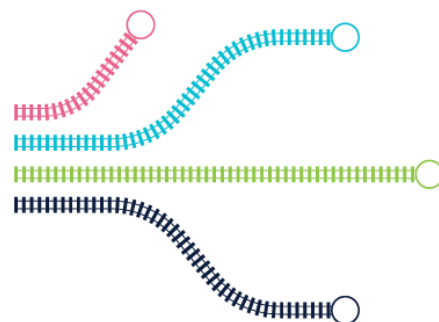


PhDs EU-Rail



Deliverable 5.1

Dissemination, Communication and
Exploitation Plan

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Name	Beneficiary Name	Short	Details of contribution
Joo Hyun Ha	UIC		Development of dissemination report
Kristina Svensson	EURNEX		Support in collecting information and coordination
Armando Carrillo	EURNEX		Final edition

Disclaimer

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Further information, deliverables references and cooperating projects:

www.phdseu-rail.eu

www.academics4rail.eu/phdseu-rail/

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Abbreviations and acronyms

CFM	Calls for Members
EU	European Union
FS	Financial Statement
GA	Grant Agreement
HE	Horizon Europe
FP	Flagship projects
OC	Open Call
PC	Project coordinator
PM	Project manager
PMO	Project Management Office
PMT	Project Management Team
PO	Project Officer
QAC	Quality Assurance Committee
ERJU	European Rail Joint Undertaking
TL	Technical leader
TBD	To be decided
WP	Work Package
WPL	Work package leader
DMP	Data Management and Ethics Plan

Executive summary

This document presents a comprehensive approach to sharing and applying the outcomes of the PhDs EU-Rail. It sets out a structured plan to communicate, disseminate, and maximize the impact of results, ensuring their relevance to the rail sector and beyond. It is presented in three sections: Communication, Dissemination, and Exploitation, all of which focus on bridging outcomes of this project with broader rail industry. This Executive Summary outlines the key elements of the Plan for Exploitation and Dissemination of Results (PEDR).

The Communication strategy aims to build meaningful engagement with diverse audiences using an array of tools, including digital platforms, social media, and direct outreach initiatives. By establishing clear objectives and identifying key stakeholders, PhDs EU-Rail seeks to enhance awareness and foster support for its mission. Scheduled updates and performance indicators will ensure these efforts stay on track, remain effective and adaptable.

The Dissemination component is designed to expand the visibility of PhDs EU-Rail's research findings by leveraging a range of targeted dissemination channels. These include academic journals, sector conferences, professional networks, webinars, and social media campaigns to ensure broad accessibility and engagement. Continuous evaluation based on key performance indicators (KPIs) will help fine-tune dissemination activities and ensure their effectiveness.

The Exploitation strategy focuses on translating the project's research into practical applications that address scientific, societal, and policy needs. By systematically identifying key outcomes and engaging with a wide range of users, not only in rail industry, but the broader eco-system, reaching policymakers, financiers, among other enablers. Establishing a long-term knowledge-sharing network and community will help sustain the project's contributions beyond its official duration.

By working closely with stakeholders and the wider rail research community, PhDs EU-Rail is committed to advancing innovation and knowledge in railway research. This Dissemination plan highlights the project's focus to ensuring its findings contribute meaningfully to the evolution of rail transport and academic study.

1 Introduction

This document presents a comprehensive approach to sharing and applying the outcomes of the PhDs EU-Rail project. It sets out a structured plan to communicate, disseminate, and maximize the impact of results, ensuring their relevance to the rail sector and beyond. This Executive Summary outlines the key elements of the Plan for Exploitation and Dissemination of Results (PEDR).

1.1 Background

PhDs EU-Rail builds upon the work carried out in the Academics4Rail, further strengthening the link between academic research and practical railway applications. PhDs EU-Rail enhances the role of PhD-level research in addressing key challenges and fostering innovation in the railway sector, while anticipating future needs of the rail industry. The project is structured into distinct work packages, each designed to tackle critical research priorities while ensuring a comprehensive and interdisciplinary approach.

The project aims not only to expand the academic knowledge base but, more importantly, to generate meaningful impacts for the railway industry by facilitating the transfer of research insights into real-world applications. By reinforcing synergies between academia and industry, PhDs EU-Rail plays a pivotal role in advancing efficiency, technological and business resilience of the rail sector. This initiative also contributes to policy development, providing evidence-based insights that can guide the sector's future direction and ensure it continues to play key role as the backbone of sustainable transport of Europe.

A well-defined communication and dissemination strategy is essential to ensuring that key stakeholders—including researchers, industry professionals, decision-makers, and the wider public—receive relevant and impactful information. By setting clear objectives, identifying target audiences, and selecting appropriate communication channels, the dissemination approach maximizes reach and engagement – the right message to the right audience. The communication steps used for Academics4Rail will also be applied to PhDs EU-Rail as they are not only applicable, but proven effective in bridging research and industry.

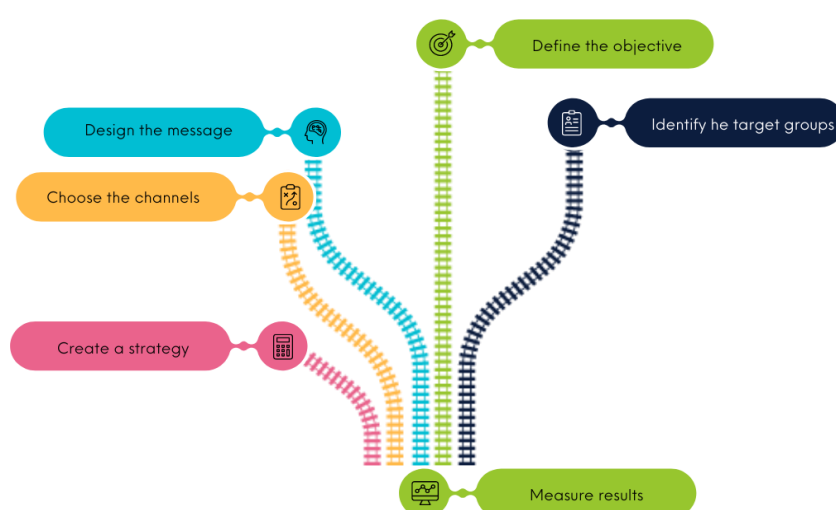


Figure 1 Communication steps

1.2 Objective

The objective of PhDs EU-Rail PEDR aligns closely with enhancing the project's overall impact through strategic communication, dissemination, and exploitation of research outcomes. Specifically, the PEDR aims to:

- Establish and execute a comprehensive communication and dissemination strategy that effectively promotes findings to various stakeholders and the general public, ensuring widespread awareness and adoption.
- Increase the adoption and scalability of the project's outcomes, enhancing their applicability and impact both within Europe and globally.
- Foster a collaborative ecosystem through engagement in industry-relevant fora, uniting diverse participants to support, endorse, and participate in PhDs EU-Rail.
- Engage stakeholders comprehensively to broaden the project's acceptance and facilitate widespread implementation of its findings.

This objective highlights PhDs EU-Rail's commitment to ensure that findings go beyond academia and find their way into real-world application in supporting competitiveness and resilience of rail industry.

1.3 Definitions

The use of the terms 'communication', 'dissemination', and 'exploitation' are based on the following understanding:

- **Communication** throughout the project involves sharing information about progress, goals, and value with a broad audience. This includes using various tools and platforms, such as a public website, social media, visual branding, and internal discussions, to ensure effective outreach and engagement.
- **Dissemination** focuses on distributing the project's scientific-related findings and outputs to relevant and interested groups, utilizing channels like scientific publications, workshops, and project deliverables to share knowledge.
- **Exploitation** aims to enhance the impact of the project's outcomes by promoting their application and knowledge transfer. This involves leveraging the project's results and innovations among target audiences, facilitating collaboration across different project aspects to capture outputs, and assisting partners in engaging with potential users to develop marketable products and services.

1.4 Target Audience

To maximize the reach and influence of the project, target audiences have been identified. This process entails recognizing individuals or groups who may be mobilized for this project, as well as those who stand to benefit directly from its outcomes. Specific target groups have been outlined, chosen for their relevance and potential interest in the project's results.

Target Group	Sub-group
Stakeholders	Partners of the consortium Stakeholders from the industry SMEs and entrepreneurs operating in the Transportation domain.
Transportation authorities	Authorities at national and European level
Railway and transportation international community.	International organisations Universities and Research Centers

	Rail Undertakings Other Rail, Mobility and Transport Research projects
Technology and sub-systems suppliers.	Industry and professional associations Rail Supply Industry
Media and Public	Social media Magazines Newspapers

Table 1 PhDs EU-Rail Target Groups

Identifying target groups forms the foundation for analyzing the intended audience and the desired outcomes from effectively disseminating and utilizing the project's findings. The results of this analysis are organized and presented in the subsequent table.

Target audience	Outcome expected from PhDs EU-Rail	Impact
Partners of the PhDs EU-Rail consortium Interested parties and stakeholders related to multi-modal transport systems Transportation authorities at national and European levels Policymakers, associations, and regulators Technology and sub-systems suppliers Railway and transportation international community Media and public	<p><i>For the Scientific Community:</i></p> <p>Uptake by Europe's Rail Joint Undertaking (ERJU) and European Rail Research Advisory Council (ERRAC), implementing project advice in new calls and funding for PhDs.</p> <p><i>For PhD Programs:</i></p> <p>High utilization of research outputs (measured by citation rates)</p> <p>Adoption of innovative PhD program methodologies, including:</p> <p>Visiting scholars</p> <p>Co-supervising methodologies</p> <p>Lateral industry career opportunities</p>	<p>The project aims to broadly impact environmental sustainability, social well-being, industry efficiency, and regulatory compliance. This includes:</p> <p>Contributing to innovative solutions across railway operations, infrastructure, and services through the integration of ICT.</p> <p>Supporting the shift towards more sustainable transport options by enabling optimization of logistics and usage.</p> <p>Promoting accessibility and inclusivity for all passengers, including disabled individuals, and integrating human factors into the design and operation of railway systems for enhanced safety and user experience.</p> <p>Enhancing rail education programs and fostering gender equality in the sector</p> <p>Improving the efficiency of railway operations and contributing to cost reduction and enhanced performance.</p>

Table 2 PhDs EU-Rail Target audience and Impact

2 Communication and Dissemination Plan

2.1 Objective

This plan lays out a comprehensive approach to increasing the reach and uptake of the various outcomes of the PhDs EU-Rail project. This plan will strategically select and use appropriate communication tools, platforms, and activities to effectively promote the project and its results, with the goal of maximizing engagement and participation from relevant audiences. The plan for communication and dissemination of information will be structured as follows: Strategies for both in-house and outward communication, along with the distribution of findings.

2.2 Internal Communication

To ensure seamless and efficient internal communication, we will implement the following methods:

- Utilize a cloud-based file-sharing platform for internal online communication and information exchange among partners. This platform will allow all members to access, upload, and download documents within shared folders. It's designed to be secure and user-friendly for everyone involved.
- Engagement in written communications, including internal emails and presentations.
- Documentation of every official project meeting (including subtask/task/Work Package/Workshop plenary conference calls) and bilateral discussions with related projects will be maintained in the cloud directory. This ensures that members are well-informed about meetings and can easily follow decisions.
- Maintenance of an up-to-date official contact list for individuals involved in critical areas of the project, accessible via the shared cloud.
- Support for non-written communication through online conferences and in-person project meetings, fostering a consistent and productive work environment throughout the project.

Meeting overview:

General assembly One Kick-Off Meeting, one Mid-term event and a final event.	All partners
Project Steering Committee Overall steering of the project. Review and challenge project progress and achievements Meetings every 6 months.	WP Leaders
WP Leader Committee Regular meetings, every 2 weeks, of all WP Leaders with the Project Manager	Project Manager WP Leader / Manager
WP Internal Coordination	WP Leader / Manager WP Task Leader/Manager other WP partners, if necessary

Regular meetings, every week, of WP with all involved WP partners of specific WP	
PhD -Industry Workshops At least 10 (one per PhD) during the project	Representatives of the rail system include operators, infrastructure managers, suppliers, academics, and end users.

Table 3 PhDs EU-Rail Meeting Overview

2.3 Communication Activities

This section outlines the range of communication tasks planned for the project's duration, providing updates on their current status. An activity tracker has been established to systematically gather all partners' Dissemination and Communication (D&C) efforts.

The project will publish news content and social media posts via EUSurvey tool provided by EU-Rail at least once a month. Content from the survey will then be used to feed EU-Rail corporate communication channels.

2.3.1 Project Visual Identity

A project identity was created at the beginning of the project, including templates for presentations and reports, as well as the PhDs EU-Rail logo. The project identity purposely builds on the logo and further visual materials from Academics4Rail, to demonstrate the links between the two projects, which aims to help with dissemination activities and ensure a consistent communication of the project concept, objectives, and results.

2.3.2 Logo

In creating the project logo, the EU-Rail guidelines were taken into account to make a logo that not only represents the project itself but also reflects the image and identity of the EU-Rail.

The Academics4Rail logo, base of the PhDs EU-Rail logo, is inspired by the key values of the project: Knowledge, Cooperation, Rail Research, Aerodynamics, Freight Trains, Digital Communications, Asset Maintenance, PhD, and AI-based Driving Assistance, all of which remain relevant. The coloured track shapes symbolise a network of knowledge moving forward side by side. The colours follow the given EU-Rail guidelines and go hand in hand with the project's identity.

The logo should always be presented with the correct proportions and colours. Do not alter, crop or manipulate the original logo, meaning do not stretch, change the proportions or modify the logo's colours in any other way, always maintain a minimum clear space around the logo



Figure 2 Project logo



Figure 3 Logo guide

In case of use of the Europe's Rail logo, it must be notified to Europe's Rail before publication. This is so EU-RAIL can verify, if necessary, its appropriate use, in particular to avoid potential misrepresentation of the JU. This applies to all digital and print materials, including videos, websites, presentations, reports, and promotional content

2.3.3 Brand Typography

The font Gotham Narrow will be used for the headers and for all body text in Arial or similar (Helvetica, open sans)

2.3.4 Project Visual Identity Guidelines

To harmonize the preparation of dissemination products within the consortium and create a common design, a set of visual identity guidelines has been produced and shared with all partners.



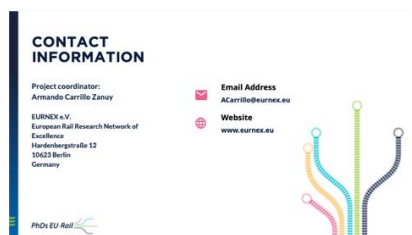


Figure 4 Project design guidelines

2.3.5 Project Templates

Templates have been created to ensure the visual identity follows the whole project. For example, PowerPoint presentation slides, word documents for Deliverables and reports and press releases.

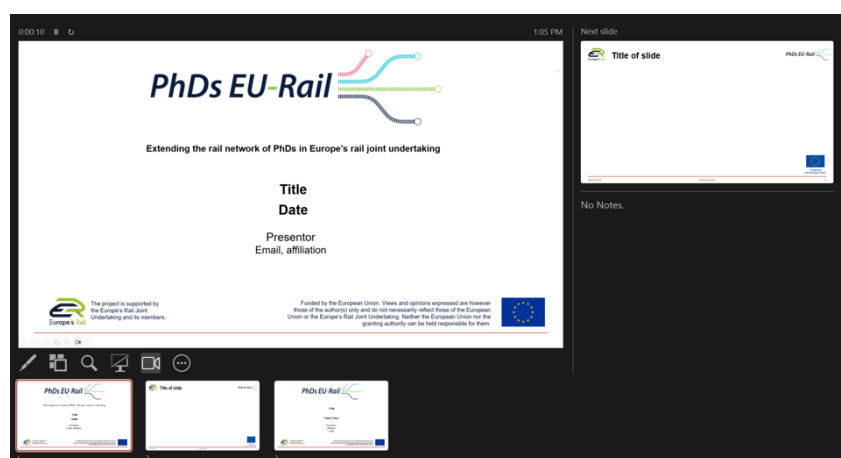


Figure 5 PowerPoint template and slides

2.3.6 Public Website

A webpage has been set up at the beginning of the project, under the Academics4Rail website (<https://www.academics4rail.eu/phdseu-rail/>). It can be reached from the URL: www.phdseu-rail.eu.

The public webpage displays general information about the project, partners, and materials of PhDs EU-Rail. The parent page (Academics4Rail) provides access to all the deliverables and publications produced under that project. This is another way to connect the two projects and further enhance visibility and reach of outcomes, leveraging on the previous project and ensuring continuous visibility and use of findings.

There is a page dedicated to information about the Project, a start page, highlighting the project, presenting the partners and some short facts.

A dedicated news page featuring regularly updated content, approximately one post per month, presented in a LinkedIn-style feed that aggregates all project-related posts. In addition, An online form to join the newsletter mailing list.

There is one page dedicated to Deliverables and Publications available for download.

The Web Platform content will be organized as to maximize its appearance and findability in search engines. It will be optimized for mobile devices, ensuring that the content is available and accessible to visitors on smartphones and tablets; the Website has an SEO tool included to ensure a higher ranking on Google searches. It will also be continuously monitored with Google Analytics to follow the visits and interactions that the site produces.



Figure 6 Website

2.3.7 Press Releases

PhDs EU-Rail will produce and disseminate at least 11 press releases throughout the duration of project. The initial press release was issued in the occasion of the first kickoff meeting of the project. Subsequent releases will be distributed at key stages, highlighting new achievements and milestones. Press releases will be publicly accessible on the project's website and distributed via email to an extensive contact list compiled from all partners. This list includes various media outlets, newspapers, magazines, policymakers, academics, and social media channels, ensuring widespread coverage and visibility. The first Press Release was published in the beginning of the project, announcing its kick-off. (https://www.academics4rail.eu/wp-content/uploads/2024/11/PhDsEURail_PressRelease121124-1.pdf)



Figure 7 Press Release

2.3.8 Brochure/Flyer

A brochure-factsheet will be developed to disseminate information about the project to engaged stakeholders at international events. Additionally, a digital version of this brochure will be created for wider accessibility.

The development and dissemination of two brochures is foreseen, one halfway through the project (M18) and another at the end of the project (M36). Appropriate venues will be identified for wider distribution of the brochure, which will also be made online in the project's webpage, for further distribution.

A high-quality digital brochure/factsheet, summarising key project achievements, should be submitted to EU-Rail via EU-Survey for dissemination annually

2.3.9 Videos

A concise video showcasing demonstrations and the project's socioeconomic impacts is planned for production during the project's timeline. Additionally, another 10 videos (at least one per PhD) will be produced. Upon completion, videos will be uploaded to YouTube and disseminated through all partners' YouTube channels and social media platforms. To further publicize the videos, social media channels will be used actively to ensure further reach. The objective is to engage with an audience of over 300 viewers, broadening the project's reach and impact.

2.3.10 Social Media

Integrating a robust social media strategy is key to disseminate and communicate outcomes of the project. It is a suitable platform to maintain continuous updates about the project, potentially reaching a wider range of individuals and organizations, and engaging a wider set of stakeholders during and at the end of the project.

PhDs EU-Rail plans to use mainly LinkedIn and on occasions X (former Twitter) to share project updates and news. Rather than starting new social media accounts, PhDs EU-Rail will utilize the existing accounts of all partners, including the affiliates of an unbiased organization. PhDs EU-Rail will keep the communication office of this neutral entity informed about project updates to increase EURNEX's reach through its channels, newsletters, and social media accounts. A specific hashtag has been created for all project-related communications on social media (#PhdsEURail), allowing the public to find or follow our news easily. The posts will include the project hashtag, #PhdsEURail, and the relevant topics adapted to the content (e.g. #gender, #training, #nighttrains). EURNEX will also tag its partners and the neutral organization's account. A shared Excel file has been set up to plan EURNEX's upcoming posts and coordinate announcements. EURNEX will encourage partners to engage by joining, reposting, tagging, sharing, and engaging with our social media content to maintain a steady stream of news and high engagement levels. EURNEX's target is to make around 50 social media posts throughout the project.

EURNEX will monitor the performance on each social media platform using specific tools. For X, EURNEX will analyze metrics such as engagement rate, audience composition, retweets, replies, likes, follows, and clicks using the Twitter activity dashboard. LinkedIn Page analytics will be used to assess the effectiveness of updates and the quality and relevance of content shared, including follower and visitor demographics and sources. Additionally, EURNEX will gather analytics insights from partners' YouTube channels, focusing on views, rewatches, unique viewers, and traffic sources.

The project will also submit content for dissemination to Europe's Rail via email and the EU-Survey tool for Europe's Rail's social media channels.

2.4 Dissemination Activities

Project partners of "Extending the Network of PhDs" will submit articles to peer-reviewed journals of high-rank conferences and journals, preferring venues and channels that offer open-access publishing, for instance (but not limited to): Emerging Technologies, Transportation Research Part D: Transport and Environment, Sustainable Cities and Society, Transportmetrica, B-Transport Dynamics, ETEP, Bell Systems Technical Journal, IEEE AFRICON, International Journal of Electrical Power & Energy Systems, J. Adv. Manuf. Technol, Journal of Materials Research and Technology, Progress in Materials Science, Vehicle System Dynamics, WEAR, IEEE Communications Magazine, IEEE Vehicular Technology Magazine, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Engineering Management, IEEE Access, International Journal of Rail Transportation, Journal of Rail and Rapid Transit, Journal of Sound and Vibration, IEEE Transactions on Intelligent Transportation Systems, Journal of Transportation Engineering, Transportation Research Part B: Methodological, IEEE Common. Surveys Tuts., Transportation Research Part F: Traffic Psychology and Behavior, Computers & Structures, Gender studies, Transportation Research Interdisciplinary Perspective, Transportation Research Record, Gender, Work and Organization, Gender and Society, Engineering Structures, International Journal of Rail Transportation, Journal of Rail and Rapid Transit, PROMET Traffic & Transportation, Sustainability, Transport, Journal of Rail Transport Planning & Management, Transport Problems, LOGI–Scientific Journal on Transport and Logistics, IF Ingegneria Ferroviaria, Journal of Advanced Transportation, Transportation Research Part B; Journal of Transport Economics and Policy; Transport Policy, Educational Research (REE), Multidisciplinary Journal of Education by and for Doctoral Students (RED) to name a few.

Apart of the specific technology conferences PhDs EU-Rail project partners will participate as well in generic conferences/events such as the following (but not limited to): Transport Research Arena (TRA), World Congress on Railway Research (WCRR), InnoTrans, International Conference on Railway Technology: Research, Development and Maintenance, Horizons of Railway Transport, Rail Dresden 2025, LOGI Conference, IEEE Vehicular Technology Conference, International Transport Economics Association (ITEA) Annual Conferences, Florence School of Regulation events, IEEE conference in Intelligent Transportation Systems, UITP, UIC, UNIFE, ERRAC, EURNEX events.

Due to the nature of the project, national and regional events are to be considered as well for dissemination and communication. For deliverables and demonstrations activities performed in the PhDs EU-Rail, specific dissemination will be organized, e.g., when meaningful results have been achieved or when showcase can be visible to the public.

2.4.1 Participation in Conferences and Congresses

The partner consortium will participate and present at European and International conferences and congresses, such as Innotrans, TRA2024, Rail Live, Connecting Europe Days, etc. EU-Rail will cooperate in active promotion and joint dissemination.

Some upcoming events have already been identified and added to a document that will be updated as we go along with the project. Up to now the following conferences and public events have been listed:

Venue	Date	Country
RailDresden 2025: 11th International Conference on Railway Operations Modelling and Analysis	April 1–4, 2025	Germany
RISRB Rail Safety Conference 2025	May 13–14, 2025	Australia

Rail Live 2025	June 18-19, 2025	UK
IEEE Vehicular Technology Conference	Jun 17, 2025 – Fri, Jun 20, 2025	Norway
International Transport Economics Association (ITEA) Annual Conference	June 23–27, 2025	United States
World Congress on Railway Research (WCRR) 2025	November 17–21, 2025	United States
IEEE Conference on Intelligent Transportation Systems (ITSC) 2025	November 18 - November 21, 2025	Australia
Rail Live 2025	November 26-28, 2025	Madrid
Transport Research Arena (TRA) 2026	May 18–21,- 2026	Hungary
InnoTrans 2026	September 22–25, 2026	Germany

Table 4 Upcoming events

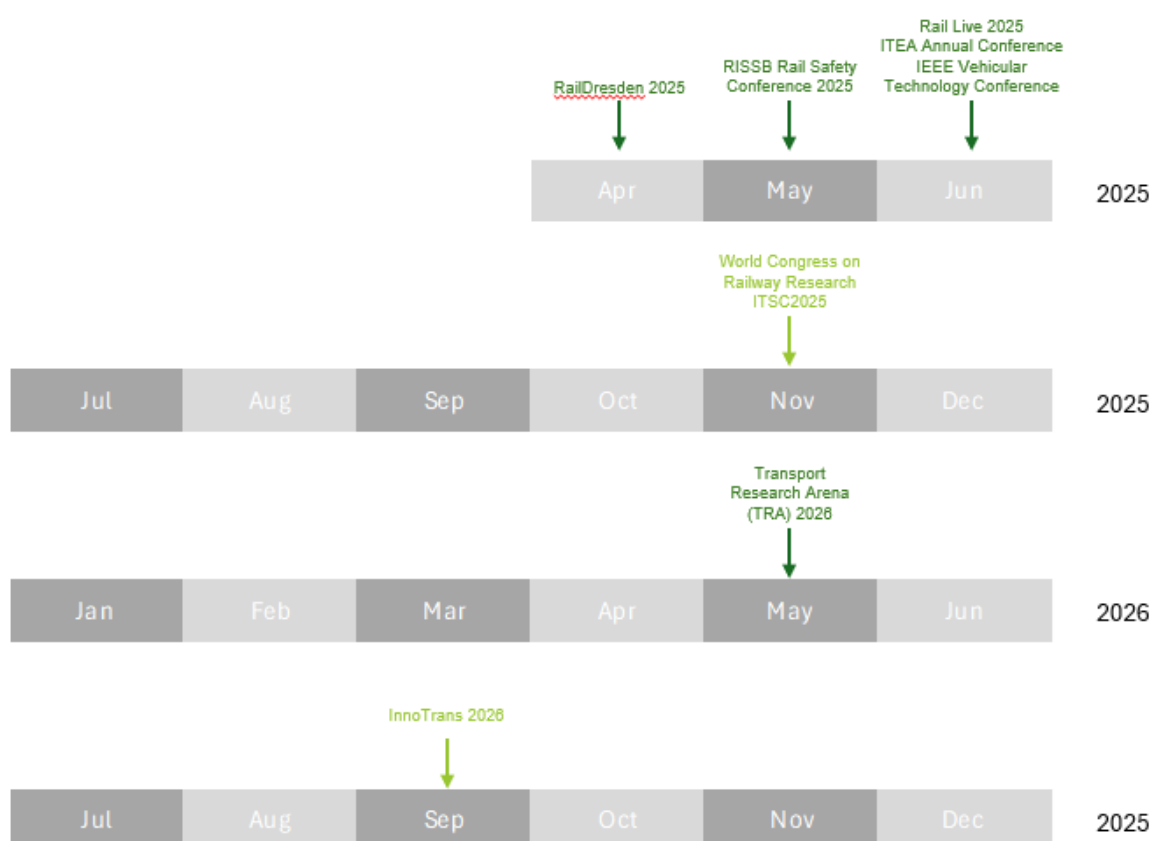


Figure 8 Timeline of upcoming events

In addition to these events, the project will host several standalone events. These events will showcase the project's key outcomes. All relevant stakeholders from the rail industry, including partners from Europe's Rail JU and other sectors, will be invited to participate. The midterm and final conferences will offer a platform for industry experts and stakeholders to engage in discussions about the project's findings.

2.4.2 Publications

Key project findings will be disseminated through various academic and industry channels. Scientific journals, conference proceedings, and comparable platforms will serve as primary outlets for publishing major project outcomes. PhDs EU-Rail will publish project results in Open Access formats, ensuring wider accessibility. Project partners will strive to share articles detailing project outcomes, best practices, and research papers in prominent industry publications. These include Railway Gazette, IRJ, Global Railway Review, RTR European Rail Technology Review, European Railway Review, Rail Technology Magazine, Eisenbahn Ingenieur, and Vía Libre, among others.

2.4.3 Key messages

The following 15 key messages about the project are intended for audience: general public, railway stakeholders, researchers, and policymakers.

1. Strengthening the rail R&I ecosystem in Europe

The PhDs EU-Rail project strengthens collaboration between academia, industry, and the Europe's Rail Joint Undertaking (EU-Rail JU), aiming to bridge research excellence with the operational needs of the rail sector. It builds upon the Academics4Rail initiative to create a structured, long-term research ecosystem that supports innovation and strategic planning in rail.

2. 10 innovative PhD projects aligned with EU priorities

The project supports 10 PhDs that focus on key themes such as decarbonisation, digitalisation, education, gender equality, accessibility, safety, and technical infrastructure. These PhDs are co-directed by universities and industry/EU-Rail JU partners, ensuring alignment with Europe's railway innovation priorities.

3. Decarbonising transport through technical innovation

PhD research addresses the systemic barriers to implementing sustainable innovations in rail, including regulatory, organisational, and economic challenges. The goal is to provide actionable strategies that support rail's leadership in low-emission transport.

4. Fostering gender equality in the rail sector

Dedicated research investigates gender gaps in rail employment and passenger experience. It proposes concrete strategies for industry inclusion, such as a best practices manual, awareness campaigns, and policies to make the sector more appealing and equitable for women.

5. Enabling mobility for individuals with disabilities

One PhD project focuses on the inclusion of people with intellectual disabilities in the rail system. It studies barriers and develops communication protocols, staff training programs, and user-centric tools to foster autonomous, inclusive railway travel.

6. Promoting sustainable urban logistics

Rail's role in last-mile urban freight is being reimagined. Research explores integrated delivery systems using city train stations as micro-hubs, combined with electric vehicles or cargo bikes, to reduce emissions, noise, and congestion in urban areas.

7. Reviving night train travel

Fast night trains can replace short-haul flights in Europe. The project investigates their viability, comfort, and organisation, offering new business models and route optimisation tools to scale up sustainable long-distance rail travel across the continent.

8. Normative advancements in train-bridge stability

Another PhD critically re-evaluates outdated European standards governing train dynamics on bridges. By leveraging modern simulation tools, it proposes more efficient and scientifically grounded safety and comfort criteria that reduce overdesign and cost.

9. Digital communication systems and human factors

Research explores how digital command and fallback communication modes can be redefined to prioritize human safety, efficiency, and clarity. Lessons from aviation and healthcare inform improvements to rail-specific safety-critical communication systems.

10. Evaluating the societal impact of rail innovation

This work quantifies how EU-funded rail research contributes to decarbonisation, economic benefits, and modal shift. Using a KPI-based framework, it estimates long-term impacts and strengthens the case for further public and private R&I investment.

11. Next-generation rail education and training

With a looming skills gap in rail, one PhD focuses on creating innovative, AI-supported, student-centered training systems that reflect evolving technology and workforce needs. Outputs include standardized methods and long-term educational strategies.

12. Establishing a pan-European scientific network

The project scales the Academics4Rail network by incorporating new partners across Europe, including Ukraine. It aims to unify Europe's rail researchers under a common agenda, reinforcing academic-industry cooperation and project continuity.

13. Active industry-academic co-supervision

Each PhD is co-directed by academic and industrial supervisors. This dual approach ensures research is both scientifically robust and directly applicable, fostering mutual learning and accelerating the adoption of research outputs in practice.

14. High-impact dissemination strategy

Results will be showcased at top conferences (TRA, WCRR, ERRAC), published in journals, and shared with industry and policy forums. This wide dissemination increases the visibility and uptake of cutting-edge rail research across sectors.

15. Policy-relevant recommendations

Policy briefs, technical guidelines, and strategic input will be developed based on research findings. These materials will support the EU's mobility, inclusion, and climate goals, and guide future legislative and funding frameworks for rail innovation.

2.5 Timeline

Dissemination will be an ongoing process that spans the entire duration of the project and extends beyond its completion. Certain activities, like conferences and specific publications, will occur at designated times, while others, such as maintaining a web presence and engaging on social media, will be continuous throughout the project lifecycle.

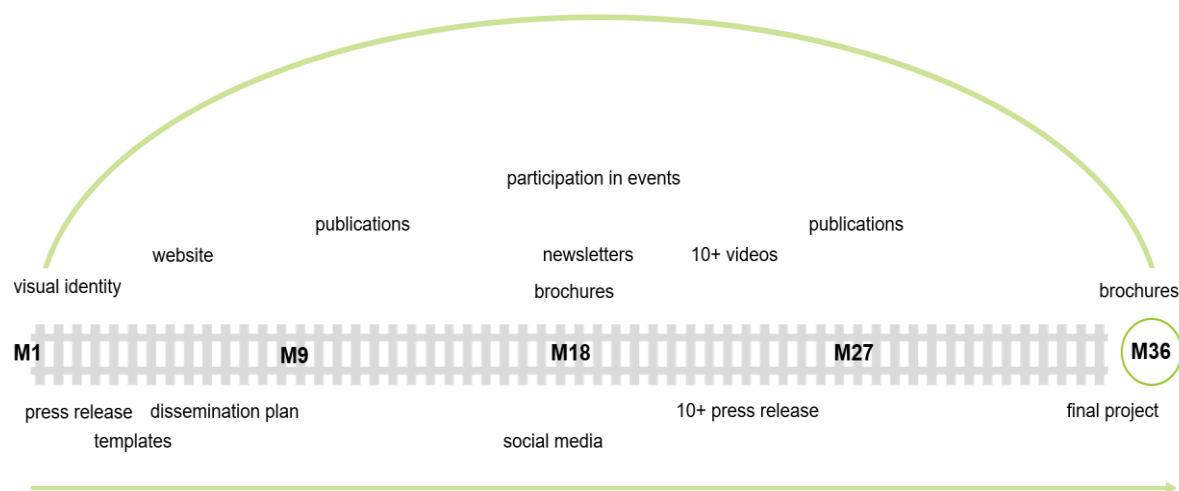


Figure 9 Timeline of dissemination

3 KPIs

The following table lists the Key-Performance-Indicators and corresponding target values which will measure the effectiveness of the D&C activities

DISSEMINATION MEASURES		
Instruments	Expected impact (KPI)	Target Groups
Minimum of 10 articles in rail industry and professional association magazines	>1,000 subscribers	All stakeholders
Minimum of 20 scientific articles submitted to peer review journals	>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	200 participants	Industry and professional associations
Setting up of an Advisory Board	10 participants	ERA, ERRAC SC, PAG Academia (ERRAC), extension of Academics4Rail and final users including the EPF (European Passengers Federation (EPF) and association of railway workers (ETF).
Workshops and/or webinars (PhD - Industry) and videos	At least 10 videos (one per PhD) plus one of the project Workshops Webinars with 50 participants	All stakeholders

Table 5 KPIs for dissemination measures

EXPLOITATION MEASURES
<p>Identification of relevant users, both by partners and external users.</p> <p>Identify the potential barriers to the application of the project's results.</p> <p>Development of measures to ensure that the resulting community of scientific research and the PhD network outlive the project.</p> <p>Liaise with other FA, System Pillar and ERRAC, via advisory group ERA.</p> <p>Contribute to open-source projects providing access to the PhDs EU-Rail project framework.</p> <p>Build industry / academic community and raise awareness of innovations from PhDs.</p> <p>Promote knowledge transfer from academia to industry with at least 2 spin-off activities.</p> <p>Monitoring and influence in the possible standardization and regulation activities that could be beneficial with the project</p>

Table 6 KPIs for exploitation measures

COMMUNICATION MEASURES		
Instruments	Expected impact (KPI)	Target Groups
Press releases	>11 press releases	Newspapers. Magazines. Social media (X, LinkedIn). Policymakers. Academics
Project Brochure	2 project brochures (released M18, M36)	Rail authorities. Policymakers, regulators, and supply chains. Researchers from other transport/energy projects. Industry associations of “enablers. Policymakers and regulators. Media outlets. Academia.
Website posts (minimum 1 post per month)	One high-quality news item per month. 200 visitors per year	Rail authorities. Policymakers, regulators, and supply chains. Researchers from other transport/energy projects. Industry associations of “enablers. Policymakers and regulators. Media outlets. Academia.
Newsletters (through the ERJU) (2 per year)	>200 subscribers	Rail authorities. Policymakers. Researchers and Academics
A short video about the project with socio economic impacts, to be posted on YouTube, website, and other social medias)	> 300 (rough estimate of viewers)	Public and passengers
Project website	> 4000 of visitors in total	Transport-energy authorities. Policy Makers. Academia and other researchers. Media outlets. General public.
Social media (X, LinkedIn)	Over 50 posts through LinkedIn and X of the project partners. With minimum of 4 high-quality posts per year on EU-Rail’s main social media channels	General public
Mid and final events	Mid (UIC), and final (SUPSI) Conferences with attendance of min 50 specialists each.	Railway specialists/stakeholders

Table 7 KPIs for communication measures

4 Exploitation Plan

4.1 Objectives

This section seeks to enhance strategic collaboration within the rail transport sector, laying the foundation for the future industry adoption and application of the emerging research, technologies and innovations. The exploitation efforts are designed to ensure that the project's outcomes contribute to societal, scientific, and policy advancements through a structured approach. This includes establishing a methodology to identify valuable outputs, targeting relevant users, addressing adoption challenges, and implementing sustainability measures for the scientific community and PhD network. Additionally, it encompasses intellectual property analysis, impact planning, and the evaluation of dissemination and communication activities.

4.2 Identification of Exploitable Results

The project exploitation plan will be performed taking into consideration all project Key Exploitable Results (KER) to be produced in the project. Although the Scientific Community and PhDs are delivering primarily on low TRL environment, a preliminary analysis yields these key exploitation results:

Concrete results of PhD EU-Rail suitable for exploitation	Exploitation path	To be exploited by
PhD1 Innovations		
Guidelines of planning cargo transportation with diminishing of carbon background (trace).	Publish open access databank, targeted communication actions	Railway researchers, railway operators and undertakings, business developers, government institutions
Assessment methodology of impact innovations on decreasing decarbonatization during railway cargo and intermodal transportation	Idem	Idem
Principles/ requirements of formation & upgrading of the locomotive fleet with a reduced Greenhouse Gas emission	Idem	Idem
PhD2 Gender		
Academic papers / publications	Publish in open access, targeted communication actions. Presented in rail specific events and conferences Open-access repositories	Rail researchers, business developers, rail stakeholders (operators, infrastructure managers)

Handbook of good practices	Idem	Idem
Specific document with strategies and actions to promote gender equality and make the sector more attractive to future generations of professional women	Idem	Idem
Policy recommendations to address societal challenges	Idem	Idem
PhD3 Education		
A tool to model rail curricula (an evaluation tool)	Presented in rail education specific events, validated by a rail community of academics and other stakeholders, Publish in open access targeted communication actions	Rail academics, scholars, researchers, and stakeholders representing the rail industry (operators, infrastructure managers)
Protocols and guidelines for the standardization and harmonization of education and training practices across the European rail sector	Idem	Idem
PhD4 Urban logistics		
Technology concept of urban logistics system implementing rail transport	Publish in open access, targeted communication actions	Rail researchers and engineers, business developers, rail stakeholders (operators, infrastructure managers, rolling stock managers, builders)
Handbook of good practices	Idem	Idem
Set of recommendations for involved stakeholders	Idem	Idem
PhD5 Night trains		
Guidelines for night trains management and operation	Discuss and check guidelines with railway stakeholders, online interactive guidelines for railway stakeholders on WIKI or similar platform. Presentation of guidelines through the conference. Publish in open access, targeted	Rail researchers, business developers, rail stakeholders (operators, infrastructure managers) and public authorities.

	communication actions in scientific and professional papers.	
Guidelines for night trains marketing	Idem	Idem
Green book of night trains travel	Idem	Idem
PhD6 Bridge-Train dynamics		
Scientific papers with the methodologies and results leading to the enhancement of train stability indicators on bridges	Publish in open access journals.	Bridge designers, rail infrastructure managers, rail researchers.
Guidelines and recommendations for improving EN1990-Annex A2 and EN1991-2	Propose recommendations to ERA.	Idem
Scientific papers with the methodologies and results leading to the enhancement of train stability indicators on bridges	Publish in open access journals.	Idem
PhD7 Human factors digital command		
Development of a handbook containing a step-to-step guide on how to design processes for safety relevant communication in railways	Publish open access databank, targeted communication actions	Rail researchers, business developers, rail stakeholders (operators, infrastructure managers)
White papers for developing similar applications in the railway sector	Idem	Idem
PhD8 KPIs rail program		
New evidence on socio-economic impacts from the EU-Rail technical research programme, utilizing elements of the assessment framework resulting from Academics4Rail	Publish in open access journals, plus targeted communication actions such as seminars with the rail industry / policy bodies	Rail researchers, rail stakeholders (operators, infrastructure managers, policy makers)
New empirical and statistically valid evidence on the impact of extreme weather events on railway infrastructure maintenance costs and delay/ incidents	Idem	Idem

performance, as well as consequential demand/revenue impacts		
PhD9 Inclusion disabled		
Protocol	Development of a protocol for field agents in the reception and care of individuals with intellectual disabilities, along with access to training, with the aim of providing tools to agents for more inclusive communication.	Rail academics, scholars, researchers, and stakeholders representing the rail industry (operators, infrastructure managers)
Impact Analysis	By soliciting user feedback from individuals with intellectual disabilities for industry professionals, this initiative aims to gauge satisfaction levels. Additionally, there is a potential for a study examining the impact of the frequency of travel for persons with disabilities, including its potential economic outcome for the industry.	Railway-related industry professionals
PhD10 ICT platforms		
Analysis of the current state-of-the-art ERTMS systems	Publish in open access journals, plus targeted communication actions such as seminars with the rail industry.	Rail researchers, rail stakeholders (operators, infrastructure managers, policy makers) and public authorities
Extension of the OPTIMA Communication Platform Demonstrator	Idem	Idem

Table 8 Exploitable Results

4.3 Market Analysis

The market analysis for PhDs EU-Rail will specifically emphasize the academic sector and PhD programs, highlighting the project's contributions to educational advancements and research in rail transport. It already builds up on the lessons of Academics4rail and further assesses the demand for cutting-edge rail technologies and methodologies within academic institutions, as well as looking into elevating socioeconomic impact that the rail sector can have, bridging specialized PhD programs to the next generation of rail industry experts. The analysis will also explore opportunities for collaboration between academia and the rail industry, identifying areas where academic research can drive innovation. This focus aims to ensure that PhDs EU-Rail advances rail technology and practices, while contributing significantly to a thriving academic community that drives an innovative and competitive rail sector.

4.4 Intellectual Property Rights (IPR) and Innovation Management

An IPR management process will be applied during the life of the PhDs EU-Rail based on the definition in the Consortium Agreement. The IPR management procedures will include:

- Encourage reporting and evaluation of inventions to build a business-focused portfolio.
- Counsel on intellectual property, agreements and licensing.
- The Consortium Agreement will include the knowledge management and protection policy.
- The Consortium Agreement will handle the specification of the IPR framework, including:
 - Forms of cooperation among partners.
 - Exploitation rules between the academia and companies involved in the PhDs.
 - Solution maintenance and evolution.
 - Configuration management.
 - Definition of the education on intellectual assets.
 - Defining the procedures regulating the layers of technology development and IPR Management.
 - Definition of the confidentiality and Non-Disclosure Agreements which bind all consortium partners.

Intellectual Property will have a level of protection to safeguard partners, including SMEs, and to ensure the success of the European rail industry in the global market.

4.5 Quality and efficiency of the implementation

The PhDs EU-Rail project adopts a structured and meticulous approach to ensuring quality and efficiency throughout its implementation, emphasizing effective project management and strong collaboration among partners. A key component of this strategy is the establishment of a clear management framework that promotes transparent communication, well-defined responsibilities, and the timely execution of project activities. This framework integrates robust quality assurance measures to assess deliverables and processes, ensuring they align with and exceed project objectives.

A monitoring system is in place to track progress against milestones, manage potential risks, and enable adaptive responses to challenges, ensuring that the project stays on track and achieves meaningful outcomes. Efficiency is optimized by making the best use of available resources and leveraging the diverse expertise of project partners to enhance overall results. Ongoing stakeholder engagement and structured feedback mechanisms further ensure that project outputs remain relevant, valuable, and effectively disseminated to the intended audiences.

Overall, the Work Packages are interconnected through the coordination and technical management aspects. WP1 and WP2 set the foundation for research topics and methodologies, while WP3 brings real-world exposure. WP4 consolidates outcomes and prepares for dissemination. WP5 and WP6 provide administrative support and ensure effective dissemination, completing the cycle by feeding back into the research process. The entire structure ensures a cohesive and iterative approach to the project's objectives.

By adhering to best practices in project management and execution, PhDs EU-Rail is committed to delivering high-quality research and innovation that contribute to the advancement of railway systems and education while maximizing the impact and visibility of its findings.

5 Conclusions

In summary, the PhDs EU-Rail Dissemination, Communication, and Exploitation Plan focuses on targeted strategies to enhance outreach and impact. These include leveraging both digital and traditional media to engage a wide audience, developing content tailored to diverse stakeholders, and fostering collaborations to support the broad application of research findings. Additionally, the project emphasizes the creation of innovative dissemination tools and platforms to facilitate effective knowledge sharing, ultimately aiming to strengthen the European rail sector's sustainability, innovation, and competitiveness.