# Deliverable D20.2
# Communication and Dissemination Plan Update

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| Report contributors | | |
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# 1. Executive Summary

The FP3-IAM4RAIL project focuses on seven different integrated demonstrators for rail assets which are key for Research and Innovation (R&I) in the rail sector. Integrating asset condition information obtained via advanced monitoring with decision-making tools and into the Traffic Management System (TMS), combining available information with Artificial Intelligence (AI) and digital twins are key R&I topics covered in FP3-IAM4RAIL.

FP3-IAM4RAIL aims to reinforce the next generation of Intelligent and Integrated Rail Asset Management, providing and demonstrating innovative solutions covering fixed and rolling stock assets, minimising the life cycle costs of assets and extending their lifetime, while meeting safety requirements and improving the reliability, availability and maintainability of the rail system. The project also seeks to promote sustainability and support the transition towards a greener and more efficient transport network in Europe. Recent advancements in the project include successful tests of predictive maintenance technologies and the integration of AI-driven analytics into real-time traffic management systems.

The Communication and Dissemination Plan is a living document setting out a strategy to maximise the impact of the FP3-IAM4RAIL project, to increase its visibility and to ensure that the project outputs reach a wide audience of relevant stakeholders. As a living document, it is subject to regular updates to reflect the evolving nature of the project and its progress. This version constitutes an update of the previous D20.1 document "Communication and Dissemination Plan", incorporating new developments and refinements that have emerged as the project advances. The plan is based on EU-Rail's communication policy and communication strategy and on the common goal of strengthening the overall EU-Rail programme[1], while addressing the specific objectives and topics covered by FP3-IAM4RAIL. This is done by highlighting FP3-IAM4RAIL as an important contribution to all EU-Rail projects. Additionally, the plan includes targeted outreach initiatives and engagement activities to promote collaboration with industry leaders, policymakers and the research community. Upcoming activities will focus on workshops and webinars to share insights and lessons learned from the project's ongoing developments.

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1     Europe's Rail Joint Undertaking Multi-Annual Work Programme

## 2. Abbreviations and acronyms

| Abbreviation / Acronym | Description |
|---|---|
| AI | Artificial Intelligence |
| AR | Augmented reality |
| CBM | Condition-Based Maintenance |
| CCT | Communication Coordination Team |
| CSM | Common Safety Methods |
| DB | Deutsche Bahn |
| EP | Exploitation Plan |
| ERA | European Union Agency for Railways |
| ERJU/EU-Rail | Europe's Rail Joint Undertaking |
| FP | Flagship Project |
| GA | Grant Agreement |
| IAMS | Intelligent Asset Management System |
| IMs | Infrastructure Measurements |
| JU | Joint Undertaking |
| KER | Key Exploitable Results |
| KPI | Key Performance Indicator |
| LCC | Life Cycle Cost |
| MAWP | Multi Annual Work Plan |
| R&I | Research & Innovation |
| TMS | Traffic Management System |
| TRA | Taiwan Railways Administration |
| WCCR | World Congress on Railway Research |
| WTMS | Wayside Train Monitoring System |
| WP | Work Package |

*Table 1: List of abbreviations and acronyms*

# 3. Background

The present document constitutes Deliverable D20.2 "Project Dissemination and Communication plan Update" within the framework of the Flagship Project 3 (FP3-IAM4RAIL), as outlined in the EU-RAIL Multi Annual Work Plan (MAWP)[2]. This updated version reflects recent developments and strategic adjustments to enhance the project's outreach and engagement activities.

Deliverable D20.2 is scheduled for publication in Month 30 (M30) and will be updated whenever necessary, in line with the dynamic and evolving nature of the project. It serves as an update to the previous D20.1 "Communication and Dissemination Plan", capturing the progress made and adapting the communication and dissemination strategy accordingly as the project advances.

An important activity of the project is to ensure smooth and efficient communication, not only within the Consortium but also towards the scientific, public and private communities. To achieve this, new communication channels and tools have been introduced, aiming to promote stronger connections with external stakeholders and ensure a broader dissemination of project outcomes.

This document contains all the information needed to facilitate the communication efforts of the FP3-IMA4RAIL project's partners, ensuring that the project's results and achievements, whether partial or consolidated, effectively reach the railway community. It also provides guidance on best practices for sharing insights and promoting collaboration with industry leaders and researchers.

The first release of D20.1: "Project dissemination and communication plan" was completed in Month 6. This updated plan, the D20.2, includes new initiatives, such as scheduled events and conferences, to keep the community informed about the project's progress and emerging findings.

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2    Europe's Rail Joint Undertaking Multi-Annual Work Programme

# 4. Objective/Aim

The Communication Plan belongs to Work Package (WP) 20 within the FP3-IAM4RAIL project. The objective of WP20 is to ensure that the project results and outputs are disseminated widely and effectively exploited by their target group across Europe's Rail JU, the rail sector and beyond. Efficient communication and dissemination activities serve to first form and engage a community of stakeholders and then spread the results of joint efforts widely to all target audiences in an optimal manner. The push for exploitation of project results is also part of WP20. However, exploitation activities themselves are out of the scope of this plan, and they are addressed in a separate and dedicated Deliverable (D20.3: "Project exploitation strategy").

The main goal of the communication and dissemination plan is to explain how the project will address the communication and dissemination of the project developments and results with the general public and other targeted stakeholders. Additional efforts will focus on enhancing the project's digital presence, including more dynamic content on social media to engage a broader audience.

The results of the project are communicated to the target audience and to specialised stakeholders related to the railway industry in various forms, such as peer-reviewed scientific papers in an open-access format, articles published in well-known rail industry magazines, presentations at conferences, live demonstrations and panel discussions. Some dissemination formats, such as video content (comprising also videos for the 7 DOs developed in the project), are also being included to diversify engagement channels and adapt to different audience preferences. This video content includes, among others, the materials created during the Mid-Term Event of the project, held in Paris in November 2024, which showcased the objectives of FP3-IAM4RAIL and the progress achieved up to that point.

# 5. Definitions and tools available from European Commission

Communication, dissemination and exploitation of results are crucial to the acceptance and implementation of technologies developed in the project by suppliers and end-users. Effective strategies in these areas will increase awareness regarding the adoption of innovative solutions within the rail sector and beyond. The success of the project depends significantly on how well its outcomes are shared and understood by the relevant stakeholders.



*Figure 1: Definitions of Communication, Dissemination and Exploitation terms of Horizon Europe*[3]

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[3] Full reference can be found here.

Throughout this document, the terms 'communication', 'dissemination' and 'exploitation' will be used frequently.

The definitions used by the authors are based on the reference terms of the EU for research and innovation. In this updated version, additional emphasis is placed on aligning these activities with best practices outlined in recent EU guidelines, ensuring compliance and maximising impact.

The document also introduces new methodologies (tools) for measuring the effectiveness of communication and dissemination efforts. Some of these tools, drawn from Horizon Europe's comprehensive set of resources, are already being voluntarily used to enhance our project's communication, dissemination and, eventually, exploitation strategies as we approach the final phases of the project. To further strengthen our impact, we are organising some dedicated meetings with project partners to demonstrate how they too can potentially use these tools in an effective way. Not only them, but also other open access tools for these same purposes. This collaborative session will empower all partners to contribute more effectively to communication, dissemination and exploitation activities, promoting a sustainable and long-lasting impact.
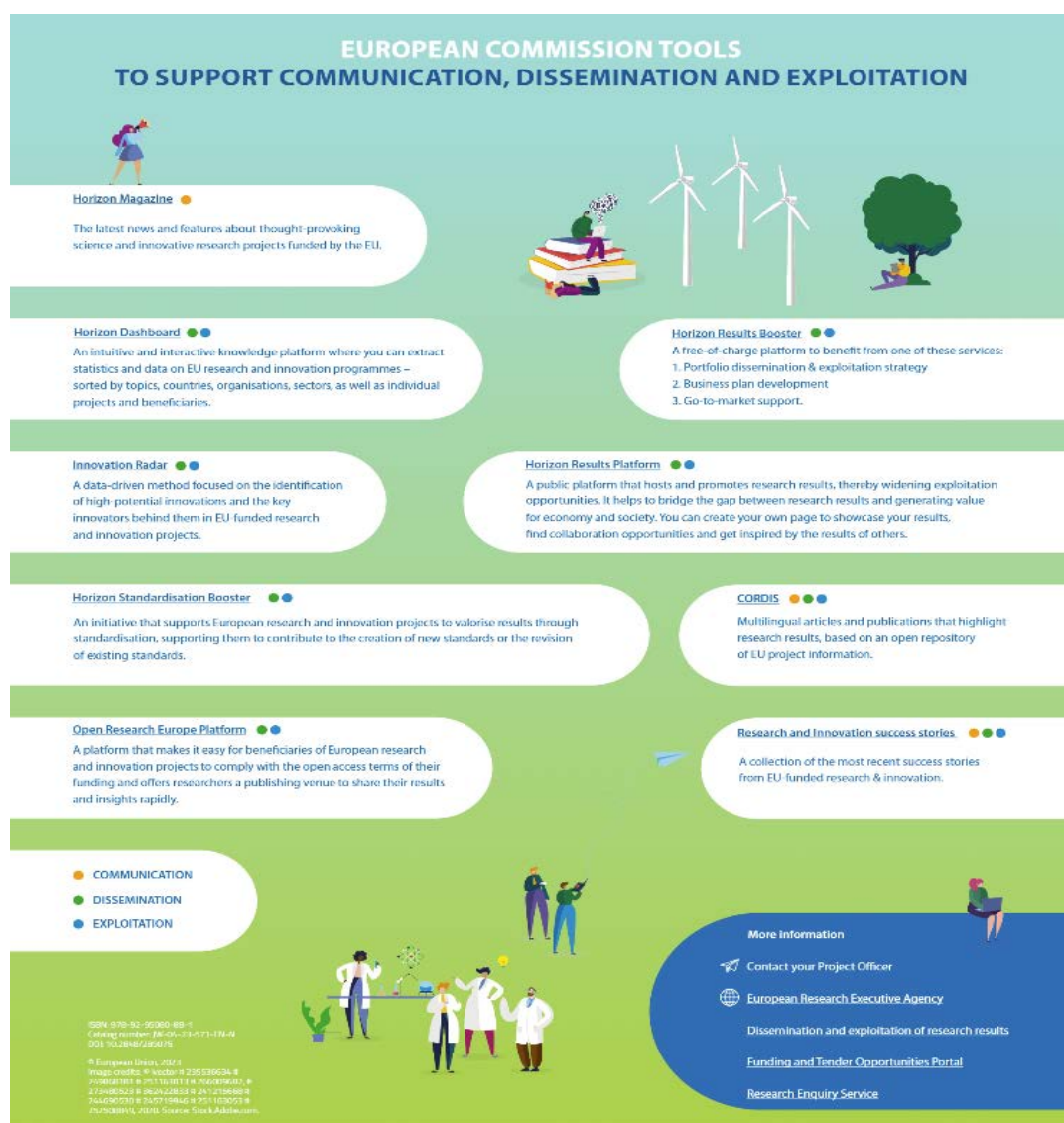


*Figure 2: European Commission tools to support Communication, Dissemination and Exploitation of Horizon Europe*

# 6. WP20 organisation

The activities of the WP are supported by all partners contributing to the technical outputs of the project through the various WPs. Contributions include providing content for the public website, dissemination materials, activities, dissemination of the technical demonstrators and stakeholder engagement, as well as organising events and publications, with ADIF acting as the WP Leader. The collaboration across all partners ensures a consistent and impactful approach to sharing project outcomes, strengthening the project's visibility and influence within the rail sector.

With the aim of delivering results aligned with the project goals, the work within WP20 is divided into four different tasks and three subtasks, which are listed below:

- **Task 20.1: Communication and dissemination activities** (Leader: ADIF. Participants: all partners. Duration: M1 - M48):
    - Subtask 20.1.1: Communication tools and visual identity
    - Subtask 20.1.2: Dissemination strategy and plan with stakeholder mapping
    - Subtask 20.1.3: Targeted dissemination

- **Task 20.2: Set up and manage the Advisory Board** (Leader: ADIF. Participants: all partners. Duration: M1 - M48). This task involves selecting key industry experts and thought leaders to guide the project, ensuring the alignment of project activities with market needs and regulatory expectations. This task has already been successfully completed. The Advisory Board now consists of six participants, bringing valuable insights and expertise to support the FP3-IAM4RAIL project's strategic objectives, and representing the following companies: Infraestruturas de Portugal, Global Rail Consulting, Swiss Railways, ABB, InfoCom and Norske tog AS.

- **Task 20.3: Demonstration Workshops** (Leader: ADIF. Participants: all partners. Duration: M1 - M48). These workshops not only showcase the project's technological advancements but also serve as an interactive platform for collecting feedback from end-users and stakeholders, enhancing the practical applicability of project solutions.

- **Task 20.4: Exploitation of the project's results and monitoring of impact assessment** (Leader: ADIF. Participants: all partners. Duration: M1 - M48). This task includes setting up metrics and tools to continuously monitor the project's impact, adapting exploitation strategies as needed to maximise benefits for the railway community.

The FP3-IAM4RAIL project will establish contact with other FP end-users, enablers and other stakeholders such as the System Pillar during and after the project. It will deliver the project results to its target groups with tailored messages through various channels in line with the Communication and Dissemination Plan and the Exploitation Plan. In addition to traditional communication methods, new digital tools and platforms are being used to broaden outreach and engage diverse audiences effectively.

# 7. Communication and Dissemination strategy

The main communication objective of FP3-IAM4RAIL is to create awareness and outreach about ERJU, its projects, and particularly about the project and the topic of asset management, among stakeholders both inside and outside Europe. The updated communication strategy not only targets traditional audiences within the rail sector but also aims to engage broader communities, including policymakers, academia and the general public, to enhance the impact of the project.

The main objectives of the dissemination and communication strategy are to raise awareness, share project results and encourage collaboration. These objectives will be achieved by means of:

- Elaborating and implementing a comprehensive plan, to ensure that the project results and outcomes reach the relevant stakeholders in the rail and transport sectors. This plan includes (as well as the D20.1) several key performance indicators to measure the effectiveness of communication efforts in an accurate way.
- Reviewing the plan whenever necessary, to correct any deviations from the expected targets, whether in the message or to the audience. To this end, several meetings per year with the Europe's Rail JU Chief of Stakeholders are held.
- Setting up communication channels with other Horizon 2020 and Horizon Europe ongoing projects (mainly under the open calls of Europe's Rail JU, especially in the projects under the calls HORIZON-ER-JU-2022-FA1-TT-01 and HORIZON-ER-JU-2022-FA5-01) and future Horizon Europe projects on the topic. The plan ensures a permanent link and communication with them, such as the project InBridge4EU – Enhancing European Railway Bridge Standards. The updated approach also explores opportunities for joint events and collaborative publications with these projects.
- Organising events or participating in established events to present and ensure that the project results and outcomes are disseminated among relevant stakeholders in rail and transport. New initiatives include webinars and videos of demonstrators, expanding accessibility to a global audience.
- Disseminating and promoting the integrated demonstrators within this topic. The project uses digital platforms and social media channels to boost visibility and engagement.
- Creating the project's visual identity, website, templates, newsletters and brochures to help disseminate main ideas.

Project communication is a strategically planned process that starts at the beginning of the action and continues throughout its lifecycle. The Communication and Dissemination Plan serves as the guiding document for this process and addresses the elements described in the following subchapters. The plan is designed to remain flexible and adaptive, allowing for adjustments based on project progress and emerging opportunities for engagement.

## 7.1. Purpose: why

The overall aim of the FP3-IAM4RAIL project is to reinforce the next generation of Intelligent and Integrated Rail Asset Management by providing and demonstrating innovative solutions for both fixed and rolling stock assets. These solutions aim to minimise the life cycle costs of assets, extend

their lifespan and meet safety requirements, while simultaneously improving the reliability, availability and maintainability of the rail system.

FP3-IAM4RAIL will be prepared to integrate asset condition information with Train Management Systems (TMS), enabling the optimisation of train routing decisions and enhancing the overall lifecycle of monitored assets. The project will contribute to an increase in the volume of rail traffic on existing lines, improving cost efficiency and reducing $CO_2$ emissions from maintenance and operations. Additionally, it will reduce construction time and costs for new assets and lines, while enhancing the durability and reliability of these assets and optimising their life cycle costs.

The competitiveness of the European railway industry will be strengthened through the achievement of more qualified products, ultimately leading to improved performance in terms of capacity, flexibility and punctuality across the entire railway system.

FP3-IAM4RAIL is also expected to innovate in digital technologies, supporting the transition towards a more sustainable and efficient railway sector in Europe.

## 7.2. Messages: what

During the first phase of the project, the main messages of FP3-IAM4RAIL were of a more general nature, aimed at creating awareness about the project and its objectives, while engaging relevant stakeholders. As the project progresses and starts to generate tangible outputs, these general messages will be supplemented by more specific communications promoting the results and other activities.

The goal will remain focused on strengthening the project's benefits and ultimately maximising its impact. Throughout the project's lifecycle, the content of the messages and the target audiences may evolve to reflect the different phases of development and the progress of the project.

Additionally, the communication strategy will be continuously refined to ensure the most effective dissemination of key information to all stakeholders involved.
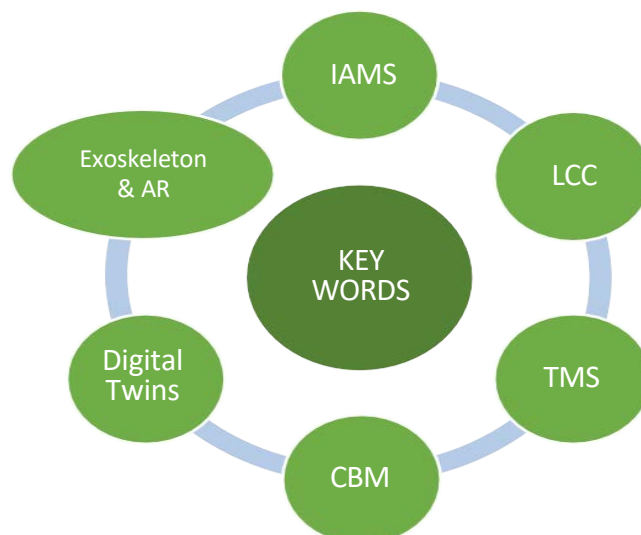


*Figure 3: FP3 IAM4RAIL key words*

These are the general messages that the project wants to convey:

**General Key message 1: A European Intelligent & Integrated Asset Management**

- Asset management to provide knowledge from digital transformation into the railway design, construction and manufacturing, as well as into operation and maintenance processes.
- Involvement of 29 partners across Europe: 9 of them Major Operators, 17 Railway integrators and suppliers and 3 research centres, plus 66 affiliated entities (94 in total).

**General Key message 2: Reduce costs while increasing reliability**

- A cost-effective asset management will be developed for the whole railway sector.
- Increase both reliability and capacity at the same time for the overall railway System.

**General Key message 3: Sustainability**

- Foster a sustainable production of resilient railway assets with new techniques.

**General Key Message 4: Automation**

- Increase level and technology for automation and robots in construction and maintenance tasks for the railway sector.

**General Key Message 5: Readiness**

- Innovative solutions for asset management but close to the real world: aiming at High TRL levels (6-7) to pave the way forward to deployment in the short term.

*Figure 5: FP-IAM4RAIL Key Messages*

The project has defined a series of Clusters, that is, a grouping of WPs with thematic affinity:

Cluster A - Transversal Activities. This cluster unifies the common activities of the project including project coordination (WP1); system vision, architecture and validation (WP2); and dissemination, communication and exploitation activities (WP20).

Cluster B - Wayside Monitoring and Traffic Management System Link. The cluster focuses on the design, development, testing and validation of an Intelligent Asset Monitoring System (IAMS), capable of supporting the railway operators and infrastructure managers in maintaining smooth and uninterrupted operations (WP3 and WP4).

Cluster C - Rolling Stock Asset Management: On-board and Wayside Technologies. This cluster addresses both on-board (WP5 and WP6) and wayside (WP7) monitoring technologies for the design, testing and validation of intelligent rolling stock asset management solutions.

Cluster D - Infrastructure Asset Management. The infrastructure asset management cluster addresses the development of (monitoring) tools and data analytics supporting asset management:

- (i)   Long term maintenance and costs (WP8)
- (ii)  Track systems (WP9)
- (iii) Innovative multi-purpose IAMS infrastructure applications (WP10 and WP11)
- (iv) Civil assets including structures, earthworks and geotechnics (WP12 and WP13)

Cluster E - Railway Digital Twins. This group of developments focuses on the implementation of railway Digital Twins across the rail sector (WP14 and WP15).

Cluster F - Environment, User and Worker Friendly Railway Assets. Cluster F has the objective of creating environment, user and worker friendly railway assets addressing environmental and cost-effective lines (WP16), new additive manufacturing repair processes (WP17), robotic platforms for railway interventions (WP18) and Augmented Reality and exoskeletons to support railway maintenance (WP19).

The key messages of each one of the Clusters are:

**Cluster A Key Message: Transversal Activities**

- A cost-effective and Integrated Intelligent Asset Management is achievable
- Robotics and wearables can help maintenance workers' activities.
- Manufacturing techniques and maintenance processes to be more environmentally friendly.

**Cluster B Key Message: Wayside Monitoring (WTMS) and Traffic Management System (TMS) Link**

- Asset management needs to develop new interfaces with the existing signalling systems.
- Wayside Train Monitoring System (WTMS) will collect operational and maintenance data and develop analytics for the prediction of assets' status.
- The combination of both actions will not only support the operator in the management of assets but will provide useful insights for TMS optimisation.

**Cluster C Key Message: Development of on-board and wayside technologies for monitoring of rolling stock**

- Rolling stock monitoring, data capturing and analytics for anomaly detection is essential to feed its maintenance strategies, such as Condition Based Maintenance (CBM).
- A clear definition for vision, requirements and guidelines needed to deploy railway checkpoints applied to every type of rolling stock fleet is a must.

**Cluster D Key Message: Developing (monitoring) tools and data analytics introducing and applying the latest novel technologies in a Holistic Infrastructure Asset Management approach**

- Infrastructure assets need long-term maintenance strategies and reduced costs through innovative multi-purpose IAMS applications.
- The approach of (monitoring) tools and analytics includes civil assets including structures, earthworks and geotechnics and track systems.

**Cluster E Key message: Infrastructure Asset Management**

- Develop harmonised methods to exploit Digital Twin (DT) for key asset management tasks is vital.

**Cluster F Key Message: Development of remotely controlled, unmanned and metadata-assisted interventions**

- Design, construction, maintenance and renewal operations for railway assets will benefit from the innovative solutions using either remotely controlled, unmanned or metadata- assisted interventions.

Figure 6: FP3-*IAM4Rail* Cluster Key Messages

Stakeholders' needs are at the core of the FP3-IAM4RAIL objectives.

Communication strategies are tailored based on stakeholder analysis, offering a variety of channels to ensure effective dissemination. The content will be concise and specifically adapted to suit the needs of each recipient. To maximise the impact of the project and facilitate knowledge transfer, dissemination efforts will target not only the scientific community but also a broad range of other relevant groups, including:

- All rail stakeholders and the broader transport community
- Policy makers and regulators
- Universities and research centres
- Authorities
- The general public
- And other key audiences as necessary

These tailored communication efforts aim to ensure that the results are widely spread and easily accessible, enabling diverse stakeholders to benefit and learn from the project outcomes.

## 7.4. Method: how

The primary channel for dissemination of the FP3-IAM4RAIL project is the project webpage, which is hosted as part of the EU-Rail website. This webpage is visited by a large number of people, and here we present its usage statistics:
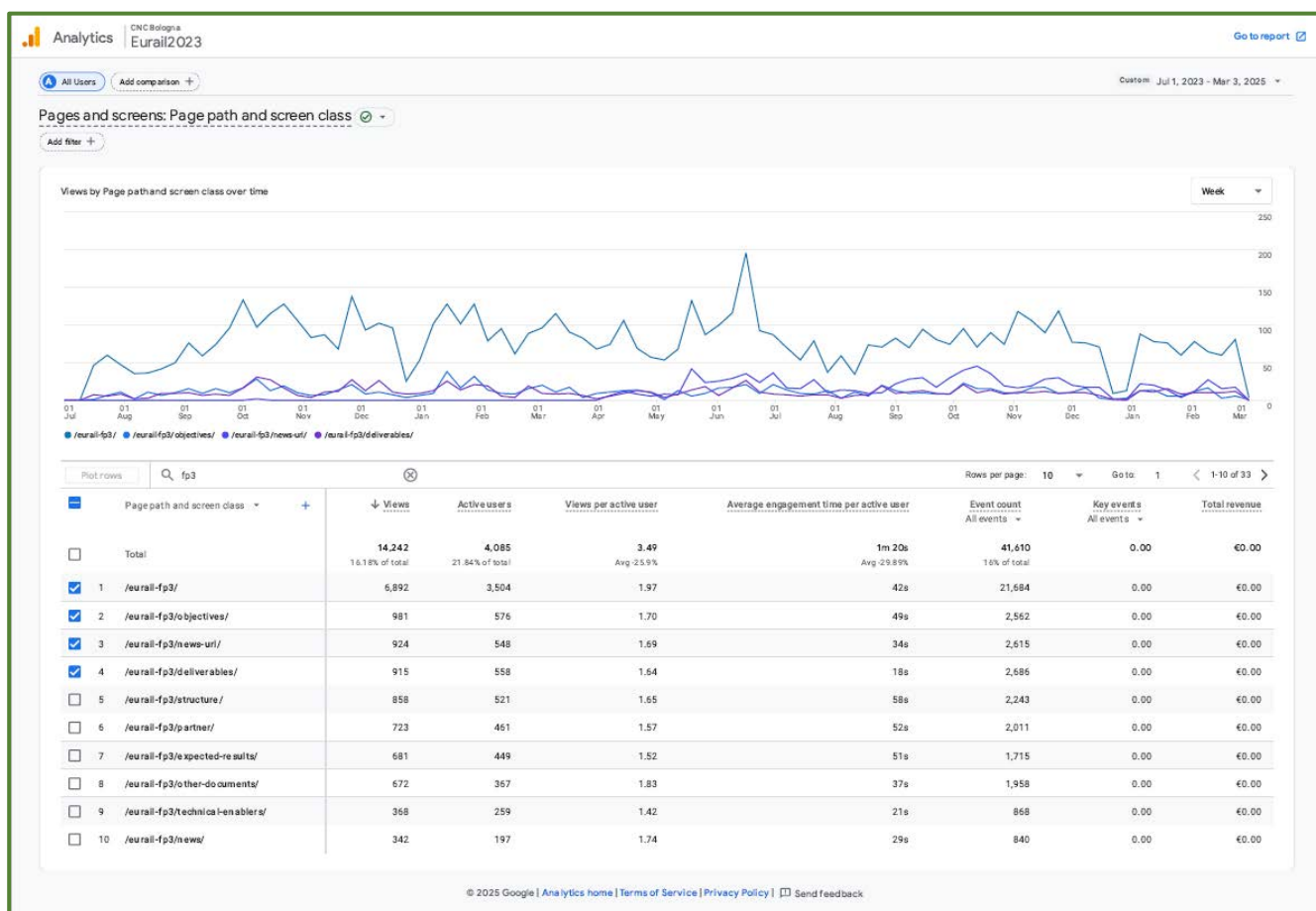
*Figure 7: FP3-IAM4RAIL webpage statistics (Jul 1, 2023 - Mar 3, 2025)*

In addition to the sections dedicated to project documents and deliverables, the webpage features a specific space to share the latest news and promote upcoming project events, whether organised by FP3-IAM4RAIL or attended by project partners.

On the project website, at this link, all newsletters published so far are available, along with future editions as the project progresses. The website also hosts videos created for each of the project's Clusters, with more videos to be added to the 'Multimedia' section showcasing the demonstrators launched as the project advances.

Updates and news are also forwarded to the EU-Rail Communication group to be highlighted on the front pages of EU-Rail's social media accounts, such as Twitter and LinkedIn.
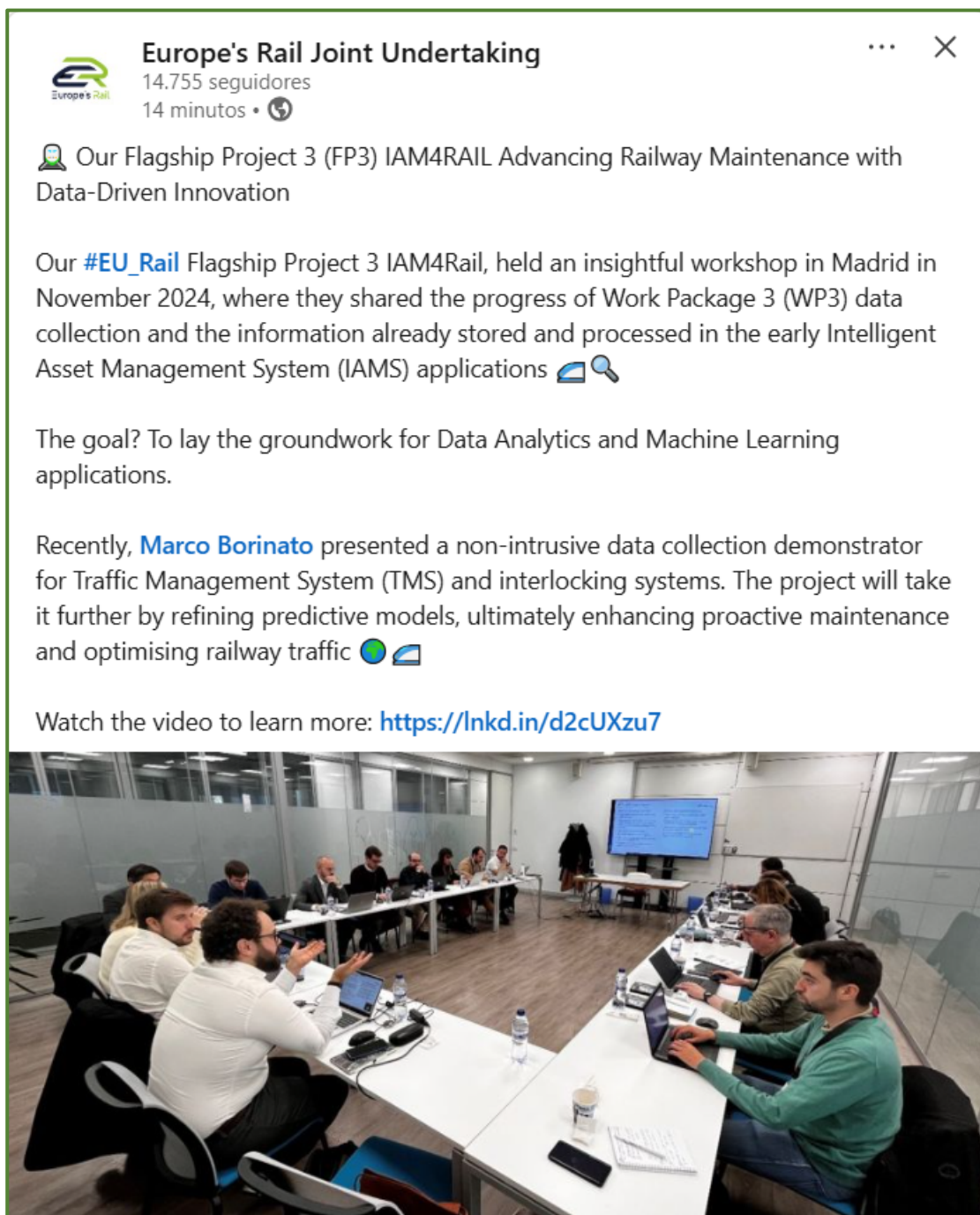
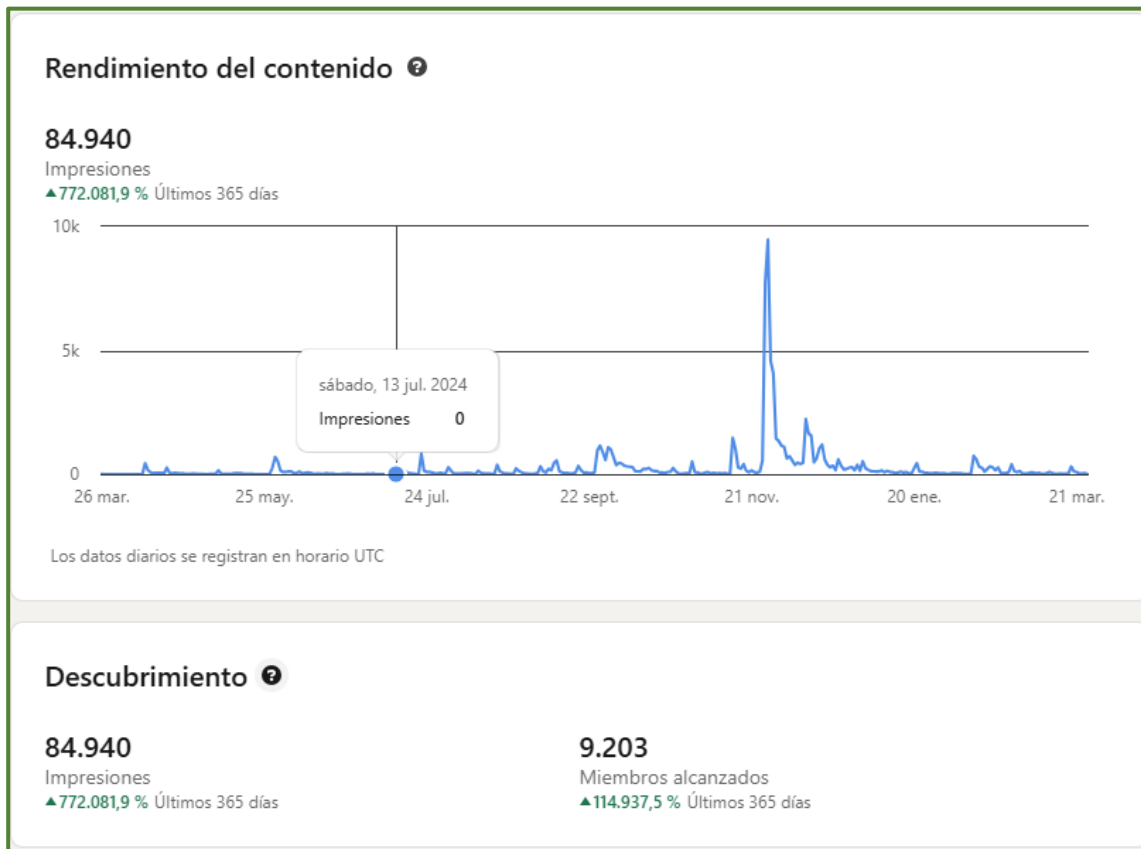*Figure 8: Post on LinkedIn, by EU-Rail, about the FP3-IAM4RAIL*

*Figure 9: Content performance of LinkedIn posts in the last year*

The project actively participates with other Flagships, in dissemination meetings, media and communication activities, as well as in EU-Rail Innovation Days and other key conferences. Collaborating closely with project partners is essential to ensuring maximum outreach and impact. This includes proactive communication from the project, ensuring all relevant organisations are informed when articles or messages are ready for dissemination. Communication activities include visual identity (logos, graphic charter), the public website, leaflets, flyers, social media, videos, press releases and more.

Unless otherwise agreed with the granting authority, communication activities related to the action, including media relations, conferences, seminars, information materials such as brochures, posters and presentations (in electronic form) via traditional or social media, must acknowledge EU support. This includes displaying the European flag (emblem) and a funding statement, translated into local languages when appropriate, on all related materials.

As mentioned before, EU-Rail makes available a number of European Commission tools European Commission to support communication, dissemination and exploitation of funded projects, in addition to those already used by the project itself. These tools can potentially include:

- Horizon Magazine
- Horizon Dashboard
- Horizon Results Booster
- Innovation Radar
- Horizon Results Platform
- Horizon Standardisation Booster

- CORDIS
- Open Research Europe Platform

Other open access tools apart from the ones provided by the Commission are also available and can be used depending on the use and purposes of the partners in the project.To ensure consistent and coordinated communication, the FP3-IAM4RAIL project will not maintain its own social media accounts. Instead, EU-Rail will share the project's results and progress through its official channels, helping to keep all stakeholders well-informed about key milestones and developments.

## 7.5. Time: when

Content resulting from the FP3-IAM4RAIL project outcomes and related activities has been published online, including more than 20 posts on the project's website and several others via the Europe's Rail LinkedIn account, such as the *FP3 Tests CEIT & ADIF*. These publications aim to keep stakeholders informed and engaged with the project's progress and achievements.

To further enhance visibility, dedicated LinkedIn campaigns are organised to coincide with major events, including the different editions of *InnoTrans* and the *Mid-Term Event* that took place in November 2024 at the UIC facilities in Paris. These targeted campaigns are intended to boost engagement and draw attention to key project milestones.

Looking ahead, future results will be published, and dissemination actions of interest will be launched as soon as they are ready, with a minimum frequency of once per year. By maintaining an active dissemination strategy, the FP3 Consortium aims to maximise the influence of project results and support other researchers in building upon these advancements.

In addition to online and social media dissemination, further communications are taking place through peer-reviewed journals. The FP3-IAM4RAIL project partners have submitted articles to high-impact journals that offer open-access publishing opportunities. Specifically, twelve scientific articles mentioning the FP3-IAM4RAIL project have been published in peer-review journals, most of them by the Delft University of Technology (Delft, Netherlands), but there are other companies that have submitted them too. Several other scientific articles will be published in the second half of the project. The ones that have already been published can be found below:

1. Paper on analysis of transition zones using ABA measurements. S. Unsiwilai, L. Wang, A. Núñez, and Z. Li, "Multiple-axle box acceleration measurements at railway transition zones". Measurement, Volume 213, May 2023, 112688 Paper 1.
2. Review paper TUDelft+PRORAIL+DB on AI technologies for Infrastructure. W. Phusakulkajorn, A. Núñez, H. Wang, A. Jamshidi, A. Zoeteman, B. Ripke, R. Dollevoet, B. De Schutter and Z. Li, "Artificial intelligence in railway infrastructure: current research, challenges and future opportunities". Intelligent Transportation Infrastructure, Volume 2, 2023, liad016 Paper 2 .
3. Paper "Analysis of Local Track Discontinuities and Defects in Railway Switches Based on Track-Side Accelerations", by Susanne Reetz. Paper 3.
4. Paper on fundamentals of AI (physics informed NN) towards simulation of beams, T.

Kapoor, H. Wang, A. Núñez, and R. Dollevoet, "Physics-informed neural networks for solving forward and inverse problems in complex beam systems." IEEE Transactions on Neural Networks and Learning Systems, Volume 35, Issue 5, Pages: 5981-5995, May 2024. Intelligence, Volume 133, Part A, July 2024, 108085 Paper 4.

5. Key paper on the combined use of LDV and ABA under controlled/laboratory conditions, proven TRL4 level of the technology. Y. Zeng, A. Núñez, Z. Li, "Measuring transfer functions of tracks structures in a test rig with laser Doppler vibrometer and accelerometers on a moving vehicle." Mechanical Systems and Signal Processing, Volume 214, May 2024, 111392 Paper 5.

6. Paper on fundamentals of AI (transfer learning and causal Physics informed NN) towards simulation of beams, T. Kapoor, H. Wang, A. Núñez and R. Dollevoet, "Transfer learning for improved generalizability in causal physics-informed neural networks for beam simulations". Engineering Applications of Artificial Intelligence, Volume 133, Part A, July 2024, 108085 Paper 6 Codes.

7. Paper called "Vertical dynamic measurements of a railway transition zone: a case study in Sweden", by Siwarak Unsiwilai, Chen Shen, Yuanchen Zeng, Li Wang, Alfredo Núñez & Zili Li. Paper 7.

8. Paper called "Enhanced vertical railway track quality index with dynamic responses from moving trains", by Siwarak Unsiwilaia, Wassamon Phusakulkajorna, Chen Shena, Arjen Zoetemanb, Rolf Dollevoeta, Alfredo Núñeza, Zili Li. Paper 8.

9. Paper called "A Train-Borne Laser Vibrometer Solution Based on Multisignal Fusion for Self-Contained Railway Track Monitoring", Yuanchen Zeng; Alfredo Núñez; Rolf Dollevoet; Arjen Zoeteman; Zili Li. Paper 9.

10. Paper on "Neural Differential Equation-Based Two-Stage Approach for Generalization of Beam Dynamics", by by Taniya Kapoor; Hongrui Wang; Anastasios Stamou; Kareem El Sayed; Alfredo Núñez; Daniel M. Tartakovsky. Paper 10.

11. Paper "Analysis of Local Track Discontinuities and Defects in Railway Switches Based on Track-Side Accelerations", by Susanne Reetz, Taoufik Najeh, Jan Lundberg and Jörn Groos. Paper 11.

12. Scientific article called "Enhanced Vertical Railway Track Quality Index with Dynamic Responses from Moving Trains", by Siwarak Unsiwilai, Wassamon Phusakulkajorn, Chen Shen, Arjen Zoeteman, Rolf Dollevoet, Alfredo Núñez, Zili Li. Paper 12 .


Potential target journals include (but are not limited to):

- Transportation Research, Policy and Practice
- Emerging Technologies
- European Transport Research Review
- Information Systems Research
- Information Technology and People
- Journal of Rail Transport Planning & Management (Delft University of Technology, Delft, Netherlands)

This approach to dissemination is ensuring broad visibility of the project's results, promoting knowledge exchange and collaboration within the scientific and transport communities.

# 8. Creation of an Advisory Board

To ensure that stakeholders' needs and concerns are directly addressed, an Advisory Board has been established to facilitate the active engagement of all target users and gather feedback from across the European community. Initially envisioned as a 10-member board, it was decided by consensus to reduce the number to 6 members, as this was considered sufficient to effectively support the project's objectives. The current Advisory Board consists of 6 members representing 6 different companies: Infraestruturas do Portugal, Global Rail Consulting, Swiss Railways, ABB, InfoCom and Norske tog AS.

The Advisory Board's primary role is to provide insights and guidance from an end-user perspective, helping to align the project's activities with real-world needs. It contributes to involving infrastructure operators as well as municipal operators and infrastructure managers, ensuring broad representation and knowledge transfer. Additionally, members include representatives from countries not directly involved in the project to enhance feedback diversity and support market uptake of the developed solutions.

The board is coordinated by ADIF and meetings take place regularly every two months. These periodic meetings serve as a platform for the Advisory Board members to discuss the best strategic directions for the project, offering their expert perspective while keeping the project's goals in mind.

Key stakeholders and collaborators will also be invited to participate in the Advisory Board meetings when needed, including:

- **Trade Unions**, as much as possible, to provide workforce perspectives (e.g., the European Transport Workers' Federation, ETF).

- **The European Union Agency for Railways (ERA)**, to collaborate on specific areas outlined in the Europe's Rail Process and Governance Handbook. ERA's involvement will help align the project with regulatory and safety standards.

- **The EU-Rail Deployment Advisory Group**, which will play a critical role in monitoring the market uptake of the developed solutions. Their inputs will significantly influence the project's exploitation strategy.

The consolidated list of persons and entities comprising the Advisory Board was officially communicated in **Milestone 34 "Advisory Board set-up"**, marking the formal establishment of this essential governance body. It has been set up as follows:

| Entity | Country | Contact Person |
|---|---|---|
| GRC (Global Rail Consulting) | Austria | Jan Mys (jmys@global-rail-group.com), Harald Eller (heller@global-rail-group.com) |
| IP (Infraestruturas do Portugal) | Portugal | João Gonçalo Maia Vieira (joao.mvieira@infraestruturasdeportugal.pt) |
| SBB (Schweizerische Bundesbahnen) | Switzerland | Thomas Gugler (thomas.gugler@sbb.ch), Martin Espenschied  (martin.espenschied2@sbb.ch) |
| ABB | Switzerland | Jan Stefan Zernickel (janstefan.zernickel@de.abb.com) |
| Infocom Genova SRL | Italy | Maurizio Giribaldi (maurizio.giribaldi@infocomgenova.it) |
| Norske tog AS | Norway | Henrik Boerstad Eriksen henrik.boerstad.eriksen@norsketog.no |

*Table 2: List of Advisory Board members*

# 9. Communication procedures and processes

## 9.1. FP3-IAM4RAIL project identity

The project identity aims to create a distinctive brand identity that represents the project and its objectives. A strong project identity can help to promote the project and its outcomes, build trust and credibility among stakeholders and enhance the project's visibility in both professional and public domains. The updated identity strategy also emphasises the alignment with Europe's broader sustainability and innovation goals, reinforcing the project's contribution to the European railway sector's evolution.

All communication activities (templates, brochure, etc.) need to include the funding disclaimer, making a reference to the Grant Agreement number, with the European flag and the EU-Rail logo. This is the disclaimer that needs to be added:

*"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them. The project is supported by the Europe's Rail Joint Undertaking and its members. This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101101966".*

A project identity was established at the beginning of the project, and templates were created for presentations and reports. The identity guidelines have been reviewed periodically to ensure compliance with evolving EU-Rail branding requirements and to integrate feedback from stakeholders.

Regarding the project logo generated as part of the visual identity, the following key ideas guided its creation:

- Representation of a European cross-border approach
- Interoperability of the innovative solutions
- Holistic conception of the railway system
- Harmonisation of the European railway system
- Consideration of asset management for both infrastructure and rolling stock sub-systems in the railway sector
- References to advanced monitoring technologies
- Application of artificial intelligence techniques
- Use of Digital Twin models

The selected logo not only meets these requirements but also conveys strong, dynamic ideas. The logo is reminiscent of civil engineering assets, especially infrastructure, showcasing geometric elements such as arcs that reference tunnels or viaducts and straight lines symbolising the track. Rolling stock assets are also represented, with the head of a trainset contributing to the logo's design and industrial innovation aspects. It is a logo with a strong railway image and a lot of character, where the dots represent a connection with the technological world. Additionally, the logo's design evolution process included input from design experts and stakeholders, ensuring it resonates well with diverse audiences.



*Figure 10: FP3-IAM4Rail logo*

Other templates are available for both presentation documents and meeting minutes. These templates have been updated recently to improve clarity and consistency across all project communications.

For presentations, this is the format to be used for internal meetings and dissemination activities:



*Figure 11: FP3-IAM4Rail general presentation template*

These are three pieces of relevant dissemination material to be used by partners as needed:

**1) A general project presentation** to be used in non-scientific events, that:

- Presents the project's main topic.
- Explains the project structure, WPs and beneficiaries at a high level.
- Highlights the project's main objectives and expected impacts.
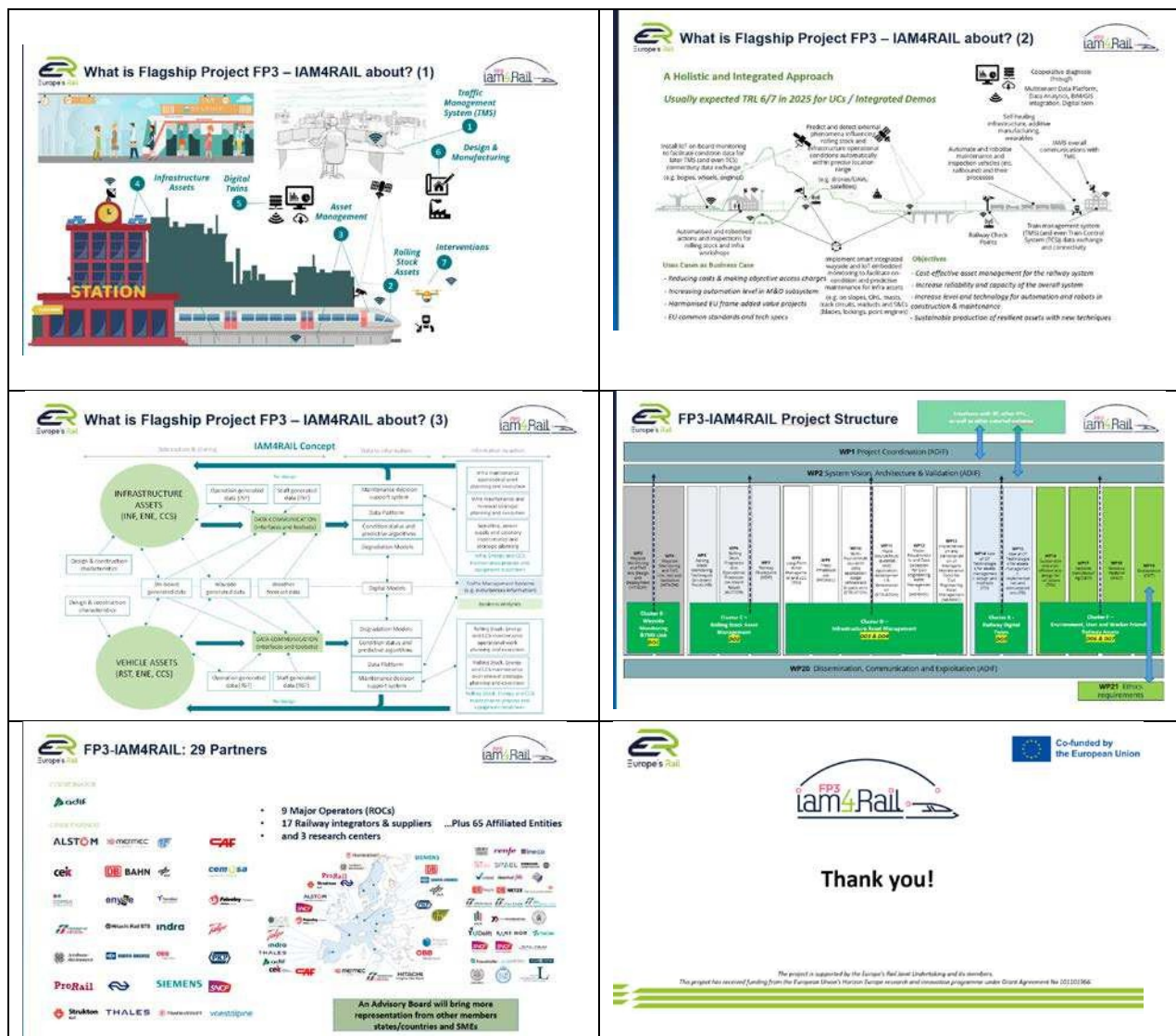
A part of this presentation is shown here:



*Figure 12: FP3-IAM4RAIL general project presentation*

**2) A general project brochure** was developed to facilitate awareness, presentation and dissemination of the project. The brochure outlines the reasons for the project, its implementation approach and it showcases the partners involved. It also provides contact information for the consortium. It is available in both digital and physical formats, to be used in all types of events. The brochure also features a QR code linking directly to the project's website for easy access to additional information.

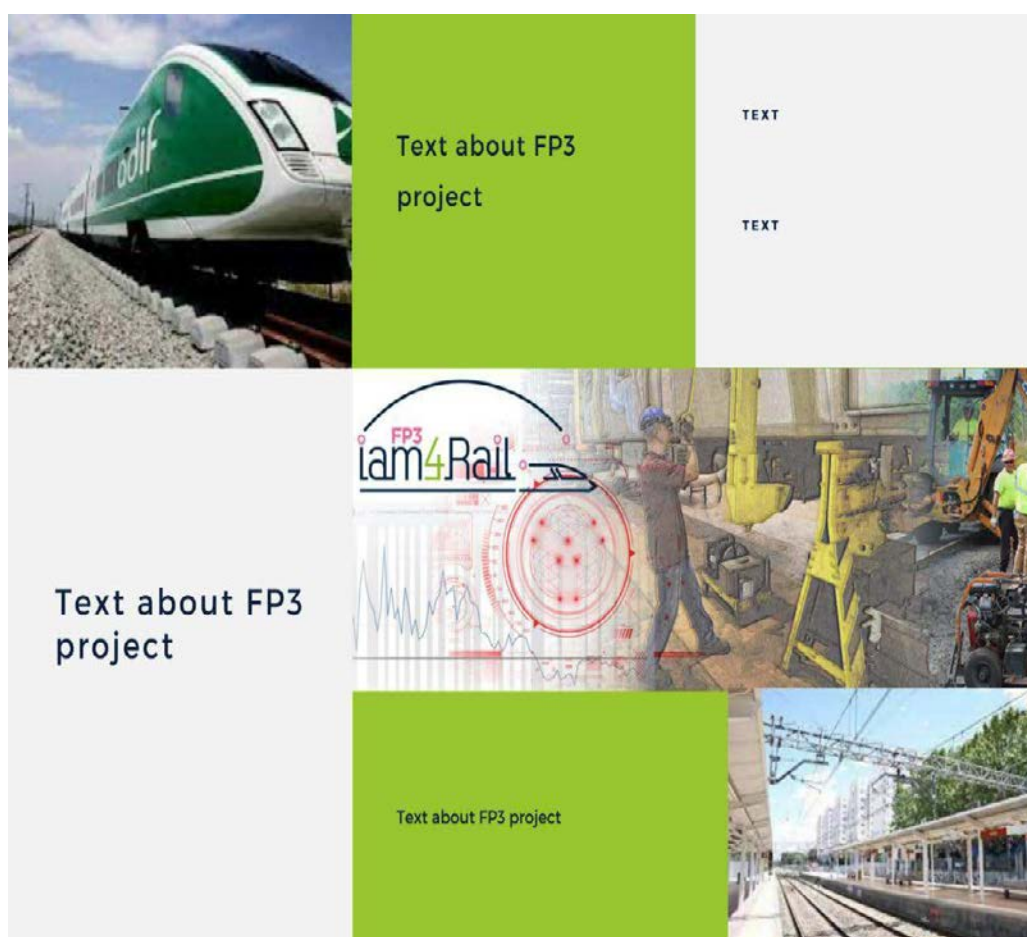*Figure 13: Draft brochure created for FP3-IAM4RAIL (side A)*



*Figure 14: Draft brochure created for FP3-IAM4RAIL (side B)*

**3) Creation of newsletters** to be used as needed during the project, to share relevant and targeted information regarding FP3-IAM4RAIL project main achievements. At least one newsletter per WP will be published within the project lifecycle. Almost **20 newsletters** have already been published, which can be found [here](#), and more will be submitted during the project course. The newsletters have evolved to include not only updates but also interviews with project experts and insights into upcoming events and opportunities for stakeholder engagement.
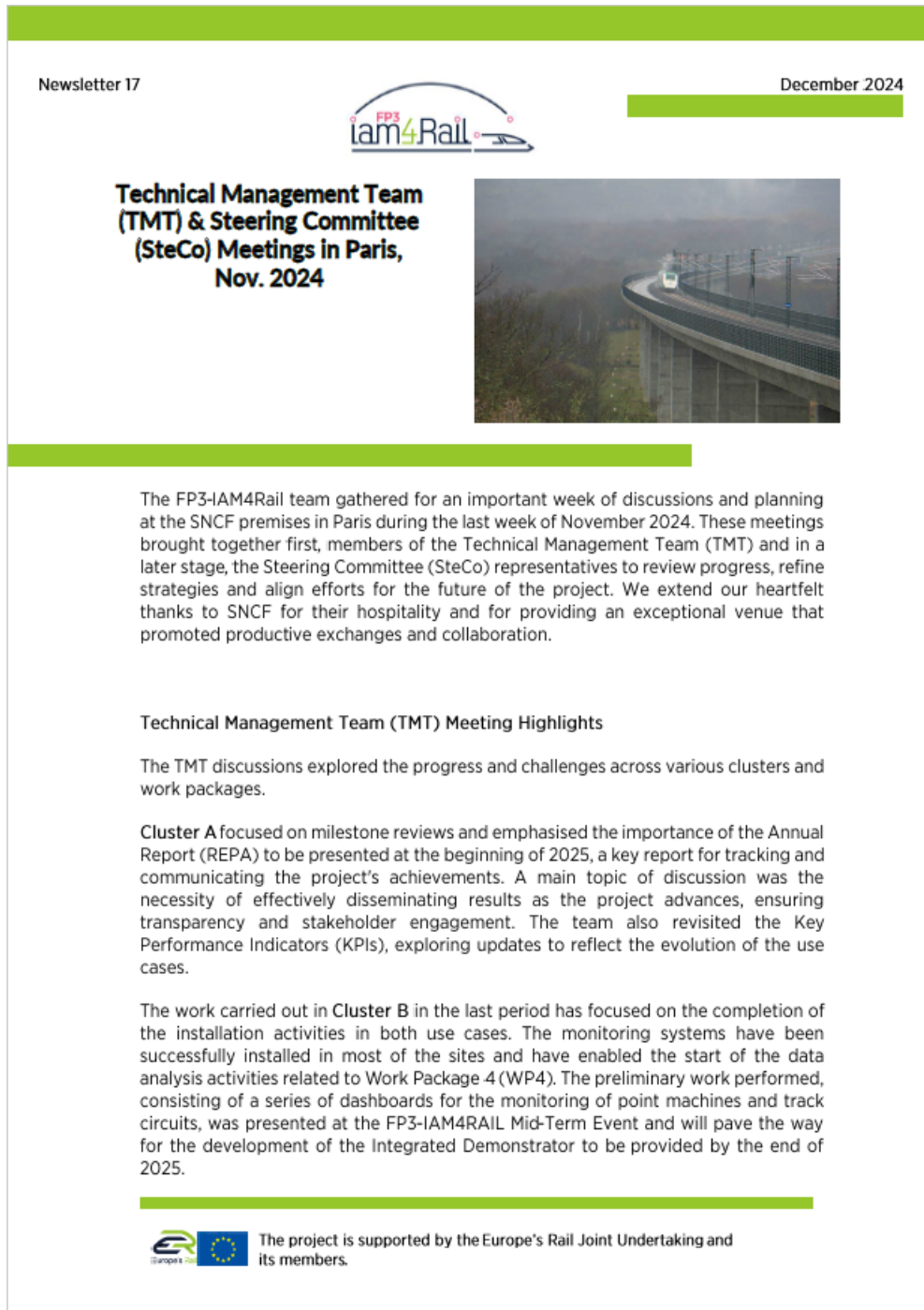


*Figure 15: One of the newsletters created for FP3-IAM4RAIL (first page)*

*Figure 16: One of the newsletters created for FP3-IAM4RAIL (page 2)*

4) **Production of a roll-up** for the FP3-IAM4RAIL project and presented at its mid-term event in Paris. Designed to share key information and promote the project, it highlights its mission and goals. Featuring QR codes and web links, the roll-up facilitates quick access to additional resources. Project partners can use it at events and conferences to enhance visibility and promote collaboration within the railway industry. This promotional tool ensures a consistent and professional representation of the project. By using it, partners can effectively engage with stakeholders and showcase FP3-IAM4RAIL's innovative contributions to railway infrastructure management.
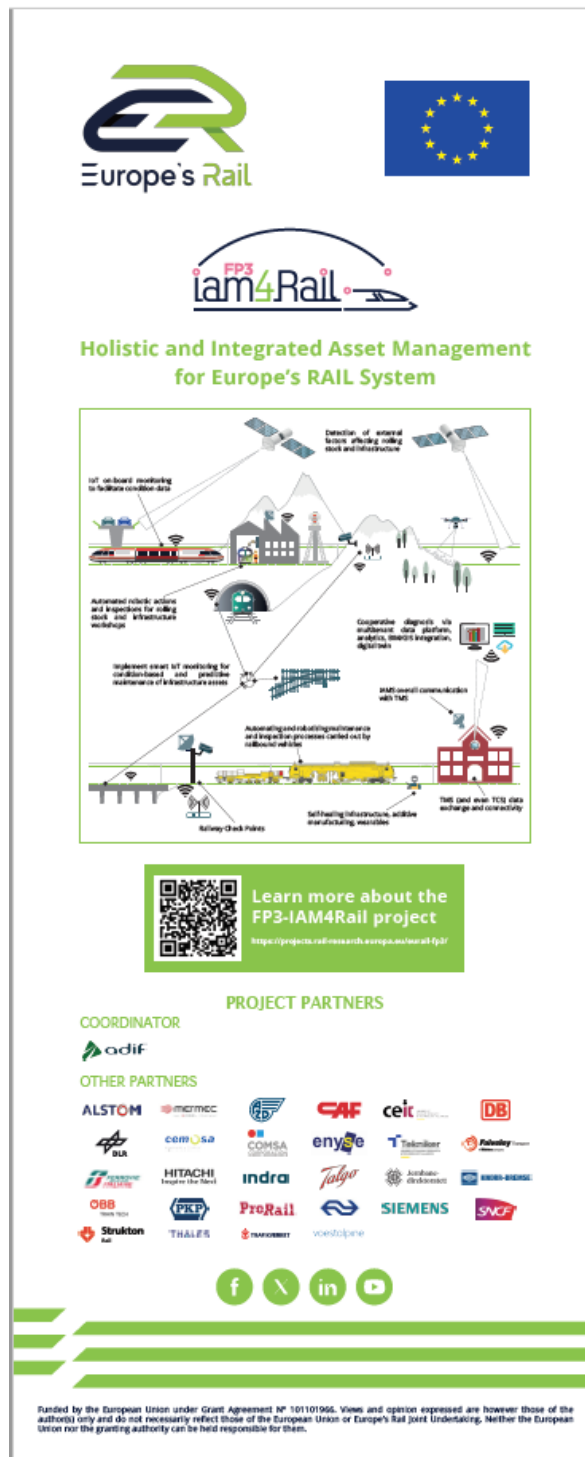
*Figure 17: Roll-up created for FP3-IAM4RAIL*

5) **Other promotional material:** in addition to the rest of the materials related to project identity, various promotional materials have been created for the FP3-IAM4RAIL project. These include videos highlighting each project cluster, as well as other videos of the panel discussions and the roundtable held during the Mid-Term Event of the project, in Paris. Additionally, videos showcasing project demonstrators have been produced to illustrate key innovations.

6. **Cluster F: Environment, User and Worker Friendly Railway Assets.** Cluster F has the objective of creating environment, user and worker friendly railway assets addressing environmental and cost-effective lines (Work Package 16), new additive manufacturing repair processes (Work Package 17), robotic platforms for railway interventions (Work Package 18) and Augmented Reality and exoskeletons to support railway maintenance (Work Package 19).

*Figure 18: Videos of the FP3-IAM4RAIL Clusters in the ERJU web page*

More promotional materials will be developed throughout the remainder of the project to further enhance dissemination efforts. The project has also been actively promoted on LinkedIn, ensuring broader visibility and engagement with industry stakeholders. These initiatives aim to effectively communicate FP3-IAM4RAIL's impact and promote collaboration within the railway sector.

## 9.2. Communication team

### 9.2.1. Communication and Coordination team

ADIF has created a Communication Coordination Team (CCT) to help manage everyday communication activities. The CCT plays a crucial role in ensuring that all communication efforts align with the project's strategic goals and maintains consistency across all dissemination channels. To enhance coordination and transparency, the CCT plans to meet periodically, with an increased frequency during key project milestones or major dissemination events. Meeting minutes are shared with all beneficiaries, whether they are present at the meeting, ensuring that all partners remain informed and engaged in communication efforts.

The external image of the FP3-IAM4RAIL project must be seamless, and the content homogenous, relevant, well-proven and worth sharing. A unified communication approach strengthens the project's visibility and credibility, helping to maximise its impact within the railway sector and beyond. To achieve this, the Communication Leader must be aware and informed in advance of the following communication activities:

- Any publication submitted by consortium partners.
- Any speech imparted by consortium partners.

- Any attendance at workshops and seminars representing the project.

Additionally, to achieve a broader engagement with external stakeholders, partners are encouraged to proactively identify new dissemination opportunities and share them with the CCT. This helps ensure that the project reaches a wider audience, including policymakers, industry leaders and research institutions.

At the same time, each partner is encouraged to communicate the existence of the FP3-IAM4RAIL project and its partial achievements within their respective organisations. While it is not mandatory to share these internal communication activities with the CCT, doing so is highly desirable, as it allows for better coordination and alignment with the overall dissemination strategy. To facilitate this process, an internal repository has been set up where partners can voluntarily log their communication activities, providing a comprehensive overview of the project's outreach efforts.
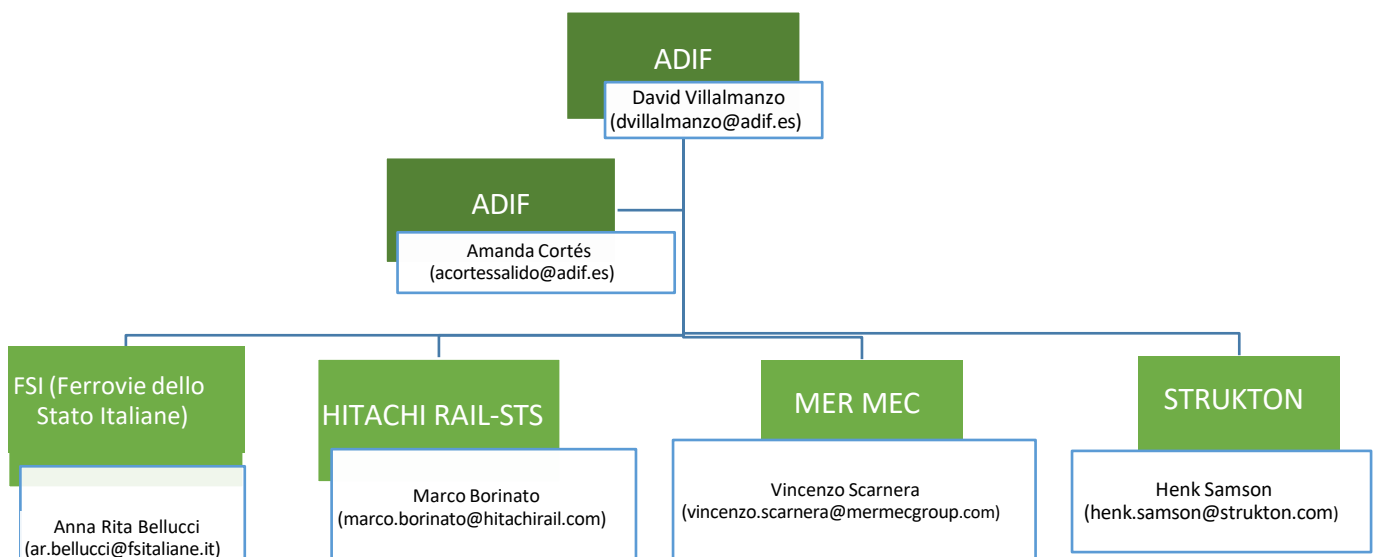


*Figure 19: FP3-IAM4Rail Communication Coordination Team*

The main activities of the CCT are essential for ensuring the effective coordination, execution and monitoring of communication and dissemination efforts throughout the FP3-IAM4RAIL project. The team actively collaborates with all partners to maintain a coherent and impactful communication strategy. These activities include:

- Prepare a list of communication activities and update it during the project, in collaboration with the entire Consortium. The document is available in a common shared space in TEAMS to plan, collect and monitor all the partners' planned communication and dissemination activities. This list is updated constantly to reflect new opportunities and progress made.

- Encourage specific partners to present relevant FP3-IAM4RAIL topics at targeted events, ensuring that key messages are delivered effectively to the right audiences. This includes:

  o Suggesting subjects for papers and articles that align with the project's objectives.
  o Preparing small posts for LinkedIn to maintain an active social media presence and

engage with the professional community.

- o Producing short videos to visually communicate project advancements and impact.
- o Drafting project abstracts for repositories, *wikis* and research databases to facilitate knowledge sharing.
- o Identifying any other relevant dissemination opportunities.

- Keep track of communication indicators to assess the effectiveness of various dissemination efforts, ensuring timely interventions if certain activities need reinforcement or prioritisation over others.

- Update communication materials when needed, ensuring they remain relevant, visually appealing and aligned with project developments.

- Maintain regular contact with the EU-Rail communication team, proposing news, posts, documents and ideas for publication in ERJU communication channels to maximise outreach within the European railway community.

- Strengthen collaboration with similar projects, identifying common ground and promoting synergies. The team shares a list of identified potential events to encourage joint participation and knowledge exchange.

- Ensure that participants, once the communication activity has been performed, provide comprehensive documentation, including:

  - o Final agenda of the event.
  - o Summary of the beneficiary's participation and key takeaways.
  - o Final version of presentations, speech notes, videos, panel discussions or papers.
  - o List of participants, type of audience and stakeholders in attendance.
  - o Number of people reached through the activity.
  - o Photos taken during the event for documentation and promotional purposes.
  - o Official minutes, if available, to ensure proper record-keeping and traceability.

- Guarantee that submitted papers meet the required quality standards, align with FP3-IAM4RAIL topics and include the Grant Agreement number, ensuring compliance with funding guidelines. This involves:

  - o Reviewing the final draft of the paper before submission for peer review.
  - o Tracking the peer-reviewed version and its outcomes.
  - o Documenting relevant details such as journal name, issue number, publication date, ISBN and any awards received.

- Elaborate project newsletters, in collaboration with Cluster Leaders, to ensure regular updates on key developments, achievements and future activities. These newsletters serve as a key tool to keep stakeholders engaged and informed.

Additionally, the CCT proactively seeks new opportunities to enhance project visibility and impact by identifying emerging trends and communication best practices. These efforts will help ensure that FP3-IAM4RAIL maintains a strong and dynamic presence within the research, industry and

policy-making communities.

## 9.2.2. Meet the Communication team

A Communication Group has been established within the FP3-IAM4RAIL project, bringing together representatives from different partner organisations. This group consists of one or more members from each company participating in the project, ensuring a collaborative and inclusive approach to communication and dissemination activities.

The primary purpose of this group is to coordinate efforts, align messaging strategies and create a unified communication front that enhances the visibility and impact of the project. By working together, the group ensures that all relevant updates, achievements and developments are effectively shared with stakeholders across the railway sector and beyond.

To maintain continuous engagement and efficiency, the group remains in constant communication through digital channels and meets at least once every three months to assess progress, share best practices and define new objectives. These meetings also serve as a platform to identify opportunities for joint initiatives, optimise outreach strategies and evaluate the effectiveness of previous dissemination efforts.

Additionally, the Communication Group actively seeks to enhance interaction with external stakeholders, industry leaders and other EU-funded projects, ensuring that FP3-IAM4RAIL remains well-positioned within the broader research and innovation landscape. The group also explores new communication tools and channels to maximise engagement and impact, adapting to emerging trends in digital and traditional media.



*Figure 20: FP3-IAM4RAIL Meet the Team (1)*
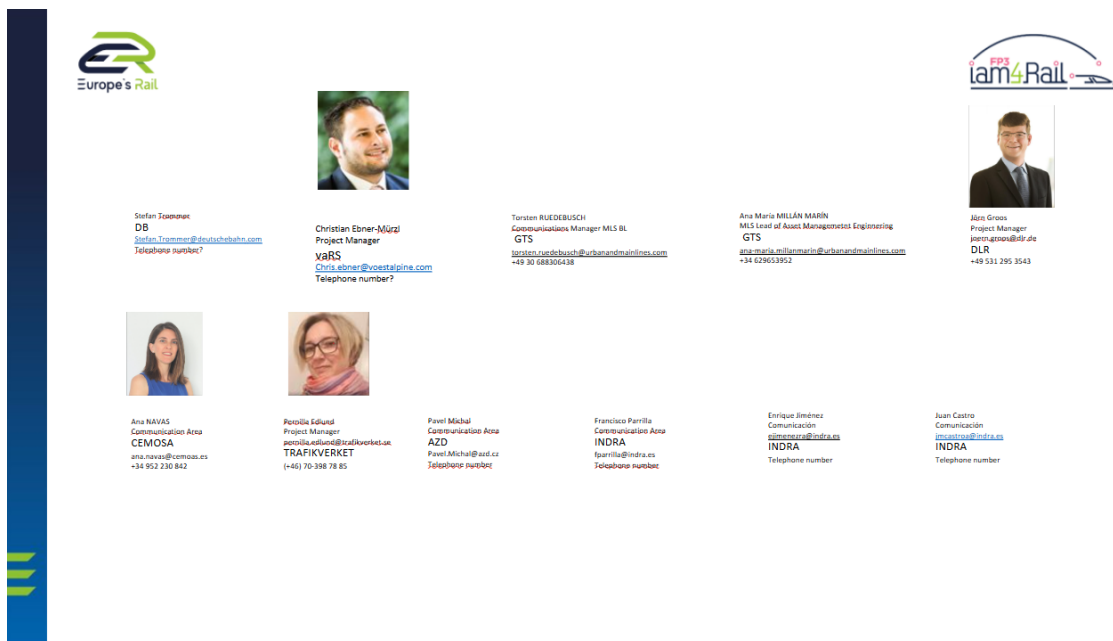
*Figure 21: FP3-IAM4RAIL Meet the Team (2)*
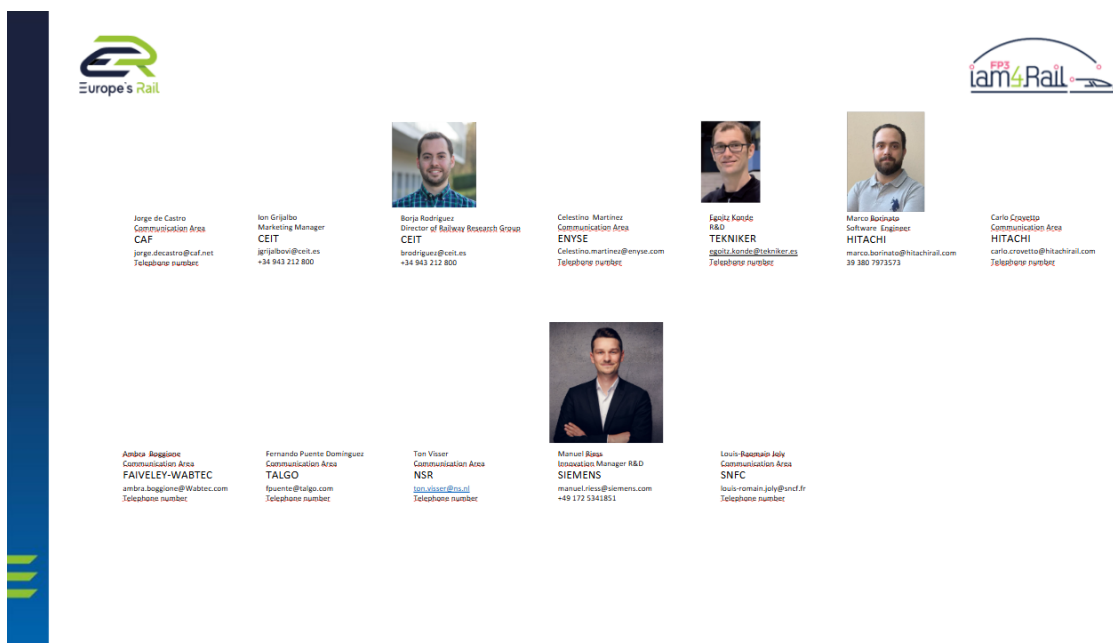
*Figure 22: FP3-IAM4RAIL Meet the Team (3)*

## 9.3. Activity plan

Visibility of the project is crucial for a successful dissemination and for ensuring that FP3-IAM4RAIL reaches a broad and relevant audience. To achieve this, project results are planned to be presented at key national and international conferences, workshops and industry events. These opportunities allow for engagement with experts, policymakers and stakeholders in the railway and transport sectors, promoting collaboration and knowledge exchange.

Some of the major events during the first two years of the FP3-IAM4RAIL project lifespan have

been reported in Table 3, where a list of some of the events in which the project has participated so far can be found. In Table 4, some events in which FP3-IAM4RAIL aims to participate in the future, ensuring ongoing visibility and engagement with relevant communities, can be found. The Project Consortium continues to identify and evaluate further opportunities to maximise outreach and impact, ensuring that key findings and advancements are effectively communicated to both technical and non-technical audiences.

| Events | Location | Starting date | Duration (days) |
|---|---|---|---|
| SIFER | France, Lille | 28/03/2023 | 1 |
| SmartRail Europe | Belgium, Brussels | 16/05/2023 | 2 |
| UITP Global Public Transport Summit | Spain, Barcelona | 04/06/2023 | 2 |
| Rail Live (UK) | United Kingdom, Warwickshire | 21/06/2023 | 3 |
| Trako | Poland, Gdansk | 19/09/2023 | 4 |
| Transport Research Arena 2024 | Dublin, Ireland | 15/04/2024 | 3 |
| ITF SUMMIT 2024 | Leipzig, Germany | 22/05/2024 | 3 |
| InnoTrans 2024 | Berlin, Germany | 24/09/2024 | 4 |
| Mid-Term Event | Paris, France | 26/11/2024 | 1 |

*Table 3: FP3-IAM4RAIL past events*

| Events | Location | Starting date | Duration (days) |
|---|---|---|---|
| RailDresden2025 | Dresden, Germany | 01/04/2025 | 4 |
| ITF (International Transport Forum) Summit | Germany, Leipzig | 21/05/2025 | 3 |
| UITP (Public Transport) Summit | Germany, Hamburg | 15/06/2025 | 4 |
| WCRR 2025 | USA, Colorado | 17/11/2025 | 4 |
| Rail Live 2025 | Spain, Madrid | 26/11/2025 | 3 |

*Table 4: FP3-IAM4RAIL future events*

Since the project will run for 48 months in total, the above list will be expanded with new activities as the project progresses.

The events table are complemented with the following information:

- Type of event:
  - o Organisation of a conference
  - o Organisation of a workshop
  - o Exhibition

- o Training
- o Social Media
- o Communication campaign (i.e.: radio, TV)
- o Participation in a conference
- o Participation in a workshop
- o Participation in an event, other than a conference or a workshop
- o Brokerage event
- o Pitch event
- o Trade fair
- o Participation in activities organised jointly with other EU projects
- o Other

- Progress Status:

  - o Potential
  - o Scheduled
  - o Performed

- Beneficiary responsible:

  - o Name of the Beneficiary
  - o Role as contributor or just attendee (specify contributions: Project Presentation, brochures, stand)

- Stakeholder reached:

  - o Scientific community (Higher Education, Research)
  - o Industry
  - o Civil society
  - o General public
  - o Policy makers
  - o Media
  - o Investors
  - o Customers
  - o Other

- Countries addressed

- Number of attendees

## 9.4. Communication and dissemination measures

As part of the ongoing evaluation of our communication, dissemination and exploitation plan, we have identified the need to revise certain Key Performance Indicators (KPIs) initially outlined in the Grant Agreement. These proposed modifications aim to ensure a more realistic and impact-oriented alignment with the project.

We acknowledge that any change to the KPIs is a deviation from the Grant Agreement. Accordingly, this text included in the deliverable D20.2 serves to inform ERJU of our intention to initiate a discussion around these proposed adjustments, which may lead to a formal amendment of the Grant Agreement.

Further details on the proposed changes will be provided to ERJU to support this discussion.

Examples of the type of proposed changes under consideration:
A proposal for changes to certain KPIs has been included in the document, since some of the current targets have turned out to be difficult to achieve. For instance, reaching the required number of press releases has not been feasible so far. Additionally, we have clarified that the use of Horizon Europe communication tools should be considered optional rather than mandatory, based on guidance provided directly by the ERJU communication team.

| Instrument | KPI | Target Groups | Current Issues | Proposal |
|---|---|---|---|---|
| Email | 5 emails reaching at least 300 people | ● Rail authorities<br>● Policymakers and regulators (including the EP)<br>● Researchers<br>● Industry associations of "enablers"<br>● Other Rail, Mobility and Transport<br>● Research projects<br>● Academics<br>● The media | the KPI lacks clarity regarding the purpose and content of the emails | we suggest defining the objective of these emails. Options could include:<br>o Project newsletters.<br>o Invitations to events or workshops.<br>o Updates on results and milestones. |
| Press Release | More than 25 press releases | ● Newspapers<br>● Magazines<br>● Social media<br>● Policymakers<br>● Academics | 4 press releases have been issued out of 25 | we recommend lowering the target to a more feasible figure (e.g.: 10–12 press releases) based on significant project achievements |

| Instrument | KPI | Target Groups | Current Issues | Proposal |
|---|---|---|---|---|
| Minimum of 10 scientific articles in peer review journals | More than 100 readers | ● Transport and rail authorities, infrastructure managers and rail undertakings and supply chain<br>● Researchers in the rail industry and transport sector<br>● Industry associations of "enablers"<br>● Policymakers and regulators<br>● Urban/regional/national operator and infrastructure manager community<br>● Rail supply industry<br>● General public<br>● Authorities" | It is unclear how to verify whether an article has reached more than 100 readers. This metric may be difficult to track | Focus on publishing in open-access journals that provide readership statistics, if there is any. |
| Newsletters (1 issue per WP during the life of the project) | More than 500 subscribers | ● Rail authorities<br>● Policymakers<br>● Researchers and Academics | o Currently, the ERJU website only allows users to subscribe to the general ERJU newsletter; there is no option to subscribe specifically to FP3-related content.<br>o The number of subscribers is not accessible to us, as we do not manage the distribution list. | o Maintain the goal of producing one newsletter per WP during the project's life.<br><br>o Adjust the KPI to focus on the production and publication of newsletters, rather than the number of subscribers.<br><br>o Alternatively, measure newsletter impact by website visits, asking for the available analytics to the webmaster. |
| Use of Horizon Europe tools to boost the dissemination about the project (among others, the project will consider Horizon results platform, Booster, etc.). | More than 20 actions | ● All stakeholders (including cross-sector collaboration) | The use of these tools is optional, not mandatory | o Rephrase the KPI to reflect the optional nature of these tools, possibly changing the wording to: "The project will explore the use of Horizon Europe dissemination tools where relevant and beneficial." |

*Table 5: KPIs Modification Proposal*

### 9.4.1. Communication measures

According to the Grant Agreement, these are the communication measures expected from the project:

| Instruments | Expected Impacts (KPI) | Target Groups |
|---|---|---|
| Inputs to Europe's Rail Website, newsletters, social media, and delivering sufficiently quality communicative videos and pictures to Europe's Rail | At least a FP3-IAM4RAIL communication per month | Europe's Rail contact list<br>All stakeholders |
| E-mails | 300 persons | Rail authorities<br>Policymakers and regulators (including the EP)<br>Researchers<br>Industry associations of "enablers"<br>Other Rail, Mobility and Transport Research projects<br>Academics<br>The media |
| Press releases | More than 25 press releases | Newspapers<br>Magazines<br>Social media<br>Policymakers<br>Academics |
| Project Brochure | 1 project brochure | Rail authorities<br>Policymakers, regulators and supply chains<br>Researchers from other transport/energy projects<br>Industry associations of "enablers"<br>Policymakers and regulators<br>The media<br>Academics |
| Website posts (at least 200 visitors per year, four pear each year of the three-year project) | 200 visitors per year | Rail authorities and supply chains<br>Policymakers<br>Researchers from other transport/energy projects<br>Industry associations of "enablers"<br>Policymakers and regulators<br>The media |
| Newsletters (1 issue per WP during the life of the project) | More than 500 subscribers | Rail authorities<br>Policymakers<br>Researchers and Academics |
| Webinars/workshops for stakeholders including at least six countries | 10 workshops | Rail authorities<br>Policymakers |

| Instruments | Expected Impacts (KPI) | Target Groups |
|---|---|---|
| Videos about the demos and the socioeconomic impacts to be showed in trade fairs (i.e.: InnoTrans, TRA, WCRR, etc.) | More than 1000 (rough estimate of viewers) | The public and passengers (FP3-IAM4RAIL project will send press releases to the media and other outlets about the availability of the videos) |
| Project website updates to Europe's Rail webpage | More than 1000 visitors in total | Transport/energy authorities Policymakers Academic and other researchers Media The public |
| Social media (LinkedIn and Twitter) | Over 60 posts through LinkedIn and Twitter networks of Europe's Rail and project partners | Public |

*Table 6: Communication measures and expected impact*

And these are the accomplished results so far, regarding communication:

| ID | Instruments | Expected Impact (KPI) | Target Groups | Expected issues | FP3 number of | % accomplished |
|---|---|---|---|---|---|---|
| 1 | Inputs to Europe's Rail Website, Newsletters, social media and delivering sufficiently quality | At least a FP3 FP3-IAM4RAIL communication per month | ● Europe's Rail contact list● All stakeholders | 36 | 25 | 69.44 |
| 2 | E-mails | 300 persons reached | ● Rail authorities ● Policymakers and regulators (including the EP) ● Researchers | 5 | 0 | 0.00 |
| 3 | Press releases | More than 25 press releases | ● Newspapers ● Magazines ● Social media | 26 | 4 | 15.38 |
| 4 | Project brochure | 1 project brochure | ● Rail authorities ● Policymakers, regulators and supply chains ● Researchers from other transport/energy projects | 1 | 1 | 100.00 |
| 5 | Website posts (at least four per year of the three-year project) | 200 visitors per year reached | ● Rail authorities and supply chains ● Policymakers ● Researchers from other transport/energy projects | 12 | 21 | 175.00 |
| 6 | Newsletters (1 issue per WP during the life of the project) | More than 500 subscribers | ● Rail authorities ● Policymakers ● Researchers and Academics | 21: 1 per WP | 18 | 85.71 |
| 7 | Webinars/workshops for stakeholders including at least six countries | 10 workshops | ● Rail authorities ● Policymakers | 10 | 9 | 90.00 |
| 8 | Videos about the demos and the socioeconomic impacts to be showed in trade | More than 1000 (rough estimate of viewers) | ● The public and passengers (FP3-IAM4RAIL project will send press releases to the media and other outlets about the availability of the videos) | 4 | 14 | 350.00 |
| 9 | Project website updates to Europe's Rail webpage (update the information already | More than 1000 visitors in total | ● Transport/energy authorities ● Policymakers ● Academic and other researchers | 12 | 4 | 33.33 |

*Table 7: Communication results*

## 9.4.2. Dissemination measures

According to the Grant Agreement, these are the dissemination measures expected from the project:

| Instruments (during the life of the project) | Expected impacts (KPI) | Target groups |
|---|---|---|
| Participation in the Annual EU-Rail Innovation Days (substituting, when possible, mid-term events and final event) | More than 300 attendees (virtual and/or physical) | All rail stakeholders/transport community |
| Minimum of 10 articles in rail industry and professional association magazines | More than 1000 subscribers | All stakeholders |
| Minimum of 10 scientific articles in peer review journals | More than 100 readers | Transport and rail authorities, infrastructure managers and rail undertakings and supply chain Researchers in the rail industry and transport sector Industry associations of "enablers" Policymakers and regulators |
| Minimum of 10 presentations at third-party workshops and conferences | 2000 participants | Industry and professional associations |
| Setting up of an Advisory Board, including infrastructure managers, urban operators and universities | 100 participants | Urban/regional/national operator and infrastructure manager community Universities Trade Unions ERA Deployment Group |
| Demonstrator workshops and videos. During the integrated demonstrations, a series of workshops will be held to invite interested stakeholders to view the technologies being developed | 100 participants | Transport and rail authorities, infrastructure managers and rail undertakings and supply chain Researchers in the rail industry and transport sector Industry associations of "enablers" Policymakers and regulators Urban/regional/national operator and infrastructure manager community Rail supply industry General public Authorities |
| FP3-IAM4RAIL will be disseminated in different conferences such as InnoTrans, WCRR, TRA and other relevant events, also considering beyond rail events (i.e.: technology conferences, transport, etc.) | 400 participants | Transport and rail authorities, infrastructure managers and rail undertakings and supply chain Researchers in the rail industry and transport sector Industry associations of "enablers" Policymakers and regulators Urban/regional/national operator and infrastructure manager community Rail supply industry General public Authorities |

*Table 8: Dissemination measures and expected impact*

And these are the accomplished results so far, regarding dissemination:

| ID | Instruments | Expected Impact (KPI) | Target Groups | Expected issues | FP3 number of | % accomplished |
|---|---|---|---|---|---|---|
| 10 | Social media (LinkedIn and Twitter) | Over 60 posts through LinkedIn and Twitter networks | ● Public | 60 | 159 | 265.00 |
| 11 | Participation in the Annual EU-Rail Innovation Days (substituting, when possible, mid-term events and final event) | More than 300 attendees (virtual and/or physical) | ● All rail stakeholders/transport community | >300 attendees (virtual or physical) | 1 | 0.33 |
| 12 | Minimum of 10 articles in rail industry and professional association magazines | More than 1000 subscribers | ● All stakeholders | 10 | 5 | 50.00 |
| 13 | Minimum of 10 scientific articles in peer review journals | More than 100 readers (Delft el 1 de oct. 2024 y | ● Transport and rail authorities, infrastructure managers and rail undertakings and supply chain ● Researchers in the rail industry and transport sector | 10 | 12 | 120.00 |
| 14 | Minimum of 10 presentations at third-party workshops and conferences | 2000 participants | ● Industry and professional associations | 10 | 8 | 80.00 |
| 15 | Setting-up of an Advisory Board, including infrastructure managers, urban operators and | Minimum of 6 participants. | ● Urban/regional/national operator and infrastructure manager community ● Universities | 1 | 1 | 100.00 |
| 16 | Demonstrator workshops and videos. During the integrated demonstrations, a series of | 100 participants | ● Transport and rail authorities, infrastructure managers and rail undertakings and supply chain ● Researchers in the rail industry and transport sector | 100 participants, | 13 | 130.00 |
| 17 | FP3-IAM4RAIL will be disseminated in different conferences such as InnoTrans, WCRR, TRA and | 400 participants *Poner que FP3 ha sido promocionado en | ● Transport and rail authorities, infrastructure managers and rail undertakings and supply chain ● Researchers in the rail industry and transport sector | 5 | 33 | 660.00 |
| 18 | Whitepaper on CMS for AI and vision technology for train maintenance (leader: DB). | 100 readers | ● Transport and rail authorities, infrastructure managers and rail undertakings and supply chain ● Researchers in the rail industry and transport sector | 1 | 0 | 0.00 |
| 19 | Use of Horizon Europe tools to boost the dissemination about the project (among others, the project will consider Horizon results platform, Booster, etc.). | More than 20 actions | ● All stakeholders (including cross-sector collaboration) | 20 | 0 | 0.00 |
| | | | | | 328 | |

*Table 9: Results so far regarding dissemination*

CT will produce and maintain a table communicating the status of the above communication and dissemination activities.

## 9.5. Obligation and Horizon Europe request

The obligation of dissemination and communication is an essential requirement for any European project. It is a fundamental principle that ensures that the project's results are communicated effectively and efficiently to all stakeholders. The European Commission requires all beneficiaries of EU funding to communicate and disseminate their project results widely, ensuring that the knowledge generated reaches relevant audiences and contributes to the advancement of the sector.

Moreover, all beneficiaries of the project are committed to explicitly mentioning that all documentation and material produced under the program has been made through the co-financing of the European Union, following ARTICLE 17 of the Grant Agreement:

*"Unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge the*

*EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate).*

*[…]*

*Any communication or dissemination activity related to the action must use factually accurate information.*

*Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):*

*'Funded by the European Union. Views and opinion expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them. The project is supported by the Europe's Rail Joint Undertaking and its members. This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101101966'".*

In addition to these requirements, the project consortium has been actively ensuring compliance with these communication and dissemination obligations by systematically integrating the required disclaimers and funding acknowledgments into all materials produced, including scientific papers, presentations, press releases and promotional materials.

As reported in Annex 5 of the Grant Agreement, the beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. For clarity, open access means:

*"Online access to research outputs provided free of charge to the end-user."*

In this regard, the project partners have already taken steps to facilitate open access by identifying suitable open-access journals and repositories for publishing research findings. Additionally, efforts are being made to align with EU Open Science policies to enhance knowledge sharing and maximise the impact of project outcomes within the railway and transport sectors.

## 9.6. State of play of dissemination and communication activities at M30

### 9.6.1. Activities performed at M30

The main dissemination and communication activities have been summarised in Figure 22.

*Figure 22: Communication measures and expected impact*

Here we find a list of the events in which the different partners have participated so far within the FP3-IAM4RAIL project, where the specific activities that have been carried out within each event are also specified:

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Announcement of COMSA's participation in ERJU projects, including FP3-IAM4RAIL** | 25/10/2022 | online | Social Media | Announcement of COMSA's participation in ERJU projects, including FP3-IAM4RAIL |
| **Announcement of COMSA's participation in ERJU projects, including FP3-IAM4RAIL** | 25/10/2022 | online | Press release | Announcement of COMSA's participation in ERJU projects, including FP3-IAM4RAIL |
| **Announcement of COMSA's participation in ERJU projects, including FP3-** | 25/10/2022 | print | Media article | Announcement of COMSA's participation in ERJU projects, including FP3-IAM4RAIL |
| **Workshop between PKP and Lukasiewicz Research Network (Poland, Warsow)** | 17/03/2023 | Poland | Workshop | Presentation of Europe's Rail JU partnership projects and research of cooperation opportunities |
| **SIFER** | 28/03/2023 | Lille (France) | Event | International event dedicated to rail |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Rapport annuel innovation 2022 – SNCF (France, Paris)** | 24/04/2023 | Online | Others | Annual innovation report |
| **Train & Rail Conference & Exhibition (Sweden, Stockholm)** | 25/04/2023 | Sweden, Stockholm | Conference | Fair for sustainable rail transport |
| **Smart Transportation Conference & Exhibition (Virtual)** | 09/05/2023 | Online | Conference | Industry and technology leaders to discuss digital, efficient and sustainable transportation |
| **Eighth MAFEX international railway convention (Spain, Toledo)** | 09/05/2023 | Spain, Toledo | Event | International Railway Convention |
| **Transport Logistic (Germany, Munich)** | 16/05/2023 | Germany, Munich | Exhibition | The world´s biggest trade show for logistics, mobility, IT and supply chain management |
| **SmartRail Europe (Belgium, Brussels)** | 30/05/2023 | Belgium, Brussels | Conference | Latest developments in European rail innovation, policy and service delivery. Key themes will include industry reform, post-pandemic trends, digitalisation, advances in signalling and communications technology, and sustainability |
| **Conference on fundamentals of electrotechnics and circuit theory, SPETO** | 04/06/2023 | Poland, (Ustoń) | Conference | Predictive maintenance and asset optimisation applications of big data |
| **The Rise of IoT & Big Data (Germany, Cologne)** | 08/06/2023 | Germany, Cologne | Event | A place for public transport professionals to share ideas, innovate and make meaningful connections |
| **UITP Global Public Transport Summit (Spain, Barcelona)** | 12/06/2023 | Spain, Barcelona | Exhibition | A place for public transport professionals to share ideas, innovate and make meaningful connections |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Rencontres Ouvrages d'Art - UGE (France, Champs Sur Marne)** | 14/06/2023 | Online | Event | Several talks to communicate information and present operational projects, highlighting their innovative nature. |
| **Workshop between NRD and research affiliate NORCE, attended by Norwegian university (Norway, Grimstad)** | 14/06/2023 | Norway, Grimstad | Workshop | The following activities were carried out, hosted by The Arctic University of Norway, Narvik Campus: 1) Inspection of the test site for the Norwegian part of the use-case 4, WP12: measurement of the Søsterbekk concrete bridge on the Ofotbanen railway line. o Workshop with AE NORCE, SINTEF, Infrastructure Manager Bane NOR, and TU Delft about the measurement system, data analysis, future projects for the line. o Workshop with investigation of possible collaboration between WP12/13 and WP18 with the use of robot for inspection of the line on the same test site as the use-case 4; participants from both WP12/13 (NORCE, SINTEF, Bane NOR, TU Delft, NRD) and WP18 (NORCE, SINTEF, SNCF, Bane NOR). o Workshop with AE NORCE, SINTEF, Infrastructure Manager Bane NOR, and TU Delft about the use of satellite data for measurements related to the infrastructure status. |
| **ILCAD 2023 (Poland, Warsaw)** | 14/06/2023 | Poland, Warsaw | Conference | |
| **UNIFE general assembly 2023 (Spain, Madrid)** | 21/06/2023 | Spain, Madrid | Event | COMSA attended the event |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **UNIFE general assembly 2023 (Spain, Madrid)** | 21/06/2023 | Spain, Madrid | Event | AZD participated as a UNIFE member. |
| **Transportation Engineering Congress (CIT 2023) (Spain, Tenerife)** | 27/06/2023 | Spain, Tenerife | | |
| **Railway Industry Forum** | 06/09/2023 | (Germany, Berlin) | Event | |
| **Expo Ferroviaria** | 13/09/2023 | (Italy, Milan) | Website post | LinkedIn institutional Trenitalia post on Expoferroviaria for use of ARGO in FP3-IAM4RAIL (related to exhibition at line 25) |
| **Expo Ferroviaria** | 13/09/2023 | (Italy, Milan) | Exhibition | On-site demonstration of robot ARGO for FP3-IAM4RAIL and presentation of the project |
| **Article** | | (Italy, Milan) | Media Article | FSI article on the institutional newspaper on ARGO and FP3-IAM4RAIL |
| **Interview** | 13/09/2023 | (Italy, Milan) | Interview | Interview on media - TG Leonardo to Head of technical division Trenitalia on the use of Argo as an innovative solution for inspection in FP3-IAM4RAIL |
| **Article** | 13/09/2023 | (Italy, Milan) | Media Article | National newspaper article on "Il Giornale". se of Argo as an innovative solution for inspection in FP3-IAM4RAIL |
| **Expo Ferroviaria** | 10/03/2023 | (Italy, Milan) | Exhibition | Showcasing Projects, business units and organising internal meetings |
| **Trako** | 17/09/2023 | (Poland, Gdansk) | Exhibition | Meeting of the PKP S.A. R&D ecosystem created for the implementation of Europe's Rail JU projects |
| **Greencities / S-Moving** | 18/09/2023 | (Spain, Malaga) | Event | Sustainability, urban management and smart mobility |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Scientific and technical conference – CFMS** | 25/09/2023 | (France, Paris) | Conference | Highlight the various contributions of Coulomb's theory to geotechnics |
| **AFTES Congrès international 2023** | 19/09/2023 | (France, Paris) | Event | "Underground space at the heart of transitions" |
| **Dronitaly** | 20/09/2023 | (Italy, Bologne) | Event | Event for civil drones on professional use |
| **Elmia Nordic Rail** | 20/09/2023 | (Sweden, Jönköping) | Conference | Latest railway technology |
| **Convention PTFE** | 25/09/2023 | (Spain, Madrid) | Event | Learning about the cutting-edge PTFE products and services |
| **WearRAcon Europe 2023** | 27/09/2023 | (Germany, Düsseldorf) | Exhibition | Focused on Exoskeletons research in Europe |
| **Smart City Expo World Congress** | 03/10/2023 | (Spain, Barcelona) | Event | Focused on building smart, equitable and sustainable cities, using innovation. COMSA attended the event. |
| **Geofcan** | 02/10/2023 | (France, Strasbourg) | Event | Geophysics and its influence in various areas |
| **Formnext** | 10/10/2023 | (Germany, Frankfurt) | Exhibition | International meeting point for industrial 3D printing experts and production professionals from a wide range of application industries. CEIT had a stand at the exhibition. On the stand there was a TV showing the repairs of rails, crossings and wheels carried out with L-DED AM technology in the framework of the FP3-IAM4RAIL project within WP17. |
| **Rail Live** | 11/10/2023 | Madrid (Spain) | Exhibition | INDRA is exhibiting at RAILLIVE2023 their contribution to FP3-IAM4RAIL |
| **Convention PTFE** | 24/10/2023 | Madrid (Spain) | Event | Presentation of the digital twin oriented civil infrastructure and building asset management platform and our work in the ERJU projects (FP3-IAM4RAIL and FP4-Rail4EARTH). |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Rail Live** | 29/11/2023 | Madrid (Spain) | Exhibition | CEIT is exhibiting their institute in a booth and showing how they contribute in FP3-IAM4RAIL |
| **Rail Live** | 29/11/2023 | Madrid (Spain) | Exhibition | FP3-IAM4RAIL presentation about the FP3 project. |
| **Rail Live** | 29/11/2023 | Madrid (Spain) | Exhibition | FP3-IAM4RAIL posters about the FP3 project. |
| **New Space Economy Forum: space technologies and applications to build a sustainable planet.** | 07/11/2023 | Rome, Italy | Event | |
| **Europes's Rail Innovation Days** | 07/11/2023 | Brussels, Belgium | Event | ADZ attended the event |
| **Linkedin post on steering committee meeting in CEMOSA's headquarter** | 08/11/2023 | online | Social Media | report on the meeting and the objective of the project |
| **SIFET** | 27/09/2023 | Arezzo, Italy | Congress or Conference | FP3-IAM4RAIL PROJECT: MULTISENSORY UAV SURVEYS FOR THE MONITORING OF CIVIL INFRASTRUCTURES |
| **SIFET** | 27/09/2023 | Arezzo, Italy | Congress or Conference | Presentation of a Poster with continuous attendance to it |
| **Linkedin post about Innovation towards an Intelligent and Integrated Asset Management System" in the context of the FP3-IAM4RAIL project** | 19/11/2023 | online | Social Media | Showcasing the project on social media |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **TRA 2024 Conference** | 15/04/2024 | Dublin (Ireland) | Event | Lead authorship of one and contribution to one publication for TRA 2024 Conference in collaboration with WP10 members Lead: Boosting holistic railway infrastructure monitoring and health prediction by integrated data sets and analysis |
| **TRA 2024 Conference** | 15/04/2024 | Dublin (Ireland) | Conference | Published and oral presentation of RCF detection using ABA (PRORAIL+TUDelft+TRV) |
| **TRA 2024 Conference** | 15/04/2024 | Dublin (Ireland) | Conference | Published and oral presentation of condition monitoring for transition zones in Sweden, Norway and The Netherlands (PRORAIL+TUDelft) |
| **TRA 2024 Conference** | 15/04/2024 | Dublin (Ireland) | Conference | Presentation and paper for TRA 2024 Conference Agile Multi-Sensor Platform Leonardo: Evaluation of new Monitoring Technologies in an Operational Environment |
| **LinKedin post on TRA 2024** | 23/04/2024 | online | Social Media | Post on presence of CEMOSA at TRA 2024, where progress of several research projects was presented. |
| **Publication in journal Measurement - Elsevier** | 01/05/2023 | Online | Scientific and peer reviewed publication | Paper on analysis of transition zones using ABA measurements. S. Unsiwilai, L. Wang, A. Núñez, and Z. Li, "Multiple-axle box acceleration measurements at railway transition zones". Measurement, Volume 213, May 2023, 112688 |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Publication in journal Intelligent Transportation Infrastructure - Oxford** | 01/09/2023 | Online | Scientific and peer reviewed publication | Review paper TUDelft+PRORAIL+DB on AI technologies for Infrastructure. W. Phusakulkajorn, A. Núñez, H. Wang, A. Jamshidi, A. Zoeteman, B. Ripke, R. Dollevoet, B. De Schutter and Z. Li, "Artificial intelligence in railway infrastructure: current research, challenges and future opportunities". Intelligent Transportation Infrastructure, Volume 2, 2023, liad016 |
| **Publication in journal IEEE Transactions on Neural Networks and Learning Systems - IEEE** | 01/05/2024 | Online | Scientific and peer reviewed publication | Paper on fundamentals of AI (physics informed NN) towards simulation of beams, T. Kapoor, H. Wang, A. Núñez, and R. Dollevoet, "Physics-informed neural networks for solving forward and inverse problems in complex beam systems." IEEE Transactions on Neural Networks and Learning Systems, Volume 35, Issue 5, Pages: 5981-5995, May 2024. Intelligence, Volume 133, Part A, July 2024, 108085 |
| **Publication in journal Mechanical Systems and Signal Processing - Elsevier** | 01/05/2024 | Online | Scientific and peer reviewed publication | Key paper on the combined use of LDV and ABA under controlled/laboratory conditions, proven TRL4 level of the technology. Y. Zeng, A. Núñez, Z. Li, "Measuring transfer functions of tracks structures in a test rig with laser Doppler vibrometer and accelerometers on a moving vehicle." Mechanical Systems and Signal Processing, Volume 214, May 2024, 111392 |

| Event | Date | Location | Category | Description of the activity |
|---|---|---|---|---|
| **Publication in journal Engineering Applications of Artificial Intelligence - Elsevier** | 01/07/2024 | Online | Scientific and peer reviewed publication | Paper on fundamentals of AI (transfer learning and causal Physics informed NN) towards simulation of beams, T. Kapoor, H. Wang, A. Núñez and R. Dollevoet, "Transfer learning for improved generalizability in causal physics-informed neural networks for beam simulations". Engineering Applications of Artificial Intelligence, Volume 133, Part A, July 2024, 108085 |
| **Paper in Special Issue "Real-Time Monitoring Technology for Built Infrastructure Systems" in Journal Sensors https://www.mdpi.com /journal/sensors/special _issues/Built_Infrastruct ure_Systems** | 12/01/2024 | Online | Scientific and peer reviewed publication | Paper "Analysis of Local Track Discontinuities and Defects in Railway Switches Based on Track-Side Accelerations" https://www.mdpi.com/1424 -8220/24/2/477 |
| **The Rise of IOT and Big Data in Rail** | 15/05/2024 | Cologne, Germany | Congress or Conference | Presentation of digital activities |
| **2024: DRIVEN by DATA - The mFUND Workshop Series about Mobility Innovation - Workshop No 7: Big events - How data and new technologies improve mobility flow safety and efficiency** | 17/05/2024 | Online | Workshop | The "DRIVEN by DATA" workshop series on the importance of data in modern society, particularly in the transport sector. |
| **Rail Live** | 29/11/2023 | Madrid | Exhibition | Participation in the Rail Live event as guests |
| **IT Industrie** | 25/06/2024 | Paris | Congress or Conference | Participation in a round table on automation in industry |
| **Publication in intranet of GTS Spain** | 22/02/2024 | Madrid | Media article | Madrid receives the members of one of the Work Package 8 of Europe's Rail |

*Table 10: FP3-IAM4RAIL communication and dissemination activities*

# 10. Conclusions

This Dissemination and Communication Plan Update presents a comprehensive and evolving strategy for the FP3-IAM4RAIL project, detailing all the materials, tools and approaches used to ensure effective external communication, stakeholder engagement and the uptake of project results by relevant audiences. This document not only describes how the project's results are being communicated but also provides an overview of the current status of activities at M34, reflecting the progress made and lessons learned.

As the project continues to advance, new dissemination and communication opportunities will emerge, making this document a living strategy that evolves over time. Dissemination and communication activities will remain a key focus at the WP level, with continuous coordination and oversight by the communication leader to ensure alignment with project objectives and maximum impact.

Following previous updates, D20.1 was revised at Month 22 (version 2) and later at Month 30, resulting in the last version of D20.1. The present update, documented as D20.2 "Communication and Dissemination Update," builds upon those previous versions. Moving forward, the next update of this plan is scheduled beyond Month 36, incorporating insights from past activities and improving strategies to optimise outreach. Meanwhile, the effectiveness of the project's communication efforts is being continuously monitored, ensuring that KPIs are properly tracked and that the Dissemination and Communication Plan is reviewed and adjusted whenever necessary to enhance engagement and visibility.

In addition, greater emphasis is now being placed on using digital platforms, expanding collaborations with industry stakeholders and participating in key events to further increase the project's reach and long-term impact.