



D9.2 STAKEHOLDER ENGAGEMENT AND DISSEMINATION ACTIVITIES REPORT – YEAR 1

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Executive summary

In the evolution of urban transport, NEXUS is an EU-funded project that seeks to establish an innovation benchmark, addressing crucial challenges and guiding European metros toward transformative futures.

With a holistic approach, NEXUS envisions a future where technology enhances operations in a sustainable manner. The project weaves a narrative where metros become dynamic, adaptable entities. The participation of stakeholders such as metro operators and passenger representatives will expand the project's results not only locally but also on an international level. Through optimization, analysis, energy, and service efficiency, NEXUS aspires to pioneer innovative solutions demonstrating their effectiveness in two European cities (Genoa, Italy, and Sofia, Bulgaria) for the urban and metro transport of the future.

The deliverable D9.2 'Stakeholder engagement and dissemination activities report' – prepared within Work Package (WP) 9 'Stakeholder engagement and dissemination strategy 1st RP' – follows up on D9.1 'Stakeholder engagement and dissemination strategy' – providing an overview on the effectiveness of the strategy, tools, and overall approach to stakeholder engagement, Dissemination, and Communication pertinent to the first 12 months of NEXUS activities.

Furthermore, the report provides the consortium with updated (where relevant) comprehensive guidelines regarding stakeholders, managing their data, as well as ensuring effective stakeholder engagement and dissemination of the project's strategic objectives, activities, and results. As per the GA, this deliverable describes the target audiences and key messages, materials, and channels to be used to reach them within the specified timeline. The report assesses how previously established means and indices to monitor performance and risks outlined in D9.2, impacted the project's activities.

This deliverable provides a resource for project partners, particularly Work Package and Task leaders, offering guidelines for engaging with stakeholders and reporting outcomes. It emphasises the need for early engagement, while also considering involvement at different project stages. The Stakeholder Engagement Strategy is based on a framework that ensures the right stakeholders are involved at the right time and in the most effective manner. This process is designed to promote transparent, meaningful stakeholder engagement that aligns with the project's goals and addresses stakeholder concerns.

A preliminary stakeholder analysis has been conducted, categorising stakeholders based on their influence and interest. This early analysis highlights the need for custom engagement strategies. Updating a stakeholder register and Power/Interest grids will be done throughout the project. So far, based on their power and interest, stakeholders have been categorised to inform tailored engagement strategies.

A detailed Stakeholder Engagement Strategy with specific objectives is defined in this deliverable, along with communication tools (branding, logo, digital materials), an effective dissemination strategy adapted to the various engagement channels, approaches and target groups, as well as measures for achieving and monitoring these objectives through a set of Key Performance Indicators (KPIs). In addition, this deliverable defines the approval procedures and the timing for partners to notify their participation in dissemination activities (publications, events, etc.), as well as their expected contributions in relation to



the use of the existing website and social media channels – ensuring that all communication and dissemination needs and activities from various WPs and project partners, in general, are considered and coordinated.

The stakeholder engagement and dissemination activities will be regularly monitored to identify areas for improvement for future steps. By outlining the stakeholder engagement and dissemination strategy to be applied, the goal of this deliverable is to ensure an effective, consistent, and efficient Stakeholder Engagement Strategy and approach to the dissemination of the NEXUS outcomes and results. The presented Stakeholder Engagement and Dissemination Strategy will remain valid for the first year of the project. It will be reviewed and updated for D10.1 'Updated Stakeholder Engagement and Dissemination Strategy' within Work Package (WP) 10 'Stakeholder Engagement and Dissemination Strategy 2nd RP'. Both deliverables should be viewed as living documents that may be adjusted based on the project's needs and outcomes.

KEY WORDS

Stakeholder engagement, stakeholder mapping, engagement strategy, dissemination, communication, audience, goal, message

Social Media link:



For further information please visit nexus-project.eu

LIST OF ABBREVIATIONS AND ACRONYMS

Acronym	Meaning
AI	Artificial Intelligence
C&D	Communication and Dissemination
EAB	External Advisory Board
EC	European Commission
EURAIL	Europe's Rial Joint Undertaking
GA	Grant Agreement
GDPR	General Data Protection Regulation
GP	General Public
HE	Horizon Europe
KoM	Kick-off Meeting
KER	Key Exploitable Result
KPI	Key Performance Indicator
PA	Public Authorities
PRM	Persons with Reduced Mobility
PS	Project Sisters
PSC	Project Steering Committee
RB	Regulatory Bodies
RP	Report
R&A	Researchers and Academia
R&I	Research and Innovation
SE	Stakeholder Engagement
SE & D	Stakeholder Engagement and Dissemination
WP	Work Package

1 INTRODUCTION

1.1 PROJECT INTRODUCTION

The project Next-gen technologies for enhanced metro operation (NEXUS) is a Horizon Europe project running from 1 October 2024 to 30 September 2026 and deployed by a consortium of 13 partners. The objective of the NEXUS project is to establish an innovation benchmark, addressing crucial challenges and guiding European metros toward transformative futures. Through optimisation, analysis, energy and service efficiency, NEXUS aspires to pioneer innovative solutions, testing them in 2 European cities (Genoa, Italy and Sofia, Bulgaria) for the urban and metro transport of the future.

1.2 PURPOSE OF THE DELIVERABLE

NEXUS addresses societal needs, creating a vision that evolves into dynamic, adaptable systems. Stakeholder involvement, including metro operators and passenger representatives, deepens the project's impact. The Stakeholder Engagement Strategy designed in D9.1 is crucial for fostering an inclusive and collaborative environment, allowing stakeholders to make substantial contributions to project actions, and facilitating the uptake and deployment of the NEXUS innovations and results. The guide outlines a four-step process for stakeholder engagement: engagement planning, stakeholder mapping and clustering, preparation and engagement, and engagement review and improvement. The Deliverable reports the first 12 months of stakeholder engagement activities and therefore provides the opportunity to review and improve on its first iteration.

Due to the importance of stakeholder engagement in the project, a specific task for stakeholder engagement and dissemination strategy was defined within the project framework (Task 9.1 – Work Package 9). The **general aim of this task** is to ensure a harmonised and transparent process maximising the project impact across all stakeholder groups.

In particular, the goal of this task is to provide all work packages with a centralised approach for identifying target audience clusters, defining key messages, and determining the materials, media, and channels to be used for stakeholder engagement. The task also establishes a timeline for activities, including events, and outlines potential risks with steps to mitigate them. Additionally, Task 9.1 sets measurable performance indicators and provides mechanisms for monitoring and analysing these targets to ensure effective engagement and dissemination.

The terms 'dissemination', 'exploitation' and 'communication' will be used frequently in this document, and their meaning is as per the European Commission's definitions provided in the European Union's website for Research and Innovation. A screenshot is provided in **Figure 1**. Communication, Dissemination and Exploitation below.



COMMUNICATION, DISSEMINATION AND EXPLOITATION
WHY THEY ALL MATTER AND WHAT IS THE DIFFERENCE?

Communication: Promote your action and results
Inform, promote and communicate your activities and results

- Reaching multiple audiences:** Citizens, the media, stakeholders
- How?**
 - Having a well-designed strategy
 - Conveying clear messages
 - Using the right media channels
- When?** From the start of the action until the end
- Why?**
 - Engage with stakeholders
 - Attract the best experts to your team
 - Generate market demand
 - Raise awareness of how public money is spent
 - Show the success of European collaboration

Legal obligation of your Grant Agreement

Dissemination: Make your results public
Open Science: knowledge and results (free of charge) for others to use

- Only to scientists?** Not only but also to others that can learn from the results: authorities, industry, policymakers, sectors of interest, civil society
- How?** Publishing your results on:
 - Scientific magazines
 - Scientific and/or targeted conferences
 - Databases
- When?** At any time, and as soon as the action has results
- Why?**
 - Maximise results' impact
 - Allow other researchers to go a step forward
 - Contribute to the advancement of the state of the art
 - Make scientific results a common good

Legal obligation of your Grant Agreement

Exploitation: Make concrete use of results
Commercial, Societal, Political Purposes

- Only by researchers?** Not only, but also:
 - Industry including SMEs
 - Those that can make good use of them: authorities, industrial authorities, policymakers, sectors of interest, civil society
- How?**
 - Creating roadmaps, prototypes, softwares
 - Sharing knowledge, skills, data
- When?** Towards the end and beyond, as soon as the action has exploitable results
- Why?**
 - Lead to new legislation or recommendations
 - For the benefit of innovation, the economy and the society
 - Help to tackle a problem and respond to an existing demand

Legal obligation of your Grant Agreement

What else?  Acknowledge the EU funding!

Figure 1. Communication, Dissemination and Exploitation

The present Deliverable is a key element in the process of monitoring, reviewing, and improving on the project's activities necessary to deliver the expected outcomes of WP 9. It measures the results achieved, based on the strategy developed for D9.1, highlighting risks, best practices, and potential improvements.

As described in D9.1, the NEXUS Stakeholder Engagement and Dissemination Strategy has been designed to engage with stakeholders at the local, national and European level, ensuring inclusive and collaborative implementation of the project's activities. The strategy offered Consortium partners responsible for executing tasks and activities needing specific stakeholder inputs the means to pursue two main purposes:

- to ensure a harmonised and transparent process facilitated effective contributions from a wide range of stakeholder groups.
- to have access to a centralised approach and standardised ruleset for contacting and engaging stakeholders, track and report reporting engagement outcomes, and to establish further engagement activities.

1.3 INTENDED AUDIENCE

Deliverable 9.2 is a public document that can be consulted by the European Commission, Europe's Rail Joint Undertaking, external stakeholders, or any interested reader. Specifically, it serves as a guide for the NEXUS project partners who need to be informed about the use of the NEXUS internal and external branding and marketing resources to contribute to the project's extensive promotion and diffusion, and who need to be familiar with the guidelines for engaging with stakeholders and reporting/disseminating outcomes of the project.

1.4 INTERRELATION

This deliverable is a strategic mid-term document providing Project Partners with an overview of the results of the application of the guidelines and ground rules for approaching stakeholders designed in the first half of the project. It also provides a clear reflection of the implementation of guidelines on reporting and tracking engagement outcomes and co-participatory processes. Stakeholder engagement and dissemination activities are strongly related to all WPs, as they promote the project activities, results and developments and focus on their further exploitation. Reflection on the results achieved so far will allow the NEXUS consortium to improve on the project's flow of information and to increase the diffusion of the exploitation and uptake of NEXUS results beyond the project timeline, ensuring its impact.

This deliverable includes updated images of the Dissemination Activities Record (included in ANNEX 2: DISSEMINATION ACTIVITIES RECORD & REPORTING FORM) and the Project Dissemination Guidelines (included in ANNEX 3: NEXUS PROJECT DISSEMINATION GUIDELINES). It is, for obvious reasons, related to D9.1 'Stakeholder engagement and dissemination strategy'.

This deliverable is also associated with the coeval D9.3 'Preliminary exploitation plan and road mapping' (which will be developed in M12). In addition, it contributes to outputs of WP10 'Stakeholder engagement and dissemination strategy 2nd RP', such as D10.1 'Updated stakeholder engagement and dissemination strategy' (developed in M13); as well as D10.2 'Stakeholder engagement and dissemination activities report – Year 2' and D10.3 'Exploitation plan and road mapping' (developed in M24) as all are closely tied with NEXUS stakeholder engagement activities. The reports and updated strategies include and will include any necessary changes based on the progress of the planned stakeholder engagement and dissemination activities.

This deliverable builds on and contributes to the following tasks:

- Task 9.1 'Stakeholder engagement and dissemination strategy': this deliverable outlines the key steps that will be taken as part of this task.
- Task 9.2 'Communication channels and tools': this deliverable both supports and makes use of the channels and tools developed by this task, to ensure an effective stakeholder engagement and dissemination strategy.
- Task 9.3 'Technical dissemination and events': this deliverable supports this task by providing an overarching strategy and guidelines for reporting these dissemination activities, the project's branding during these events, and a preliminary calendar of events in which the project can present its innovations and results.

- Task 9.4 ‘Outreach and stakeholder engagement’: as this task establishes a stakeholder reference group of at least 15 members by M12, to collect user needs and requirements relevant for the different work packages, this deliverable provides guidelines for the creation and engagement of said reference group; as well as for the Stakeholder Forum which will disseminate the project’s achievements and use a channel for collecting feedback and exchanging knowledge and best practice.
- Task 9.5 ‘Exploitation strategy and plan’: this deliverable ensures that communication, dissemination and stakeholder engagement efforts effectively support business exploitation plans.

In addition, stakeholder engagement directly contributes to the objectives of other work packages, including:

- **WP3 (Requirements Analysis):** Early workshops and surveys will inform the identification of user needs, forming the basis for solution design in WP4.
- **WP4 (Design and Development):** Stakeholders will validate proposed solutions, ensuring their practical relevance and adaptability.
- **WP6 (Implementation and Demonstration):** Real-world tests and demonstrations will rely on active stakeholder participation to assess the feasibility and scalability of solutions.
- **WP7 (Evaluation of Results):** Stakeholder feedback will guide the evaluation of performance metrics and identify areas for improvement.
- **WP9 & WP10 (Stakeholder Engagement and Dissemination Strategy 1st & 2nd RP):** Dissemination efforts will ensure the project’s visibility, while the Stakeholder Forum will provide an ongoing platform for feedback and collaboration.

1.5 STRUCTURE OF THE DELIVERABLE

The Deliverable D9.1 ensures a coherent approach to stakeholder engagement and dissemination, facilitating the effective deployment and uptake of NEXUS solutions and results. It aligns with and highlights the project’s objectives and expected results as described in the Grant Agreement, particularly Objective 9, which involves developing a strategic plan for exploiting the project’s results, innovations, and findings. The strategic plan will identify key stakeholders, potential beneficiaries, and avenues for translating research outcomes into tangible benefits for the metro industry, actively seeking commercialization opportunities arising from its results. Stakeholder engagement and dissemination activities to strengthen the project delivery and outreach will ensure quality outcomes and significant impact on the current practice.

Chapter 2 outlines the framework four-step methodology for engaging with project stakeholders. Chapter 3 builds on this by detailing the stakeholder engagement plan, including how stakeholders are identified, the types of engagement (informative, consultative, collaborative), and the engagement and communication tools to be used—ranging from physical meetings to digital platforms and printed materials. This chapter also reports the findings of a preliminary stakeholder mapping and analysis, based on the target groups originally identified in the GA. It also includes guidelines and suggested practices for conducting engagement initiatives, crafting key messages, reporting outcomes, and

identifying improvements to the engagement strategy. A timeline for these activities is also included, and potential risks and challenges are addressed, as well as mitigation measures. Chapter 4 focuses on how the project's innovations and results will be shared, covering dissemination approval processes, reporting practices, as well as publications, events, and synergies with other initiatives. The chapter concludes with a summary of dissemination and communication activities and key performance indicators for monitoring their effectiveness.

1.6 ROLES & RESPONSIBILITIES

The stakeholder engagement and dissemination activities of NEXUS fall under WP9 and WP10. The present document covers the application of the strategy developed and applied under WP9 in preparation to the implementation of WP10. Therefore, the NEXUS Stakeholder Engagement and Dissemination strategy has been and will be implemented with the active involvement of all partners, under the coordination of the WP9 Leader (ERTICO) and the Project Coordinator (STAM) in both work packages. In regard to the concluding work package responsibilities include the following

- Stakeholder Engagement activities:
WP9 Leader (ERTICO) has been responsible for the timely and accurate performance of stakeholder engagement activities, including meeting deadlines, monitoring and achieving project KPIs. This role has been supported by activities performed by task leaders and partners involved in WP9 activities (i.e. STAM SRL; TIS PT Consultores em Transportes, Inovacao e Sistemas; SIEMENS Mobility Austria GMBH; Virtual Vehicle Research GMBH; Azienda Mobilita e Transporti SPA, Aston University, Metropolitan JSC, Performance Technologies Anonymos Etaira Pliroforikis; Technische Universität Wien; Universita Degli Studi di Genova; Higher School of Transport – Todor Kableshkov; Union Internationale des Transports Publics). The WP9 leader has been supported by consortium members' commitment in terms of timely and transparent information sharing, engagement in communicating the key messages and maintaining and expanding the stakeholder network.
- Dissemination activities:
ERTICO took up the role of the Project Dissemination & Communication Manager. Whereas consortium members were and are responsible for producing and publishing scientific papers and journal publications, the WP9 Leader (ERTICO), together with the project coordinator (STAM) coordinated and will continue to coordinate these activities, as well as participation in relevant events and organisation of workshops. ERTICO is also responsible for collecting, monitoring and reporting all the events and publications produced by consortium partners. The Dissemination Activities Record live document, as well as Dissemination Reporting guidelines (presented in ANNEX 2: DISSEMINATION ACTIVITIES RECORD & REPORTING FORM and in Section 3), have been and will remain the main tool to keep track of all dissemination activities.

2 FRAMEWORK METHODOLOGY

This section reviews and assesses the methodology defined and implemented in Task 9.1 to manage NEXUS' Stakeholder Engagement Strategy. The methodology used for NEXUS' is modelled after the four-step methodology outlined in Manoochehri et al. 2020. Such methodology, after adequate adaptations, proved perfectly applicable to multifaceted projects like NEXUS. This approach effectively manages various and heterogeneous stakeholder groups, ensuring robust, efficient, and dynamic engagement strategies.

As established in D9.1, the purpose of the Stakeholder Engagement Strategy is to ensure a harmonised and transparent process that allows the engagement with stakeholders, not only metro operators, but also industry associations, policymakers, and the wider public. The deployment strategy for the exploitation and uptake of NEXUS results requires in fact a multifaceted approach addressing strategic planning, stakeholder engagement, collaboration, training, and continuous monitoring. By proactively addressing these aspects, the project is already maximising the real-world impact of its outcomes and contributing to the sustainable advancement of metro systems globally. Furthermore, NEXUS is actively facilitating the implementation of these results by metro operators. The present report assesses how the engagement strategy designed in D9.1 and provided to all WPs dealing with activities involving stakeholders impacted NEXUS activities at the midpoint of the project.

As shown in D9.1, **Figure 2** summarises the four key steps of NEXUS methodology, which are:

- i) design of a stakeholder engagement plan: identifying the type, channels and a detailed plan for engaging with the stakeholders.
- ii) stakeholder mapping: identifying who the main stakeholders are, where they are coming from and how they can be structured or prioritized.
- iii) preparation and engagement: defining logistics for the engagement.
- iv) review and improve: by analysing the feedback, goals and strategies can be revisited and areas for improvement can be identified.

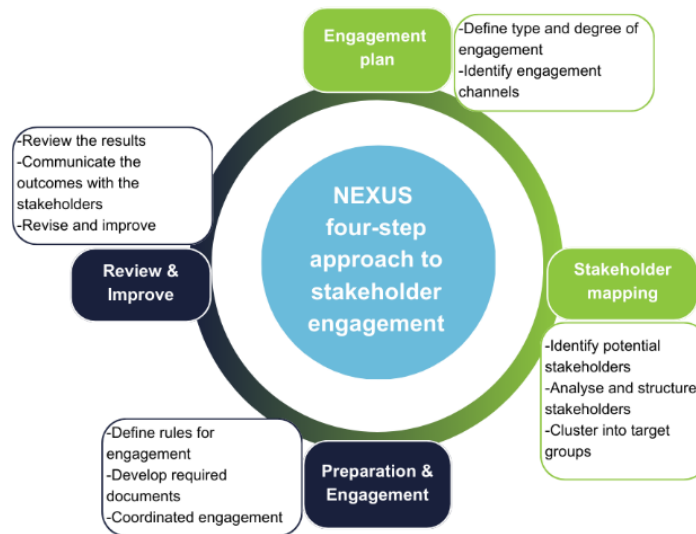


Figure 2. Four-step approach to stakeholder engagement

The application of this methodology has been planned to be implemented with the Stakeholder Engagement Strategy and timeline of the NEXUS project, divided in phases and covering the whole duration of the project from October 2024 to September 2026. Thanks to the cycle of planning-mapping-engagement-reviewing, the strategy ensures that NEXUS objectives are met and key groups are effectively reached, due to the constant monitoring of activities and results - a process of which this report is a pivotal part.

The following table offers a timeline of NEXUS strategy phases as established in the grant agreement. Afterwards, a description on how these intersect with the steps of the methodology is offered:

Table 1. Dissemination phases and stakeholder groups

Type of information	Target audience	Channels	Goals
Phase 1: Establishing the NEXUS brand – M1-M6			
Presentation and objectives, Expected results & impact.	Public transport operators (metro systems), Research and academia, Current and potential end-users (PRM, general public), Public Transport Authorities.	Website, Brochures/printed material, Conferences presentations, Social media, Newsletters, Visual identity (logo, guidelines, project banner, leaflet) Teaser video	General visibility, Collecting user needs, Cross-fertilisation, between projects, customers and investors.
Phase 2: Fostering understanding and engagement – M7-M12			

Type of information	Target audience	Channels	Goals
Technical developments, Plans for demonstrations.	As in Phase 1, and: Data providers, Service providers, Traffic control centres	As in Phase 1, and: Presentations at external events, Stakeholder Workshop 1.	Collecting stakeholder feedback, Cross-fertilisation between projects, Attracting potential collaborators or investors.
Phase 3: Consolidating and transferring knowledge – M13-M18			
Interim results, Progress of demonstrations, Exploitation potential.	As in Phase 2, and National and public authorities (Regulatory bodies, Public Transport Authorities), User associations (Passenger representatives, PRM associations).	As in Phase 1, and: Presentations at external events, Stakeholder Workshop 2, Mid-term event.	Spreading the word, Visibility of interim results, Feedback from external experts and users.
Phase 4: Creating the NEXUS legacy – M19-M24			
Project results, Exploitation plans, Recommendations, Policy implications.	As in Phase 3, and: non-metro rail infrastructure owners	As in Phase 1, and: Presentations at external events, Stakeholder Workshop 3, Final event End of project video.	Maximisation of project impact, Exploitation of innovation.

The **first step**, the design of the Stakeholder Engagement Plan, establishes the foundation for engagement. It defines the types of stakeholders, engagement channels, and a detailed timeline for interactions. This step ensures alignment with the project's work packages (WP3, WP4, WP5, WP7, WP8, WP9, and WP10). The design phase leverages a survey of WP leaders to scope stakeholders' contributions and identify preliminary engagement tools and events, both physical and virtual. These tools form the basis for stakeholder interactions during **Phase 1** (M1-M6) and **Phase 2** (M7-M12), focusing on raising awareness, gathering initial input, and fostering early engagement.

The **second step**, stakeholder mapping, involves identifying, analysing, and clustering stakeholders based on their capabilities and interest in the project. This process enables the project to prioritise engagement actions effectively. Stakeholders are categorized using qualitative indicators that reflect their roles and potential contributions to NEXUS. Additionally, their short- and long-term engagement goals are clearly defined. A centralised stakeholder register is created during this phase, serving as a continuously updated resource for tracking and managing stakeholder data and interactions. This step supports the objectives of **Phases 2 and 3** (M13-M18) by targeting relevant stakeholders and tailoring communication efforts to maximise impact.

The **third step**, preparation and engagement, focuses on organising the logistics for interaction and communication. Guidelines are developed to ensure focused and efficient stakeholder involvement while avoiding overlaps and redundancies. A centralised approach ensures all stakeholders, from public transport operators to policymakers, are engaged effectively. Communication plans detail the project's activities, interim results, and successes, aligning these with the interests of each stakeholder group. Dedicated tools are also developed to facilitate stakeholder participation, with a focus on collecting feedback and insights during **Phases 3 and 4** (M19-M24). These tools streamline engagement efforts and enhance the quality of stakeholder contributions.

The **fourth and final step**, review and improve, ensures the continuous refinement of engagement processes. Stakeholder feedback is systematically analysed to validate outcomes against predefined goals. This evaluation identifies new opportunities and additional activities, which are integrated into future engagement plans. Updated stakeholder cluster analyses and insights gained during earlier phases inform further initiatives. Results and achievements are communicated back to stakeholders, strengthening the NEXUS community and fostering long-term collaboration. This step is particularly relevant during **Phase 4**, where the emphasis shifts to creating the NEXUS legacy through the dissemination of final results, recommendations, and exploitation plans.

NEXUS is funded by EURAIL Joint Undertaking, the European partnership for rail research and innovation under the Horizon Europe programme (2020-2027). Throughout all of these phases there will be ongoing support from the communication team of Europe's Rail. NEXUS will fulfil the obligation of reporting communication, dissemination and stakeholder engagement activities to JU, to enable said support.

3 NEXUS STAKEHOLDER ENGAGEMENT STRATEGY & PLAN

A Stakeholder Engagement Strategy defines the type and degree of stakeholder engagement, target stakeholders and key messages, a timeline, an overview of potential risks and mitigation measures, digital and physical engagement channels. In the case of NEXUS this has been adapted to the four-steps methodology described in the previous section in order to better address and adapt to the various aspects of the project. A clear understanding of the strategy is fundamental for all project partners to ensure its effectiveness. It has been therefore key in the first half of the project to ensure that all partners had have a clear understanding of all the elements comprising NEXUS strategy.

An operational definition of Stakeholder engagement used within this strategy is the following:

Stakeholder engagement is the process used by an organisation to engage relevant stakeholders to achieve accepted outcomes. Stakeholder engagement aims at:

- 1) involving the users and end-users of a system/service/platform in the design phase by providing user requirements and feedback on its design.
- 2) improving/increasing the use of a system/service/platform by promoting its use to key stakeholders.
- 3) enlarging the geographical and thematic scope of a system/service/platform by including stakeholders representing different regions and/or domains.
- 4) providing advice and support in the interpretation of the results obtained and the impacts measured from the use of a system/service/platform.

3.1 TYPE AND DEGREE OF STAKEHOLDER ENGAGEMENT

Stakeholder participation is a key activity of the NEXUS project and a crucial step for establishing its innovative solutions in urban metro transport systems. Stakeholder participation in the NEXUS project has been designed to cover different forms of engagement across different work packages and tasks. These different forms of engagement are outlined below.

- **Informative participation (knowledge diffusion/raising awareness):** Stakeholders are informed about the relevance, progress, status, and results of the project. This includes knowledge sharing both in the form of communication and dissemination (through the NEXUS website, newsletters, and at digital and physical events such as conferences and workshops). Dissemination activities are tailored to raise awareness and ensure stakeholders are up to date on project developments.
- **Consultative participation (knowledge utilisation):** Stakeholders are actively involved in decision-making and planning processes. Their input—such as opinions, feedback, and ideas—influence the content and direction of the project. This consultative approach is central

to defining requirements, identifying challenges in metro operations, and co-developing solutions in areas like adaptability, automation, and AI integration.

- Collaborative participation (co-creation of knowledge):** Stakeholders participate directly in developing and validating the project’s outputs. This includes their involvement in workshops and demonstrations, as well as serving as partners in testing and evaluating solutions. This collaborative approach ensures that NEXUS results are practical, relevant, and aligned with stakeholder needs.

Effective stakeholder engagement is critical to coordinating interactions among project partners and external stakeholders to ensure their active and meaningful participation in the project. **Table 2** highlights how different types of engagement are integrated into specific work packages of the NEXUS project.

Table 2. Type and Degree of Stakeholder Engagement in NEXUS Work Packages

Type of Stakeholder Engagement	Work Package	Activities
Informative (knowledge diffusion)	WP9, WP10	C&D through website, newsletters, and presentations at conferences and workshops.
Consultative (knowledge utilisation)	WP3, WP4	Gathering input from metro operators, passenger representatives, and regulatory bodies.
Collaborative (co-creation of knowledge)	WP5, WP7	Co-designing and validating innovative solutions in metro adaptability and automation.

Throughout the project, the exact stakeholder contributions required under the different WPs, the specific engagement channels and activity/event timelines are defined by partners responsible for the associated WPs and Tasks and are communicated to the WP9 leader (ERTICO) and Project Coordinator (STAM), to keep track of engagement outcomes and adopt potential mitigation actions in the stakeholder engagement process. At the current stage of the project, the preliminary strategies, objectives and key activities for the respective approaches described in **Table 2** are outlined below.

3.1.1 INFORMATIVE APPROACH

The innovative technologies and operational frameworks from NEXUS are designed to significantly enhance metro systems’ adaptability, efficiency, safety, and inclusivity. The informative approach of the strategy aims to share knowledge and raise awareness about these advancements. The overall goal is to communicate research findings, technological developments, and practical solutions to facilitate their adoption by relevant stakeholders, ultimately driving improvements in metro systems and urban transport.

Specifically, the **objectives** of the informative approach are to:

- **Articulate key messages and results:** Present clear, consistent messages about NEXUS goals and outcomes, supported by engaging communication materials, tools, and channels.
- **Raise awareness and understanding:** Increase stakeholder knowledge of project objectives, benefits, and innovations among key audiences such as metro operators, policymakers, and user associations.
- **Promote NEXUS as a reference initiative:** Position NEXUS as a leading project in adaptable and inclusive metro systems through impactful dissemination and communication activities.

The **key activities** of this approach might include (to be evaluated and decided by each WP):

- **Passenger and Operator Insights (WP3):** Share findings from comprehensive analyses of user requirements and operator needs through infographics, reports, and workshops, raising awareness of key drivers of metro system optimisation.
- **Dynamic Service Adaptation (WP4):** Disseminate results from demand-based service optimization models, including enhanced vehicle layouts and platform designs, via stakeholder events, case studies, and technical workshops.
- **Digital Content (WP9):** Leverage the project website, social media, and newsletters to share simplified explanations of NEXUS innovations, fostering broader understanding and appeal.

3.1.2 CONSULTATIVE APPROACH

The consultative approach of the strategy aims to facilitate the utilisation of the knowledge generated by the NEXUS project.

Specific objectives include:

- **Encourage engagement and adoption:** Drive the uptake of results by stakeholders, supported by targeted outreach and user-centric demonstrations.
- **Support exploitation pathways:** Facilitate the adoption of NEXUS solutions by disseminating insights and best practices to a broader audience, paving the way for the exploitation of project results.

Key activities might include (to be evaluated and decided by each Work Package):

- **Real-World Demonstrations (WP7):** Highlight practical applications of NEXUS innovations through videos, live demonstrations, and interactive events to inspire adoption.
- **Frameworks and Guidelines (WP9):** Develop and share actionable guidelines and tools for operators, policymakers, and industry stakeholders to support sustainable implementation.
- **Workshops and Conferences (WP9):** Engage stakeholders regularly through thematic workshops, such as metro operator-focused sessions on user needs and technical advances.

3.1.3 COLLABORATIVE APPROACH

Finally, the collaborative approach of the strategy seeks to co-create knowledge with stakeholders. Specifically, our strategy consists of:

- **Strengthen collaborations:** Foster synergies with similar initiatives, EU-supported actions, and industry partnerships, particularly through the EURAIL Joint Undertaking.

Key activities might include (to be evaluated and decided by each Work Package):

- **Advanced Train Control Systems (WP5):** Showcase next-generation control system architectures and their benefits through publications emphasizing the improved efficiency, performance and comfort features.
- **AI and Data-Driven Solutions (WP6):** Promote AI's role in demand forecasting and maintenance planning through articles, video content, and conferences, highlighting innovation in transport management.
- **Sustainability and Resilience (WP8 & WP9):** Collaborate with stakeholders to highlight environmental and operational benefits, sharing insights through public campaigns and scientific journals.
- **Final Event (WP9):** Host an end-of-project event to showcase NEXUS results and their impact, fostering collaborations for future applications.

This structured approach ensures that stakeholders are engaged at varying levels appropriate to their roles, thereby amplifying the project's impact and fostering the adoption of its results.

3.2 ENGAGEMENT CHANNELS

The NEXUS project has identified a variety of engagement channels that blend physical and digital interactions to ensure stakeholder participation, consultation, and mutual knowledge sharing. These channels are designed to promote active involvement from diverse stakeholders, including metro operators, public transport authorities, technical experts, and passenger representatives. Below is a detailed outline of these engagement channels:

3.2.1 PHYSICAL STAKEHOLDER ENGAGEMENT

Physical events play a central role in engaging stakeholders at critical stages of the project. Key activities include:

- **Three Stakeholder Workshops:** These workshops are organised at distinct project phases:
 1. **Workshop 1 (M6):** Focused on gathering requirements and initial input from metro operators, passenger representatives, and other stakeholders in collaboration with WP3 and WP4. The present report provides detailed information and materials on the workshop.
 2. **Workshop 2 (M12):** Dedicated to presenting interim results, allowing stakeholders to provide feedback on findings and developments from WP5 and WP6. Which will take

place in Sofia, Bulgaria, on 14/10/2025. Due to the overlapping dates, it was impossible to include more information on this workshop here, which will be made available in the next report.

3. **Workshop 3 (M24):** A final event showcasing the project's results and exploring pathways for exploitation, linked with WP7 and WP8.
 - **Participation in International Events:** The consortium will engage stakeholders through its presence at industry-relevant conferences such as the ITS European Congress, UITP Global Public Transport Summit, Urban Mobility Days, InnoTrans 2026, TRA 2026, and Connecting Europe Days 2026. These events will serve as platforms to demonstrate the project's progress and outcomes. A detailed breakdown of event participation in the first half of the project is provided below.

WP1 and WP2 establish and manage an **External Advisory Board (EAB)** made up of stakeholders who have expressed (on voluntary basis) interest in NEXUS activities and results, and willing to contribute with their expert opinion to project activities at different project stages. The EAB will share their expertise with the consortium in an advisory capacity and ensure a high quality of the project's results at every step. There will also be a channel to get feedback on needs and requirements and potential for exploitation of the project's results. The EAB has been invited to actively participate in all the stakeholder workshops. The group currently includes:

- Azienda Trasporti Milanesi S.p.A (ATM): Milan public transport operator.
- Dopravní podnik hlavního města Prahy (DPP): Prague public transport operator.
- Ferrocarril Metropolità de Barcelona (TMB): Barcelona public transport operator.
- Gruppo Torinese Trasporti S.p.A. (GTT): Turin public transport operator.
- Metro de Madrid (MdM): Madrid public transport operator.
- Metropolitano de Lisboa (METRO LISBOA): Lisbon public transport operator.
- Metroselskabet I/S (METROSELSKABET): Copenhagen public transport authority.
- Hitachi Rails STS (HITACHI): Leader company in the railway sector.
- Leonardo S.p.A. (Leonardo): Leader company in the industrial sector.
- European Passenger Federation (EPF): Organisation representing the passengers.
- European Union Agency for Railways (ERA): Organisation for supporting the integration of European railway systems.

The kick off meeting of the EAB was organised online on January 16th, 2025. Members of the EAB have been provided an overview on NEXUS project, including the current activities and insights on the EAB role/involvement. WP3.1 and 3.2 leaders presented the passengers and operators surveys, with EAB members able to provide feedback, comments and additional inputs for improving the quality of the surveys and maximise the collection of results.

3.2.2 DIGITAL ENGAGEMENT & COMMUNICATION TOOLS

To complement physical activities, NEXUS is utilising various digital engagement tools, ensuring wide stakeholder outreach and sustained interaction throughout the project. These tools can also be considered communication tools, as they aim to inform and engage a broad audience, including citizens and the media, focusing on the project's activities, results and successes. The main tools to be included

are explored in the present section. The partners will also explore the opportunity to exploit additional channels, such as a project brief, videos interviewing consortium members, a podcast series (with approx. 4 episodes), and infographics showing technical details of the project.

3.2.2.1 VISUAL IDENTITY

The nexus project has established and adopted a distinctive visual identity by M3 of the project, for its communication activities across all channels to benefit from clear visibility, identification and association of the project.

The NEXUS visual identity guidelines and suggestions about the usage and application of the corporate design, project logo and acknowledgement to EU funding are presented in ANNEX 1: OVERVIEW OF VISUAL IDENTITY of this deliverable, including logo characteristics, project official colours, font policy, image policy, EU funding acknowledgment, and EURail partnership acknowledgment.

Visual identity is also implemented in digital templates for the harmonisation of documents distributed: these are a Word template for deliverables and meeting minutes, as well as a PowerPoint presentation template.

All NEXUS partners are instructed to adhere to the given design guidelines and will follow them for all applied communication and dissemination activities. (See ANNEX 1: OVERVIEW OF VISUAL IDENTITY).

3.2.2.2 PROJECT WEBSITE

A fundamental communication tool is a dynamic and interactive website as the main gateway to access project-related information, news, publications, etc. and for boosting information flow between entities within the rail research and innovation ecosystem interested in or involved in the work of the NEXUS project: the European Commission, universities and research centres, among others. The website is also used to communicate targeted information to the EURail partnership and their community.

The NEXUS project official website is available at: <https://nexus-heproject.eu>

The full website contains the following sections:

- **Home page** introducing the project.
- **About section** with the project description; the project's objectives and the consortium.
- **Use cases section** leading to a respective page for each of the use cases; a News & Events section; and Contact section.
- **News & Events section** with news related to the project and events the consortium is participating in.
- **Contact section** with the project's contact information.
- **Resources section** (in progress) will provide a platform for downloads of the project's public deliverables, as well as communication materials like project brochures, e-newsletters, leaflets, and public deliverables.

The project website is managed by Stakeholder Engagement and Dissemination Manager (ERTICO).

The NEXUS Dissemination Plan indicates the minimum number of website articles / posts and updates per year. Project Stakeholder Engagement and Dissemination Manager (ERTICO, WP6 leader) will

ensure the minimum threshold is reached. For the first year of the project, a minimum of one article per month should be produced and published on the NEXUS website and spread through partners' channels. Each article should be eligible for and undergo further promotion through ERTICO's and other partners' channels. In addition, all articles shall be provided to the communication team of the Europe's Rail Joint Undertaking. After the launch of the project's website, 8 news articles were published – a slight deviation justified by the project's development phases and the greater effort planned for the second half of the project.



Figure 3. Website Homepage

3.2.2.3 LINKEDIN

In addition to the NEXUS website, another key digital engagement tool is the project social media, namely the LinkedIn profile. Content is generated and monitored by the Project Stakeholder Engagement and Dissemination Manager (ERTICO), while relying on commitment and contributions from all project partners.

LinkedIn has been strategically chosen as the primary social media platform for this project due to its focus on a professional audience. This platform allows us to effectively connect with and engage our target groups, including project partners, related projects, policymakers, public authorities, technical professionals, among others.

A LinkedIn page has been created and will be regularly updated with NEXUS important information and happenings to encourage audience engagement. Whenever a new article is added on the website, it should also be shared immediately via the LinkedIn page to maximise online visibility. The content



includes references to project activities as well as links to the main project website and related technical websites for more details. It also allows commenting on or sharing the latest developments with one's own professional network. LinkedIn is an effective tool to spread important information, publications, etc. to a technically interested audience. Posts of different lengths, not exceeding 1000 characters, structured in paragraphs to increase visibility, have been designed to increase engagement depending on their content.

We aimed for 1-2 posts per month depending on the availability of news from the partners, as well as for 100 followers by the end of the first year.. The impact measurement of the social media page relies on the number of overall followers, new followers per month, impressions, views, and engagement rate (reactions, comments and shares). The goal for the first months of the project has been to establish NEXUS' online presence to first consolidate and later expand its social media presence, focusing on the pivotal role played by LinkedIn within professionals communities at large as well as with related and sister projects more specifically. In regard to foreseen targets, while the number of published news was slightly lower than expected (10 instead of 12), the number of followers was more of double compared to what was originally expected: 209 instead of 100 at the time of reporting. Such a result attests to the effectiveness of the implemented strategy.

NEXUS LinkedIn page: <https://www.linkedin.com/company/nexus-heproject/>

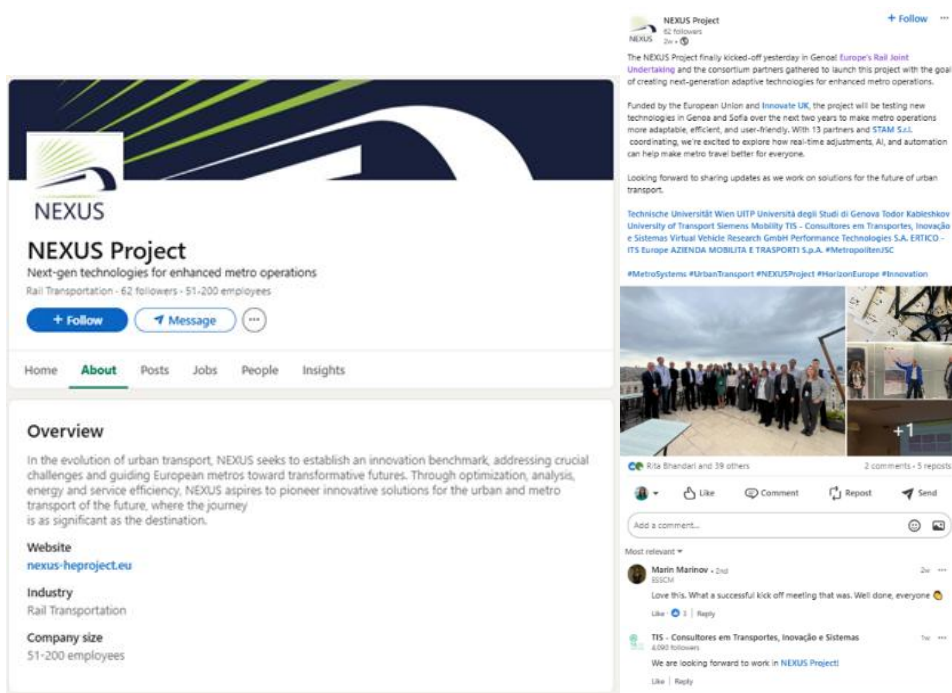


Figure 4. Project LinkedIn page

Hashtags have been primarily listed at the end of a post. The following hashtags have been chosen to be used for posting:

- #EU #HorizonEU #Transport.
- @CINEA - European Climate, Infrastructure and Environment Executive Agency.



- #EU Climate #EU #EUFunded.
- #EU_Rail.
- @Europe's Rail Joint Undertaking.

In addition, consortium partners involved have been tagged for more engagement and visibility, and project partners have been invited to utilize their own channels to promote the news from the project. The above measures have been designed to ensure that the posts reach a larger audience.

3.2.3 PRINTED ENGAGEMENT & COMMUNICATION TOOLS

The project approach has been from the beginning to remain as paperless as possible apart from the roll-up banner, which could be reused throughout the project at both internal and external events, and leaflets to present at in-person events to inform the attendees about the project's main facts and figures.

A roll-up banner has been developed and printed (see **Figure 5**). A factsheet/leaflet has been developed by M6 (see **Figure 6**) and finalised by M10. Future updates are foreseen in the project lifetime depending on the project's development. The visual identity should not, nevertheless, differ excessively from the initial materials to maintain the project's branding features.

Next-gen technologies for enhanced metro operations



Italy Genoa Bulgaria Sofia



24 months **13** partners **2** use cases






Connect with us
nexus-heproject.eu
 Nexus Project

Figure 5. Project Roll-up banner (Final)



Next-gen technologies for enhanced metro operations



The NEXUS project aims to transform metro systems by developing flexible, demand-responsive capacity, as well as optimising train operations, and enhancing sustainability.



Use cases and expected outcomes



- Double the Metro network length
- Allocate a specific metro line
- Integrate three critical new uses of the city into the system
- Enhance the Metro experience for passengers & improve public service quality

- Enhance the Sofia Metro experience by facilitating passenger demand through the addition of new destinations and digitalisation
- Increase efficiency by improving coordination with other transport modes and new mobility services
- Improve travel conditions and interior design ensuring these meet the diverse needs of passengers

Our partners



This project has been co-funded by the European Union under the Horizon Europe research and innovation programme under grant agreement No 101019714. Co-funded by the European Union under the Horizon Europe research and innovation programme under grant agreement No 101019714. The content is supported by the European Union but does not necessarily reflect the views of the Commission.

Connect with us



Figure 6. Nexus leaflet

3.3 STAKEHOLDER MAPPING

Mapping stakeholders is a critical step in identifying key actors, their expertise, and the roles they can play in the NEXUS project. This process ensures a well-targeted communication strategy, high-quality contributions, and meaningful engagement from stakeholders.

Stakeholder mapping for the NEXUS project will involve two main phases, as outlined below:

- **Identification of stakeholders.**
- **Stakeholder analysis and clustering.**

3.3.1 IDENTIFICATION OF POTENTIAL STAKEHOLDERS

As defined in the project’s proposal, the NEXUS project focuses on advancing metro systems through adaptive, automated, and AI-driven innovations. Key stakeholder groups include metro operators, public transport authorities, research organisations, technical experts, passenger advocacy groups, Europe’s Rail Joint Undertaking and their communication team (and network), other EURAIL projects, the System Pillar for Europe’s Rail Joint Undertaking, among others.

Since the initial months of the project, stakeholders, relevant initiatives, and networks have been identified. This will be an ongoing activity, carried out with the support of consortium partners, the Project Steering Committee (PSC), and the External Advisory Board (EAB). The objective is to ensure the inclusion of stakeholders from diverse sectors, geographies, and expertise levels.

A centralised **NEXUS Stakeholder Database** has been set up and will be maintained throughout the project. The database will serve as a repository for all stakeholder information and interactions. The following steps and rules will guide the database setup:

- **Development of a central file:**
 - An MS Excel template with predefined categories and criteria for mapping stakeholders has been created.
 - A manual with instructions for database use and stakeholder mapping has been provided to all partners.
- **Data collection and management:**
 - Partners populated the database with information about potential stakeholders using the provided template.
 - Data fields will include:
 - **Personal information:** Name, affiliation, role, and publicly available contact details.
 - **Organisational information:** Name, type of organization, geographical scope, sector focus, and level of involvement in metro system innovation.
- **Ongoing updates:**
 - The database is continuously updated with new stakeholders identified during the project.
 - Management and updates will be handled by the assigned database coordinators (e.g., WP leaders or a dedicated project team).
- **Compliance with GDPR (General Data Protection Regulation):**
 - All data collection and storage adhere to GDPR and its data protection principles.¹ No personal contact details is stored without consent or unless publicly available.

¹ According to the EU's General Data Protection Regulation, if you process data, you have to do so according to seven protection and accountability principles outlined in [Article 5.1-2](#):

1. **Lawfulness, fairness and transparency** — Processing must be lawful, fair, and transparent to the data subject.
2. **Purpose limitation** — You must process data for the legitimate purposes specified explicitly to the data subject when you collected it.
3. **Data minimization** — You should collect and process only as much data as absolutely necessary for the purposes specified.
4. **Accuracy** — You must keep personal data accurate and up to date.
5. **Storage limitation** — You may only store personally identifying data for as long as necessary for the specified purpose.
6. **Integrity and confidentiality** — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).
7. **Accountability** — The data controller is responsible for being able to demonstrate GDPR compliance with all of these principles.

3.3.2 STAKEHOLDER ANALYSIS AND CLUSTERING

To maximise the impact of stakeholder engagement, the identified stakeholders are analysed and grouped into clusters. This analysis helps determining the most effective engagement type and format for each group.

Key purposes of stakeholder analysis and clustering:

- Ensure representation from underrepresented stakeholder groups.
- Guide targeted recruitment efforts for specific project tasks and workshops.
- Tailor communication strategies to different stakeholder clusters.
- Identify geographic focus areas to differentiate between local, regional, and global actors.
- Highlight potential "multipliers" — stakeholders who can disseminate project outcomes to broader audiences.

Clustering criteria:

Stakeholders are clustered based on their power (influence in decision-making) and interest (relevance to the project). Criteria for clustering may include:

- **Power:** Role in decision-making processes, dissemination reach, and ability to influence metro system innovation.
- **Interest:** Relevance of the stakeholder's activities to NEXUS goals and likelihood of engagement.

The results of this analysis are visualised in a **power/interest matrix (Figure 7)**, which partners are using in defining stakeholder clusters. These clusters help in:

- Identifying external partners, members of the **External Advisory Board**, and members of the Stakeholder reference group as outlined in Task 9.4.
- Targeting participants for stakeholder workshops, international events, and virtual consultations.
- Tailoring messaging for stakeholder engagement through specific communication channels.
- Establishing a Stakeholder Forum to disseminate the project's achievements, to collect feedback and to exchange knowledge and best practices.

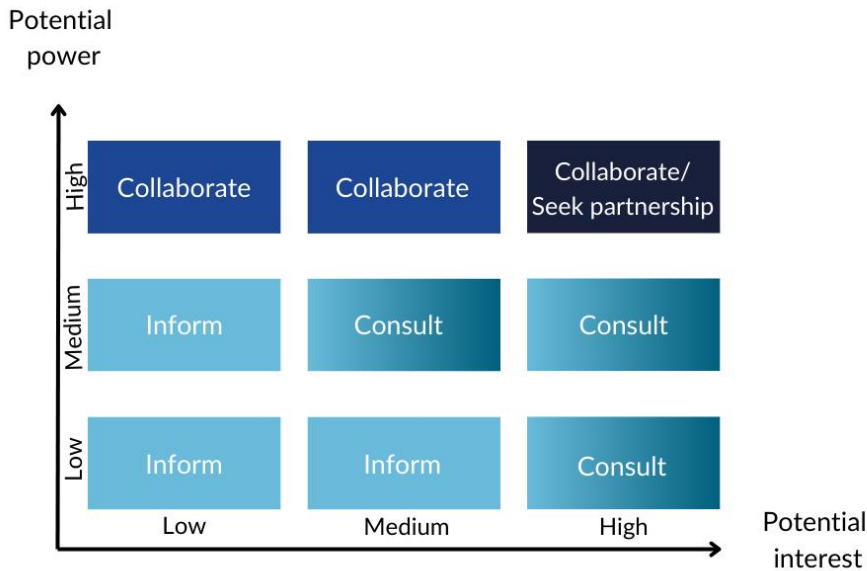


Figure 7. Clustering stakeholders based on their influence (power vs. interest) in the project and recommended type of engagement for each stakeholder cluster

The **Power** criterion reflects stakeholders’ influence in shaping decision-making processes at international, national, or regional levels. It encompasses their ability to disseminate information, mobilise key individual stakeholders, and drive action through their expertise and authority in the field. The **Interest** criterion evaluates how relevant the stakeholder’s activities are to NEXUS objectives and their likelihood of active engagement, considering their thematic focus and professional priorities.

Using these two criteria, stakeholders can be categorised into one of four quadrants, each representing a distinct positioning that corresponds to tailored engagement strategies. While some stakeholders may receive similar rankings, further detailed analysis will prioritise the most critical stakeholders within each quadrant.

Additionally, when determining stakeholder importance, special attention is given to those actively contributing to metro system innovation and urban transport advancements, as these areas align closely with the core focus of NEXUS. This approach ensures that the project’s engagement strategies effectively target individuals and organisations with the greatest potential to influence outcomes and foster collaboration.

Stakeholder Clusters and Roles:

- **Collaborate/Seek Partnership (High Power, High Interest):** Key participants in workshops, testing activities, and the External Advisory Board.
- **Consultation (Medium Power, High Interest):** Involved in workshops, consultations, and focus groups.

- **Inform (Low Power, High Interest):** Recipients of project updates, newsletters, and results dissemination via the NEXUS website.

Regular reviews of stakeholder clusters and engagement strategies will ensure alignment with project objectives and the evolving needs of the work packages.

3.4 TARGET GROUPS AND KEY MESSAGES

The NEXUS project aims to revolutionize metro systems through adaptive, automated, and AI-driven solutions that enhance efficiency, safety, sustainability, and inclusivity. The tools, technologies, and results developed in the project will benefit not only the cities directly involved in the use cases but also a broader range of stakeholders across urban transport systems worldwide. The Stakeholder Engagement Strategy of the NEXUS project addresses the following target groups and designs specific key messages for each:

1. Metro operators.
2. Metro rolling stock maintainers.
3. National and local public authorities (technical regulatory bodies, infrastructure investors).
4. Public Transport Authorities.
5. Current and potential end-users (PRM & general public).
6. User associations (passenger representatives, PRM associations).
7. Manufacturers of metro rolling stock.
8. Manufacturers of rail signalling systems and components.
9. Manufacturers of metro station equipment.
10. Civil engineering and architectural design offices.
11. Data providers and technology service providers (of human mobility data).
12. Research and academia.
13. Non-metro rail infrastructure owners.

Based on the power vs. interest graph in Figure 7. Clustering stakeholders based on their influence (power vs. interest) in the project and recommended type of engagement for each stakeholder cluster, the above stakeholders can be categorised as follows:

High Power - High Interest (Collaborate / Seek Partnership)

- Metro operators.
- Public Transport Authorities.
- National and local public authorities (technical regulatory bodies, infrastructure investors).

High Power - Medium Interest (Collaborate)

- Manufacturers of metro rolling stock.
- Manufacturers of rail signalling systems and components.
- Manufacturers of metro station equipment.

Medium Power - High Interest (Consult)

- User associations (passenger representatives, PRM associations).
- Civil engineering and architectural design offices.

- Data providers and technology service providers (of human mobility data).

Medium Power - Medium Interest (Consult)

- Research and academia.
- Non-metro rail infrastructure owners.

Low Power - High Interest (Consult)

- Current and potential end-users (PRM & general public).

Low Power - Medium Interest (Inform)

- Civil engineering and architectural design offices (if their interest in some aspects is moderate).

Building on this, the following section provides detailed key messages for engaging these target groups.

The NEXUS key messages form the foundation of the project's stakeholder engagement and dissemination activities. These messages are audience-specific and highlight the innovative metro system solutions developed within the project, which enhance service adaptability and sustainability. The messages will inspire wider adoption and replication of these solutions, both within the use cases and beyond.

These key messages serve as a starting point for further tailored communications to different local contexts. They will be translated into local languages and adapted to ensure optimal outreach to different stakeholders.

The NEXUS Stakeholder Engagement Strategy engages the above target groups through various channels (via project partners, use case networks, partnerships, events, forums, associations, among others), as will be outlined in the next section.

Recognising the importance of early identification of potential stakeholders, the consortium has created an initial list of target stakeholders, detailing the interests and the key messages that will be addressed by the project. This strategic approach serves to ensure that the project's stakeholder engagement efforts are focused and effective in reaching and engaging the right stakeholders (Table 3. Target groups, main interests and key messages).

Table 3. Target groups, main interests and key messages

Target groups	Main interests	Main benefits	Key messages
Metro operators	Operational efficiency, cost reduction, safety, passenger satisfaction.	Foster collaboration with metro operators to enhance operational efficiency, improve safety, and optimise costs. This includes active participation in use case activities to access and implement real-time service adaptation tools, predictive maintenance technologies, train control systems, AI/data science tools, and advanced safety systems researched within the NEXUS project.	Metro systems often face challenges with outdated infrastructure, high operational costs, and safety concerns. NEXUS offers cutting-edge solutions to address these issues, including AI-powered predictive maintenance, real-time service adaptation tools, and advanced safety systems. By implementing these technologies, operators can reduce operational costs, enhance passenger satisfaction, and ensure safer, more reliable services. Key words/hashtags: #UrbanMobility #MetroInnovation
Metro rolling stock maintainers	Maintenance efficiency, cost-effective solutions, safety compliance.	Enable rolling stock maintainers to adopt predictive maintenance powered by AI, reducing maintenance downtime and costs while extending the lifespan of assets. Participation in project workshops and training sessions will strengthen their capacity to maintain compliance with evolving safety regulations.	Traditional maintenance methods lead to unplanned downtime and high costs. NEXUS introduces predictive maintenance systems that reduce downtime by 30% and extend asset lifespans by 15%. Training workshops will ensure maintainers are equipped to meet evolving safety standards. Key words/Hashtags: #PredictiveMaintenance #RollingStock
National and local public authorities (technical regulatory bodies, infrastructure investors)	Sustainable infrastructure, safety compliance, economic impact, and alignment with policy goals.	Support public authorities in integrating sustainable, safe, and accessible infrastructure into urban mobility planning. The project aims to align with local and national policy goals by offering evidence-based recommendations and insights for inclusive urban mobility and infrastructure investment.	Urban mobility systems are critical for sustainable development. NEXUS supports public authorities with evidence-based recommendations for inclusive mobility planning and investments in accessible infrastructure. Solutions align with EU Green Deal goals, ensuring eco-friendly and economically beneficial outcomes. Key words/Hashtags: #SustainableMobility #InclusiveInfrastructure
Public Transport Authorities	Improved service quality, efficient network management, inclusivity.	Enhance the capacity of public transport authorities to deliver more efficient, accessible, and inclusive transport services. By participating in co-design processes and accessing energy-efficient tools and demand-driven optimisation solutions, authorities can ensure better network management and improved service quality.	Delivering high-quality transport services is a challenge for authorities managing complex urban networks. NEXUS provides energy-efficient tools and demand-driven optimization solutions that enhance network management, reduce energy consumption by 25%, and ensure inclusivity. Co-design processes directly address the needs of diverse populations. Key words/Hashtags: #SmartTransport #InclusiveServices
Current and potential end-users (PRM & general public)	Accessibility, safety, comfort, and reliable service.	Actively engage end-users, including persons with reduced mobility (PRM), in co-design activities to address their specific needs. This participatory approach will empower communities and improve accessibility, safety, and comfort in metro systems. NEXUS will also provide open access to project results, inviting the public to shape the future of urban mobility.	Metro systems often fail to meet the accessibility and comfort needs of PRM and the wider public. NEXUS co-design activities ensure PRM-specific solutions that improve accessibility by 40% and enhance overall service comfort. Open access to project results invites the public to participate in shaping the future of urban mobility. Key words/Hashtags: #AccessibleMobility #PassengerFocus
User associations (passenger representatives, PRM associations)	Advocacy for accessibility and inclusivity, service quality.	Strengthen the role of user associations in advocating for inclusivity and accessibility by involving them in co-creation activities and project design processes. This will ensure that solutions developed by the project directly respond to the needs of diverse passenger groups.	NEXUS empowers user associations to advocate for inclusive solutions by involving them in project design and co-creation processes. This guarantees that developed solutions align with the needs of diverse passenger groups. Key words/Hashtags: #InclusiveTransport #Advocacy
Manufacturers of metro rolling stock	Market competitiveness, innovation, compatibility with new technologies.	Facilitate collaboration with rolling stock manufacturers to foster innovation in next-generation vehicles. The project will promote integration opportunities for AI and adaptive technologies, offering insights into market trends and demand for advanced rolling stock solutions. The project will also provide insights on how to improve vehicle's interior design for increasing passenger comfort, safety and information provision (as part of WP3).	NEXUS fosters innovation in next-generation vehicles with adaptive technologies, improving passenger comfort and safety. Insights into market trends ensure manufacturers remain competitive. Key words/Hashtags: #SmartVehicles #MetroRollingStock
Manufacturers of rail signalling systems and components	Safety, efficiency, market demand for new technologies.	Partner with signalling and component manufacturers to advance the adoption of cutting-edge train control systems. The project will encourage collaboration to ensure the deployment of safer and more efficient rail signalling solutions.	Advanced signalling systems are critical for safer, more efficient operations. NEXUS drives innovation in cutting-edge train control systems, reducing accident risks and ensuring compliance with future safety standards. Key words/Hashtags: #RailSignaling #SafetyFirst

Target groups	Main interests	Main benefits	Key messages
Manufacturers of metro station equipment	Innovation in station design, accessibility, integration with new technologies.	Promote innovation and inclusivity in station design by connecting manufacturers with the project's findings and tools. NEXUS will provide opportunities for collaboration on adaptive and accessible station equipment that integrates seamlessly with advanced technologies.	NEXUS promotes inclusivity and adaptability in station equipment design, ensuring seamless integration with advanced technologies to meet diverse passenger needs. Collaborative efforts will redefine station accessibility and usability. Key words/Hashtags: #StationDesign #Innovation
Civil engineering and architectural design offices	Innovative design solutions, sustainable construction, inclusive infrastructure.	Foster partnerships with civil engineering and design offices to co-create inclusive and sustainable station designs. By offering data-driven insights and collaboration opportunities, NEXUS aims to redefine infrastructure planning to better serve diverse urban populations.	Inclusive urban infrastructure is key to sustainable development. NEXUS offers data-driven insights and collaboration opportunities to design metro stations that cater to diverse populations, ensuring long-term sustainability. Key words/Hashtags: #UrbanDesign #InclusiveInfrastructure
Data providers and technology service providers (of human mobility data)	Data application, partnerships, innovation in transport analytics.	Strengthen partnerships with data and technology providers by identifying new applications for human mobility data. NEXUS will support innovation in AI-driven forecasting tools and encourage knowledge exchange to advance transport analytics.	Human mobility data drives innovation in urban mobility. NEXUS supports AI-driven forecasting tools and fosters partnerships that enhance transport analytics, improving decision-making for urban transport planning. Key words/Hashtags: #MobilityData #TransportInnovation
Research and academia	Opportunities for research, academic publications, collaboration.	Facilitate collaboration with academic and research institutions by providing access to real-world data and opportunities for applied research. The project encourages participation in workshops, joint publications, and contributions to advancing urban mobility solutions.	NEXUS provides access to real-world data and fosters collaboration with researchers, leading to high-impact publications and advancements in urban mobility solutions. Academic contributions will shape the future of sustainable transport. Key words/Hashtags: #UrbanMobilityResearch #Collaboration
Non-metro rail infrastructure owners	Cross-modal integration, scalability of solutions, safety and efficiency.	Promote the scalability of NEXUS innovations to non-metro rail networks. The project will highlight opportunities for cross-modal integration, improved operational efficiency, and the adoption of adaptive technologies.	NEXUS innovations are scalable beyond metro networks, offering cross-modal integration opportunities. These solutions improve operational efficiency by 25% and enhance safety, supporting broader rail modernisation efforts. Key words/Hashtags: #RailIntegration #ScalableSolutions

3.5 PREPARATION AND ENGAGEMENT

To avoid overlaps between work packages and maximise the effectiveness of stakeholder interactions, it has been crucial to establish standardised rules for engaging and communicating with stakeholders identified in the NEXUS project. A centralised approach to stakeholder engagement ensures focused, efficient collaboration and adherence to privacy policies and ethical standards for managing personal data.

Partners are encouraged to consider the five specific key guiding questions (who, what, when, where, how) when defining efficient stakeholder engagement processes (Führer, 2019). **Table 4** below covers the suggested practices regarding each key question.

Table 4. Key Guiding Questions for Engaging Stakeholders

Key Question	Suggested Practice
Who	Stakeholders should be identified starting from the Power-Interest grids depicted in Figure 7 and contacts sourced, tracked and managed from the developed stakeholder register (ANNEX 4: NEXUS STAKEHOLDER REGISTER).
What (which contributions are expected from the stakeholders)	See Table 3. Target groups, main interests and key messages for main benefits from target groups. Additional scoping elements may be defined in due course as part of project implementation by the responsible partners.
When (timing of engagement)	Stakeholders should be kept informed throughout the project lifecycle about progress and achievements. The exact timing for organising engagement initiatives and gathering stakeholder contributions are however the responsibility of partners in charge of specific task execution.
Where and how (engagement channels)	The recommended engagement channels to be used are outlined in 3.2, however, additional tools and methods can be defined according to specific needs arising during WP and task implementation.

Key requirements for stakeholder preparation and engagement are outlined in the sub-sections below.

3.5.1 STANDARDISED RULES FOR CONTACTING STAKEHOLDERS

3.5.1.1 INITIAL ENGAGEMENT

The basis of stakeholder engagement for communication and collaboration will be the NEXUS Stakeholder Forum. The following standardised steps will guide the initial contact process:

1. **Public Invitations:** Stakeholders will be invited to join the NEXUS Stakeholder Forum through:
 - Announcements on the project website.
 - Regular updates and promotional content on social media platforms (e.g., LinkedIn).
 - Newsletters disseminated by project partners to key industry and research networks.
 - Participation in public-facing events.
 - Europe's Rail Joint Undertaking's corporate channels: EURAIL website, social media, and newsletter.
2. **Direct Invitations:**
 - For stakeholders with publicly available contact data, consortium partners will send direct invitations.
 - Upon receiving consent, stakeholders' data will be securely added to the database managed by TIS.
 - A uniform invitation letter will be developed, which will: Introduce the NEXUS project and its objectives; describe the purpose and benefits of joining the Stakeholder Forum; highlight the opportunities for collaboration, feedback, and participation in key project activities; detail data usage, storage, and protection practices to ensure compliance with GDPR and ethical standards.
3. **Registration Process:** Stakeholders will complete a registration form embedded in the invitation letter. The form will collect:
 - Basic personal and organisational information (e.g., name, contact details, organization, sector, expertise).
 - Optional responses to a questionnaire designed to capture stakeholders' interests, expectations, and potential contributions to NEXUS work packages.
 - Confirmation of consent through an Informed Consent Form outlining data management policies.

3.5.1.2 TARGETED ENGAGEMENT AND COMMUNICATION WITH STAKEHOLDERS

Stakeholder engagement activities align with insights from the stakeholder analysis and clustering, ensuring stakeholders are clustered based on their influence and interest. These clusters determine the level and type of engagement needed, ranging from active participation in technical activities to consultation for feedback and dissemination.

Key Engagement Activities:

1. Regular Communication:

- Website and social media updates keep stakeholders informed of project milestones, technical developments, and opportunities for collaboration.
- Articles and interviews featuring stakeholders highlight their contributions to NEXUS, fostering a sense of shared ownership.

2. Workshops and Events:

- **Stakeholder Workshop (WP3):** Organized by M6 to gather requirements and feedback from metro operators, passenger representatives, and technical experts.
- **Evaluation and Feedback Sessions (WP7):** Stakeholders will evaluate solution performance, providing insights into potential refinements.
- **Mid-term event (WP9) and final event (WP10):** A public mid-term and final event will be organised for technical dissemination.

3. Technical Dissemination (WP9):

- Potential conferences for participation include the ITS European Congress, Smart City World Expo, UITP Global Public Transport Summit and Urban Mobility Days, where we can share our technical findings with a wider audience.
- Peer-reviewed publications will ensure scientific rigor and open access to project results.

3.6 REVIEW AND IMPROVE

As previously mentioned, throughout the NEXUS project lifecycle, the specific contributions required from stakeholders are defined by the responsible partners. These details should be communicated to the WP6 leader and the Project Coordinator (PC) to ensure alignment and effective implementation.

The engagement planning process in NEXUS involves the following steps:

- Partners responsible for the execution of specific WPs or tasks define the scope of stakeholder contributions and select appropriate engagement channels.
- Stakeholders are identified by the responsible partners. Power-Interest grids, which are continuously updated, assist in determining the best engagement methods (inform, consult, collaborate) for stakeholders.
- After each engagement activity, partners briefly record and report the outcomes using the NEXUS stakeholder involvement & dissemination tracker, to ensure transparency and track progress.

The NEXUS stakeholder involvement tracker includes the following variables:

- Name of the stakeholder organisation involved.
- Relevant WP, task, or activity for which stakeholder input is sought.

- Engagement method or event used to gather stakeholder input.
- Key contributions provided by stakeholders.
- Project deliverables or milestones influenced by stakeholder contributions.

The tracker will be maintained and updated throughout the project. The present deliverable includes data on the Stakeholders’ tracker and an overview of the stakeholder engagement activities carried out during the first year of the project.

To monitor engagement effectiveness, KPIs will be established to track progress and ensure resource allocation is optimised. These KPIs will help prioritise activities and measure engagement achievements.

An effective stakeholder engagement process in NEXUS is expected to yield several benefits:

- The creation of strategic alliances with market actors to reduce competition in areas such as service delivery.
- Resource and expertise sharing among stakeholders, facilitating project design and implementation.
- A clear record of engagement activities, feedback, and measurable outcomes that contribute to achieving project objectives.

At the end of year 1, the current Stakeholder Engagement Strategy will be reviewed, and necessary improvements will be implemented accordingly.

3.7 OVERVIEW OF TARGET STAKEHOLDERS AND MAIN COMMUNICATION AND DISSEMINATION TOOLS

The link between the target groups with specific Stakeholder Engagement & Dissemination activities is presented in **Table 5**. The following combination of C&D tools and channels will be used to communicate key project messages to various target groups, including partnerships, projects, associations and other networks and platforms.

Table 5. Communication & Dissemination Activities Target Groups

Target Group	C&D Tool/Channel
Current and potential end-users (PRM & general public)	<ul style="list-style-type: none"> - Website - Printed materials (roll-up, factsheet/leaflet) in line with project branding - LinkedIn campaigns - Podcast - Videos
Metro operators, Metro rolling stock maintainers, Manufacturers of metro	<ul style="list-style-type: none"> - Website - Stakeholder workshops

Target Group	C&D Tool/Channel
rolling stock, rail signalling systems, station equipment	<ul style="list-style-type: none"> - Targeted events and conferences (metro-focused forums) - Bilateral meetings with metro stakeholders - Use case local demonstrations - Printed materials (roll-up, factsheet/leaflet) in line with project branding - LinkedIn campaigns - Podcast - Videos
National and local public authorities (technical regulatory bodies, infrastructure investors), Public Transport Authorities	<ul style="list-style-type: none"> - Website - LinkedIn campaigns - Use case local initiatives - Public events and workshops - Media and press releases - Surveys and focus groups to gather feedback from end-users - Podcast - Videos
Manufacturers of metro station equipment, Civil engineering and architectural design offices	<ul style="list-style-type: none"> - Website - Stakeholder workshops - Industry-specific conferences and events - Case studies showcasing design solutions from the use cases - Bilateral meetings with design and engineering stakeholders - LinkedIn campaigns showcasing innovative design elements
Data providers and technology service providers (of human mobility data), Research and academia	<ul style="list-style-type: none"> - Website - Stakeholder workshops - Academic and industry conferences (e.g., ITS Europe, urban mobility research events) - Research publications and white papers - Bilateral collaborations with academic institutions and data providers - Social media campaigns focused on technological innovation - Use case demonstrations - Podcast - Videos
Non-metro rail infrastructure owners	<ul style="list-style-type: none"> - Website - Targeted workshops on scalability and interoperability - Events and conferences (rail infrastructure forums) - Bilateral meetings focused on knowledge exchange - Reports and scientific papers emphasizing scalable

Target Group	C&D Tool/Channel
	solutions for urban and non-metro rail systems - Media and press releases on project scalability potential

As additional notes, the tools/channels may overlap for some groups but have been customised to address the specific interests and needs of each target group. The project’s visual identity (as mentioned in section and included in ANNEX 1: OVERVIEW OF VISUAL IDENTITY) and branding will ensure that all C&D materials maintain a consistent and professional appearance, resonating with both technical and public audiences.

3.8 POTENTIAL RISKS AND MITIGATION MEASURES

Low levels of deployment and uptake (stemming from low stakeholder engagement) from the target groups have been identified as the most likely obstacle to achieving the stakeholder engagement and dissemination objectives of NEXUS. The present strategy defines mitigation measures to such an obstacle: detailed planning and commitment from all partners in communicating and disseminating the project’s result, constant KPI monitoring, and progress meetings led by the WP9 Leader, ERTICO.

Table 6. Risks and Mitigation Measures below covers other potential barriers and risks, their category, effect, method of detection, severity, probability, and the mitigation measures that will be employed by the consortium.

Table 6. Risks and Mitigation Measures

	Description	Effect	Mitigation measures
1	Weak commitment of participants to the project plan and deadlines. Potential for serious delays as lack of progress in one or more tasks may cause delays for linked or subsequent tasks, and hence for the project.	Delays in tasks can hinder the timely dissemination of results and alignment with project milestones.	Include communication and dissemination progress in internal check-ups. Clearly outline dissemination responsibilities in project plans to avoid delays. Develop flexible dissemination plans to adapt to shifting timelines.
2	Unclear roles and responsibilities between participants.	Confusion about roles may result in gaps in stakeholder communication or fragmented dissemination activities.	Clearly define roles related to communication and dissemination in the Dissemination Plan. Conduct regular coordination meetings to clarify dissemination responsibilities.
3	External risks: global and/or European-level force majeure situations (e.g., pandemic and/or continuation/spreading of Ukraine war).	Force majeure events can disrupt planned dissemination activities, including in-person events and stakeholder engagement.	Utilise digital platforms and hybrid event formats for dissemination. Keep stakeholders informed through newsletters and social media about adjustments to dissemination timelines.
4	Inadequate or poor-quality data can impact the technical activities and the reliability of NEXUS results.	Poor-quality data can undermine the credibility of dissemination materials and presentations.	Establish a thorough review process for all disseminated data. Incorporate secondary and publicly available datasets to supplement gaps and ensure accurate representation of findings.
5	Technological challenges due to technical and compatibility issues between different tools.	Compatibility issues may delay deliverables, affecting the dissemination of results to stakeholders.	Communicate openly with stakeholders about technological challenges and involve them in finding solutions. Highlight progress updates in dissemination activities to maintain stakeholder confidence.
6	Lack of effective collaboration and communication among project partners and external stakeholders.	Poor collaboration could lead to fragmented or ineffective dissemination efforts.	Organise regular workshops and communication meetings to align partners and stakeholders. Develop a robust dissemination and engagement plan that fosters interaction with external stakeholders.
7	Poor scalability of the solution to European metro and transport operators.	Limited scalability may hinder dissemination to broader audiences and reduce stakeholder interest.	Tailor dissemination materials to highlight the adaptability and transferability of solutions. Use success stories and CBA results as evidence to engage European metro operators. Horizon Europe tools will also be used for this purpose and to help disseminate project results. Europe's Rail digital catalogue of solutions may also be used for showcasing the NEXUS solutions.
8	Low commitment/lack of engagement of different stakeholders to the dissemination workshops and other events.	Lack of stakeholder participation can reduce the reach and impact of dissemination activities.	Use targeted outreach strategies, such as personalised invitations and engaging formats (e.g., interactive workshops). Leverage partner networks to increase participation. The communication team of Europe's Rail will also be involved to help boost the engagement through corporate channels
9	Insufficient data can impact accuracy.	Gaps in data may reduce the persuasiveness of dissemination materials aimed at decision-makers and metro operators.	Ensure robust stakeholder consultation during data collection phases. Clearly communicate the methodology and steps taken to fill data gaps in dissemination outputs.
10	External factors (e.g., regulatory changes or technological shifts) affecting the Cost-Benefit Analysis and hindering the acceleration of prototypes.	Regulatory or technological changes can delay dissemination related to project advancements.	Regularly update stakeholders about external factors and their potential impacts. Ensure dissemination content reflects the latest developments and compliance with regulations.
11	Metro operators' resistance to change might hinder the acceleration of prototype readiness levels.	Resistance to change can reduce interest from stakeholders with more power/interest.	Involve metro operators early in the process through targeted consultations and tailored messaging. Showcase the benefits of proposed solutions using relatable success stories.

4 DISSEMINATION STRATEGY & PLAN

The dissemination strategy defined channels, tools, dynamics, dissemination opportunities – such as events and scientific publications – and networking activities to widely spread the NEXUS knowledge and exploitable results to European and global stakeholders, establishing links with relevant industry, research partners and guaranteeing good scientific visibility for the project.

The dissemination plan describes dissemination activities, supported and coordinated with communication and stakeholder engagement activities, included in WP9 that have been implemented throughout the first year of the project by the WP9 leader (ERTICO) and the consortium partners. The plan defines the approach used to target the previously identified audiences, to enhance the impact of the NEXUS results. The aim is to raise awareness and create understanding about the project, its mission, activities and evidence-based results; while ensuring audience engagement and impacting the deployment and adaptation of the NEXUS project exploitable results.

The dissemination plan specifies:

- Dissemination channels, tools, timeline and frequency, to avoid overlapping or possible disclosure of confidential information.
- Identified key events, publications and activities to achieve a high dissemination impact on the targeted audiences; ensure high quality publications and presentations.
- Engagement activities with the EURAIL community, sister projects and other initiatives, as well as engagement activities within each of the project use cases.
- Key Performance Indicators (KPIs) to record and monitor progress and whether the objectives of the dissemination activity have been achieved on time.

Dissemination of the NEXUS project takes place at two levels, with all partners actively involved:

- At the use case/national level: NEXUS has promoted its innovative metro solutions in the two use cases. These activities are involving organizing stakeholder engagement workshops to collect user needs and sharing interim results, particularly aimed at metro operators and passenger representatives.
- At the EU and international level: NEXUS will engage with and disseminate results to the broader urban mobility and metro ecosystem across Europe and beyond. This will include targeted outreach to research and academia, metro infrastructure owners, manufacturers, public transport authorities, data providers, and user associations. Dissemination occurred through participation in relevant EU programs (such as the EURAIL network), international conferences, policy dialogues, and workshops, ensuring the project's findings, tools, and methodologies reach all relevant stakeholders and potential beneficiaries of the NEXUS innovations.

4.1 APPROVAL FOR DISSEMINATION PROCEDURE AND REPORTING GUIDELINES

Consortium partners must inform the Project Stakeholder Engagement & Dissemination Manager (ERTICO), who then informs the Project Coordinator (STAM) and all partners (in case of publication), about the intended dissemination activity.

NEXUS consortium members wishing to participate in an event or carry out dissemination activities to present the project must get prior approval from the Project Coordinator (STAM) and the Project Communication, Dissemination and Exploitation Manager (ERTICO).

The internal document, “Dissemination Guidelines”, provides partners with precise instructions on how to disseminate articles and other project material to achieve the best results and guarantee that they follow the required guidelines.

All consortium members who carry out a dissemination activity (scientific papers, presentations or participation at events, round tables, workshops, press releases, articles, etc.) must record the results/outcomes in the internal Dissemination Activities Record setup in Excel format and make it available in the SharePoint (NEXUS project sharing and collaboration space hosted by the project Coordinator). The NEXUS Dissemination Activities Record is presented in ANNEX 2: DISSEMINATION ACTIVITIES RECORD & REPORTING FORM. All required information in each column must be duly filled in (type of activity, partners involved, description of the dissemination activity, date, location, target audience, etc). This file will be used as the principal source of information for all the reporting of Dissemination activities to EURAIL and the European Commission, as required by the Grant Agreement.

The register is to be filled in within five days after the realisation of the approved dissemination activity, accompanied by the presented dissemination material (final paper, presentation, poster, etc) to be stored in the dedicated folder.

4.2 DISSEMINATION CHANNELS

In addition to the engagement & communication channels described in **Section 3.2** (workshops, website, social media and other digital engagement tools), Dissemination activities made and will make use of various additional dissemination channels such as publications, events organised by the NEXUS project and external conferences as well.

4.2.1 SCIENTIFIC PUBLICATIONS

NEXUS planned to disseminate research and achievements in scientific and technical papers, e.g. in peer-reviewed journals and conferences. Scientific presentations and papers are an important channel to raise awareness about the project’s scientific challenges and solutions and to gather feedback from the scientific and technical community. Technical WP leaders are responsible for the high-quality publication of NEXUS research and innovation results. NEXUS aims to share peer-reviewed scientific articles on its website following the green model for open access publishing. While Nexus engaged in several events during the first half of the project, at the time of submission no publications yet resulted from the project.



4.2.2 WORKSHOPS AND EVENTS

The project aims to disseminate its results and learnings to a broad audience. This includes engaging with scientific, technical, business, institutional and governmental communities within the EU and globally, while also encouraging feedback. To achieve this, workshops will be organised in collaboration with local use case actors, ensuring the involvement of relevant stakeholders and decision makers (as mentioned in the Stakeholder Engagement Channels, section 2.5). The output of NEXUS' first workshop is described below.

4.2.3 PROJECT PARTICIPATION IN EXTERNAL EVENTS

Dissemination of the project's activities and achievements is also taking place at different conferences and events – both online and in person to raise awareness about the project and its results. NEXUS has been and will be disseminated mainly through presentation in topical, interest sessions or with presence at exhibition stands to promote, discuss, exchange, and disseminate the project results and marketing material such as flyers, brochures, banners, etc.

D9.1 included a list of dissemination venues relevant for the first year of the project. The present document lists the events in which NEXUS participated in its first year of activities below.

In line with the identified KPIs, the NEXUS project submitted proposals to present at and attend at least 2 conferences and/or trade shows during its first year of activities, aiming to be represented through technical papers and presentations. The reporting table included in ANNEX 2: DISSEMINATION ACTIVITIES RECORD & REPORTING FORM has been used to track the project's progress and activities in this regard, from submission to delivery.

4.2.4 SYNERGIES WITH OTHER ACTIVITIES

NEXUS, at its core, embodies a collaborative spirit aimed at advancing the frontiers of metro transportation. With a commitment to innovation and progress, NEXUS extends an open invitation to collaborate with other research initiatives, recognizing the collective strength in joining forces towards achieving greater objectives.

NEXUS is funded by EURAIL, the European partnership for rail research and innovation under the Horizon Europe programme (2020-2027) and the successor of the Shift2Rail Joint Undertaking. This partnership seeks to ensure a fast transition to a European rail system that meets changing customer requirements; improve performance and capacity; reduce costs, contribute to a more sustainable transport; provide a harmonised approach to adapting to change the industry; provide a stronger role for rail in European transport and travel; and contribute to a more competitive EU rail supply industry. As stated in the GA, NEXUS is meticulously crafted to align with the core principles of the EURAIL Programme. The project's framework ensures synergistic contributions to operational excellence, societal responsibility, and environmental stewardship, reflecting the shared vision of both NEXUS and the EURAIL Programme.

Nexus will therefore capitalise on knowledge creation through cross-collaboration opportunities, with a special emphasis on collaboration with the EURAIL partnership, other active projects, the ones linked to their EURAIL Flagship Areas (MOTIONAL, R2DATO, IAM4RAIL), and other projects funded by their R&I Programme. Such collaboration is crucial for coordinating research and innovation, as well as for

monitoring communication and dissemination activities of mutual interest. NEXUS is also committed to establishing cooperation with projects funded under the same topic HORIZON-ER-JU-2023-EXPLR-02 - FUTURE METRO SYSTEMS, as part of the cluster destination Climate, Energy and Mobility.

This ethos of collaboration aligns seamlessly with the broader landscape of European rail research, where projects like MOTIONAL, R2DATO, and IAM4RAIL are pioneering transformative solutions. By fostering synergies and sharing insights across projects, NEXUS seeks to leverage collective expertise and resources, driving innovation and propelling the metro transportation ecosystem toward a sustainable and technologically advanced future.

Therefore, NEXUS actively seeks to establish meaningful connections with flagship initiatives such as MOTIONAL, R2DATO, and IAM4RAIL. These projects represent key pillars of innovation within the EURAIL partnership, each addressing critical aspects of rail system advancement. By identifying shared goals and complementary areas of focus, NEXUS aims to foster synergies that will amplify the collective impact of these efforts. Below are the specific points of contact and opportunities for collaboration between NEXUS and these flagship projects during the 2nd year of project implementation.

- With MOTIONAL, both projects focus on developing interoperable systems that integrate various transport modes, leveraging digital tools for improved traffic management and last-mile operations. Collaboration is further supported by shared partners like SIEM.
- For R2DATO, NEXUS shares a commitment to advancing automation through digital technologies, including AI and 5G, while contributing to the European Rail Master Plan's objectives of enhancing punctuality, reliability, and efficiency. Both projects also address ETCS integration, creating opportunities to harmonize automated operations.
- With IAM4RAIL, NEXUS complements efforts to optimize asset management using AI and digital twins, focusing on advanced monitoring, decision-making tools, and minimizing life cycle costs. Both projects emphasize safety and reliability, enabling potential collaboration to improve asset performance and system resilience across rail networks.

As noted at the beginning of this deliverable, the project will also receive ongoing support from the communication team at Europe's Rail JU and will fulfil the obligation to reach out at least once a month with news that could be disseminated through corporate channels. Regular meetings (2-3 times a year) between the communication team of Europe's Rail and other ongoing projects will also be attended. The consortium will also make use of a variety of tools provided by the EURAIL JU to support the project's dissemination and exploitation activities, some of which include:

- Open Research Europe platform: for scientific publications.
- Horizon Results platform: to showcase the research results and identify collaboration opportunities and with ongoing projects.
- Horizon Results Booster: to make the most of consulting services including the portfolio dissemination and exploitation strategy, business plan development and go-to-market support.
- Innovation radar: to reach the market with the project innovation.
- TRIMIS platform: to link the NEXUS website to enable further dissemination and collaboration.

4.2.5 SUMMARY OF DISSEMINATION ACTIVITIES AND KEY PERFORMANCE INDICATORS FOR MONITORING

ERTICO, together with the NEXUS project partners, will measure the impact of the project's stakeholder engagement and dissemination activities at the end of each reporting period. The dissemination activities will be closely monitored and evaluated against a set of pre-defined KPIs (Table 7) during the project's lifecycle and presented in each reporting period.

Table 7. Key Performance Indicators for Monitoring

Activity	Key Performance Indicator	Target Value in Year 1	Target Value in Year 2
Stakeholder Engagement & Dissemination Strategy (T9.1)	Deliverables: Submitted	M4	M13
	Website: Total visits per year	100	200
Communication channels and tools (T9.2)	Website: Articles published	15	24
	LinkedIn: Followers	100	200
	LinkedIn: Posts	12	15
	Video	1	1
	Project leaflet	1+ update	Update x2
	Project roll-up	1	
	Conferences: Presentations	>2	>4
Technical dissemination (T9.3)	Trade shows: Exhibition stand		>1
	Scientific publications: #	>1	>5
	Project final event participants		>30
	Registered entities	>15	>30 (total)
Stakeholder engagement (T9.4)	Stakeholder Workshops: Number organized/participants	1 (M6)/30	2 (M12, M24)
	Number of internal and external stakeholders actively involved in collaborative efforts		>30

5 REPORT AND ANALYSIS OF ACTIVITIES CARRIED OUT M1-M12

5.1 EVENTS

In the first year of activities, the Consortium focused its dissemination effort on event participation. At the end of the project’s first year, a mixed selection of events ensured widespread dissemination of the project to the various identified stakeholders’ groups. Presentations varied from overviews of project activities to more specific aspects. Events ranged from committee meetings to academic forums. Furthermore, NEXUS has already submitted its application to participate in events for its second year and these are included in the table for completeness, as well as unsuccessful submissions.

Table 8. Event participation M1-M12

DATE	TYPE OF ACTIVITY	EVENT	LOCATION	TITLE OF PRESENTATION	STATUS (IDENTIFIED, PLANNED, PERFORMED)
04/12/2024	UITP Metro Committee is a small steering group composed by UITP Metro Platform Chairs, Regional Representatives from the various UITP regions and some observers from Light Rail and Industry Committee.	UITP Metro Committee Meeting	Washington D.C., USA	Updates on “Future Metro Systems” NEXUS EU project	Performed
08/04/2025	AI4RAILS conference	AI4RAILS 2025	Lisbon	Technical session	submitted, not accepted
09/04/2025	UITP Metro Committee is a small	UITP Metro Committee Meeting	Copenhagen, Denmark	Updates on “Future Metro Systems”	Performed

DATE	TYPE OF ACTIVITY	EVENT	LOCATION	TITLE OF PRESENTATION	STATUS (IDENTIFIED, PLANNED, PERFORMED)
	steering group composed by UITP Metro Platform Chairs, Regional Representatives from the various UITP regions and some observers from Light Rail and Industry Committee.			NEXUS EU project	
15/06/2025	<p>Presentation of the project at the Europe's Rail JU stand.</p> <p>Interaction with interested stakeholders. Slides and information displayed on a screen.</p>	UITP Summit	Hamburg, Germany	Exhibition Stand	Performed
19-20/06/2025	UITP Metro Platforms are groups of experts meeting twice per year to share, collaborate, discuss and produce studies concerning their field of competence (every	UITP Metro SEAS/Operations/Automated Metros/Fixed Installations Platforms meetings	Hamburg, Germany	Updates on "Future Metro Systems" NEXUS EU project	Performed

DATE	TYPE OF ACTIVITY	EVENT	LOCATION	TITLE OF PRESENTATION	STATUS (IDENTIFIED, PLANNED, PERFORMED)
	Platform is focused on a specific metro subject, from signalling to rolling stock, to operations, to fixed installations, to energy systems, to automation). They are the working body of UITP Metro Committee.				
03-05/09/2025	Logistic Research Network (LRN25) Conference	LRN25	Sheffield	A literature review of Statistical and AI Based Metro Passenger Demand Forecasting	Accepted
17/09/2025	Railway 200 Presentation	Research Event at Aston	Aston University, UK	NEXUS: Next-Gen Technologies for Enhanced Metro Operations	Performed

Table 9. Event participation past M12

DATE	TYPE OF ACTIVITY	EVENT	LOCATION	TITLE OF PRESENTATION	STATUS (IDENTIFIED, PLANNED, PERFORMED)
23-24/10/2025	Regular meeting of UITP Metro Operations experts	UITP Metro Operations Platform meeting	Tbilisi, Georgia	Updates on "Future Metro Systems" NEXUS EU project included in the "UITP updates" presentation	Accepted
10/11/2025	UITP Metro Committee is a small steering group composed by UITP Metro Platform Chairs, Regional Representatives from the various UITP regions and some observers from Light Rail and Industry Committee.	UITP Metro Committee Meeting	Bogota', Colombia		Accepted

A particularly relevant event for dissemination was the **UITP Global Public Transport Summit** in Hamburg from 15 to 18 June 2025. Detailed information on NEXUS participation was provided in the following news item available on the website: <https://nexus-heproject.eu/nexus-at-the-uitp-summit-2025/>.

5.2 PRINT DISSEMINATION

NEXUS has been featured in the June 2025 edition of the *International Railway Journal* (IRJ), a leading global rail industry publication. The article presents NEXUS as a two-year EU-funded research project advancing metro systems through data, simulation, and automation. More detailed information on the

publication have been featured here: <https://nexus-heproject.eu/nexus-featured-in-international-railway-journal/>



Figure 8. NEXUS featured on IRJ

5.3 NEXUS FIRST WORKSHOP

The first NEXUS stakeholder workshop took place in Vienna on March 26th in coordination with the project's first General Assembly.



Figure 9. Pictures from NEXUS first GA and Workshop

After an overview of WP3 provided by TU WIEN, the presentation focused on the outcomes of the passengers and operators' surveys prepared in the framework of WP3 and distributed by both project partners and members of the EAB via their networks, 4 working sessions with stakeholders were carried out. Participants were provided in advance with questions to focus on in order to facilitate and enrich discussions. The results of the Work Sessions feed into the activities of WPs 3, 4, and 5. More than 20 organisations took part in the Workshop Details of the organisations involved have been included in the Stakeholder register of the project as detailed above.

5.4 OTHER MATERIALS

As detailed above, a flyer and roll-up have been produced following the project's visual identity. Furthermore, a video animation capturing the project's activities is in production and its first draft is currently under review by the project's consortium. The planned delivery of the video has been postponed to M13.

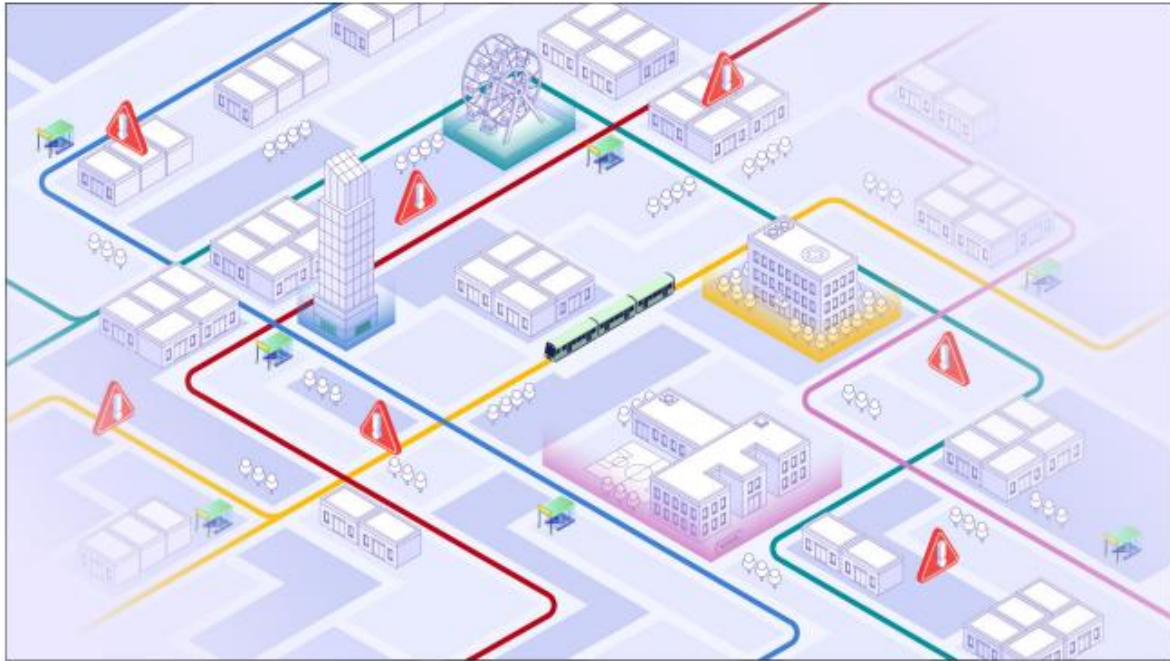


Figure 10. Draft image for NEXUS animation

5.5 COMMUNICATION AND DISSEMINATION KPIS

At the time of submission (M12) the following targets have been achieved in regard to communication KPIS.

Table 10. Communication and dissemination KPIs

Activity	Key Performance Indicator	Target Value in Year 1	Target reached at M12
Communication channels and tools (T9.2)	Website: Total visits per year	100	4,007 sessions 2,950 users 5,890 page views
	Website: Articles published	15	8 articles plus 4 files available for download
Communication channels and tools (T9.2)	LinkedIn: Followers	100	209
	LinkedIn: Posts	12	10
	Video	1	1 under development
	Project leaflet	1+ update	1 finalised
	Project roll-up	1	1
	Conferences: Presentations	>2	5
Technical dissemination (T9.3)	Trade shows: Exhibition stand		1
	Scientific publications: #	>1	0
Stakeholder engagement (T9.4)	Project final event participants		N/A
	Registered entities	>15	11
Stakeholder engagement (T9.4)	Stakeholder Workshops: Number organized/participants	1 (M6)/30	1
	Number of internal and external stakeholders actively involved in collaborative efforts		>30

6 CONCLUSIONS

The Stakeholder Engagement and Dissemination Strategy for the NEXUS project is central in ensuring the effective communication and adoption of its results. This strategy provided to the NEXUS consortium a structured and transparent framework, fostering collaboration and enabling impactful contributions from metro operators, public transport authorities, rolling stock manufacturers, signalling system providers, policymakers, researchers, and user associations.

Guided by a four-step methodology (engagement planning, stakeholder mapping and analysis, coordinated preparation for engagement, and regular review and improvement), the strategy ensures that stakeholder interactions are organised, targeted, and adaptable. Stakeholders are identified and prioritised based on their influence, interest, and potential contributions, allowing for tailored engagement approaches that maximise the relevance and impact of project activities.

The strategy emphasises early involvement and sustained interaction with stakeholders throughout the project's duration. Activities such as stakeholder workshops and online outreach ensure stakeholders are informed and involved at key stages. Branding materials, templates, and communication guidelines support consistent messaging, while physical and virtual events provide opportunities for direct engagement.

Progress is carefully monitored using measurable indicators, such as website traffic, event participation, and feedback from stakeholders. Regular reviews ensure the strategy aligns with the project's objectives and adapts to emerging needs or challenges. Dissemination and engagement efforts have been documented regularly for the duration of the project to produce the present deliverable, and will serve to optimise efforts and activities in the next year of activities.

By focusing on clear communication, structured engagement, and continuous refinement, the NEXUS Stakeholder Engagement and Dissemination Strategy continues to support the practical application of the project's findings. This approach not only strengthens collaboration among stakeholders but also lays a solid foundation for the sustainable implementation of innovative, adaptive, and AI-driven metro solutions beyond the project's completion.

7 REFERENCES

Ackermann F., Eden C. (2011). Making Strategy. Mapping Out Strategic Success. London: SAGE Publication

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European Commission. Quick Guide: Communication, Dissemination and Exploitation. https://ec.europa.eu/research/participants/docs/h2020-funding-guide/imgs/quick-guide_diss-expl_en.pdf

Manoochehri, S., Schlupe, M. (2020). D6.1. Stakeholder Engagement Strategy. <https://resourcing.eu/reports/d61-stakeholder-management-strategy/>

8 ANNEXES

ANNEX 1: OVERVIEW OF VISUAL IDENTITY



02

BASIC LOGO



03 ————— COLOR AND FONT







DIGITAL COLOUR PALETTE

#96C230	R=150 G=194 B=49	#6ABBDB	R=106 G=187 B=219
#19203C	R=25 G=32 B=60	#7E33C1	R=126 G=51 B=193
#A149B3	R=161 G=73 B=179	#C6C6C6	R=198 G=198 B=198

PALETTE FOR PRINTING

#95C131	C=50 M=0 Y=95 K=0	#95C131	C=58 M=9 Y=10 K=0
#18203B	C=100 M=88 Y=44 K=55	#664293	C=73 M=82 Y=0 K=0
#9D4D98	C=46 M=79 Y=0 K=0	#C6C5C5	C=25 M=19 Y=20 K=2

03 ————— COLOR AND FONT

		
Green. Used for headings, corporate graphics (charts, diagrams, branded patterns, and other elements), and text highlights.	Dark blue. Used for headings and as the primary color for text. It can also be used for a small amount of graphics.	Light blue. Used for subheadings, corporate graphics (charts, diagrams, branded patterns, and other elements), and text highlights.
		
Purple. Used minimally in layouts to highlight specific graphic or text elements.	Gray. Used as a supporting shade for dividing lines, frames, arrows, and infographic elements.	Gradient. Used as a background. It can also be used in branded linear patterns.

LOGO FONT

Segoe UI Emoji

abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890 .,-+!N°&@«»

BRAND FONT

Bureau Eagle FB Book
BureauEagleBold

FONT FOR THE INTERNAL DOCUMENTS
 (DELIVERABLES, SLIDES, ETC.)

Arial
Arial





Co-funded by the European Union Co-funded by the European Union

The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text.
 Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.
 When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.



7 APPROVAL PROCEDURE FOR DISSEMINATION ACTIVITIES

The task and WP Leaders must inform the Project Coordinator, Dissemination Leader and relevant WP Leader about the intended dissemination activity.

Timing: Depending on the nature of the dissemination activity, the following timeframe should be respected for communicating about it internally:

- Scientific or technical publications: The Dissemination Leader must be informed at least 15 calendar days in advance (together with sufficient information on the results it will disseminate)
 - ✓ Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed.
 - ✓ Relevant drafts and/or presentation must be shared with the WP/Dissemination Leader prior to the publication/event.
- Press releases, articles, interviews and events: The Dissemination Leader and WP Leader should be informed at least 15 calendar days in advance
 - ✓ Project Coordinator and/or WP/Dissemination leader ensures a reply within five working days.
 - ✓ Relevant information (i.e. press release, article, etc.) must be shared with WP/Dissemination leader prior to the event.

Open science: The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. <https://europe.europa.eu> must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International
- Public Licences (CC BY) or a [licence](https://creativecommons.org/licenses/by-nc/4.0/) with equivalent rights for monographs and other long-format formats, the [licence](https://creativecommons.org/licenses/by-nc/4.0/) may include commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the



For the purposes of their obligations under this Article, the beneficiaries may use the emblem without first obtaining approval from the granting authority. This does not, however, give them the right to exclusive use. However, they may not appropriate the emblem or any similar emblem or sign, either by registration or by any other means.

17.3 Quality of Information – Disclaimer

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 opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the name of the granting authority. Neither the European Union nor the granting authority can be held responsible for them."

- The use of the EU emblem in the context of EU programmes 2021-2027 can be found here: https://ec.europa.eu/info/eu-programmes/2021-2027/eu-emblem_en
- The ready-to-use EU emblem including the funding statement can be downloaded from the European Commission's website: https://ec.europa.eu/regional_policy/information/sources/logo-download-center_en

4 FUNDING ACKNOWLEDGMENT

NEXUS is a project funded by Europe's Rail Joint Undertaking, the European partnership on rail research and innovation established under the Horizon Europe programme (2020-2027) with the vision "to deliver, via an integrated system approach, a high capacity, flexible, multimodal, sustainable and reliable integrated European railway network by eliminating barriers to interoperability and providing solutions for full integration, for European citizens and cargo". In addition to the obligations set out in Article 17, communication and dissemination activities as well as infrastructure, equipment or major results funded under JU actions must moreover display the Joint Undertaking's special logo:



open access requirements.

8 DISSEMINATION OPPORTUNITIES

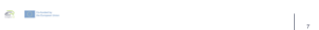
A list of external events and scientific journals related to the NEXUS project topics will be available on SharePoint.

- **External events:** A list of relevant upcoming conferences and other events.
 - ✓ The list will be updated on a regular basis to help partners plan individual dissemination activities. Suggestions of target events should be sent to the Dissemination Leader.
 - ✓ Calls for publications/event participation will be sent via email to the whole consortium.
- **Scientific journals:** A listing of examples of scientific journals to target for publications to raise the scientific community's interest in the NEXUS outcome and results
- **Press releases and materials:** should be promoted by the project partners as widely as possible.
 - ✓ If you come across the mention of the NEXUS project in any press or online article, locally or internationally, please inform the Communication and Dissemination Leaders. All press coverage will be added on the website.

9 DISSEMINATION REPORTING

All consortium members who carry out a dissemination activity (scientific paper, event, press release, article, video, etc.) must record the result/outcome on SharePoint in the NEXUS Dissemination Activities Register.

All required information in each column must be duly completed. To make it easier for partners to report activities, there is also a reporting form that can be filed out: in turn, the task leader will fill in the Register. This file will be used as the basis for all reporting of Communication and Dissemination activities to the European Commission as required by the Grant Agreement.



And the following text:

"The project is supported by the (insert JU name) and its members [OPTION for actions with national contribution top-ups: (including top-up funding by (name of the national funding authority)]."

The logo should always be used in full, following the below guidelines:

- Don't rotate the logo;
- Don't change the logo's colours;
- Don't use a background [image](https://www.european-council.europa.eu/media/e300042c-1234-4123-9876-543210987654.png) that doesn't properly contrast with the logo's colours;
- Don't modify the shape of the logo;
- Don't hide the logo behind other elements.

5 USING THE NEXUS BRAND

Consortium members must follow the guidelines as described in Deliverable D9.1 Stakeholder Engagement & Dissemination Strategy (available at M4). The NEXUS visual identity, including correct use of the logo, color scheme and font is available here.

6 SEEKING APPROVAL FOR DISSEMINATION ACTIVITIES

NEXUS Consortium members wishing to participate in an event or carry out dissemination activities to represent the project must get prior approval of the Project Coordinator and the WP/Dissemination Leader! This is to ensure partners:

- Produce high quality publications and presentations
- Avoid overlap and possible disclosure of sensitive/confidential information
- Monitor and record dissemination activities in an efficient and timely manner



10 TRANSLATION OF COMMUNICATION MATERIALS/PRESS RELEASES

- **Communication materials (posters, leaflets, etc.)** may be translated into the local language, upon prior approval by the Communication & Dissemination leader. T9.2 leader (BRTCC) will be responsible for designing the materials while the local partner will be responsible for translation and printing.
- **Press releases, announcements**
 - ✓ Press releases are to be translated into local languages by a consortium member. It is recommended that, where possible, partners in that country work together to finalise the text. For instance, one partner translates and the other does a quality check.

11 USING SOCIAL & DIGITAL MEDIA

The NEXUS Project has the following channels of communication:

- Website: <https://nexus-epjproject.eu> (landing page for now, full website available soon)
- LinkedIn: [NEXUS Project](https://www.linkedin.com/company/nexus-epjproject)

The following hashtags should be used for posting:

- #HorizonEU #Transport
- #Europe's Rail Joint Undertaking
- #EU
- #EUfunded
- #EUagenda

All partners are requested to:

- Regularly check the project website and contribute articles and/or news items where possible.
- Follow the NEXUS LinkedIn account
- Engage on the LinkedIn channel by initiating discussions or reporting events and news items related to the project's activities.

The LinkedIn channel must not be used for general promotion of things unrelated to the NEXUS project.



ANNEX 4: NEXUS STAKEHOLDER REGISTER

	A	B	C	D	E	F	G	H	I
1	Organization name	Organization type	Country	Partner inviting stakeholder	Target Group (as defined in proposal)	Areas of expertise	NEXUS thematic areas of interest to stakeholders	Additional info on "Thematic areas of Interest"	URL (organisation website)
2									
3									
4									
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