

6G-MIRAI - Cooperation, dissemination, and impact: initial plan

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Contents

Acronyms and definitions.....	4
Table of partners.....	7
Executive summary	8
1 Introduction	9
2 Stakeholders and Ecosystem Analysis.....	11
2.1 Stakeholders and their Roles	11
2.1.1 Primary Stakeholders of 6G-MIRAI-HARMONY	11
2.1.2 Secondary Stakeholders of 6G-MIRAI-HARMONY	12
2.2 Ecosystem Analysis	13
3 Open science methodology	17
3.1 Project outcomes and results	18
3.1.1 Documents.....	19
3.1.2 Datasets	20
3.1.3 Software	20
3.2 FAIR principles.....	20
4 Communication and Dissemination plan	22
4.1 Communication strategy	24
4.1.1 Communication Plan and Procedures	24
4.1.1 Communication Tools and Audiences	25
4.2 Dissemination strategy.....	27
4.2.1 Dissemination Plan and Procedures.....	27
4.2.2 Dissemination Channels and Tools	29
5 Standardisation Plan	30
6 Exploitation Plan	34
6.1 Industrial Exploitation Plan	35
6.2 Academic Exploitation Plan	38
6.3 Joint Exploitation Activities	39
6.4 Individual Exploitation Plans.....	40
7 Conclusions	45
8 References	46

Acronyms and definitions

3GPP	3rd Generation Partnership Project
5G	Fifth generation (of telecommunication networks)
6G	Sixth Generation (of telecommunication networks)
6G-IA	6G Infrastructure Association
6G-RIC	6G Research and Innovation Cluster (German BMFTR project)
AI	Artificial Intelligence
AI-RAN	AI-enabled Radio Access Network
CAPEX	Capital Expenditures
CC	Creative Commons licenses
CSV	Comma Separated Values
DCE	Dissemination, Communication, and Exploitation
EC	European Commission
ETSI	European Telecommunications Standards Institute
EU	European Union
FAIR	Findable, Accessible, Interoperable, and Reusable
FR	Frequency Range
GA	Grant Agreement
GDPR	General Data Protection Regulation
HW	Hardware
IEEE	Institute of Electrical and Electronics Engineers
IP	Intellectual Property
IPR	Intellectual Property Right
ISG	Industry Specification Group
ITU	International Telecommunication Union

JP	Japan
JSON	JavaScript Object Notation
KPI	Key Performance Indicator
KVI	Key Value Indicator
(m)MIMO	(massive) Multi-Input Multiple-Output
ML	Machine Learning
OPEX	Operational Expenditures
PhD	Doctor of Philosophy
PHY	Physical Layer
PoC	Proof of Concept
QoS	Quality of Service
RAN	Radio Access Network
RTI	Research and Technology Item
RX	Receiver
SDO	Standards Developing Organization
SME	Small and Medium Enterprise
SW	Software
THz	Tera Hertz
TLD	Top-Level Domain
TSN	Time-Sensitive Networking (IEEE)
TX	Transmitter
UE	User Equipment (Terminal)
URLLC	Ultra Reliable Low Latency Communications
WG	Work Group
WP	Work Package

XGMF	xG Mobile Promotion Forum (Japan)
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Table of partners

Short Name	Partner
Ericsson France	ERICSSON FRANCE
Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV
Telefonica	TELEFONICA INNOVACION DIGITAL SL
ISRD	ISRD SP Z O.O.
SEQ	SEQUANS COMMUNICATIONS SA
APPLE	APPLE TECHNOLOGY ENGINEERING BV & CO KG
KUL	KATHOLIEKE UNIVERSITEIT LEUVEN
CNIT	CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI
UNIFI	UNIVERSITA DI PISA

Executive summary

This deliverable presents the cooperation, dissemination, and impact plan. It outlines the methodology and the tools that are going to be applied and followed by all consortium project partners along the 6G-MIRAI-HARMONY project lifetime as well as the initial plans towards communication, dissemination, standardisation and exploitation.

The overall purpose is to maximize the project footprint in the research and development ecosystem while following Open Science methods. Based on a Stakeholder- and Ecosystem Analysis, the way of communicating with and disseminating to the R&D ecosystem is outlined (e.g., interacting with research activities from other research projects and European Union (EU) associations are key targeted results), followed by the approach to achieve impact towards standardisation. Finally, in this deliverable the exploitation activities each consortium partner is going to pursue during the project are designated. Throughout the deliverable particular attention is paid to the interaction with the Japanese sister project HARMONY (and the JP R&D ecosystem) across all of the introduced aspects.

1 Introduction

Innovation is driven by research and is expected to foster economic growth and competitiveness, job creation and societal wellbeing. It is therefore a challenge to ensure that the knowledge generated within research and innovation projects like 6G-MIRAI-HARMONY is adequately fostered, managed, widespread, and its uptake towards the project stakeholders, and in general to the whole society, is optimised.

The **6G-MIRAI-HARMONY cooperation, dissemination, and impact plan** is the result of a coordinated effort among the EU consortium partners, interactions across the EU 6G-MIRAI and the JP HARMONY parts, considering stakeholders' categories and needs as well as partners' communication channels and tools. It serves as an instrument to help maximising each partners' own dissemination and exploitation actions, while providing the means to ensure a high visibility of activities and outcomes of the project.

The cooperation, dissemination, and impact plan includes a list of suitable communication and dissemination tools and activities for engaging 6G-MIRAI-HARMONY target stakeholders. To this end, an elaborated dissemination strategy is proposed to maximise the impact of the project activities, adjusting the delivered information, via a set of diverse materials and tools, to the specific needs and interests for involvement of the target audience.

In addition to presenting the project's key stakeholders and ecosystem (preliminary analysis), the adhered open science methodology, and explaining the overall project dissemination and communication, strategy, this document includes an overview of the standardisation landscape, which composes the base for any standardisation activities in the project, and a set of partner-specific exploitation plans, as drafted in the first phase of the project lifetime.

The deliverable is structured as follows:

- **Chapter 2 – Stakeholder and Ecosystem Analysis:** identifies the primary and secondary project stakeholders, providing also background information and details on the 6G-MIRAI-HARMONY ecosystem.
- **Chapter 3 – Open Science Methodology:** explains the methodology that the consortium partners follow along the duration of the project to ensure that open science is properly implemented. It also stresses the needed strong adherence of the activities of 6G-MIRAI-HARMONY to the Findable, Accessible, Interoperable, and Reusable (FAIR) principles.

- **Chapter 4 – Communication and Dissemination Plan:** presents the plan for 6G-MIRAI-HARMONY communication and dissemination activities, describing the tools and channels that are being used along the project lifetime for a successful implementation of the project objectives.
- **Chapter 5 – Standardisation Plan:** presents the standardisation plan of 6G-MIRAI-HARMONY and an analysis of the potential contributions to standardisation bodies.
- **Chapter 6 – Exploitation Plan:** defines 6G-MIRAI-HARMONY's key exploitation principles while introducing a clear plan for defining the right exploitation channel for all project results.

The proposed cooperation, dissemination, and impact plan is to be seen as a living document, reflecting an open, ongoing dialogue with project stakeholders. With the term 'living document', it is meant that 6G-MIRAI-HARMONY uses the cooperation, dissemination, and impact plan to guide its actions, and those are implemented adapting dynamically to the changing environment during the project lifetime. For instance, the stakeholder map is being continuously fine-tuned, the communication plan and other tools are updated over time, the standardisation and exploitation plans are adapted to ecosystem and partners' progress.

The cooperation, dissemination, and impact plan addresses the requirements described in the EU 6G-MIRAI grant agreement [GA]. Work Package (WP) 4 activities are taking care of implementing, monitoring and updating the cooperation, dissemination, and impact plan, with inputs from all other WPs of the project. During the project's launch phase, all partners have named a representative as WP4 contact (who are reachable via the wp4@6g-mirai-harmony.eu mailing list).

2 Stakeholders and Ecosystem Analysis

The 6G-MIRAI-HARMONY project innovation incorporates several technological advances in the AI/ML applied to wireless domain. In order to maximize the reach of such innovation, a well-structured stakeholder and broader ecosystem engagement approach is needed, especially when it comes to Dissemination, Communication and Exploitation (DCE) activities. For that reason, in the following sections we provide a preliminary stakeholder analysis and a preliminary ecosystem analysis, reflecting the status after six months (M06) since 6G-MIRAI-HARMONY started.

Future deliverables of WP4 will update and expand these analyses, accounting for the changes that have occurred in the dynamic and innovation-driven ecosystem of the sixth-generation of cellular communications (6G) EU-funded projects.

2.1 Stakeholders and their Roles

2.1.1 Primary Stakeholders of 6G-MIRAI-HARMONY

Among the key stakeholders of the 6G-MIRAI-HARMONY project one can mention the following ones:

- **Telecommunications operators**, who can integrate 6G-MIRAI-HARMONY-enabled 6G Radio Access Network (RAN) in their future networks and services. These operators demand scalable, low-latency, and easily upgradable networks and services, making them the first-priority recipients of Proof-of-Concepts (PoCs), pilot results and performance evaluations that will guide their decisions on support for standardization directions, and ultimately for installing new network equipment and services in their network. These stakeholders will benefit from targeted technical workshops, white papers, published articles, results obtained running PoCs and pilot demonstrations showcasing the innovative 6G-MIRAI-HARMONY 6G-RAN capabilities. 6G MIRAI-HARMONY's reliable and robust AI-native wireless communication system is designed to benefit network operators with regard to a) increased RAN performance, as the available network data can be exploited by AI/ML mechanisms, e.g., for scheduling and mobility, b) increased network automation, due to the AI-based protocol stack reconfiguration, and c) improved balancing of network quality (QoS) and cost (HW/CAPEX and energy/OPEX) constraints leading to improved user satisfaction while keeping cost under control.

- **Network infrastructure and UE vendors**, who can extend their equipment portfolio with RAN capabilities. They will benefit from white papers, technical specifications, technical workshops, and testbed collaborations. Same impacts as described for operators, with additional preparation of solution roadmaps, productification plans and designs in-line with identified standardisation activities for upcoming “AI-native” 6G systems. This also includes alignment between main academic and research institutes in EU as well as with important academic and industry players in Japan, as well as provisioning of data sets and benchmarking results for R&D activities and input for contribution to standardisation initiatives and open access.
- **Academic and Research Institutions**, who can further advance 6G-MIRAI-HARMONY research and development activities, e.g., making use of datasets to validate new ideas. These actors can contribute to and benefit from Journal publications, papers accepted to conferences, open datasets, educational material, and Doctor of Philosophy (PhD)/postdoc training opportunities. They drive the advancements of research in (O1) Reliable and robust AI/ML techniques for future wireless communications and specification of a (O2) Practical AI-native design of next-generation radio access networks. Those institutions can leverage the alignment of views on the research and technology items (RTI) defined by the 6G-MIRAI-HARMONY project like (RTI1) realistic wireless channels and hardware design, (RTI2) AI-based baseband design, (RTI3) AI-based network control and (RTI4) AI-ready architecture design as well as (RTI5) Use cases and scenarios, data, testing, PoC.
- **Consumers / End-Users**, who will use 6G-MIRAI-HARMONY-enabled devices, networks and services in daily life. These stakeholders will benefit from awareness campaigns, simplified technical presentations, testimonials and demo videos. Higher performing networks, efficient use of resources, contribution to improved sustainability and improvements in communication service quality and experience are key advantages, in addition to general information about usage of AI in future 6G networks they will receive.

2.1.2 Secondary Stakeholders of 6G-MIRAI-HARMONY

The secondary stakeholders of the 6G-MIRAI-HARMONY project include the following:

- **Small and Medium-sized Enterprises (SMEs) and Startups**, who will be able to develop vertical applications in a diverse set of vertical markets, e.g., smart home, health, mobility, and smart factories. They benefit from methods and concepts, data, benchmarking results, use case descriptions, test set-up examples and results for own business development (increase competitiveness) and execution activities.

- **Media and Tech Journalists**, who will be responsible for communicating 6G-MIRAI-HARMONY's vision and results to the general public through press releases, interviews with project representatives and media presentations of real-life use cases.
- **Standardisation bodies**, who can use 6G-MIRAI-HARMONY innovative concepts into the ongoing cellular (6G) standardisation efforts. This include standardisation input for study and specification of next generation telecommunication systems (mainly 3GPP) as well as pre-aligned views on methods and concepts, technology choices and architecture with focus on AI-native Air interface, AI-optimized RAN and AI-based network operations. Furthermore alignment with horizontal AI standardisation in CEN/CENELEC JTC21 and ISO/IEC SC42 is envisaged.
- **Industry associations and technology clusters**: advancements in expertise and technology leadership in EU and Japan on specified research and technology items (RTI) are relevant for this stakeholder group. Furthermore, EU-wide collaboration between academic and industry partners for the creation of an innovative ecosystem, in addition to established collaboration to important industry and academic institutions in Japan can be leveraged. Finally, the increased EU-JP cooperation visibility towards global associations like 6G-IA is a benefit.
- **Policy makers and regulators** can assess 6G-MIRAI-HARMONY's implications on privacy, data governance, Artificial Intelligence (AI) products compliance, and spectrum policy. They will receive early information about an AI-based 6G system, creating the opportunity for input for regulation and compliance, input for business environment acceleration, job creation, input to future funding opportunities, to secure economic and technology leadership in the digitalization of economies and conformance to the established EU regulatory framework (AI Act). Regarding AI regulation in Japan, the Japanese government has released “AI governance in Japan Ver. 1.1” from the Ministry of Economy, Trade, and Industry, proposing a need of non-binding goal-oriented guidelines/regulations to promote the innovation. Inputs to defining such goal-oriented guidelines in AI-native wireless systems can be expected from 6G-MIRAI-HARMONY.

2.2 Ecosystem Analysis

The 6G-MIRAI-HARMONY project operates within a rich, dynamic, and multi-dimensional ecosystem that encompasses a wide array of technologies, sectors, stakeholders, and value chains. Understanding the ecosystem dynamics is essential for designing effective DCE strategies, as it reveals how technological innovations interact with broader societal, market, and policy structures.

The 6G-MIRAI-HARMONY ecosystem is characterized by **technological convergence and interoperability** across previously siloed infrastructures. Another defining feature of the 6G-MIRAI-HARMONY ecosystem is its **cross-sectoral nature**. 6G-MIRAI-HARMONY solutions have implications beyond the telecom sector, with expected applications in smart homes, healthcare, mobility, public safety, industrial automation, and energy management, just to mention a few vertical sectors. Each of these verticals have specific requirements, e.g., latency, privacy, spatial accuracy, which shape the design and deployment of 6G-MIRAI-HARMONY architecture.

The 6G-MIRAI-HARMONY ecosystem also includes **regulatory and policy aspects**, which are especially important for AI technologies that involve data collection. Compliance with an always growing number of international regulations, like data protection frameworks, e.g., the General Data Protection Regulation (GDPR) [GDPR], the AI Act [EU AI ACT], the Data Act [DATA ACT], electromagnetic safety regulations, and radio spectrum licensing requirements, e.g., as defined by ITU, IEEE and 3GPP standards, must be ensured. That is the reason why regulatory bodies and standardisation organizations are important parts of the 6G-MIRAI-HARMONY ecosystem.

With respect to the **AI Act** [EU AI ACT], this legal regulatory framework was published in 2024 and came into force on 1 August 2024. Most provisions of this framework will apply from 1 August 2026. The act is designed to ensure the safe and ethical use of AI within the EU. The key points relevant to 6G-MIRAI-HARMONY are the risk-based classification of AI technology designed and developed in the project. The categories are:

- Unacceptable risk: Prohibited, including systems that manipulate behavior or exploit vulnerabilities).
- High risk: Subject to strict regulations, such as AI used in critical infrastructure, education, and employment.
- Limited risk: Requires transparency obligations, like informing users they are interacting with AI.
- Minimal risk: No specific regulations, covering most AI applications like spam filters.

Based on the risk classification, obligations for providers and users are derived, i.e.,:

- Providers (developers) of high-risk AI systems must ensure compliance with safety, transparency, and accountability standards.
- Users (deployers) have fewer obligations but must still ensure proper use and monitoring of high-risk AI systems.

Additionally, the AI act calls out general purpose AI vs prohibited AI systems. General purpose AI must follow guidelines on documentation of how to use it and how it complies with

copyright laws. AI systems classified as prohibited are solutions that use subliminal techniques, exploit vulnerabilities, or perform biometric categorization based on sensitive attributes.

In 6G-MIRAI-HARMONY, the technical WPs 1, 2 and 3 are calling out the use of AI and categorising the intended, designed and/or validated AI tool into the aforementioned categories.

The **Data Act** [DATA ACT] aims to create a more competitive and innovative data economy in the EU, ensuring that data is used responsibly and efficiently. It also ensures fair access to and use of data within the EU. The key points of this framework are:

- Fair Access and Use: Establishes harmonized rules are given to ensure that data can be accessed and used fairly by individuals and businesses.
- Data Sharing: Data sharing between private and public sectors is promoted, especially in emergencies like floods or wildfires.
- Consumer Rights: Consumers can access data generated by their devices, which was previously only accessible to manufacturers.
- Business Protections: Businesses are protected from unfair contractual terms in data sharing agreements, benefiting especially SMEs.
- Interoperability: Barriers to data sharing are addressed, such as lack of interoperability and technical standards.

In 6G-MIRAI-HARMONY, the technical WPs will identify proposed innovations where data is being shared across roles and potential implications on the procedures to implement Data Act.

From an innovation and knowledge standpoint, the 6G-MIRAI-HARMONY ecosystem is also supported by **valid research and development**. Academic and research institutions contribute with technologies in AI, signal processing, RAN architecture, and edge computing. They collaborate closely with industry partners to transform innovations into applied use cases, prototypes, and, in the future, commercial offerings.

Finally, the 6G-MIRAI-HARMONY ecosystem is highly **user-centric and impact-driven**. While the project architecture will be complex, the main goal of the project is to deliver solutions that are easy to deploy, manage, and use. This requires an ecosystem that supports simplicity, modularity, and usability. 6G-MIRAI-HARMONY's approach to RAN deployment aligns with this goal, by reducing deployment barriers for non-experts. Furthermore, end users, who range from citizens to public administrators and SMEs, are not passive beneficiaries but active ecosystem participants, whose feedback is critical for 6G-MIRAI-

HARMONY's innovations development, refinement, and successful exploitation during and especially after the project lifetime.

Understanding this ecosystem enables the project to apply more effective DCE strategies by identifying key actors, value flows and dependencies. It ensures that 6G-MIRAI-HARMONY's innovative outcomes are aligned with market and societal needs, as well as with long-term sustainability goals, making the project a foundational enabler of the next generation 6G technology.

3 Open science methodology

The 6G-MIRAI-HARMONY consortium will adhere to Open Science practices specified in the Horizon Europe Program Guide [HE Guide]. Project partners will, whenever relevant and not IPR-restricted, deposit research results in a research data repository and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate them. For 6G-MIRAI-HARMONY, the consortium decided to choose channels according to their openness, accessibility, impact (number of users, posts, etc.), scientific orientation of the form and the protection of sensitive data. Based on the criteria defined, we will use the Open Research Europe platform as well as established platforms (e.g., arXiv, Github) for green open access of 6G-MIRAI-HARMONY publications. Project partners are committed to immediately provide open access to all peer-reviewed publications relating to the results of the project, either via green (self-archiving) or via gold open access (author-pays-model), ensuring to retain sufficient intellectual property rights (IPRs) to comply with open access requirements.

The table below shows the different types of data sets and the high-level plan for accessibility and curation. A dedicated task T5.3 in WP5 is foreseen for “Ethics and data management” guidelines and governance for 6G-MIRAI-HARMONY project. All data management and research output will be stored according to the specific needs and a link to the repository will be put on the 6G-MIRAI-HARMONY webpage. Wrt. the interoperability of data/research outputs, it can be stated that the data format of numerical data will be described enabling easy importing and will use standard formats for Python or MATLAB/Octave based numerical simulation environments. For the reusability of data/research outputs, the licenses for data sharing and re-use will be Creative Commons CC BY [CC] defined by consortium agreement MCARD-HEU.

Table 1 Datasets and Research Output

Data sets and research output	Types of data	Findability and accessibility	Curation and preservation
Channel measurements	Experimental	Open Access repository (Zenodo, IEEE DataPort)	WP1 lead / participants
Hybrid model-based data-driven AI/ML algorithms for beamforming and resource allocation in cell-free massive MIMO	Python source code	Github	WP2 lead / participants
Sample data sets	Simulations, sampled data	Open Access repository (Zenodo, IEEE DataPort)	WP3 lead / participants
Publications	Preprints as PDF	Open Research Europe, arxiv.org	WP4, WP5 Project management / participants
Document like technical specifications, architecture description, data set information, project reports.	PDF	6G-MIRAI webpage, Zenodo	WP4, WP5 Project management/ participants

3.1 Project outcomes and results

The project outcome and results are structured in deliverables shown in the table below. 6G-MIRAI-HARMONY has two types of deliverables, Type R – Document, report and Type DATA – data sets.

Table 2 Deliverables

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	Initial results on integrating realistic wireless channels and hardware designs into AI-native 6G air interface	WP1	8 - CNIT	R — Document, report	PU - Public	15
D1.2	Initial results on AI-based baseband design for 6G communication	WP1	2 - Fraunhofer	R — Document, report	PU - Public	15
D1.3	AI-native 6G air interface development	WP1	8 - CNIT	R — Document, report	PU - Public	28
D2.1	Initial results on intelligent network control and architecture design for 6G networks	WP2	4 - ISRD	R — Document, report	PU - Public	21
D2.2	Final results on intelligent network control and architecture design for 6G networks	WP2	7 - KU Leuven	R — Document, report	PU - Public	31
D3.1	Definition of initial common scenarios, data management and benchmarking methodology	WP3	5 - SEQ	R — Document, report	PU - Public	10
D3.2	Initial datasets for benchmarking and validation	WP3	7 - KU Leuven	DATA — data sets, microdata, etc	PU - Public	18
D3.3	Results on common scenarios, datasets, validation, and benchmarking	WP3	5 - SEQ	R — Document, report	PU - Public	34
D4.1	Cooperation, dissemination, and impact: initial plan	WP4	6 - APPLE	R — Document, report	PU - Public	6
D4.2	Cooperation, dissemination, and impact: updated plan	WP4	6 - APPLE	R — Document, report	PU - Public	18
D4.3	Cooperation, dissemination, and impact: final report	WP4	6 - APPLE	R — Document, report	PU - Public	36
D5.1	Internal project plan	WP5	1 - ERICSSON FRANCE	R — Document, report	PU - Public	3
D5.2	Ethical and data management guidelines and requirements	WP5	1 - ERICSSON FRANCE	R — Document, report	PU - Public	6
D5.3	Project report (first and second periodic report)	WP5	1 - ERICSSON FRANCE	R — Document, report	PU - Public	36

3.1.1 Documents

Documents are classified in public and restricted access types. For details see 6G-MIRAI-HARMONY Data Management Plan [D5.2]. For documents classified as public, commonly used repositories are used, as listed in following items:

- 6G-MIRAI-HARMONY Webpage (<https://6g-mirai-harmony.eu/>) for general information and for linking research outputs in an accessible form
- Zenodo (<https://zenodo.org/>) for all research outputs (as of September 2025, the 6G-MIRAI-HARMONY Zenodo community [ZENODO] is part of the EU Open Research Repository <https://zenodo.org/communities/eu/>)
- ArXiv (<https://arxiv.org/>) for selected technical paper publications
- EU Portal for Project reporting according to EU guidelines.
- Documents classified as restricted/internal are documents that are needed for project planning and execution as well as documents which contain private/sensitive data and are thus not exposed to the public. These documents are handled internally in a secure, access-controlled repository.

- Zenodo and, where applicable, European Open Science Cloud - EU Node (<https://open-science-cloud.ec.europa.eu/>) for reusable data, publications and software.
- Zenodo and, where applicable, GitHub for software and data sets as well as SW documentation.

3.1.2 Datasets

Several datasets will be created and exploited during the project lifespan, since different AI/Machine Learning (ML) techniques will be investigated, aiming at the enhancement of various network functions. These datasets will follow the Ethics guidelines and principles that are thoroughly described in EU 6G-MIRAI deliverable D5.2 [D 5.2], especially those (if any) that relate to personal data. The datasets will be also uploaded or mirrored in the public 6G-MIRAI-HARMONY repository (Zenodo, [ZENODO]), together with the appropriate metadata. If a dataset cannot be made available, the metadata would be anyway uploaded, registering the existence of such dataset. New versions of the datasets will be also appropriately identified.

In addition to Zenodo, the European Open Science Cloud - EU Node (<https://open-science-cloud.ec.europa.eu/>) may be used for reusable data, publications and software.

3.1.3 Software

During the project lifespan, different software outcomes will be generated. These include algorithms, models, implementations, etc. While partners working on a specific element could select the code repository of their choice to keep a working version of the code (for instance a git server), stable releases will be tagged, linked, or mirrored from the 6G-MIRAI-HARMONY open repository (Zenodo). Even if the code cannot be made available (for instance, due to IP Right (IPR) limitations), an entry will be anyway created in Zenodo, with the corresponding metadata, so that the contribution can be nonetheless located.

3.2 FAIR principles

The FAIR principles are described in the Data Management Plan [D5.2] and briefly summarized here: 6G-MIRAI-HARMONY strongly fosters the FAIR principles established by the EC, ensuring that the research outcomes can be widely reused. The FAIR goal is to facilitate the use of all data and results produced during the project lifespan, by making them Findable, Accessible, Interoperable and Reusable.

Findable implies that all data and results should be easily findable by humans and machines. As mentioned in the EU 6G-MIRAI D5.2, we will ensure that all results have the appropriate metadata, according to widespread standards. Furthermore, a naming convention will be

established for the generated datasets, and a 6G-MIRAI-HARMONY Data Catalog [D5.2] will ensure that all data is findable.

To ensure that the data is ***accessible***, all outcomes will be uploaded or mirrored in the 6G-MIRAI-HARMONY public repository (Zenodo), which guarantees their long-term preservation. In addition, other complementary channels will be also leveraged, in particular project webpage and social networks, to further strengthen the visibility of the project results.

Interoperability will be ensured by using standards for the different data formats. In this sense, CSV (for tabular data) and JSON (for structured data) will be favoured, due to their widespread adoption. For more particular data elements, common formats will be used (image and audio files, for instance). All human-readable documents will be uploaded using the PDF format.

Finally, the ***reusability*** of the data will be ensured by fostering an appropriate data licensing, with Creative Commons (CC) licenses [CC], such as CC BY or CC BY-SA, being a first choice. All datasets (as well as software modules) will have detailed metadata, and README files, with comprehensive information about the piece of data will also be included.

4 Communication and Dissemination plan

In this chapter, the communication and dissemination plan is described. The purpose of the plan is that 6G-MIRAI-HARMONY's research and innovation results reach the appropriate audiences. It contains a strategy tailored to various stakeholder groups (cf. chapter 2), i.e., it contains targeted dissemination and communication efforts, each adapted to the needs of specific audiences.

For the **Dissemination** 6G-MIRAI-HARMONY aims at raising the attention and awareness in the technical and scientific communities (wireless communication systems) by

- publishing in high-impact venues
- presenting at leading conferences
- provide key technology enablers for AI-based air interface and RAN standards

Dissemination allows individuals and organizations to share their work and impact a wider audience. This is a support for their purpose, to attract potential partners or collaborators, and to promote knowledge transfer and collaboration among stakeholders.

Actual dissemination activity can be described as follows:

- Research results for the two main technology objectives and the connected work packages WP1 and WP2 (O1: Reliable and robust AI/ML techniques for future wireless communications, O2: Practical AI-native design of next-generation radio access networks; WP1 AI-native practical 6G air interface, WP2 AI-enabled distributed 6G RAN architecture and control)
- Results and deliverables related to the common platform for data benchmarking and validation (O3 and its connected WP3 Use cases and scenarios, data, testing, proof-of-concept)
- The aligned standardisation strategy (O4) aligned among the partners (and to the extent possible across EU 6G-MIRAI and JP HARMONY)

Communication on the other hand targets to extend the visibility of the project beyond its stakeholders by

- Using accessible language for the media and general public to describe complex research
- Promotion of the vision & societal benefits of the 6G-MIRAI-HARMONY project to a broader audience: general public, industry players beyond the project stakeholders, policymakers; make the relevance of the project and value generation widely visible
- Collaboration with JP HARMONY, meeting in jointly followed events (for example, such a meeting was held at EuCNC 2025), monthly alignment meetings including DCE

Due to the cross-regional nature of 6G-MIRAI-HARMONY, the joint EU-JP Dissemination and Communication is a specific characteristic and interest of the project. Table 3 shows the framework for dissemination and communication agreed with the EU project officer and the JP HARMONY project.

The EU and JP project parts appear with **one common name “6G-MIRAI-HARMONY”** to express the cross-region intention and maximize the commonality in communication and dissemination. On the other hand, the internal short names towards the respective funding authority are kept for simplicity and to minimize associated overhead. The respective “full name” (subtitle) reflects the respective specific orientation of the EU vs. the JP part of 6G-MIRAI-HARMONY. All of the above is reflected on the website for which the domain name is 6g-mirai-harmony with a TLD .eu extension for the European part on the one hand, and a specific page describing the EU-JP collaboration from an EU perspective. Both project parts have distinct logos which can be shown together to highlight the cooperation efforts. For the EU and JP parts there are separate social media accounts, tailored to the respective region, which can be mutually cross-referenced to express the collaboration initiatives.

Table 3 EU-JP Framework for Dissemination and Communication

Category	EU project	JP project
Public short name (EU: “acronym name”)	6G-MIRAI-HARMONY	
Internal short name (EU: “GAP name”)	6G-MIRAI	HARMONY
Full name	Machine Intelligence based Radio Access Infrastructure	R&D for 6G Mobile System Optimization with Cross-Layer/Multi-Domain AI Integration
Domain (website, mailing lists)	6g-mirai-harmony.eu	6g-mirai-harmony.org.jp (tbd)

Website content	Cf. EU 6G-MIRAI proposal (partners: EU consortium & Ericsson JP) 1 sub-page on EU-JP cooperation, cf. the in-progress collaboration document, referencing the JP HARMONY partners	
Logo	6G MIRAI	HARMONY
	(both logos shown together represent the EU-JP collaboration)	
Social media channel names (LinkedIn, YouTube, BlueSky)	6G-MIRAI-HARMONY (EU)	6G-MIRAI-HARMONY (JP)
	(no common social media channels but mutual referencing of the individual EU and JP channels)	

4.1 Communication strategy

In the following section, the communication strategy of 6G-MIRAI-HARMONY is described.

4.1.1 Communication Plan and Procedures

6G-MIRAI-HARMONY follows this communication plan for building the 6G-MIRAI-HARMONY brand and its transport key messages along the three stages of the project lifetime:

- M01-M15: awareness creation
- M16-M28, community building
- M29-M36: global outreach

The plan components are:

- **Communication coordination:** coordinated by the lead of WP4 (APPLE) in collaboration with all consortium partners, to ensure consistent messaging and continuous info flow.
- **Branding:** a specific logo, templates (incl. specific layout, fonts, colouring) for documents (docx) and presentations (pptx) are being used for all communication materials to allow for recognizable brand.
- **Content:** tailored messages are developed for each target audience
 - general public: focus on the societal benefits

- industry: business opportunities of AI-based RAN and specific characteristics of the 6G-MIRAI-HARMONY approach are emphasized

4.1.1 Communication Tools and Audiences

The following tools are used for communication:

- **Website:** the central location for all project information is <https://6g-mirai-harmony.eu>. It contains:
 - Consortium, objectives, concepts, methodologies
 - An outline and updates of the EU-JP cooperation
 - Deliverables, publications, workshop, news
 - Contacts

Figure 1 Screenshot of the project's website.



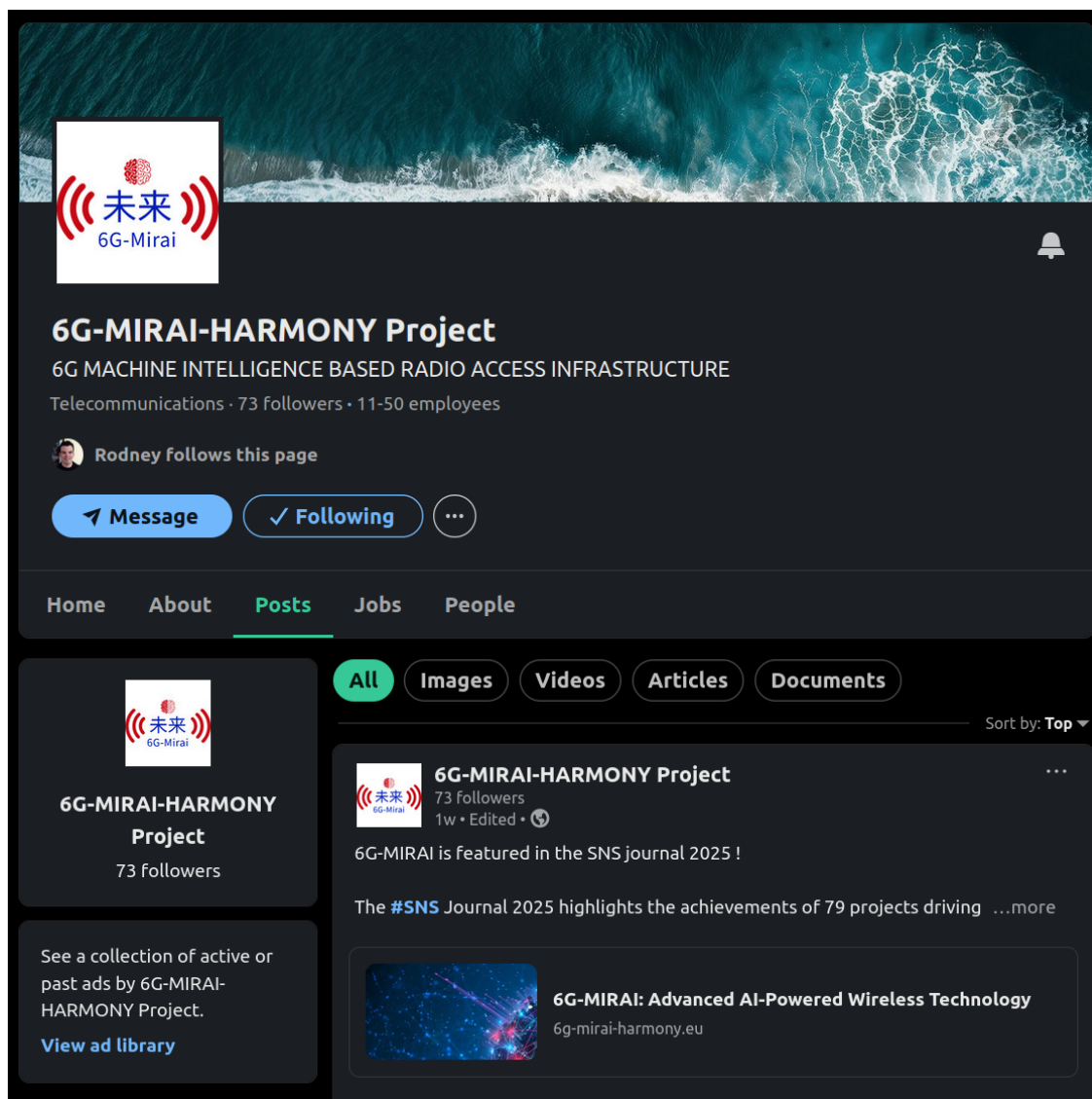
6G-MIRAI (未来 “Mirai” meaning “future” in Japanese)

The 6G-MIRAI project (acronym name: 6G-MIRAI-HARMONY) is funded as part of the European Union's Smart Networks and Services (SNS) Joint Undertaking (JU) initiative. The project focuses on Machine Intelligence-Based Radio Access Infrastructure to shape the future of 6G cellular networks.

- **Social Media:** 6G-MIRAI-HARMONY is present on
 - **LinkedIn** 6G-MIRAI-HARMONY Project
<https://www.linkedin.com/company/6g-mirai-harmony/>

- **BlueSky** 6G-MIRAI-HARMONY
<https://bsky.app/profile/6g-mirai-harmony.bsky.social>
- **YouTube** 6G-MIRAI-HARMONY Project
<https://www.youtube.com/channel/UCu9kE2fMDMEMfledhH3wsJg>
- Multimedia content from events, videos explaining project contents

Figure 2 Screenshot of the project's LinkedIn site.



- **Project presentations:** presentations at events like fairs will be done to showcase innovations to a business-oriented audience, or to a general / scientific / policy audience to reach the full set of stakeholders.

- **Press Releases and Media Engagement:** will be used for announcing key deliverables and milestones for both general and specialized media for increased project visibility
- **Promotion Materials:** project flyers, posters, roll-ups for events

4.2 Dissemination strategy

The dissemination strategy focuses on sharing 6G-MIRAI-HARMONY's research results and technical outcomes with expert audiences to build awareness, validate findings, and ensure uptake by the scientific and industrial research communities.

The strategy will be aligned as much as possible between EU 6G-MIRAI and its partner HARMONY project in Japan.

4.2.1 Dissemination Plan and Procedures

The dissemination plan will be similarly executed in three main stages aligned with the timeline of the project:

- Stage 1 for awareness creation (M01-M15).
- Stage 2 for community building (M16-M28).
- Stage 3 for global outreach (M29-M36).

The key activities and related targets are as follows:

- **Scientific Events and Workshops:** 6G-MIRAI-HARMONY will organize **two “AI in RAN” workshops (project milestones 5 and 8)**, participate in workshops and perform tutorials / webinars, thereby sharing innovations directly with the (industrial) research community. Suitable conferences / workshops for 6G-MIRAI-HARMONY are:
 - EU: European Conference on Networks and Communications (EuCNC) and 6G Summit: this is the flagship conference for SNS projects' dissemination,
 - Japan: domestic conferences will be considered (in coordination with the JP HARMONY partners), for example, IEICE General Conference, IEICE Society Conference, IEICE Technical Committee Workshops (Radio Communication Systems, Smart Radio), Symposium on Information Theory and its Applications (SITA)
 - International: IEEE Consumer Communications and Networking Conference (CCNC), IEEE International Conference on Communications (ICC), IEEE Global Communications Conference (GLOBECOM), IEEE Wireless Communications and Networking Conference (WCNC), IEEE International Conference on

Acoustics, Speech and Signal Processing (ICASSP), and ITU ML in Communication Networks Workshop

- Applied AI tracks: EAAAI (EANN) Engineering Applications and Advances of Artificial Intelligence, IEEE Conference on Artificial Intelligence
- AI technology tracks: Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), International Joint Conference on Artificial Intelligence (IJCAI), Association for the Advancement of Artificial Intelligence (AAAI)

Particularly for the “AI in RAN” workshops a co-organization across EU 6G-MIRAI and JP HARMONY is envisaged. A preliminary agreement is to do proposal submissions to EuCNC (2026 and 2027), as this is the best venue also from the perspective of the Japanese consortium to address the target stakeholders.

- **Publications:** Publish > **20 peer-reviewed scientific papers** in high-impact journals and top-tier conferences., as well as contributions to whitepapers or books. Target publications are
 - Journals: e.g., IEEE Transactions on Wireless Communications, IEEE JSAC, IEEE Transactions on Signal Processing, and IEEE Communication Magazine
 - Conferences: cf. above
 - White papers, e.g., 6G-IA
 - Book chapters, e.g., Cambridge University Press, Wiley, Springer, or Elsevier.

All publications will adhere to Open Access policies.

- Lectures, invited talks, training of students, MSc and PhD theses
- **Open Science and Data Management:** Follow an Open Science strategy, focusing on:
 - **Data and Code Sharing:** SW (Zenodo, github), data (Zenodo), models (Zenodo), results (Zenodo), documentation (Zenodo). All of the shared results will have metadata and associated documentation to ensure that the FAIR principles are met.
 - **Reproducibility:** 6G-MIRAI-HARMONY aims at reproducibility of its research outputs by making data, methods, and tools openly available.

All dissemination materials, especially scientific publications, are being assessed by an internal peer-review process coordinated by the relevant Work Package and Task Leaders to ensure high quality. All publications and presentations shall include the official EU funding acknowledgment related to 6G-MIRAI.

4.2.2 Dissemination Channels and Tools

To reach its expert audience, 6G-MIRAI-HARMONY is utilizing a variety of channels and is producing specific outputs, including:

- **Peer-Reviewed Publications:** includes articles in leading journals and papers in top conference proceedings, serving as the primary output for disseminating validated research to the scientific community.
- **Workshops, Panels, and Special Sessions:** co-organization and active participation in these events to allow for direct interaction, discussion, and scientific exchange with researchers and industry experts.
- **Webinars and Technical Presentations:** technical results will be featured in webinars for a specialized audience.
- **Open Access Repositories:** Zenodo will be the main repository for publications and datasets, while GitLab might be used for software and code, ensuring long-term availability and reusability.
- **PhD and MSc Theses:** know-how and experience generated within the project will be channeled into the academic programs of university partners, leading to PhD and MSc theses using 6G-MIRAI-HARMONY concepts as a baseline.

The dissemination strategy towards the target audiences is implemented using the following platforms and tools:

- **Project Website:** the multi-purpose online platform for hosting the project information, deliverables, publications news, and events.
- **Open Access Repositories (Zenodo, GitLab):** for the accessibility and archiving of all project results: publications, datasets, models and software.
- **Webinar/Video Conferencing Software:** platforms such as WebEx or Microsoft Teams to host webinars and technical presentations online.
- **Presentation Software:** standard tools like Keynote or PowerPoint for creating compelling presentations for events.
- **Academic Networks / Professional Social Media:** networks like LinkedIn or BlueSky for connecting with researchers and sharing updates.
- **Email Communication Tools:** for distribution of newsletters and outreach to specific expert groups.

5 Standardisation Plan

Due to the air interface and RAN focus of 6G-MIRAI-HARMONY, influencing the standardisation towards the 6G-MIRAI-HARMONY innovations is an important aspect towards the success of the project. Therefore, a standardisation plan will be developed and regularly updated as follows (through Task 4.2 within WP4):

- Development of a standards plan (roadmap) for the project following the European code of practice for standardisation [EU STD PRACTICE]
- Monitoring the relevant (cf. below) standards / pre-standards organizations with respect to their framework as well as specific items related to the technical work of the 6G-MIRAI-HARMONY project
- Monitoring of the status and content of relevant standards / pre-standards contributions and their status to meet the related Key Performance Indicators (KPIs) of EU 6G-MIRAI [GA]
- Coordinate relevant standardisation progress knowledge transfer to 6G-MIRAI-HARMONY consortium and mapping of project's technical work with related specification work.
- Reporting of the standardisation contributions done by 6G-MIRAI-HARMONY

Overall, 6G-MIRAI-HARMONY will build on the presence of several partners already contributing to the key global standards to closely follow the standardisation progress and transfer that knowledge back to the project. This will enable an early identification of the 6G-MIRAI-HARMONY innovations related to standard specifications and work roadmap, performing a characterization of their potential standard impact, and spotting the gaps and synergies between those innovations and the work carried out in the standardisation bodies. The EU-JP collaboration envisioned across 6G-MIRAI (EU) and HARMONY (JP) will facilitate fulfilling the ambition of aligning the views on the industrial potential of the different use cases and the subsequent submission of standard contributions to the pertinent global standardisation bodies.

Table 4 summarizes the standardisation bodies in which the consortium's partners take part.

*Table 4 Relevant (pre-)standardisation bodies /
6G-MIRAI-HARMONY partners' activity in (pre-)standardisation*

SDO	1 Fraunhofer	2 Ericsson France	3 Telefonica	4 ISR D	5 SEQ	6 APPLE	7 KU Leuven	8 CNIT/UNPI	Contributions
3GPP RAN 1	✓	✓	✓		✓				Discussion papers, workshop contributions, study / work item technical documents (contributions to TR / TS)
3GPP RAN 2		✓			✓	✓			
3GPP RAN 3		✓		✓					
3GPP RAN 4		✓			✓	✓			
ETSI ISG THz	✓		✓				✓	✓	Discussion papers, workshop papers, technical contributions to GR
AI-RAN alliance		✓		(✓)					Presentations, technical contributions
XGMF		✓ (Ericsson JP)							

The consortium targets mainly to influence 3GPP both with respect to the distributed MIMO / cell-free network baseline and the application of AI/ML in these areas. This extends from physical layer aspects in RAN WG1, to radio protocols in RAN WG2 to associated performance

studies in RAN WG4. 6G-MIRAI-HARMONY will also contribute to RAN architecture aspects of AI/ML across the mentioned RAN WGs and TSG RAN. In terms of pre-SDO / for a, 6G-MIRAI will engage towards the international AI-RAN alliance, as well as the Japanese XGMF (together with JP HARMONY).

To facilitate a coordinated and meaningful contribution to SDOs, 6G-MIRAI-HARMONY identified individuals per partner with specific standards responsibilities, working together in Task 4.2, listed in Table 5. The responsibilities are classified as

- **B:** 6G-MIRAI-HARMONY Researcher actively contributing to the backoffice of the respective partner's standardisation efforts
- **D:** 6G-MIRAI-HARMONY Researcher fulfilling delegate tasks in the respective partner's organization

The individuals in the table below are expected to bring the expertise for specific SDO WGs into the project by providing input in technical WP calls of 6G-MIRAI-HARMONY on relevance of developed innovations in standards and opportunities for contributions.

Table 5 Relevant 6G-MIRAI-HARMONY Participants Active in (pre-)SDOs

SDO / WG	Key responsible for 6G-MIRAI-HARMONY	Additional responsible(s)
3GPP RAN1	Adrian Garcia (Ericsson France) (B)	Efstathios Katranaras (Sequans) (B)
3GPP RAN2	Nil Zaev (Apple) (B)	-
3GPP RAN3	(To be decided after start of WP2)	
3GPP RAN4	Tanguy Kerdoncuff (Ericsson France) (B)	-
ETSI THz	Luca Sanguinetti (CNIT/UNIFI) (D)	-
AI-RAN Alliance	Adrian Garcia (Ericsson France) (B)	Arifur Rahman (ISRDC; once ISRDC has joined AI-RAN Alliance) (B)
XGMF	Szabolcs Malomsoky (Ericsson JP)	-

6G-IA Pre-Standards WG	Henning Sanneck (Apple)	Efstathios Katranaras (Sequans)
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6 Exploitation Plan

The exploitation plan of 6G-MIRAI-HARMONY is designed to ensure that the innovations and knowledge generated during the project are effectively leveraged to create impact within the telecommunications ecosystem. The exploitation plan builds on a set of strategies aimed at translating research results into concrete outcomes and project results, fostering uptake by industry stakeholders, influencing future standardisation efforts, and contributing to large-scale open-source initiatives.

In the research and innovation ecosystem, exploitation efforts are a critical component with the potential to deliver wide-reaching societal and economic benefits. By utilizing the knowledge generated within 6G-MIRAI-HARMONY, the project partners aim to develop new products, services, processes, and policies that can address current and emerging challenges in telecommunications.

To achieve these goals, the exploitation strategy of 6G-MIRAI-HARMONY encompasses several complementary pathways:

- **Further internal and collaborative research:** The knowledge and technological advances developed within the project will serve as a foundation for continued research activities both within partner organizations and in collaboration with external stakeholders.
- **Internal product development and service creation:** Industrial partners in the consortium plan to integrate the results of 6G-MIRAI-HARMONY into their innovation roadmaps, accelerating the development of new products, platforms, and services. This includes leveraging architectural building blocks, software modules, and proof-of-concept demonstrators as enablers for next-generation network solutions and operational tools. Such exploitation pathways will strengthen the market positioning of European vendors and operators in the global 6G landscape.
- **Intellectual property management (IPR) and patents:** Protecting key innovations is an integral part of the exploitation strategy. The project members will assess the patentability of the technical results, particularly focusing on novel architectural elements, algorithms, and hardware/software co-design solutions.
- **Contribution to open-source software and datasets:** Recognizing the importance of open innovation in driving adoption and collaboration, 6G-MIRAI-HARMONY will contribute selected results to relevant open-source projects and public datasets.

Through this varied strategy, 6G-MIRAI-HARMONY seeks to create a robust legacy that will extend far beyond the project's duration, fostering innovation, economic value, and

societal benefit in line with the European Union’s objectives for the digital decade, with particular attention to the achievable cross-regional (EU/JP) synergies.

The **industrialization roadmap** for exploitation, which follows the principles of a “Machine Intelligence-based Radio Access Infrastructure,” is structured in progressive phases to ensure a seamless transition from research to market adoption:

- Initial phase: in the first 10 months of the project takes place the selection and investigation of 6G AI-native air interface and RAN scenarios, use cases and associated concepts which create most value from a future exploitation perspective. The associated data / evaluation methodology, considering exploitation aspects from the initial plan, is developed. Initial project visibility including links into the RAN ecosystem is created.
- The second phase (Month 11-18) will be used to reach convergence across partners on the update of the exploitation plan (both for individual and joint exploitations) by evaluating preliminary results vs. the business intents of the respective partners (and the ongoing of the evolution of the ecosystem).
- In the third phase (Month 18-24), exploitation activities will be prepared along the initial deliverables of the project, also taking advantage of the second-year exposure of the project in the (industrial) research community (Milestone 5).
- In the final year of the project, the actual exploitation will be launched where the partners will explore the results regarding their business impact and decide how to use them beyond the end of the project.

6.1 Industrial Exploitation Plan

Building on the broader exploitation strategy of 6G-MIRAI-HARMONY, the industrial exploitation plan outlines how industrial consortium partners intend to translate project outcomes into market-ready products, services, and solutions. The table below summarizes each partner’s industrial exploitation intentions, indicating the targeted innovations, their expected Technology Readiness Level (TRL) at the end of the project, and the estimated time to market following the project’s conclusion. This mapping ensures a clear trajectory from research to commercialization, aligned with each partner’s strategic roadmap.

Table 6 Industrial exploitation

RTI	Area	End TRL	Partner	Path to Market	Time after project (years)	Target Market
1	Realistic channel, hardware models	3	TELEFONICA	Exploit the models for computationally efficient radio channel generation, to complement empirical coverage maps in an inexpensive manner and to infer higher-level cell planning/ optimization KPI.	3	Mobile network operators (CSP)
2	AI-based PHY design	4	ERICSSON FRANCE	Benchmark performance of AI/ML-based channel estimation functionality against a non-AI/ML baseline with real measurement data. Ericsson will analyze the potential systemization impact of at least the AI/ML-based channel estimation feature to the product and/or the standard. AI/ML	3	Mobile network operators (CSP)

				functionality will be included in the RAN product portfolio depending on i) the performance, systemization impact, complexity of the solution, and ii) the signal processing capabilities of the 6G-ready hardware.		
2	AI-based PHY design	3-4	SEQ	Benchmark and validate performance of proposed solutions for low complexity CSI acquisition and pre-processing. For example, we expect to analyze and develop AI/ML functionality (at network or device side) on efficient CSI acquisition for MU-MIMO, or on data-driven channel learning.	4-5	6G devices and networks
3	AI-based network coordination	4	ISRD	Framework for Context/QoS aware adaptive protocols and resource allocation will be input to the standardisation, and that will be a candidate option for	5	6G networks

				the future commercial network.		
3	AI-based network coordination	3-4	APPLE	Framework on AI-based cell-free cluster configuration for UE-centric mobility will boost the interest to supply devices with efficient options for multi-point operation and zero latency mobility and allow for corresponding standard inputs.	4-5	6G devices and networks

6.2 Academic Exploitation Plan

The academic exploitation plan by partners of 6G-MIRAI-HARMONY will contain:

- Update of the curriculum towards the research state-of-the-art: The knowledge and methods developed in the project will be integrated into academic courses at master and PhD level, enriching the educational experience of students at both the undergraduate and postgraduate levels, e.g.:
 - M.Sc. level courses at the Technical University of Berlin on signal processing and machine learning techniques for evolved wireless network architectures
 - KU Leuven's new faculty of engineering bachelor program will include application examples of AI to network optimization or baseband design,

This is important to train students not only in AI, but also the domains making use of AI, and ensuring an adequate number of students pursue studies in telecommunication engineering.

- Master theses using 6G-MIRAI-HARMONY as baseline, focusing on the practical investigation of selected technological components (Fraunhofer, KU Leuven, Universita Di Pisa).
- PhD theses (e.g., most of the theoretical work underpinning the activities in RTI2 and RTI3 will be the subject of a PhD thesis at Fraunhofer / TU Berlin).
- Tutorials / webinars at international research conferences; Internet lectures.

- Professional development: workshops, seminars, or training sessions to enhance the skills and competencies of professionals in industries related to the project's focus areas.
- Industrialization: transfer of technology and know-how from academia to industry (both SME and large enterprises), promoting the adoption of cutting-edge technologies and solutions developed in the project.
- Establishment of new, promising research lines related to trustworthiness, distributed learning, continual learning, which are all topics that will remain of interest in the next decade.

6.3 Joint Exploitation Activities

Several of the tasks that will be accomplished within the project require close collaboration of individual partners to achieve the desired goal. Their results should be exploited in common. These tasks are listed in the table below.

Table 7 Joint exploitation

RTI	RTI Description	Exploitation partners	Goals	Methodology
1	Realistic channel, hardware models	Ericsson France, Ericsson Japan, Telefonica	Development of generative channel modelling techniques to augment data for training and performance evaluation of AI/ML algorithms. Design of air interface techniques to minimize communication overhead and increase the throughput building on the current standardisation work such as joint CSI prediction and compression and joint downlink TX/RX beam pair prediction. AI-aided transmitter and receiver designs accounting for limitations associated to complexity and hardware-related imperfections.	Joint publications / standardisation contributions
2, 3	AI-based PHY design	ISRD, Fraunhofer,	Research on hybrid model-based and data-driven methods for large-scale and coordinated beamforming and	Joint publications

	& AI-based network coordination	KU Leuven, CNIT/ UNIP, SEQ	resource allocation (power control and scheduling) are expected to provide the broad research community with a joint optimization framework to significantly mitigate the main limitations which are currently preventing the practical deployment of cell-free massive MIMO networks.	
4	AI-ready architecture design	KU Leuven, ISRD, APPLE, Fraunhofer	The RAN architecture blueprint allows to align with other concurrent research projects to further refine the 6G-MIRAI-HARMONY approach.	Presentation of blueprint to other projects

6.4 Individual Exploitation Plans

In the following, we detail the individual exploitation and standardisation plans for all the 6G-MIRAI-HARMONY partners:

Table 8 Per partner exploitation plans

Partner	Exploitation plans
ISRD	As a SME partner in 6G-MIRAI-HARMONY, ISRD aims to disseminate and exploit its scientific contributions in international events through participating in several conferences, workshops, symposiums, and scientific journals. The output of 6G-MIRAI-HARMONY will enrich the portfolio of the company on a global level, by developing innovative algorithms for radio resource management with particular focus on URLLC/TSN networks by power control and dynamic resource scheduling mechanisms for cell-free mMIMO network with distributed ML algorithm. Furthermore, ISRD will also design and develop flexible fronthaul solution by predicted the traffic based on ML algorithm. The developed solutions and its integration our product. Consequently, 6G-MIRAI-HARMONY results will allow ISRD to further enhance the product, helping to initiate new customers (e.g., commercial MNOs, research institutes, etc.) to use it as an experimenter platform.

Ericsson France	Analysis of standardisation impact of proposed AI/ML-based solutions relevant to 3GPP RAN1, RAN2, and RAN4 groups. At least two publications, one of them jointly with Telefonica, of 6G-MIRAI-HARMONY results at tier-1 international conferences and journals (e.g., IEEE Communications Magazine or IEEE Globecom/ ICC). Additionally, Ericsson France will also organize of at least two tutorials and/or workshops focused on AI/ML for air interface and where the project-related results will be highlighted.
SEQ	SEQ will utilize the project's results to strengthen its awareness and proficiency in AI/ML optimization schemes, bolster internal communication and training on this research area, inform product definition to strategize transition from 5G to 6G, and guide internal development for SEQ forthcoming device platforms. Fundamentally, SEQ will strive to leverage the project's outcomes to facilitate the integration of innovative 6G technologies into our next generation products. Moreover, the insights obtained from SEQ technical work in AI-aided wireless communications will propel scientific publications, whitepapers, and an educated activity to 3GPP groups for helping the development of novel RAN schemes and efficient, practical standards specifications.
APPLE	The project objectives of 6G-MIRAI-HARMONY are very relevant to Apple's interests regarding AI/ML in (cellular) networks. The research results on future cell-free architecture and AI-nativeness obtained in the project will be leveraged internally in the development process for 6G user-centric network technologies. Apple plans to deliver at least 3 publications of research results at conferences as well as international and joint EU-JP industry events. The collaborative investigation and evaluation of the AI/ML algorithms and AI/ML-centric 6G architecture (incl. working on ML datasets) together with other members of the consortium will help Apple select and design AI-based solutions in its diverse product and associated service offerings enjoyed by many millions of consumer end users around the world. In addition, Apple will benefit from the pre-standards collaborative work to further develop its 6G standardisation position, thereby enabling efficient and pre-aligned standards contributions to the 3GPP Rel. 20 & 21 study phases by Apple.
Telefonica	As a network operator, Telefonica will focus on incorporating the research results in 6G-MIRAI-HARMONY with their business and operation units by: (i) improving or developing new radio access optimization methods and algorithms for future 6G networks, (ii) deriving innovative products or services

	innovations based on the interaction with 6G-MIRAI-HARMONY, and (iii) submitting patents to license and protect new radio modelling tools or optimization methods. The solutions Telefonica will develop in 6G-MIRAI-HARMONY will be exploited as part of its internal innovation process. The results will be used in the design of future own products and solutions for the commercial mobile operator brands of the Telefónica group, such as Movistar Spain, O2 UK, O2 Germany, or Vivo Brazil. For example, generative AI Models of the radio propagation, originated from a marriage of simulated and measured data, will allow to evaluate “what if” scenarios, e.g., to infer the coverage and capacity resulting when a certain subset of cells is upgraded with additional carriers in new frequency bands, or when some carriers are switched off for energy saving purposes. Furthermore, the outcomes of 6G-MIRAI-HARMONY will contribute to the team’s scientific production and visibility with top-tier IEEE publications and invited lectures.
KU Leuven	The 6G-MIRAI-HARMONY project will have a significant scientific impact for KU Leuven. It will help KU Leuven to further deepen its expertise in hybrid deep learning models, previously mainly focused on localization for cell-free and Massive MIMO towards MIMO processing blocks for the 6G baseband. In addition, KU Leuven will make public more and diverse datasets for Massive MIMO and cell-free MIMO communication in this project, which will help visibility of the team to the AI-based 6G community. KU Leuven will mainly valorize this project as a breeding ground towards new scientific ideas, such as decentralized or continual learning, for follow-up projects. KU Leuven will enrich its scientific knowledge through scientific publications and datasets, broadening the existing knowledge and capacity.
CNIT	Aims to exploit the results of its participation in 6G-MIRAI-HARMONY in several ways: • Strengthening industrial competence: CNIT will provide industrial partners with enhanced expertise and will disseminate project results beyond the consortium boundaries. By leveraging existing relationships with key industry players, CNIT will help these companies realize the full potential of 5G/6G technologies, thereby influencing their strategic initiatives. • Empowering Telecom Operators: By working closely with TIM and other telecom operators in Italy, CNIT will enhance their competence in deploying advanced telecom technologies, facilitating the adoption of

	5G/6G solutions. • Supporting SMEs: CNIT will provide specialized knowledge to small and medium-sized enterprises (SMEs) venturing into AI-native communications, helping them to capitalize on the emerging opportunities in this field. • Professional development: Leveraging the expertise acquired through the Academies, CNIT will provide training to professionals from large industries, further enhancing their competencies. • Research output: CNIT aims to increase its contributions to scientific journals and conferences, and to disseminate project results and findings to the wider academic community.
UniPi	Aims to exploit the results of its participation in 6G-MIRAI-HARMONY in several ways: • Dissemination of Results: As an academic partner and member of local and national valorisation clusters, UNIPi will actively disseminate project results through publications in scientific journals and presentations at conferences, ensuring broad visibility within the academic community. • Curriculum integration: The knowledge and methods developed in the project will be integrated into academic courses at PhD level at the Department of Information Engineering of UNIPi, enriching the educational experience of students at both the undergraduate and postgraduate levels. • Industry Collaboration: UNIPi will collaborate with industry stakeholders to translate research findings into practical applications, fostering innovation and contributing to industrial advancement in relevant sectors. • Sustainability through research continuity: As a non-profit organization, UNIPi does not seek direct commercial exploitation of project results. Instead, it uses the results to apply for follow-up projects at national and international levels, thus ensuring the long-term continuity of the Institute's research efforts in the respective field. • Professional development: UNIPi will workshops, seminars, or training sessions to enhance the skills and competencies of professionals in industries related to the project's focus areas. • Technology Transfer: Efforts will be made to facilitate the transfer of technology and know-how from academia to industry, promoting the

	adoption of cutting-edge technologies and solutions developed during the project.
Fraunhofer HHI	Fraunhofer HHI will contribute to transferring the results of 6G-MIRAI-HARMONY to the German and European industrial ecosystem. These findings will be disseminated in Fraunhofer's startup incubator program, and flagship IEEE conferences and journals, forming the basis for future industry-commissioned projects aimed at developing new products or processes, as well as projects funded by EU and German agencies. As the coordinator of 6G-RIC, one of Germany's largest 6G research hubs with established cooperation with Japanese industry and academia, Fraunhofer HHI will leverage 6G-MIRAI-HARMONY outcomes to strengthen ongoing initiatives. Close collaboration with the Technical University of Berlin will also ensure the integration of results into student education through courses and PhD/M.Sc. theses.

7 Conclusions

This deliverable has outlined the strategy for communication, dissemination, standardization, exploitation considering also the cross-regional EU-JP collaboration within the EU 6G-MIRAI and JP HARMONY parts of the 6G-MIRAI-HARMONY project. These efforts play a crucial role in achieving the project's objectives and maximizing its impact. The plan includes key initiatives such as developing a strong and visually appealing project brand (website, social media, branded publication / dissemination materials, etc.). The project results are disseminated as deliverables and scientific outputs on the one hand, while providing (pre-) SDO contributions on the other hand. By utilizing these channels effectively, 6G-MIRAI-HARMONY aims to expand its reach, emphasise its accomplishments & progress, and encourage extensive stakeholder engagement. The outlined plan will be continuously updated and refined to remain aligned with the project's goals and ensure lasting impact, with the 6G-MIRAI-HARMONY deliverables D4.2 and D4.3 being the corresponding formal project outputs, and MS5 & MS8 being the associated milestones (AI-native RAN workshops).

8 References

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