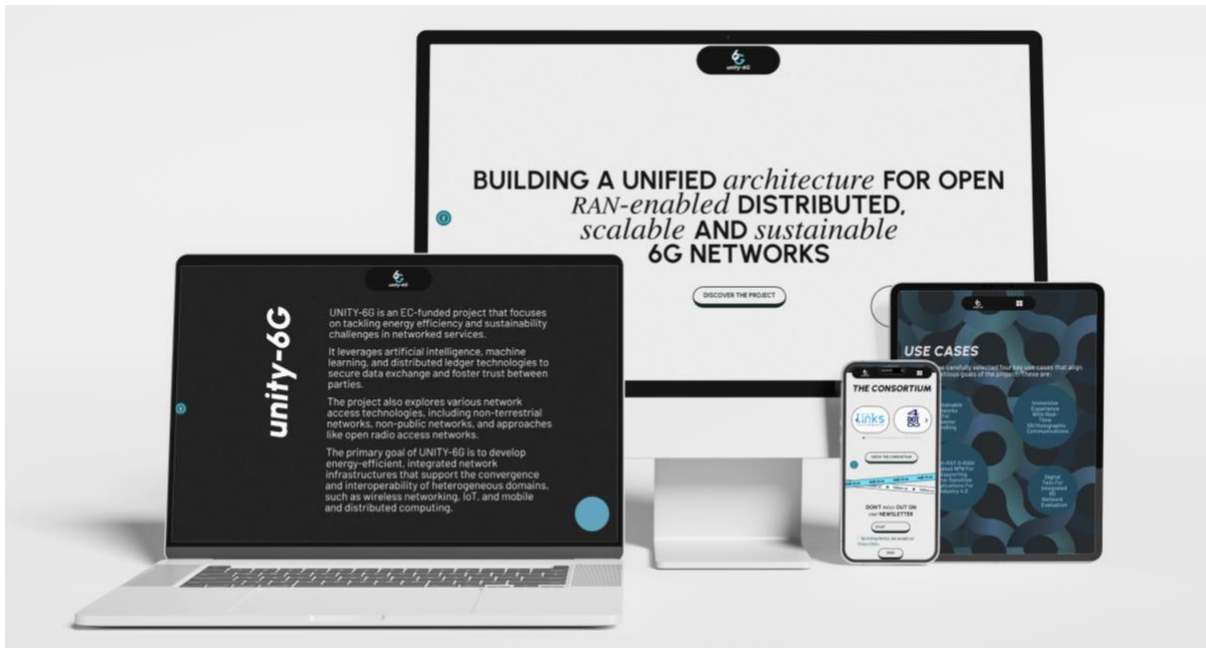


Figure 5 UNITY-6G website

Launched in M1 of the project, the website will be continuously updated to reflect project developments. To monitor its performance, it has been equipped with Matomo analytics, which provides detailed insights into communication campaigns, visitor engagement, and content effectiveness. In addition, Matomo ensures full compliance with European GDPR regulations, safeguarding data ownership and privacy.

2.3.3 Social media

To effectively promote the project's activities and outcomes, UNITY-6G has established multiple social media channels linked to its website. These platforms serve as spaces for discussion, fostering engagement with stakeholders, and showcasing the project's progress and achievements.

The LinkedIn page was launched at the start of the project as the primary social media platform for promotion, engagement, and networking. In M3 of the project, the consortium expanded UNITY-6G's social media presence by creating a project account on Bluesky. While the initial plan described in the project proposal considered other platforms, the consortium decided to use Bluesky as an additional outreach channel due to its decentralized nature and growing popularity. In addition, the project already opened a YouTube channel, where project-related videos will be featured.

As demonstrated in Figure 6, at the time of writing (February 21, 2025), UNITY-6G counted 203 followers on LinkedIn.

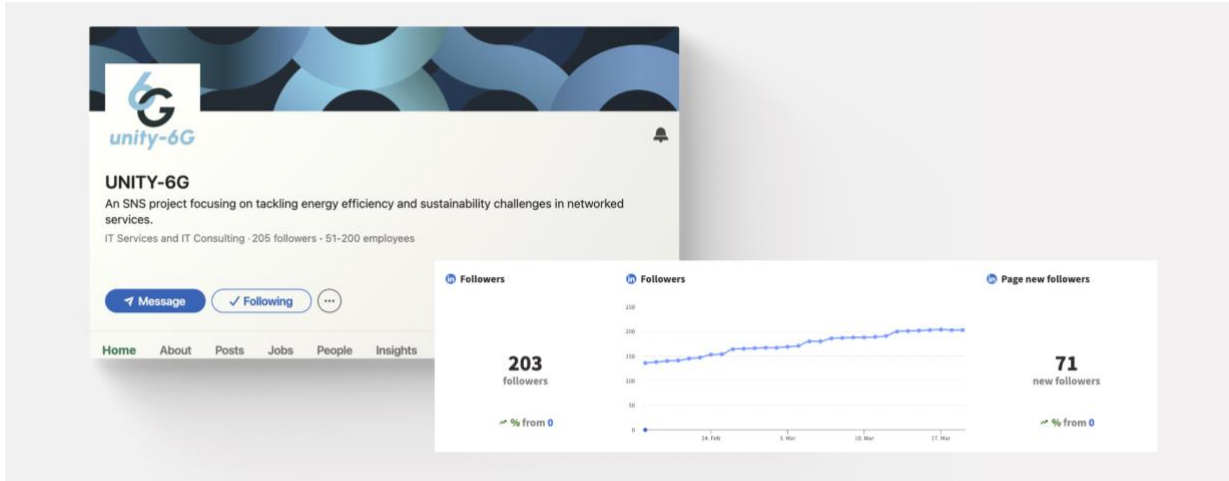


Figure 6 A screenshot of the UNITY-6G LinkedIn page and its follower base statistics

2.3.4 News items and press releases

UNITY-6G will publish regular news updates to keep stakeholders informed about the project’s progress. These updates will be written in clear, accessible language to reach a broad audience, including the public. In addition, press releases will be issued to coincide with major milestones and achievements—such as the project launch, technological advancements, and key events. These will be distributed to European media outlets to enhance visibility and ensure widespread awareness of UNITY-6G’s developments and impact.

At the time of writing, one press release (about the project kick-off) and 13 news items have been published on the project website.

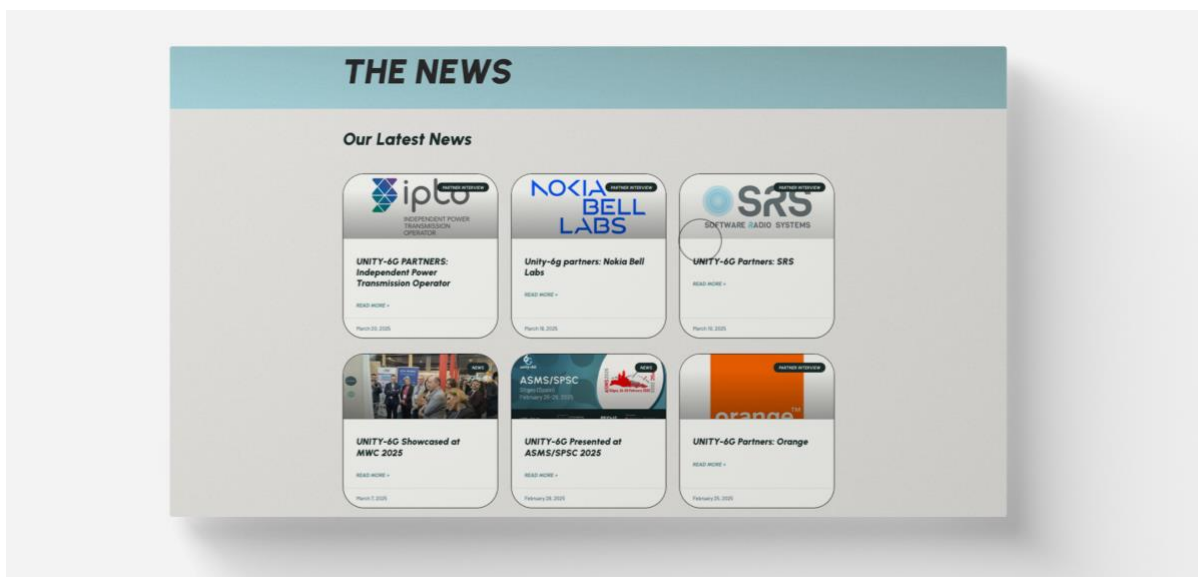


Figure 7 News items

2.3.5 Newsletter

The UNITY-6G newsletter will be published twice a year, providing updates on project activities and results. It will feature information on upcoming tasks, attended and organized events, and relevant news or announcements from individual partners. All consortium members will contribute to ensure the content remains engaging, accurate, and timely.

Each newsletter will align with the UNITY-6G visual identity, and it will be fully responsive for optimal readability on any device. The underlying technology will offer flexibility to adapt to the project's communication needs. All published newsletters will be available on the project website.

A subscription-based mailing list has been established, enabling mass distribution. Visitors can subscribe via a registration feature on the project website. MAR will ensure compliance with GDPR requirements. Additionally, time-sensitive updates, such as workshop or webinar invitations, will be shared via newsflashes using the same mailing list.

2.3.6 Promotional materials

UNITY-6G will develop a range of promotional materials to showcase the project and its achievements. These will include slide-based presentations, posters, roll-ups, flyers, brochures, videos, multimedia content, and giveaways. All materials will be designed in alignment with planned presentations and events, ensuring they are tailored in style, content, and messaging to suit specific target audiences and event types.

Several materials have already been created and used at events, including a general project roll-up, a one-pager with a QR code linking to the project website, and a graphic illustrating the UNITY-6G architecture.



Figure 8 Roll-up



Figure 9 Promotional one-pager with QR code



Figure 10 A visual depicting the UNITY-6G architecture

2.3.7 Publications

UNITY-6G will follow the principles of open science by ensuring open access to publications and research data. This approach will be guided by the principle of "as open as possible, as closed as necessary," balancing transparency and accessibility with the need to protect sensitive information, intellectual property, and confidentiality requirements. As such, all project papers will be openly available on the project website and Zenodo, an open-access repository that allows researchers to share and preserve publications, datasets, and software while ensuring proper citation and long-term accessibility. The consortium chose to use Zenodo because it enhances research visibility by assigning DOIs, ensuring that contributions are properly credited and easily citable. Additionally, its integration with OpenAIRE simplifies reporting open-access publications in the EC portal by enabling automated metadata retrieval.

UNITY-6G has already produced five research papers:

- The first paper, titled "Trustworthy Reputation for Federated Learning in O-RAN Using Blockchain and Smart Contracts," was published in February 2025 in the IEEE Open Journal of the Communications Society. The work explores how blockchain technology can enhance trust and transparency in Open Radio Access Network (O-RAN) environments and proposes a blockchain-based reputation mechanism that ensures accountability in Federated Learning (FL) by verifying the accuracy and integrity of model updates.

- The second paper, titled “End-to-End Slice Orchestration in a 5G cloud-native Mobile Network with O-RAN Split 7.2,” has been accepted for publication at the IEEE International Conference on Computer Communications (IEEE INFOCOM'25). The paper contributes to the cloud native mobile network orchestration domain by presenting an end-to-end system allowing the disaggregated and distributed deployment of mobile network entities from core to RAN based on open-source software.
- The third paper, titled “Probabilistic Forecasting for Network Resource Analysis in Integrated Terrestrial and Non-Terrestrial Networks” was submitted to the IEEE Communications Standards Magazine and it is currently under review. The work explores innovative forecasting techniques to enhance network resource management in hybrid terrestrial and satellite communications.
- The fourth paper, titled “Semantic Non-Terrestrial Communications with Open RAN-enabled 6G,” was also submitted to the IEEE Communications Standards Magazine and it is currently under review. The paper introduces SEM-NTN, a semantic-aware O-RAN-enabled NTN framework that enhances bandwidth efficiency, reduces AI inference latency, and improves satellite-terrestrial integration.
- The fifth paper, titled “Blockchain for Federated Learning in the Internet of Things: Trustworthy Adaptation, Standards, and Road Ahead,” was also submitted to the IEEE Communications Standards Magazine and is under review. The work explores how blockchain and Distributed Ledger Technologies (DLTs) can enhance trust, security, and decentralization in Federated Learning for IoT.

Beyond these papers, the consortium has additional research outputs in the pipeline, with further publications planned. The partners aim to target leading venues, including but not limited to: IEEE Open Journal of the Communications Society, IEEE International Conference on Computer Communications, IEEE Communications Magazine, IEEE Network Magazine, IEEE Transactions on Machine Learning in Communications and Networking, IEEE Global Communications Conference, IEEE International Conference on Communications, IEEE Transactions on Network and Service Management, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Green Communications and Networking, IEEE ACCESS, Elsevier Computer Networks, IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Information Theory, IEEE/ACM Transactions on Networking, IEEE Internet of Things Journal, IEEE Network, IEEE Internet Computing, IEEE Transactions on Cloud Computing, IEEE Transactions on Knowledge and

Data Engineering, IEEE Transactions on Services Computing, Journal of Systems and Software, and Journal on Future Generation Computer Systems.

2.3.8 Events

UNITY-6G's participation in events serves multiple strategic purposes, enhancing the project's impact, visibility, and collaborative potential. Whether at international conferences, workshops, or technical demonstrations, each event contributes to achieving the project's objectives.

- **Promotion and visibility:** Events provide a platform to showcase UNITY-6G's work, progress, and results, increasing its recognition among target stakeholders.
- **Knowledge exchange:** Engaging with experts, peers, and other stakeholders enables the project team to share insights and refine activities, ensuring alignment with industry trends and best practices.
- **Networking and collaboration:** Events connect UNITY-6G with diverse stakeholders, fostering potential collaborations that can enrich the project and expand its impact.
- **Dissemination of findings:** Presentations and discussions allow UNITY-6G to share research outcomes, contributing to the broader knowledge base and encouraging real-world application of project findings.
- **Engagement and dialogue:** Participation facilitates direct interaction with stakeholders, including the public, strengthening understanding of the project's relevance and fostering broader support.
- **Feedback and improvement:** Feedback received during events provides invaluable insights for improving the project, leading to adaptations and enhancements in the project's subsequent stages.

From the early stages of the project (Q1), partners have actively engaged in relevant events, including:

- [Valencia 5G Days \(March 27-28, 2025 – Valencia, Spain\)](#) - During this key industry event, CTTC contributed to the discussions with an invited talk and participation in a panel, presenting UNITY-6G's vision for AI-driven network management. The presentation provided a high-level overview of how the project leverages AI to enhance network automation, optimization, and efficiency in future 6G systems. Valencia 5G Days gathered experts from academia, industry, and regulatory bodies to explore advancements in 5G and

the transition toward 6G, offering a valuable platform to share UNITY-6G's insights and research directions.

- [Distributech \(March 24-27, 2025 – Dallas, USA\)](#) - CER promoted UNITY-6G at its corporate booth. The event provided a key opportunity to showcase UNITY-6G's vision, reinforcing its relevance to critical infrastructure sectors. Through discussions with various stakeholders including utility companies, policymakers, and technology providers, CER helped raise awareness about UNITY-6G's research and its planned impact on next-generation networks.
- [ICIN 2025 \(March 11–14, 2025 – Paris, France\)](#) – During the conference, CTTC organized a workshop on 6G Network Use Cases and Verticals. The workshop explored the transformative potential of 6G networks across various industries, focusing on use cases and vertical integration. Discussions covered key topics such as 6G network architecture, industry-specific applications—including augmented reality in healthcare and autonomous vehicles—AI and machine learning integration, security challenges, and regulatory considerations. Bringing together researchers, industry professionals, and academics, the workshop fostered dialogue on the future of 6G technologies and their role in shaping next-generation networks.
- [MWC 2025 \(March 3–6, 2025 – Barcelona, Spain\)](#) - Several UNITY-6G partners, including Engin Zeydan (CTTC), UNITY-6G Project Coordinator, attended and exhibited at the Mobile World Congress 2025, showcasing the project's promotional materials and engaging with visitors at their organization's booth. The event provided an excellent platform for UNITY-6G to engage with industry leaders, researchers, and policymakers to reinforce the project's role in shaping the next generation of smart networks.
- [IEEE ASMS/SPC 2025 \(February 26–28, 2025 – Sitges, Spain\)](#) - Luis Blanco (CTTC), UNITY-6G Scientific Coordinator, presented the project in the session “Overview of Ongoing NTN-Related EC/SNS Projects”, moderated by Bernard Barani (6G-IA). The 12th Advanced Satellite Multimedia Systems Conference and the 18th Signal Processing for Space Communications Workshop brought together leading experts to explore the role of NTN in future 6G systems. The event was jointly organized by ESA and three UNITY-6G project partners DLR, CTTC, and UNIBO.
- [KTH Seminar \(February 20, 2025 – Kista, Sweden\)](#) - Engin Zeydan (CTTC), UNITY-6G Project Coordinator, presented the project at the seminar “Pioneering Sustainable, Scalable, Intelligent, and Integrated 6G Networks” at KTH Royal Institute of Technology. He outlined UNITY-6G's vision for a sustainable, AI-native 6G infrastructure, highlighting key

technologies such as AI, distributed ledger technology, semantic communication, and digital network twinning, as well as the project’s architecture, use cases, and impact.

The consortium has identified other key events where they plan to promote UNITY-6G and engage with stakeholders. The list of targeted events is presented in Table 2.

Table 2 List of targeted events

Targeted event	Date and place
Offshore Technology Conference	May 5-8, 2025, Houston, TX, USA
16G in conjunction with NOMS 2025	May 12-16, 2025, Honolulu, HI, USA
EuCNC & 6G Summit 2025	June 3-6, 2025, Poznan, Poland
IEEE ICC 2025	June 8-12, 2025, Montreal, Canada
21st IEEE International Conference on Factory Communication Systems (WFCS 2025)	June 10-13, 2025, Rostock, Germany
IEEE ICDCS 2025	July 20 – 23, 2025, Glasgow, Scotland
2025 ACM SIGCOMM	September 8 – 11, 2025, Coimbra, Portugal
PIMRC 2025	September 1-4, 2025, Istanbul, Türkiye
FPSO World Congress	September 15-18, 2025, Singapore
one6G Summit 2025	September 18-19, 2025, Bologna, Italy
India Mobile Congress	October 8-11, 2025, New Delhi, India

Fyuz 2025	November 3-5, 2025, Dublin, Ireland
IEEE GLOBECOM 2025	December 8-12, 2025, Taipei, Taiwan
MWC 2026	March 2-5, 2026, Barcelona, Spain
EuCNC & 6G Summit 2026	June 2026, Malaga, Spain

2.3.9 Partners’ individual communication and dissemination plans

All UNITY-6G consortium members are equally committed to promoting the project and will leverage their respective channels to support the project's outreach and impact creation efforts. As such, each partner has developed a tailored outreach plan that builds on their unique expertise, networks, and partnerships. These collective and individual efforts will ensure UNITY-6G's wide reach and visibility. A brief overview of individual outreach plans has been provided below.

Telecommunications Technology Center of Catalonia (CTTC): As the coordinator of UNITY-6G, CTTC is highly committed to ensuring the project's broad visibility and impact through strategic dissemination efforts. As such, CTTC will actively promote UNITY-6G across key forums, including MWC and EuCNC, as well as scientific conferences, workshops, panels, and SNS meetings. To maximize outreach, CTTC will leverage its own communication channels, including its website (www.cttc.es), LinkedIn, Instagram, YouTube, and dedicated booths at major exhibitions. Additionally, the project coordinator’s LinkedIn personal account will be used to highlight project objectives, results, and participation in key events. Through these targeted activities, CTTC will reinforce its leadership in 6G research while amplifying UNITY-6G’s impact across industry and academic communities.

Telefonica Digital Innovation (TID) sees the project as an opportunity to foster synergies between partners and generate open research that adds value to services and benefits society. To disseminate progress of the project, the company will share information through its official website, press releases, journal articles, white papers, and participation in conferences and workshops. TID will also contribute to SDOs, such as O-RAN, ETSI, IETF, and 3GPP. Additionally, the project will be promoted internally and externally through various events and collaborations with EU SNS projects. The goal is to drive positive change in

telecommunications by contributing to open, interoperable standards, ultimately benefiting end users.

Keysight Technologies Denmark (KEY) will promote UNITY-6G through multiple channels, focusing on disseminating results from experimentation and validation of the project's use cases. Key areas of communication will include information about the testing and validation methodologies developed within the project, as well as capabilities related to test automation and distributed execution of tests and experiments. Dissemination and promotion efforts will involve participation in 6G-IA WGs, particularly those related to Testing, Measurement, and Validation (TMV); engagement in conferences and exhibitions such as EuCNC and MWC, including booth hosting; collaboration on white papers and peer-reviewed scientific publications with project partners; and internal communication within the broader KEY organization worldwide.

Orange will contribute to the dissemination of the activities by presenting the work at international workshops and conferences, as well as in meetings of standardization bodies such as TM Forum, 3GPP SA5, and GSMA. The team will also consider delivering an internal presentation to the Orange Business Units and presents the results at Orange internal events (Research Days, Orange OpenTech, etc.).

Nokia Solutions and Networks Germany (Nokia): Nokia's communication capabilities and channels for disseminating the outcomes of UNITY-6G are robust and multifaceted, ensuring broad and effective reach. Leveraging its extensive digital platforms, including official websites (www.nokia.com, <https://www.nokia.com/bell-labs/>), social media channels ([X](#), [LinkedIn](#), [Facebook](#)), and dedicated project portals, Nokia will share detailed reports, research findings, and updates. Additionally, Nokia's broad participation in industry conferences, webinars, and workshops provides opportunities for direct engagement with stakeholders and experts. Notable conferences where Nokia's presence is confirmed include Mobile World Congress (MWC), IEEE Global Communications Conference (GLOBECOM), and the European Conference on Networks and Communications (EuCNC). Press releases and collaborations with media outlets will further amplify the project's visibility. Furthermore, Nokia's involvement in the HEXA-X II project, which include similar robust communication strategies, reinforces the company's dedication to advancing next-generation connectivity and technological innovation across Europe. Nokia's commitment to transparency and innovation ensures that the dissemination of UNITY-6G outcomes is comprehensive, accessible, and impactful.

Software Radio Systems (SRS) will disseminate relevant news about the project through its website and social media channels. It will share information about the project outputs in its

company presentations with prospective customers and at other relevant events, such as conferences and workshops. SRS is a member of industry forums, such as the O-RAN Alliance and the 6G IA, and will share results and developments when opportunities arise at relevant events, such as MWC Barcelona.

Independent Power Transmission Operator (IPTO) will effectively disseminate the results of UNITY-6G by showcasing its scope and objectives on the [dedicated Research Projects section of its website](#), ensuring visibility among industry stakeholders. Additionally, IPTO will present the project's findings at relevant conferences and organize online or in-person workshops to highlight key outcomes and their impact on the energy sector. To further enhance knowledge transfer, internal training and briefing sessions will be conducted, enabling IPTO staff to understand and leverage the benefits of adopting the project's results in power transmission and energy management.

Rimedo Labs (RMD) will be actively promoting the project achievements and results in different ways. First, by disseminating the news through the social media channels and company newsletter (when applicable), where RMD has a significant pool of observers. Next, RMD will showcase the results by contributing to journal publications, white papers and conference events (both scientific like EuCNC, ICC, and industrial, like MWC). Being the member of O-RAN Alliance and AI-RAN Alliance, RMD has space to impact these societies with the project results.

Ceragon Networks (CER) will promote UNITY-6G's results through its social media channels, industry exhibitions, and direct engagement with potential customers. Project findings will be showcased in white papers published on CER's website and presented at key conferences, ensuring broad visibility and industry recognition.

Hispasat (HSP) will actively disseminate UNITY-6G's results to maximize the project's impact and visibility. Through its established social media channels, including LinkedIn and Twitter, HSP will share project updates, news, and multimedia content, incorporating project-specific hashtags to enhance reach. A dedicated section on the HSP website highlighting European projects will prominently feature UNITY-6G. Additionally, HSP will present UNITY-6G's findings and outputs at key conferences and trade shows, ensuring broad engagement with industry stakeholders.

Nearby Computing (NBC) has developed a comprehensive communication plan to share the progress of UNITY-6G within the edge/cloud community. Key updates will be disseminated through the company's LinkedIn and X channels, ensuring that stakeholders and followers stay

informed. Additionally, project information and a link to the official website have been integrated into [NBC's website](#). To maximize outreach, NBC will also present key findings at major industry events, such as MWC, engaging a broad audience and fostering collaboration.

Holo-industrie 4.0 Software (HOLO) will prominently feature UNITY-6G on its official website, emphasizing the project's key objectives and the company's role in it. The company will also share regular updates on UNITY-6G's progress through posts on its LinkedIn and X platforms. Additionally, HOLO will actively promote the project by participating in industry conferences and events, ensuring that UNITY-6G's technological innovations are presented to relevant stakeholders and contribute to the broader discussion within the industry.

University of Bologna (UNIBO) will support the project's dissemination by publishing scientific articles in international journals and conferences, co-organizing workshops, and potentially proposing special issues in journals or magazines to enhance the project's visibility in relevant scientific communities. As a member of 6G-IA, UNIBO will also contribute to communication efforts through the relevant WGs.

German Aerospace Center (DLR) will actively contribute to a successful communication and dissemination of the project results via its social media channels, press releases, and website announcements. Further to this, DLR will importantly contribute to dissemination activities via workshop co-organization and possible involvement in journal/magazine special issues to increase the promotion of the project through relevant scientific venues. Last but not the least, being a 6G-IA member, DLR will support the relevant communication activities through the relevant WGs.

Four Dot Infinity Information and Telecommunications Solutions Private Company (FDI) has already incorporated information about UNITY-6G on its [corporate website](#), including information about FDI's involvement in the project and the UNITY-6G objectives. Furthermore, FDI's communication plan includes dissemination posts on the company's LinkedIn and X channels, sharing UNITY-6G updates and ongoing work, particularly regarding the development of AI-assisted solutions for intelligent algorithms in network and edge/cloud continuum domains. Finally, FDI will promote UNITY-6G through participation in industry events (e.g., MWC) and conferences (e.g., EuCNC), ensuring that the technological solutions developed during the project's lifetime are effectively presented to relevant stakeholders.

Interuniversity Microelectronics Center (IMEC) is committed to effectively disseminating UNITY-6G's results to maximize the project's reach and impact. To achieve this, IMEC will present research findings at key scientific and industry events, ensuring broad visibility for the

project's vision and advancements. The IMEC research group's LinkedIn account will be used to share updates on UNITY-6G meetings and amplify the project's social media content. Additionally, IMEC will publish milestone results on its research group's website, reinforcing the project's presence within both academic and industrial communities. Through these efforts, IMEC will contribute to UNITY-6G's visibility while strengthening its own role in next-generation network research.

LINKS Foundation (LINKS) will actively disseminate UNITY-6G-related contents and results to maximize the project's impact and visibility, through its established social media channels, using project-specific hashtags to enhance reach. In addition, LINKS will present UNITY-6G's findings and results at scientific conferences and industry events, ensuring broad engagement with industry stakeholders.

National Center for Scientific Research "Demokritos" (NCSR) will promote UNITY-6G through the FRONT research group's social media channels. Additionally, the project's ambitions, impact, and progress will be showcased at the NCSR Summer School, where informatics and telecommunications researchers, along with postgraduate students, will engage in discussions about the future of communication networks.

Martel (MAR): As a digital innovation agency with nearly three decades of experience in European research and innovation, MAR will leverage its established networks, communication and dissemination expertise, and media platforms to enhance the visibility of UNITY-6G. In addition to leading the project's impact creation strategy, MAR will implement its own outreach activities to ensure UNITY-6G's visibility. These will primarily include leveraging MAR's existing partnerships to foster synergies between UNITY-6G and related initiatives in which MAR is actively involved and promoting UNITY-6G through MAR's channels, including its website, newsletter, and social media platforms (LinkedIn, Bluesky, and Mastodon). By implementing these targeted outreach actions, MAR will strengthen its own positioning in the 6G research landscape while amplifying the project's impact within the broader ecosystem.

3 STANDARDIZATION

Standards ensure that different products or systems from different manufacturers work well together. While standards might seem like they could stifle innovation, they often serve as a foundation upon which companies can innovate. It sets a common ground for building new technologies while fostering healthy competition. SDOs (Standard Development Organizations) are responsible for developing and maintaining standards that are widely adopted across industries. Standardization through SDOs helps prevent confusion, inconsistency, or incompatible products in each industry.

SDOs bring together various stakeholders from the industry, including manufacturers, service providers, and sometimes government agencies, to develop standards through collaborative WGs. SDOs typically work by building consensus among members. This ensures that the standards developed are fair and beneficial to all parties involved, including consumers, vendors, and other stakeholders. Many SDOs work internationally to ensure that standards are consistent and accepted across countries, reducing barriers to trade and allowing businesses to scale more easily.

3.1 RELEVANT STANDARD DEVELOPMENT ORGANIZATIONS

UNITY-6G aligns with the work of several key SDOs that define standards ensuring interoperability, security, and performance in telecommunications and internet technologies. The following SDOs are particularly relevant to the project:

- [3GPP \(Third Generation Partnership Project\)](#) – a global collaboration between telecommunications standards organizations aimed at developing and maintaining standards for mobile communication systems. These standards cover a wide range of technologies, including 2G, 3G, 4G, 5G, and beyond.
- [ETSI \(European Telecommunications Standards Institute\)](#) – an independent, non-profit organization that plays a key role in the development of standards for information and communications technology (ICT) in Europe and beyond. It is one of the main bodies involved in the creation of technical standards for telecommunication systems and services.
- [ITU-T \(International Telecommunication Union – Telecommunication Standardization Sector\)](#) is specifically focuses on the development of global standards for

telecommunications and information and communication technologies (ICTs). These standards are crucial for the interoperability and functionality of networks, systems, and services worldwide.

- [O-RAN Alliance](#) – an initiative within the telecommunications industry aimed at transforming the traditional Radio Access Network (RAN) architecture into a more open, flexible, and interoperable system. The goal of O-RAN alliance is to break down the traditional proprietary, vertically integrated nature of RAN systems and encourage multi-vendor interoperability. This enables network operators to build and scale their networks using best-of-breed components from multiple vendors, improving innovation and reducing costs.
- [IETF \(Internet Engineering Task Force\)](#) – a global organization responsible for developing and promoting voluntary internet standards. The IETF focuses on the technical aspects of the internet, including the architecture, protocols, and procedures that ensure the smooth functioning of the global internet. It is one of the most important bodies for internet standardization.
- [ONF \(Open Networking Foundation\)](#) – a non-profit organization that promotes the adoption of open-source networking technologies and software-defined networking (SDN). The ONF's main goal is to drive the transformation of networking systems and architecture through open standards, allowing networks to become more agile, flexible, and efficient. It focuses on creating open-source projects and promoting technologies that enable innovation and the development of next-generation networking infrastructure.
- [NTN Forum](#) – is an ESA-lead initiative, whose aim is to convey the industry and academy efforts towards achieving a 6G NTN unified vision, through dedicated WGs dealing with standards, verticals, devices, and experimentation. As such, the NTN forum emerges as one of key NTN-driven platforms for the positioning of the NTN ecosystem in the overall 6G domain. Notably, many UNITY-6G partners participate to the forum, i.e., CTTC, DLR, UNIBO, and HSP
- [IEEE \(Institute of Electrical and Electronics Engineers\)](#) – a global organization dedicated to advancing technology for the benefit of humanity. It is one of the largest professional associations in the world, with over 400,000 members across more than 160 countries. IEEE focuses on the development and promotion of standards, research, education, and innovation in fields such as electrical engineering, electronics, telecommunications, computer science, and information technology.

- [TM Forum \(TeleManagement Forum\)](#) – a global industry association that focuses on accelerating the digital transformation of telecommunications and IT services. TM Forum brings together businesses, technology providers, and other stakeholders to collaborate on creating industry standards, best practices, and innovative solutions that drive the success of digital services. The organization works to help service providers and technology companies navigate the complexities of digital transformation, particularly in areas like network management, service orchestration, customer experience, and automation.
- [TIP \(Telecom Infra Project\)](#) – an open, collaborative project that involves a wide range of companies, including telecom operators, equipment vendors, software developers, and technology innovators. The primary aim of TIP is to promote open-source innovation and disaggregation of network infrastructure to create more flexible, scalable, and cost-effective telecom networks, particularly for the evolving needs of modern digital services such as 5G, cloud computing, and IoT (Internet of Things).
- [WBA \(Wireless Broadband Alliance\)](#) – a global industry organization that focuses on advancing the development and deployment of wireless broadband technologies and services. The WBA brings together service providers, telecommunications companies, network operators, and technology vendors to collaborate on the creation of standards and solutions for wireless broadband services, with a particular emphasis on public Wi-Fi, next-generation mobile networks, and other wireless communication systems.
- [UBBA \(Utility Broadband Alliance\)](#) is open to a variety of energy, technology, and communications organizations looking to increase the security, reliability, and resilience of electrical grids with private broadband networks.
- [GSMA \(Groupe Speciale Mobile Association\)](#) – a global organization unifying the mobile ecosystem to discover, develop, and deliver innovation foundational to positive business environments and societal change. Its vision is to unlock the full power of connectivity so that people, industry, and society thrive.
- [ATIS \(Alliance for Telecommunications Industry Solutions\)](#) – ATIS and its members work together to address the ICT industry's business and technology imperatives, ensuring value is delivered to the larger ecosystem. The collaborative model must be value-driven, finely tuned to changing business needs and aligned with the market's need to introduce new technologies at the pace of innovation.
- [NMRG \(Network Management Research Group\)](#) provides a forum for researchers to explore new technologies for the management of the Internet. In particular, the NMRG will

work on solutions for problems that are not yet considered well understood enough for engineering work within the IETF.

- [CAMARA](#) – From a functional perspective the scope is limited to telco APIs, that means APIs in the domain of telco mobile networks, telco fixed line networks, telco edge cloud, etc. or supporting these (e.g., for authentication). CAMARA only works on customer-facing northbound APIs.
- [NS3 \(Network Simulator 3\)](#) is a discrete-event network simulator for Internet systems, targeted primarily for research and educational use. ns-3 is free, open-source software, licensed under the GNU GPLv2 license, and maintained by a worldwide community.

3.2 UNITY-6G PARTNERS’ PARTICIPATION IN STANDARD DEVELOPMENT ORGANIZATIONS

The table below provides information on the UNITY-6G partners’ participation in various SDOs.

Table 3 UNITY-6G partners’ participation in SDOs

Standardization Bodies	Sub-group	Participating partners	Roadmap
3GPP	RAN Plenary, SA5, SA	TID, UNIBO, NCSR, HSA, Orange, Nokia, CER, IMEC, KEY, DLR	
ITU-T	FG-AINN	CTTC, TID, CER, KEY	Push UNITY-6G architecture and PoC
ETSI	ENI, ZSM, MAT, TFS, EMTEL, TM4	CTTC, CER, NBC, IMEC, TID, UNIBO, NCSR, KEY, DLR	Learn relevant use-cases Push UNITY-6G architecture and PoC Push UNITY-6G KPI

ORAN Alliance		SRS, TID, Nokia, IMEC, RMD, KEY	
GSMA	OPG, OPGW	NBC, Orange	
NMRG		IMEC	
IETF/ IRTF	NMRG, NRG, TEEP, CCAMP, TEAS, GREEN	IMEC, TID, CER, LINKS	Push updated interfaces
TMForum		Orange	
IEEE		Nokia, IMEC	

The table below provides information on the UNITY-6G partners’ participation in relevant related projects.

Table 4 UNITY-6G partners’ participation in related projects

Project name	Participating partners	Link
CAMARA	NBC	https://camaraproject.org/
ATIS	IMEC	https://atis.org/
NS3	CER	https://www.nsnam.org/
UBBA	CER	https://www.ubba.com/

CTTC currently participates and actively contributes to ITU-T FG FG-AINN Focus Group on Artificial Intelligence Native for Telecommunication Networks. CTTC is also following developments in ETSI ISG ENI for agentic AI and space-ground network management related topics, ETSI ISG MEC for MEC application deployments and ETSI ISG ZSM for service-based architecture design and network management aspects. CTTC will also follow ETSI ENI and ZSM PoCs.

TID: In O-RAN, TID actively participates in WG9 Xhaul Transport, participating as well in the WG focused on architecture, WG1, and the research side of O-RAN. In IETF, TID contributes to a few transports and routing WGs, as well as chairs TEAS, CCAMP and GREEN WGs.

KEY will collaborate with various standardization bodies, including 3GPP, ETSI, ITU-T and the O-RAN Alliance (MVP-C, ACOIE, WG3,4,5,9,11, nGRG) to promote and disseminate their research effort, results, best practices and share any new test and measurement methodologies developed thanks to their involvement in UNITY-6G.

Orange will prepare contributions to standardization bodies including: 3GPP SA5, TM forum (Catalyst program) and GSMA to promote and disseminate the results obtained in the framework of UNITY-6G.

Nokia has been a pivotal contributor and leader in the 3rd Generation Partnership Project (3GPP) standardization process, playing a crucial role in shaping the future of mobile communications. As a leading global telecommunications company, Nokia actively participates in various 3GPP WGs and committees, often taking on leadership roles to drive the development of standards for 4G LTE, 5G, and beyond. Its involvement spans across multiple technical areas, including radio access networks (RAN), core networks, and service and system aspects. By collaborating with industry peers, operators, and regulatory bodies, Nokia ensures that the standards developed are robust, interoperable, and capable of meeting the evolving needs of the global telecommunications ecosystem.

In addition to Nokia leadership in 3GPP, Nokia is also a key player and leader in the Open Radio Access Network (O-RAN) Alliance. Nokia actively contribute to the development of open and intelligent RAN solutions that promote interoperability, flexibility, and innovation. Through its participation and leadership in O-RAN WGs, Nokia drives the adoption of open interfaces and standards that enable a diverse and competitive ecosystem, fostering innovation and reducing costs for operators.

Furthermore, Nokia is deeply involved in the IEEE 802.11 standardization process, which governs wireless local area networks (WLANs). Its contributions to IEEE 802.11 include leading roles in enhancing Wi-Fi technology to deliver higher performance, greater reliability, and improved security. By participating in and leading IEEE WGs and committees, Nokia helps shape the evolution of Wi-Fi standards to meet the growing demands for wireless connectivity in various environments, from homes and offices to public spaces and industrial settings.

Nokia's commitment to leadership and active participation in 3GPP, O-RAN, and IEEE 802.11 standardization underscores its dedication to advancing next-generation connectivity, enhancing network performance, and delivering cutting-edge solutions that empower businesses and consumers worldwide.

SRS is a member of the O-RAN Alliance and has developed its CU/DU product to be compliant with its specifications. Thus, SRS closely monitors the relevant WGs and plans to influence the work performed in these WGs through the innovations related to enhanced O-RAN component extensions and interfaces development that will be developed, validated, and demonstrated during the UNITY-6G lifetime.

RMD is a member of O-RAN Alliance and AI-RAN alliance. As such, RMD will monitor the development of the standards and will try to incorporate UNITY-6G findings into the meetings and documents developed within these SDOs.

CER has joined ENI (Experiential Networked Intelligence), EMTEL (Emergency Communication) and ZSM (Zero-touch network and Service Management) ETSI groups. CER is also active in NS3 development and participate in UBBA forum.

HSP actively contributes to multiple standardization organisms, including 3GPP, ETSI, and ITU. Within 3GPP, HSP participates actively in standardizing non-terrestrial network (NTN) integration, focusing on satellite communication interoperability and seamless integration with terrestrial networks. In ETSI, HSP engages in the development of standards related to satellite communication systems, addressing the challenges of satellite resource allocation, efficient bandwidth management, and interference mitigation strategies. HSP also actively contributes to ITU discussions, particularly on spectrum management and regulatory frameworks essential for global satellite communication services.

NBC currently participates and actively contributes to the GSMA Operator Platform Group (OPG) and Open Gateway (OPGW) standardization initiatives for the East-Westbound Interface (EWBI) in edge federation scenarios. In addition, NBC is contributing to the CAMARA initiative for the development of the Northbound Interface (NBI) of telco platforms and the network exposure. Finally, NBC follows the developments of ETSI ZSM for the orchestration automation and the closed-loop design.

HOLO is part of the Khronos group. The Khronos Group is an open, member-driven consortium that provides a space for the creation of the interoperability standards that enable developers to harness the full power of 3D graphics, XR (VR & AR), parallel computing,

machine learning, vision processing and the metaverse. HOLO actively participates and contributes to the consortium.

UNIBO is both ETSI and 3GPP full member, hence will contribute to the relevant activities dealing with NTN through participation in meetings and documents, preparation where appropriate.

DLR is both 3GPP and ETSI members, hence contributing to the relevant activities dealing with NTN (RAN1-4, SA1-2) and SatCom (as part of the ETSI SES SCN WG). Further to this, contribution to the other WG relevant to the scope of the project such as ENI, MEC, and EMTEL are also planned.

FDI is a full member of 6G-IA, following relevant 6G-IA Working Groups (WGs). Moreover, FDI is also monitoring SDO activities related to 3GPP and O-RAN Alliance, especially related to AI/ML model deployment and lifecycle in the O-RAN architecture, following component and interface extensions, as well as in the management of the AI functions through a AI/ML framework.

IMEC participates and contributes to the ETSI Industry Specification Group (ISG) Multiple Access Techniques (MAT) on interference cancellation based on Machine Learning (ML) approaches. Additionally, in the context of ETSI activities, IMEC has contributed a study on AI Agent based Next Generation Core Networks. In ATIS, IMEC has contributed to a white paper with title “Advancing Generative AI Implementation in Telecommunications Networks”. Moreover, IMEC closely monitors the activities in several standardization bodies including 3GPP, ETSI, ITU, O-RAN, IEEE 802.11, without being directly involved in the standardization procedures. It also monitors the Network Management Research Group (NMRG) forum, which focuses on management services that interface with the current Internet management framework.

LINKS is active in Internet Engineering Task Force (IETF) WGs dealing with security protocols for the Internet. LINKS is committed to influence the relevant WGs with outcomes from the UNITY-6G project.

NCSRD currently participates and contributes in ETSI SDG OpenCAPIF towards an evolution of the CAPIF framework with CAPIF-to-CAPIF interaction, SDK for the CAPIF APIs, Vendor-Extensibility feature etc. Moreover, NCSR D is a member of CAMARA initiative for the development of simplified Northbound Interface (NBI) of telco platforms and the network exposure of native 3GPP APIs, mainly focusing on the UE location and QoS sub-groups.

3.3 UNITY-6G PARTNERS' PARTICIPATION IN RELEVANT WORKING GROUPS AND TASK FORCES

Table 5 UNITY-6G representation in SNS Boards and Task Forces

Board/Task Force	Representatives	Partner
Steering Board	Engin Zeydan, Selva Via	CTTC
Technology Board	Luis Miguel, Luis Blanco	TID, CTTC
Communication Task Force	Klaudia dos Santos	MAR

Table 6 Partners' involvement in SNS, 6G-IA & NetworldEurope Working Groups

SNS Working Groups	Partners involved
6G Architecture	NCSR, Orange, DLR
Reliable Software Network	NBC
Test, Measurement and KPIs Validation	KEY
Sustainability Task Force	DLR
6G-IA Working Groups	Partners involved
Open Smart Networks and Services	CER
Trials	CER (listening), MAR

Pre- Standardization	TID
5G/6G for Connected and Automated Mobility	IMEC via another team
Spectrum	DLR (observer), CER
Security	NCSR
WiTaR	NCSR, HOLO
NetworkEurope Working Groups	Partners involved
SMEs	FDI, MAR, NBC

4 EXPLOITATION

The innovative solutions developed within UNITY-6G—directly aligned with market demands and future roadmaps—combined with the strong engagement of the consortium’s industrial partners, form the core pillars driving the project’s success. Throughout the project lifecycle, results with exploitation potential will be systematically reviewed by the Strategy Manager, Exploitation and Innovation Manager, and the Project Management Team. Following a decision by the General Assembly, these results will be classified as either commercially exploitable or suitable for public dissemination. All scientific publications will be carefully managed to assess their exploitation potential. To this end, a clearance period has been introduced, allowing each partner sufficient time to review prospective publications, protect intellectual property rights, and align with UNITY-6G’s overall exploitation policy. The UNITY-6G exploitation strategy will be implemented through the following structured set of tools:

Competitive Analysis: UNITY-6G partners will conduct continuous monitoring of both market and research developments, aiming to promptly identify new contributions in relevant scientific fields, emerging trends within the 6G landscape, and the strategic roadmaps of key industrial stakeholders and international bodies. Competition monitoring will primarily rely on sources such as market intelligence, scientific and technical publications, press releases, and other pertinent channels. Each partner will be responsible for monitoring the competitive landscape most relevant to its area of interest; specifically, academic partners will focus on tracking scientific publications, while industrial partners will prioritize patent surveillance, market trend analysis, and standardization activities.

Application Analysis and Exploitation Plan: UNITY-6G acknowledges the importance of maintaining a clear understanding of the evolving trends, standards, and roadmaps shaping the 6G domain. This understanding will enable the consortium to strategically position UNITY-6G technologies within the anticipated market and to ensure alignment with relevant specifications. In support of this objective, the industrial partners will collaborate to produce an annual Application Analysis Report. This report will provide a well-founded rationale for continuing the project’s work programme or, where necessary, recommend adjustments informed by market dynamics, commercial imperatives, and emerging product opportunities.

The remainder of this section outlines the project’s outcomes identified as commercially exploitable, categorizing them into either joint or individual exploitable outcomes, and provides a preliminary strategy for their exploitation. The exploitable outcomes and the corresponding

exploitation strategy will be updated throughout the project duration and reported in Deliverables D7.2 and D7.3.

4.1 UNITY-6G JOINT EXPLOITATION STRATEGY

At the time of writing, the UNITY-6G consortium is still in the process of identifying joint exploitation opportunities. While specific venues have not yet been finalized, the consortium envisions leveraging the strong collaboration between industrial and academic partners focused on commercialization and the transfer of innovative technologies. The consortium plans to further define these opportunities as the project's technical activities progress, with initial plans to be presented in Deliverable D7.2. The plan will continue to evolve and be refined, with the final version to be presented in Deliverable D7.3.

4.2 PARTNERS' INDIVIDUAL EXPLOITATION PLANS

4.2.1 Academic partners

CTTC's participation in UNITY-6G is expected to stimulate several technology transfers and IPR generation activities, which are at the true core of its mission. From participation in UNITY-6G, the CTTC staff will acquire new knowledge in enhancing the capabilities of existing 5G beyond and 6G platforms. The project will exploit the results of the Spanish 6G industry ecosystem and initiatives (e.g., through its UNICO I+D Projects) to enhance the collaboration with other companies. As a member of the ETSI, 3GPP, and ITU-T, CTTC will actively participate in these standardization fora. Moreover, as a member of 6GIA, 6G Smart Networks and Services (SNS-JU), CTTC will exploit the project's results to the 6G industrial community in Europe.

UNIBO's participation in UNITY-6G aims at gaining new knowledge regarding 6G energy-efficient integrated networks based on AI and Open RAN. In particular, the results achieved during the project will allow for extending simulations and analytical tools for integrated networks, enriching the teaching material and thus increasing the employability of UNIBO graduates, as well as aiding the acquisition of new projects in the field of 6G integrated networks. Additionally, UNIBO is a member of 6G-IA, and is active in SNS and ESA projects; UNIBO intends to create synergies among these initiatives to define a solid research and innovation roadmap to unleash the full potential of future 6G wireless communications and service infrastructure.

DLR's participation in UNITY-6G is aimed at acquiring new knowledge in the context of energy-efficient 6G integrated networks and hence promote corresponding technology transfer plans, especially in terms of IPR activities, such as licensing and patenting of the concepts and solutions worked out during the project. Moreover, the results of the project will also be used to extend the existing testbeds and investigation tools in the context of satellite networks, hence supporting the acquisition of new projects in the domain of 6G-converged networks with special focus on the potentials of semantic communication, O-RAN-based architecture, and overall optimization of networking operations through AI for resource management, network orchestration, and edge computing. Last but not the least, DLR is part of 6G-IA, and active in SNS projects granted from the first SNS calls as well as in other initiatives funded by ESA and German national programmes. Therefore, DLR's mission will also be to create synergies across all these initiatives and hence possibly influence the development roadmap of European industry through a solid research and innovation roadmap.

IMEC's key exploitable results relate to the incorporation of IEEE 802.11 technology into 6G networks, leveraging its open-source full-stack Wi-Fi implementation with time-sensitive networking extensions. As a research centre interfacing between university and industry, IMEC's exploitation of these results is closely linked to its mission of creating and disseminating scientific knowledge in the field of wireless communications and associated applications. Concretely, IMEC will strengthen its existing research programs and education program (in collaboration with Ghent University) and realize its exploitation to industry via 'Industrial Affiliation Programs', bilateral projects, IP transfer and licensing. In the affiliation program, IMEC teams-up with leading companies across the value chain, in which they get early access in 6G technologies and can use IMEC's know-how and prototype modules to accelerate the development of their next generation products. The outcome and accumulated experience acquired from this project will enable the participation in new related collaborative research projects, where the obtained results will be exploited, extended or adapted to new research challenges.

As a non-profit research center with the primary objective of technology and knowledge transfer, **LINKS** will contribute security solutions to build trust between the components of the UNITY-6G architecture. The technical results will form the basis for the development of new security assets to be exploited within the LINKS network of industrial partners, and the knowledge gained will be used to develop new research-funded projects.

NCSRD's participation in UNITY-6G is seen as a direct step toward establishing a strong research and scientific position in the field of future 6G network architectures and management

systems of O-RAN. NCSR Demokritos will gain experience and expertise in novel 6G network infrastructures and related technologies (rApps, xApps, NEF APIs, programmability, metrics monitoring) leading to the development of an automated experimentation framework for KPI assessment on top of its 6G infrastructures. Such technologies, developed by NCSR Demokritos within the project, are planned to be further exploited as services offered by NCSR Demokritos to external SMEs in the framework of the digital innovation hub “Ahedd” that operates within NCSR Demokritos premises. Furthermore, DEMOKRITOS is home to the “Lefkipos” Technical Park, which houses many private companies and startups in the fields of IT and telecommunications, where the results of the Athens platform trials will be promoted, looking for possible synergies and joint ventures.

Moreover, NCSR Demokritos foresees further exploitation opportunities of the expertise gained in 6G and O-RAN through the signed partnership with 5G Ventures SA responsible for the establishment and management of Phaistos Investment Fund. The objective of the Phaistos Investment Fund is the public investment in businesses that are actively involved in 5G-related research and/or development of products and/or services in Greece, in sectors such as transport and logistics, manufacturing, public goods and utilities, health, tourism, information and media. Finally, NCSR Demokritos plans to exploit further the 6G/O-RAN expertise gained within the project, by conducting innovation activities related to entrepreneurship, and for that purpose has proceeded to a collaboration agreement with the Municipality of Egaleo, and more specifically with the Entrepreneurship hub for fostering further the development of innovative products and services related to 5G and Network Apps by startups and young teams that are willing to get involved in the field.

HES-SO's participation in UNITY-6G will reinforce its expertise in both energy efficient and green cellular networks planning and management, while valorising its testbeds and know-how in microgrid energy management and optimization. The results of the project will be valorised at the national level in the collaborations with national telecom operators, as well as with local energy production and distribution operators

4.2.2 Industrial partners

TID will leverage on the project results for the technological evolution of TID's networks, to be prepared for delivery of 6G services in the different markets where TID operates incorporating the novelties provided by UNITY-6G. The project results and experience will facilitate the definition of guidelines, and the identification of the more efficient and sustainable strategies of evolution. Furthermore, to generalize the support of the developed ideas and solutions, TID

will incorporate new requirements related to them in the commercial global RFQs/RFPs launched to the industry for acquisition of new network equipment.

KEY will leverage the outcomes of the project to innovate its techniques for measurement, data collection, processing and analytics for highly distributed, AI-native, micro service architectures. These advances will lead to novel monitoring, validation and testing methodologies targeting extreme 6G use cases, which in turn will be validated using the PoCs developed throughout the project duration.

Orange is a world's leading telecommunications and global IT services provider. Orange's researchers explore technological breakthroughs, new uses and innovative business models. In this sense, Orange is a major actor in the networking open-source ecosystem and a founder member and key contributor of the O-RAN Alliance. Orange staff involved in this project has expertise in Radio Access Network (RAN) architecture evolution, openness, and standardization. They are also familiar with network functions virtualization and RAN Softwarization. By contributing to UNITY-6G, Orange wants to answer multiple concerns and questions that are also discussed within the O-RAN alliance. For instance, Orange aims to acquire expertise in: how to design a distributed and scalable O-RAN architecture, which are the pros and cons of the different functional splits of the RAN in a Satellite architecture, and understand which functions can be embedded in a satellite and which types of metrics/measurements can be retrieved from the different functions. Orange will also leverage its participation in UNITY-6G's WP4 (AI driven distributed intelligence), to propose AI solutions for the optimization of resources in edge-cloud continuum.

Furthermore, Orange is striving to meet its environmental objective in terms of energy saving, through many studies done in the Radio and within 3GPP to reduce the carbon footprint in these scopes. Orange aims to leverage its participation in UNITY-6G to further address this topic and propose a solution that includes Core and Radio energy efficiency

Nokia is global leader in the technologies that connect people and things, with a position of strength in subscriber data management, edge and core routers, and mobile and optical communications. Nokia's research and innovation arm, Nokia Bell Labs, creates the disruptive technologies that are shaping the way the world communicates and connects. Within the context of UNITY-6G, Nokia will use the outputs of the project to contribute to the development of IEEE 802.11 standards (focusing on Wi-Fi 8 and AI/ML for Wi-Fi) and to enhance the portfolio of Wi-Fi-related products. In addition, the development of open-source solutions (both simulation and testbed-based) is expected to generate an impact in academia, thus potentially finding synergies with PhD programs across the world.

The enhancements and developments made to the **SRS'** CU/DU will be exploited to strengthen srsRAN Enterprise, SRS's commercial-grade platform that is available to commercial customers. Enhanced features as a result of the advances of the project, such as integrated TN and NTN support, will help open up new business opportunities and increase stakeholder interest. Furthermore, non-commercial-specific CU/DU feature developments, such as the enhancement of O-RAN-defined interfaces (e.g., E2), will be also inherited by open-source solution (srsRAN Project) under SRS' dual-license business model. This helps to foster innovation within the R&D community. Likewise, the evolution of the CU/DU will help the participation of SRS in future R&D projects targeting 6G and beyond wireless systems. SRS aims to continue expanding and improving their solutions through interactions with, and feedback from, project partners.

IPTO is the Operator of the Hellenic Electricity Transmission System, with the mission to ensure Greece's electricity supply in a safe, efficient and reliable manner while promoting the development of competition in the Greek electricity market and guaranteeing the non-discriminatory treatment of System users. IPTO will capitalize on project's results and outcomes to engage with the telecommunication network owners as prosumers (consumers and prosumers) by exploiting the provided flexibility services, contributing to the decarbonization of the power grid and the increase of its overall reliability and robustness.

RMD aims at using the UNITY-6G results to extend the portfolio of xApps/rApps within the O-RAN field, to address new use cases for private mobile networks including the radio resource management features, AI-native solutions, and semantic communications. Moreover, advances in conflict mitigation and digital twinning will be further leveraged in company offerings towards the dynamically evolving O-RAN market. In addition, RMD provides technical trainings in the field of O-RAN and 5G, thus the deliverables and outcomes of the project can extend the provided scope of training with the practical use cases.

CER aims to use UNITY-6G results to extend the portfolio of products and solutions for private network verticals, such as public safety, utilities and smart cities. The enhanced managed network, based on AI, creates new opportunities to provide enhanced end-to-end solutions. Specifically, the integration of NTN links and TSN solutions opens new solutions and research directions.

With extensive experience and capabilities in satellite communications, **HSP** will exploit the outcomes of UNITY-6G to reinforce and expand its market position as a global leader in advanced satellite communications. By actively contributing to the integration of satellite and terrestrial network technologies, HSP intends to develop and validate innovative solutions

designed to enhance connectivity, reliability, and service coverage. These solutions will directly address growing market demands across strategic segments such as rural broadband, maritime services, emergency communications, and mobility applications, enabling the company to diversify its service portfolio and attract new customers.

Through active engagement in key standardization bodies such as ETSI, 3GPP, and ITU, HSP will leverage project findings to influence and shape essential technical standards and protocols, ensuring interoperability and widespread acceptance of satellite-terrestrial integration within future networks. Additionally, the company will secure intellectual property rights generated from UNITY-6G developments, strengthening its technological assets and creating opportunities for potential licensing agreements.

HSP will also engage actively in strategic dissemination and outreach activities, showcasing project advancements at significant industry events, conferences, and other relevant telecommunications forums. This visibility will position HSP as a forward-looking innovator in integrated satellite communications, facilitating new strategic partnerships and reinforcing relationships with terrestrial network providers, equipment manufacturers, and academic institutions, further driving market adoption and sustainable growth.

NBC is an SME in the area of end-to-end (e2e) network and service orchestration, focusing on the challenges at the Edge. NBC will provide their NearbyOne platform, which carries intra- and inter-domain orchestration capabilities and addresses the problem of xNF (CNF, VNF, etc.) and application orchestration in the cloud continuum. NBC will exploit the achievements of the project to improve their flagship product in a multifaceted manner: i) the AI/ML models developed in the project are expected to enhance the orchestration capabilities and place NearbyOne in an advantageous position in the market of zero-touch service and network management; 2) the project-specific use cases will open new directions and foster new collaborations and partnerships with 5G stakeholders (e.g., telecom operators) and vertical industries (e.g., holographic applications); 3) the development of new interfaces will strengthen the position of NBC in relevant standardization bodies (e.g., GSMA OPG and CAMARA); and 4) the upgrade of the product is expected to facilitate the participation of the company in future research projects on 6G networks, where the AI-enabled network self-organization will be inherent by design. To that end, progress and results of this project will be shared with the development team and discussed with interested stakeholders and potential customers in innovation venues.

HOLO's XR software development kit with remote application rendering will be enhanced with 6G networking capabilities. To this end, the outcomes of the UNITY-6G project will increase

the adoption of remote application rendering and support XR market growth, currently stalled by device and network limitations. Additionally, 6G's ultra-low latency and high bandwidth will enable seamless collaborative and multiplayer XR applications, ensuring real-time synchronization, spatial consistency, and immersive interactions across remote users. This will significantly enhance shared virtual experiences, making large-scale, high-fidelity multiplayer environments more viable. Furthermore, UNITY-6G will develop a highly decentralized 6G architecture featuring edge computing capabilities which natively supports AI-driven contextual adaptation. These advancements will pave the way for highly scalable, efficient, and interconnected XR ecosystems.

FDI will use the results of the project to enhance its product portfolio and integrate the new knowledge to extend existing services in the area of artificial intelligence and machine learning technologies. In particular, FDI, either individually or in collaboration with other interested partners from the consortium, is planning to offer interested customers AI as a Service service (xApps, rApps, dApps). Most importantly, cooperating with large industrial partners within this project may lead to strategic alliances in the field of commercialization and technology transfer of innovative aspects of artificial intelligence and digital apprentice technologies. Furthermore, since the results of UNITY-6G are intended to be integrated into existing solutions, FDI will find opportunities to exploit established partnerships and B2B or B2C relationships for future adoption. Finally, FDI will also seek collaborations with interested stakeholder groups to maximize the exploitation potential.

The acquisition of new expertise and knowledge via participation in UNITY-6G and the leadership of WP7 on dissemination, communication, and exploitation will allow **MAR** to offer advanced innovation management consulting and media services in the European and international R&D&I context. The exposure gained through the planned stakeholders' engagement, dissemination, and communication activities will allow MAR to become a key player facilitating the take-up of project results by interested industries, SMEs and external actors. This will enhance MAR's visibility and credibility in the scientific and industrial communities, opening new business opportunities within the SNS JU context and beyond, especially with respect to acceleration services and business development support in Horizon Europe.

5 IMPACT ASSESSMENT

The UNITY-6G Dissemination, Standardization, and Exploitation Plan will be continuously monitored throughout the project, with regular evaluations to ensure the effectiveness of outreach activities. To measure impact and assess impact-creation efforts, a set of key performance indicators (KPIs) has been established. These KPIs define measurable targets across various outreach channels—such as the project website, social media, press, publications, promotional materials, events, and open-source contributions—to evaluate the project’s visibility, engagement, and overall impact.

In terms of exploitation, KPIs include the number of patent applications and the percentage of participating SMEs introducing innovations within their companies or to the market. These KPIs cover the project duration plus three additional years. Specifically, UNITY-6G aims to submit five patents.

Table 7 outlines the planned activities, their objectives, expected impact, and target values, providing a structured framework for tracking progress and ensuring that the project’s impact creation goals are met. By setting clear targets (e.g., number of website visitors, social media followers, press releases, workshops, and publications), it helps guide outreach efforts and measure their effectiveness over time.

Table 7 UNITY-6G Communication, Dissemination, and Exploitation KPIs

Measure	Indicators	Target	Source and methodology	Status at M03
Project website	No. of visits	6000	Matomo analytics tracking unique visits. Data reflects cumulative website visits from project launch.	300+
Social networks	No. of followers (LinkedIn, Bluesky)	> 300 (total)	Tracking follower growth and engagement metrics (impressions, reach, interactions) via Hootsuite and native platform analytics.	200+ followers
Press releases/publications in press	No. of press releases issued to specialized and general media channels at key project milestones	> 2	Press releases distribution via Prowly and partner organizations.	1 press release about the project kick-off
Promotional materials	No. of produced materials (e.g., roll-up)	> 4	Multiple types of promotional materials produced for distribution at	1 roll-up banner featuring the

	banners, flyers, brochures, posters)		events and made available for online access via the project website.	UNITY-6G architecture
Publications	No. of peer-reviewed publications in journals, conferences, and workshops	> 8 per year	Research papers presented and published in high-quality venues.	1 published, 1 accepted, 3 submitted/ under review
e-Newsletter	No. of newsletters (published every 6 months) No. of subscribers	6 > 100	Recording of subscribers to the electronic newsletter.	-
Videos	No. of videos published on YouTube Average number of views	> 4 1000 views (average)	Monitoring video performance, including the number of views, via YouTube analytics.	-
Workshops	No. of organized events Average number of participants per workshop	1 per year > 30 participants	Event organization documented through reports. Participant numbers measured via registration data, and, where applicable, virtual attendance logs.	1 organized workshop (at ICIN)
Participation in events and presentations	No. of external events partners attended to promote the project, including scientific conferences, exhibitions, and number of demos/presentations	≥ 5 events > 3 demos	Collecting and recording attendance proof (e.g., photos, event agendas) and presented material (e.g., PowerPoint presentations, posters).	6 attended events; 1 demo (at MWC)
Open-source contributions	No. of contributions to relevant open-source initiatives	5	Tracking contributions to open-source initiatives via repositories and project documentation.	-
Patents	No. of submitted patents	5	Monitoring progress toward obtaining patents by obtaining regular updates from concerned project partners and tracking patent application status.	-
Standardization	Number of submitted work items	5	Monitoring status and progress of work items submitted by concerned project partners.	1 work item submitted to ITU-FG-AINN

In addition, to achieve UNITY-6G's outreach and impact goals, the consortium has implemented a suite of high-quality tools for effective communication, dissemination, and exploitation. Along with a robust hosting infrastructure for the project website, the consortium will utilize resources such as Matomo (web analytics), Prowly (media database), Meltwater (media monitoring), Hootsuite (social media management), Tito (event management), MailerLite (newsletter development), Qualtrics (survey management), Zenodo (open-access repository for research outputs), b2match (event organization), and Zoom (video conferencing), among others. Strategic use of these tools will help maximize outreach, track progress, and refine the outreach strategy as needed.

6 CONCLUSIONS

D7.1 *Dissemination, Standardization, and Exploitation Plan* establishes a structured framework to guide UNITY-6G's outreach, ensuring broad visibility, effective promotion, and uptake of project results. The document outlines the initial impact creation strategy and details the activities undertaken during the first three months (M1–M3). By defining this strategy at an early project stage, UNITY-6G aims to maximize the effectiveness of its outreach efforts and ensure the long-term sustainability of the concepts and knowledge developed throughout the project.

Key objectives of this plan include:

- Ensuring that all impact creation activities adhere to project guidelines and follow the planned schedule.
- Maintaining consistency and high standards in all messaging and outreach materials.
- Encouraging active participation from all consortium members in promoting the project.
- Encouraging active participation in SDOs and promoting the project architecture and vision.
- Facilitating active participation of SMEs with the goal of introducing innovations within their companies or to the market.
- Submitting patent applications corresponding to exploitable project outcomes, following the “first exploit, then disseminate” approach.

To track progress and assess impact, the consortium has developed a monitoring and evaluation framework, enabling continuous refinement of the strategy. Further insights into the implementation, achievements, and effectiveness of these activities will be detailed in Deliverable D7.2 *Intermediate report on standardization, dissemination, and exploitation of results* (M18).