



**Reports on national R&I activities and their potential  
synergies with EU-Rail Programme**

**SRG Report**

*Consolidated version*

*December 2025*

## **Purpose of this report**

The States' Representatives Group (SRG) is one of the advisory bodies of Europe's Rail Joint Undertaking (EU-Rail), according to the Council Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe (SBA).

Article 20.10 of the SBA provides that:

*“The states' representatives group shall submit, at the end of each calendar year, a report describing the national or regional policies in the scope of the joint undertaking and identifying specific ways of cooperation with the actions funded by the joint undertaking.”*

This report includes the list of [national/regional R&I activities](#) provided by SRG members until the end of November 2025, which are available on EU-Rail's website. In total, fourteen countries contributed to this exercise. Six of these countries informed recently of updates in their respective lists of R&I activities in 2025: Austria, Czech Republic, Germany, Norway, Portugal and Slovakia.

More than sixty projects and programmes have been identified by EU-Rail for potential synergies with the EU-Rail Programme.

This report will be continuously updated, including a state of play on the implementation of all ongoing actions and new proposals for further action on the basis of the updates received.

The SRG Chair presents every year a summary of this report at the EU-Rail General Assembly.

The 2025 EU-Rail General Assembly was held on 2-3 December.

**About 30 programmes have been identified by the MS, of which the following are open for call for submission, or will be in the upcoming months:**

- WBIF – Investment Grants and Technical Assistance. Calls published twice per year. <https://www.wbif.eu/investment-grants> <https://www.wbif.eu/technical-assistance-grants>
- Rail4Climate: Digitalization and automatization of the rail system. 2024-2027. First call 23/10/2024-12/03/2025 (evaluation decision expected in June 2025). Calls on a yearly basis. Budget: 5M/year. [https://www.ffg.at/dtm\\_r4c\\_call2024](https://www.ffg.at/dtm_r4c_call2024)
- DOPRAVA 2030 (successor of DOPRAVA 2020+): Modernizing the transport sector regarding sustainability, safety and societal needs (2023-2030). <https://www.tacr.cz/program/doprava-2030/>
- FoPS: Finances scientific research projects that contain model solutions for typical transports problems in cities and municipalities that are transferable nationwide as far as possible. Calls on a yearly basis. <https://fops.de/>
- Subsidy program for companies to support sustainable and digital transport (Spanish Ministry of Transport): Subsidies to companies to support sustainable and digital transport in competitive competition, within the framework of the Recovery, Transformation and Resilience Plan (PRTR) (2022-2025). Total budget: 800M. <https://www.transportes.gob.es/ministerio/proyectos-singulares/prtr/programa-de-subsenciones-empresas-para-el-apoyo-de-un-transporte-sostenible-y-digital>
- PT 2030 Programme (Structural funds – ERDF): R&I collaborative calls are foreseen for all subjects.
- InfraSweden: Strategic innovation program for a smart, sustainable, resilient and competitive transport infrastructure. One call per year until 2027. <https://www.infrasweden.nu/>
- Albania: Economic Reform Programme (ERP) 2023 – 2025: Technical assistance for preparation of national ITS strategy for Albania (railway and maritime) and other regional partners in the Western Balkan.
- UK RSBB cross-industry research programme: The aim is to enable a safe and efficient railway by providing knowledge and solutions to best utilize existing assets and unlock future change. The core funding for the programme is provided by a grant from the Department for Transport (DfT) which is currently around €10m per year. This is run as a three-way partnership involving DfT, RSSB and industry. In addition, industry provides some cash co-funding, significant in-kind support and lead on using the outputs so that they deliver benefits.

**90 projects have been identified by the MS, of which several synergies are expected by the SRG members. Here below a few examples that will be further enlarged during the course of 2026, with a specific action plan:**

**With EU-Rail FP1:**

- ✓ **FW03010571: AI system for multimodal traffic data evaluation**
  - Synergies to be considered with FP1, FP2 and FP5.
- ✓ **2023-05-D[1]1217: Framework conditions, processes and planning tools for capacity-optimized building and maintenance activities in the existing rail network:**
  - Synergies to be considered with FP1 and FP3.
- ✓ **Energy-efficient coordination and control of rail traffic in real time – EKSSE:** The primary focus is on the optimal utilization of degrees of freedom in real-time rail traffic operations, i.e., during ongoing operations. The project develops a mixed-integer program that determines the most energy-efficient permissible timetable.
  - Synergies to be considered with FP1 and FP2. [Synergy under assessment / to be confirmed]
- ✓ **Development of a data space in the international railway industry using cloud-edge technology for data collection and processing (Railway-X)**
  - Synergies to be considered with FP1. [Synergy under assessment / to be confirmed]
- ✓ **CL02000146 Sustainable Concept of Railway Capacity Allocation:** The aim is to develop an original methodology for efficient multi-year planning of rail capacity on mainlines with mixed traffic.
  - Synergies to be considered with FP1. [Synergy under assessment / to be confirmed]

**With EU-Rail FP2:**

- ✓ **ERTMS ASAP for the implementation of a new European train safety system (until 2050)**
  - Links to be established with FP2 to align where possible and exchange.
- ✓ **CK04000088: Increasing of tunnel safety using continuous accurate vehicle location (2023-2025).**
  - No JU Members involved.
  - To be seen whether this can be of use for FA2 – ASTP project or not. Not specifically mentioned that work will be focused on improving onboard localization as such or whether we are dealing with a mix of different technologies – including detection on the trackside.
  - Ongoing Action: following a check with the FP, organise a dedicated meeting between projects to see whether there are synergies or not.
- ✓ **FW08010072: Wagon 5G communication unit (2023-2025).**
  - Links to be established with FP2 to align where possible and exchange.

- ✓ **CK04000082: Advanced cyber security methods in tunnel systems as a part of critical transport infrastructure (2023-2025).**
  - No JU Members involved.
  - To be seen whether this can be of use for FA2 or SP (cybersecurity). This project focuses on Tunnel safety/security.
  - Ongoing Action: following a check with the FP, organise a dedicated meeting between projects to see whether there are synergies or not.
  
- ✓ **TARO (“Towards Automated Railway Operation”): Automatization & Digitalization for the Railway System.**
  - EU-Rail already part of the advisory group and OEBB ensuring transfer of knowledge through IKAA.
  
- ✓ **Rail4Climate (R4C):** digitalization and automatization of operations, maintenance, infrastructure, and rolling stock; reduction of the time-to-market; substantial contribution to climate neutrality of the mobility system.
  - Synergies to be considered with FP2 and FP4.
  
- ✓ **FW03010571: AI system for multimodal traffic data evaluation**
  - Synergies to be considered with FP1, FP2 and FP5.
  
- ✓ **2022-21-D[1]1202:** Teleoperation as a complement for automatic train operation (ATO): Framework and human[1] centered design.
  - Synergies to be considered with FP2.
  
- ✓ **2022-20-D[1]1202:** Further Development of the Open Data Foundations for Object Detection and Classification by Means of Artificial Intelligence in Automatic Train Operation.
  - Synergies to be considered with FP2.
  
- ✓ **2022-19-S[1]1202:** Stakeholder expectations and societal acceptance conditions in automated rail transport in GoA3+.
  - Synergies to be considered with FP2.
  
- ✓ **2020-20-D[1]1202:** ATO: Functional requirements of sensors and logic module.
  - Synergies to be considered with FP2.
  
- ✓ **GINT-Gigabit Innovation Track:** GINT is creating the technological and organizational foundations for gigabit coverage along railway tracks.
  - Synergies to be considered with FP2 – *under assessment*.
  
- ✓ **Energy-efficient coordination and control of rail traffic in real time – EKSSE:** The primary focus is on the optimal utilization of degrees of freedom in real-time rail traffic operations, i.e., during ongoing operations. The project develops a mixed-integer program that determines the most energy-efficient permissible timetable.
  - Synergies to be considered with FP1 and FP2 [Synergy under assessment / to be confirmed]

- ✓ **Automated Train:** The Automated Train project aims to develop and demonstrate key technological solutions for implementing fully automated train operation on main and branch lines (so-called ATO GoA4) in a collaborative project involving industry, railway companies, infrastructure operators, and research institutions.
  - Synergies to be considered with FP2 [Synergy under assessment / to be confirmed]

### With EU-Rail FP3:

- ✓ **CK04000082: Advanced cyber security methods in tunnel systems as a part of critical transport infrastructure (2023-2025).**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **CK03000182: Research of construction-technical requirements for the use of TEN-T ground infrastructure to solve large-scale crisis situations (2022-2025).**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **CK04000109: Predictive diagnostics of ITS technological equipment using IA approaches (2023-2025).**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **FW06010422: Simulation and design of structures from digital concrete (2023-2025)**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **CK03000168: Intelligent methods of digital data acquisition and analysis for bridge inspections.**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **CL01000137: Modular Traction Converter for Substations and Flexible AC Transmission System (FACTS)**
  - Links to be established with FP3 to align where possible and exchange.
- ✓ **Several projects from DZSF (various TRL): synergies foreseen with FP3 and FP4.**
  - Ongoing Action: following a check with the FP, organise dedicated meetings between projects.
- ✓ **2023-05-D[1]1217: Framework conditions, processes and planning tools for capacity-optimized building and maintenance activities in the existing rail network:**
  - Synergies to be considered with FP1 and FP3.
- ✓ **Management and Extension of Service Life of infrastructures affected by Alkali-silica reaction (MESLA):** The overall aim is to build up new knowledge on how to manage and maintain existing ASR-affected structures in a technical, economic and environmental beneficial way, and verify how this knowledge can be applied to ensure structural safety and extend the service life of existing bridges.
- ✓ **Sound TRANsport NETworks (S-TRANET):** The aim is to establish the cause of hazard events on railway infrastructure using a distributed sensor network (2023-2027)

- ✓ **Railway Construction Innovation:** The aim is to deliver demonstrations of innovation in railway construction working with the teams building the Global Centre of Rail Excellence (GCRE) facility. The current budget is approximately EUR 8M for 2022-2025 (2025 tbc).
- ✓ **AutoKontroll - Automatisert kontroll av jernbane:** The AutoKontroll project aims to develop fully automated and semi-automated solutions to perform some of these inspections. This is intended to be done by automatic analysis of images of infrastructure taken from train-mounted cameras. [*Synergy under assessment / to be confirmed*]
- ✓ **Safety assessment of infrastructure structures using digital technologies – Take-off for practical application (AISTEC-PRO):** Sensor- and image-based monitoring technologies, such as high-resolution cameras carried by drones, enable the systematic collection, analysis, storage, and visualization of condition data for the safety assessment of structures. [*Synergy under assessment / to be confirmed*]
- ✓ **DigiOnTrack -** Increasing the future viability of local rail passenger transport through sensors, artificial intelligence and shared data use. The project aims to verify the effectiveness and applicability of structure-borne sound measurement methods for covering a range of monitoring and maintenance inspections on railways and vehicles. [*Synergy under assessment / to be confirmed*]
- ✓ **AIFRI - Artificial Intelligence For Rail Inspection.** Investigating whether AI can be successfully used for condition-based maintenance of rail infrastructure. [*Synergy under assessment / to be confirmed*]
- ✓ **CL02000125: Advanced Diagnostics of Railway Turnout Movable Parts:** The aim of the project is therefore to develop an autonomous device for comprehensive diagnostics of movable parts. The autonomous diagnostic system will be installed in the crossing area and applied to switch area and will diagnose the operational condition. [*Synergy under assessment / to be confirmed*]

#### **With EU-Rail FP4:**

- ✓ **CK04000107: Research and development of advanced composite cylinders for alternative fuels (2023-2025).**
  - Links to be established with FP4 to align where possible and exchange.
- ✓ **Rail4Climate (R4C):** digitalization and automatization of operations, maintenance, infrastructure, and rolling stock; reduction of the time-to-market; substantial contribution to climate neutrality of the mobility system.
  - Synergies to be considered with FP2 and FP4.
- ✓ **CK02000218: Wayside diagnostic of railway vehicles running gear**
  - Links to be established with FP4 to align where possible and exchange.

- ✓ **CK02000044: Progressive development of hydrogen economy in transport in the Czech Republic**
  - Links to be established with FP4 to align where possible and exchange.
- ✓ **CL01000041: Means for the implementation of low-emission technologies in rail transport**
  - Links to be established with FP4 to align where possible and exchange.
- ✓ **Several projects from DZSF (various TRL): synergies foreseen with FP3 and FP4.**
  - Ongoing Action: following a check with the FP, organise dedicated meetings between projects.
- ✓ **ADIF R&I Programme.** Mainly dedicated to the following projects: Platforms (TRL 8), Hydrogen fuel cell train. (TRL 7) and Broken rail. (TRL 7).
  - Possible synergies to be considered with FA3 and FA4.
  - Ongoing Action: following a check with the FPs, organize a dedicated meeting between projects.
- ✓ **Program Source Approach to Rail Vibrations.** English: Innovation Agenda for Minimizing Track Vibrations at the Source.
  - Synergies to be considered with FA4 activities.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.
- ✓ **Resilient Rail:** Operational safety questions for increased resilience in rail.
- ✓ **3D scanning and reverse engineering algorithms in the railway sector:** The project goal is to establish a reverse engineering workflow from physical parts to well behaved CAD models facilitating rapid manufacturing of replacement parts as well as a library of digital replica and tools for training personnel and efficient maintenance of components.
- ✓ **Digital Approval of 3D-printed components for rail vehicles – DIGIZUG.** [*Synergy under assessment / to be confirmed*]
- ✓ **Modular scalable energy storage system for sustainable local rail passenger transport - MOSENAS.** The project aims to develop a battery-electric train for long-term use on various non-electrified and partially electrified railway lines. The project focuses on designing a modularly scalable battery storage system, taking into account operational suitability, economic viability, and compatibility with the surrounding charging infrastructure. [*Synergy under assessment / to be confirmed*]
- ✓ **CL01000137: Modular Traction Converter for Substations and Flexible AC Transmission System (FACTS):** The project aims to develop power semiconductor for 25 kV/50 Hz railway traction power substations (TPSSs) designed to be fitted into a container, and to manufacture a functional prototype of such device. [*Synergy under assessment / to be confirmed*]



### **With EU-Rail FP5:**

- ✓ **CK0400041: SmartRail – Automated data analysis related to rail freight traffic (2023-2025).**
  - Links to be established with FP5 to align where possible and exchange.
  
- ✓ **CL01000180: Use of Artificial Intelligence in Support of Dispatcher Control of Rail Freight Transport**
  - Links to be established with FP5 to align where possible and exchange.
  
- ✓ **SCOPE Project for shared freight transport services connecting shipper and carrier operations (forwarding and carriers)** (from European regional Development Fund Interreg Balkan MED (Balkan Mediterranean)).
  - Links to be established with FP5 and possible expression of interest for DAC pre-deployment trains.
  
- ✓ **FW03010571: AI system for multimodal traffic data evaluation**
  - Synergies to be considered with FP1, FP2 and FP5.
  
- ✓ **Operating regime of overhead contact line-less traction in rail freight transport (Project number 2022-10-W-1202 - Ongoing)**
  - Links to be established with FA5 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organise a dedicated meeting between projects.
  
- ✓ **Determination and optimisation of influences in rail passenger transport and rail freight transport on the capacity of the overall rail system (Project number 2022-04-D-1202 - Ongoing)**
  - Links to be established with FA5/FA6 and ESEP4Freight to align where possible and exchange.
  - Ongoing Action: following a check with the FP, to possibly organize a dedicated meeting between projects.
  
- ✓ **Digital Automatic Coupling – Demonstrator (Project number 2020-E12-1202 - Ongoing)**
  - Links to be established with FA5 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.
  
- ✓ **ELETA Project for Enhanced Data Interoperability for Combined Transport (EDICT)** for the period up to and including 2024.
  - Links to be established with FA5 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects (and with ESEP4Freight).
  
- ✓ **Pilot automation container-transport shuttles (INDIGO+):** Pilot to automated train preparation and breaking process (automatic brake testing, automatic wagon inspection, digital automatic coupling (DAC)).
  - Links to be established with FA5 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.

- ✓ **Sensoring Better use of Last Mile:** The aim of the pilots is to increase the planned capacity at rail yards by 25%, thereby achieving better use of the existing rail infrastructure. The financial coverage of the pilots is provided by the Ministry of I&W and different port authorities.
  - Links to be established with FA5 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.
- ✓ **Subsidy scheme for modal shift from road to rail and inland shipping. The scheme has been approved by the European Commission and has a duration of four years and includes €7.5 million for rail.**
  - Links to be established with FA5 and FA6 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.
- ✓ **Zefes (Zero-Emission Long-Haul Freight Transport):** 3,5-year project aiming to deploy 9 different long-haul truck configurations (BEV and FCEV) in various use cases covering important TEN-T corridors in Europe. The project addresses the decarbonization of long-distance freight transport by demonstrating real-world applications with battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) across Europe.
- ✓
- ✓ **Optimizing Yard Operations:** OYO will develop artificial intelligence algorithms based on mathematical optimization. OYO's algorithms will address key challenges such as allocating parking slots and determining how trains should move within the yards. [*Synergy under assessment / to be confirmed*]
- ✓ **Development of a showcase platform for the free display of standardized timetables for combined transport – EiFaS:** The aim is to facilitate the exchange of information on intermodal connections between stakeholders and customers. [*Synergy under assessment / to be confirmed*]
- ✓ **DAC4EU:** DAC4EU" is testing DAK prototypes from various manufacturers.

#### With EU-Rail FP6:

- ✓ **Reactivation of railway lines in border regions (Project number 2022-23-U-1202 - Ongoing)**
  - Links to be established with FA6 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organise a dedicated meeting between projects.
- ✓ **Determination and optimisation of influences in rail passenger transport and rail freight transport on the capacity of the overall rail system (Project number 2022-04-D-1202 - Ongoing)**
  - Links to be established with FA5/FA6 and ESEP4Freight to align where possible and exchange.
  - Ongoing Action: following a check with the FP, to possibly organize a dedicated meeting between projects.



- ✓ **ADIF R&I Programme with referred activity for low cost ERTMS (TRL 7)**
  - Ongoing Action: to strengthen the links with FP6 to align where possible and exchange.
- ✓ **MaaS Mobility as a Service / MaaS apps developed / MaaS cross-border planning**
  - Links to be established with FA6 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.
- ✓ **Subsidy scheme for modal shift from road to rail and inland shipping. The scheme has been approved by the European Commission and has a duration of four years and includes €7.5 million for rail.**
  - Links to be established with FA5 and FA6 to align where possible and exchange.
  - Ongoing Action: following a check with the FP, organize a dedicated meeting between projects.

### **Potential links with several FPs:**

- ✓ **CORIFER 2023:** Contribute to the in-depth transformation of the railway sector and the corresponding mobility system, by responding to technological, competitiveness and ecological transition challenges. (*Theme 1 - Train with very low environmental impact; Theme 2 – Efficient and inclusive daily mobility; Theme 3 – Digitalization of rail transport: vehicle, infrastructure and industry; and Theme 4 – Acceleration of rail freight*)
  - Impact on MAWP – links to be established.
- ✓ To follow up the Pilot-T scheme, smart mobility solutions by developing and testing and/or piloting technologies, services and business models with the potential to influence the transport system of the future to make it efficient, safe and environmentally friendly.
  - Ongoing Action: following a check with the FPs, organize dedicated meetings between projects
- ✓ **Norwegian Transport 2025 programme:** Generate knowledge and solutions for use in the development of an integrated, future-oriented transport system that will meet the needs of trade and industry and society at large for effective, sustainable transport.
- ✓ **Projects funded by BRIK II Programme** (Research and Development in Railway Infrastructure).
- ✓ **Smart logistics considered in their National Plan 2030 with instruments to finance pilots and demonstrations**
  - Ongoing Action: following a check with all FPs, organize dedicated meetings between projects, considering the National Plan provided as reference.
- ✓ **Infrasweden is a strategic innovation program that has one call per year with different focuses within sustainable transport infrastructure** (<https://www.infrasweden.nu/>)
  - Ongoing Action: following a check with all FPs, organize dedicated meetings between projects as synergies with FPs could be explored.
- ✓ **Component 9 of the Renewal Plan** – More effective management and strengthening of funding for research, development and innovation.
- ✓ **First of a Kind Programme:** The aim is to reduce costs and risks for the rail industry associated with implementing new technologies. It supports rail innovation through the demonstration of an innovation on the live railway. There are new competitions annually with approximately EUR 7.5M allocated to new projects as a result.
- ✓ **Control Period (CP) 7 Research and Development Programme:** It refers to the next five-year planning and funding cycle for Network Rail in Great Britain, covering the period from 1 April 2024 to 31 March 2029. The plans include investment in technology and research and development.

## Annex: List of country contributions (in alphabetical order)



### ALBANIA

- **SCOPE Project for shared freight transport services connecting shipper and carrier operations (forwarding and carriers)** (from European regional Development Fund Interreg Balkan MED (Balkan Mediterranean))
- **Inter-Modality Promotion and Rail Renaissance in Adriatic – Ionian Region** from the IPA Interregional 2014 – 2020, Adriatic and Ionian Agreement
- **Economic Reform Programme (ERP) 2023 – 2025:** Technical assistance for preparation of national ITS strategy for Albania (railway and maritime) and other regional partners in the Western Balkan.



### AUSTRIA

- **Mobilitätswende** (Mobility Transition) programme: drives the transition to a climate-neutral mobility system by 2040, promoting traffic reduction, modal shift, and sustainable transport technologies— including rail and digital innovations. Through interdisciplinary projects and real-world testing, it accelerates the development and implementation of transformative mobility solutions, while positioning Austria as a leader in sustainable transport within Europe.
- **Rail4Climate Focus** (R4C) programme: focuses on digitalization and automatization of the rail system at the crossroads of research and implementation, for the sake of enhanced capacity and increased efficiency. It is intended to address rail transport companies and infrastructure operators, industry and research via the Austrian Climate Fund.

#### *Projects:*

- SMACS - Digital assistant for condition-based, intelligent maintenance of heating, ventilation, and air conditioning (HVAC) systems in trains.
- NBrake: Innovative braking system for high sliding speeds in rail vehicles.
- VIPES: Efficient design of circulation plans for locomotives and shift schedules for train personnel.
- RegioWoodTrain: Pilot implementation of sustainable and cooperative wood transport strategies.
- META-TRAIN: Improving the accuracy of predicted arrival times in Austrian single-wagon transport (using a digital twin).
- DyMo-FL: Automated load weight determination using telematics and sensor systems.
- Physical: Leader project with 4 pilots for cooperative logistics (2 with rail focus: smart wood logistics, transport management platform).

- **CK04000088: Increasing of tunnel safety using continuous accurate vehicle location (2023-2025)**  
<https://starfos.tacr.cz/cs/project/CK04000088>
- **CK04000082: Advanced cyber security methods in tunnel systems as a part of critical transport infrastructure (2023-2025)**  
<https://starfos.tacr.cz/cs/project/CK04000082>
- **CK04000041: SmartRail – Automated data analysis related to rail freight traffic**  
<https://starfos.tacr.cz/cs/project/CK04000041>
- **FW08010072: Wagon 5G communication unit**  
<https://starfos.tacr.cz/cs/project/FW08010072>
- **CL02000022: Reliability limits of the human factor in the interaction with rail vehicle automation systems**  
<https://starfos.tacr.cz/en/projekty/CL02000022?query=r5ux77776ota>
- **CL02000125: Advanced Diagnostics of Railway Turnout Movable Parts**  
<https://starfos.tacr.cz/en/projekty/CL02000125?query=tlm77773shq>
- **CL02000139: 5GRailCare Innovative Remote 5G Management of Railway Rolling Stock According to ECM Standard with Predictive Maintenance Estimation**  
<https://starfos.tacr.cz/en/projekty/CL02000139?query=tqtp77773h5a>
- **CL02000146 Sustainable Concept of Railway Capacity Allocation**  
<https://starfos.tacr.cz/en/projekty/CL02000146?query=tqtp77773h5a>
- **CK03000182: Research of construction-technical requirements for the use of TEN-T ground infrastructure to solve large-scale crisis situations**  
<https://starfos.tacr.cz/en/projekty/CK03000182?query=sot77775loa>
- **CK04000107: Research and development of advanced composite cylinders for alternative fuels**  
<https://starfos.tacr.cz/cs/project/CK04000107>
- **CK04000109: Predictive diagnosis of ITS technological equipment using AI approaches**  
<https://starfos.tacr.cz/cs/project/CK04000109>
- **CL01000137: Modular Traction Converter for Substations and Flexible AC Transmission System (FACTS)**  
<https://starfos.tacr.cz/en/projekty/CL01000137?query=rhch77773ha>

- **CL01000180: Use of Artificial Intelligence in Support of Dispatcher Control of Rail Freight Transport**  
<https://starfos.tacr.cz/en/projekty/CL01000180?query=rhch77773ha>
- **DOPRAVA 2020+ (TRANSPORT 2020+)** for the period of 2020 to 2026 - ongoing programme, calls are closed
- **DOPRAVA 2030 (TRANSPORT 2030)** – ongoing programme
- **TREND** – ongoing programme



## GERMANY

- **Magnetic card-based positioning using magnetic profile analysis for rail vehicles.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/mzls.html>
- **GINT-Gigabit Innovation Track.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/InnoNT-Projekte/gint.html>
- **Safety assessment of infrastructure structures using digital technologies – Take-off for practical application (AISTEC-PRO).**  
[https://www.sifo.de/sifo/shreddocs/Downloads/P-Umriss/projektumriss\\_aistec-pro.pdf?\\_\\_blob=publicationFile&v=2](https://www.sifo.de/sifo/shreddocs/Downloads/P-Umriss/projektumriss_aistec-pro.pdf?__blob=publicationFile&v=2)
- **MINOS - Real-time data service for emergency vehicles - forecast for delay-free crossing of trackside level crossings.**  
<https://i3mainz.hs-mainz.de/projekte/minos/>
- **DigiOnTrack - Increasing the future viability of local rail passenger transport through sensors, artificial intelligence and shared data use.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/digiontrack.html>
- **AIFRI - Artificial Intelligence For Rail Inspection.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mFUND/Aktuell/mpact-big-data.html>
- **NDEface-V - Development of a universal NDE data interface for the optimisation of design and maintenance for rail vehicles - feasibility study.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/ndeface-v.html>
- **Digital Approval of 3D-printed components for rail vehicles - DIGIZUG.**  
<https://digizug.de/>
- **DZSF – various planned projects.**

[https://www.dzsf.bund.de/DZSF/DE/Veranstaltungen/veranstaltungen\\_node.html;jsessionid=01BC0ECB9F36AAA36788AC55BF231F0E.live21301](https://www.dzsf.bund.de/DZSF/DE/Veranstaltungen/veranstaltungen_node.html;jsessionid=01BC0ECB9F36AAA36788AC55BF231F0E.live21301)

- **Energy-efficient coordination and control of rail traffic in real time – EKSSE.**  
<https://www.scs.fraunhofer.de/de/referenzen/EKSSE.html>
- **Tree vitality monitoring and modeling of drought-related risks along railroads with remote sensing and dendroecology - RailVitaliTree.**  
[https://www.dzsf.bund.de/SharedDocs/Standardartikel/DZSF/Projekte/Projekt\\_168\\_RailVitaliTree.html?nn=1692966#doc1860512bodyText6](https://www.dzsf.bund.de/SharedDocs/Standardartikel/DZSF/Projekte/Projekt_168_RailVitaliTree.html?nn=1692966#doc1860512bodyText6)
- **Modular scalable energy storage system for sustainable local rail passenger transport - MOSENAS.**  
<https://www.dlr.de/de/ve/forschung-und-transfer/projekte/2022/projekt-mosenas>
- **AutomatedTrain.**  
<https://verkehrslage.vkw.tu-dresden.de/de/forschung-1/projekt-automatedtrain-zuege-fahren-vollautomatisiert-und-fahrerlos>
- **Railaix - Development and testing of an AI-based environment detection in the track area for driverless rail transport.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/railaixs.html>
- **QUDIS – Quantum-secure digital rail.**  
<https://www.forschung-it-sicherheit-kommunikationssysteme.de/projekte/qudis>
- **SQuIRRL - Secure quantum infrastructure for road, rail, and air transport.**  
<https://www.forschung-it-sicherheit-kommunikationssysteme.de/projekte/squirrl>
- **Development of a showcase platform for the free display of standardized timetables for combined transport - EiFaS.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/eifa.html>
- **Demonstration of quantum advantages for mobility and logistics (NaQuaMo).**  
<https://www.quantensysteme.info/projektatlas/projekte/q/naquamo>
- **Data-based automated vehicle for the last mile – DAWNLM.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/DG/mfund-projekte/dawn-lm.html>
- **DAC4EU.**  
<https://www.bmv.de/SharedDocs/DE/Artikel/E/schiene-innovationen-forschung/schienengueterverkehr-digitale-automatische-kupplung-dak.html>
- **Development of a data space in the international railway industry using cloud-edge technology for data collection and processing (Railway-X).**

[https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Publikationen/Digitale-Welt/manufacturing-x-programm.pdf?\\_\\_blob=publicationFile&v=25](https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Publikationen/Digitale-Welt/manufacturing-x-programm.pdf?__blob=publicationFile&v=25)

- **Rail strategy „Agenda für zufriedene Kunden auf der Schiene“ 1** (“**Agenda for satisfied rail passengers**”) focuses on the reliability of rail services for rail passengers (including improving safety at stations, improved comfort), digitalization (esp. ETCS infrastructure, vehicles), FRMCS and the acceleration of planning and approval procedures.

[https://www.bmv.de/SharedDocs/DE/Anlage/K/bahn-agenda.pdf?\\_\\_blob=publicationFile](https://www.bmv.de/SharedDocs/DE/Anlage/K/bahn-agenda.pdf?__blob=publicationFile)

- **Federal Research Programme of Rail Transport(2022)**: Targets and priorities for rail research in the medium term.



## SPAIN

- **ADIF R&I Programme with referred activity for:**

Low cost ERTMS (TRL 7)

- **ADIF R&I Programme.** Possible synergies to be considered with FA3 and FA4. Mainly dedicated to the following projects:

Platforms (TRL 8)

Hydrogen fuel cell train. (TRL 7)

Broken rail. (TRL 7)



## FRANCE

- **CORIFER 2023:** Contribute to the in-depth transformation of the railway sector and the corresponding mobility system, by responding to technological, competitiveness and ecological transition challenges.

**Theme 1 - Train with very low environmental impact**

**Theme 2 – Efficient and inclusive daily mobility**

**Theme 3 – Digitalization of rail transport: vehicle, infrastructure and industry**

**Theme 4 – Acceleration of rail freight**

## LUXEMBOURG

- **Zefes (Zero-Emission Long-Haul Freight Transport):** 3,5-year project aiming to deploy 9 different long-haul truck configurations (BEV and FCEV) in various use cases covering important TEN-T corridors in Europe. The project addresses the decarbonization of long-distance freight transport by demonstrating real-world applications with battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) across Europe.
- **Survey on public transport satisfaction in Luxembourg:** Online survey, launched by LISER, that will run from November 2<sup>nd</sup> to mid-December, sponsored by the Luxembourg National Research Fund (FNR). This survey is different but also complementary to those already carried out on the territory (e.g., [Border Mobility Survey](#) in 2010-2011, [LuxMobil](#) survey in 2017 in Luxembourg, etc.), because it seeks to estimate a level of satisfaction with public transport and mobility in the country. The results of this survey will be compared to those of a previous survey organized by LISER on public transport in Luxembourg.
- **Antoine:** Data analytics platform & decision support tool that will empower the operational & tactical decisions of intermodal freight activities. The tool will serve as a cockpit by forecasting operational issues, and identifying robust solutions to handle disruptions & stochasticity stemming from train delays, wagon breakdowns, etc. In the long run, by integrating rail processes with maintenance operations and costs, ANTOINE allows the reduction of overall system costs.

## NETHERLANDS

- **Development of rail freight based on technological innovations/digitalisation:**
  - **ELETA Project for Enhanced Data Interoperability for Combined Transport (EDICT)** for the period up to and including 2024.
  - **Pilot automation container transport shuttles (INDIGO+):** Pilot to automated train preparation and breaking process (automatic brake testing, automatic wagon inspection, digital automatic coupling (DAC)).
  - **Sensoring Better use of Last Mile:** The aim of the pilots is to increase the planned capacity at rail yards by 25%, thereby achieving better use of the existing rail infrastructure. The financial coverage of the pilots is provided by the Ministry of I&W and different port authorities.
- **MaaS Mobility as a Service / MaaS apps developed / MaaS cross-border planning.**
- **On top, subsidy scheme for modal shift from road to rail and inland shipping. The scheme has been approved by the European Commission and has a duration of four years and includes €7.5 million for rail.**

- **Program Source Approach to Rail Vibrations.** English: Innovation Agenda for Minimizing Track Vibrations at the Source. From the title, synergies to be considered with FA4activities as well as Call 23 – Explo research. ProRail involved.



## NORWAY

- **The National Transport Plan 2025-2036 sets out five overall aims for the transport sector.** The five areas are:
  1. Better results from public spending.
  2. Use new technologies and research to obtain more efficient and safe transport with lower emissions.
  3. Develop a transport sector that contributes to the achievement of Norway's climate and environmental goals.
  4. Invigorate efforts for transport safety and the vision of zero road fatalities and serious injuries
  5. Make travelling easier and increase the competitiveness of Norwegian business and industry.
- **Management and Extension of Service Life of infrastructures affected by Alkali-silica reaction (MESLA):** The overall aim is to build up new knowledge on how to manage and maintain existing ASR-affected structures in a technical, economical and environmental beneficial way, and verify how this knowledge can be applied to ensure structural safety and extend the service life of existing bridges.  
<https://prosjektbanken.forskningsradet.no/project/FORISS/326764?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Prosjektnummer=326764>
- **Sound TRANsport NETworks (S-TRANET):** The aim is to establish the cause of hazard events on railway infrastructure using a distributed sensor network (2023-2027)  
<https://prosjektbanken.forskningsradet.no/project/FORISS/344437?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Prosjektnummer=344437>
- **3D scanning and reverse engineering algorithms in the railway sector:** The project goal is to establish a reverse engineering workflow from physical parts to well behaved CAD models facilitating rapid manufacturing of replacement parts as well as a library of digital replica and tools for training personnel and efficient maintenance of components.  
<https://prosjektbanken.forskningsradet.no/project/FORISS/332002?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Prosjektnummer=332002>
- **AutoKontroll - Automatisert kontroll av jernbane:** The AutoKontroll project aims to develop fully automated and semi-automated solutions to perform some of these inspections. This is

intended to be done by automatic analysis of images of infrastructure taken from train-mounted cameras.

<https://prosjektbanken.forskningsradet.no/en/project/FORISS/350489?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Prosjektnummer=350489>

- **Infrastructure Investments for Optimal Rail REPLACEMENT Bus Services:** The REPLACE project aims to improve rail mobility through innovative AI-based methods and optimization.

<https://prosjektbanken.forskningsradet.no/en/project/FORISS/352850?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=score&sortOrder=desc&resultCount=30&offset=0&Fritekst=352850>

- **Optimizing Yard Operations:** OYO will develop artificial intelligence algorithms based on mathematical optimization. OYO's algorithms will address key challenges such as allocating parking slots and determining how trains should move within the yards..

<https://prosjektbanken.forskningsradet.no/en/project/FORISS/355826?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Fritekst=355826>

## POLAND

- **Innovative Railway Vehicle Warning System:** Develop a system that provides advance warning of an approaching railway vehicle, allowing workers to safely leave the track.
- **Line Dispatcher Support System:** The project involves developing a system that supports line dispatchers in making the quickest possible decisions to reroute certain trains during crisis situations.
- **Bidirectional Traction Substations and Energy Storage Systems:** Increase network receptivity and improve energy efficiency and reliability in railways. The project involves developing new technologies to utilize the process of electric energy recuperation for the railway infrastructure manager's operations.
- **Enhance the Energy Efficiency of Heating Systems for Turnouts (EOR):** The task aims to improve energy efficiency mainly by proposing technical and organizational solutions to reduce electricity consumption for EOR devices.
- **Innovative Solutions for the Use of Photocatalytic Concrete in Infrastructure Managed by PKP PLK:** The project will include research and analyses to determine the optimal use of photocatalytic concrete technology in PKP PLK's operations. This technology, which helps combat smog, could be used, for example, on platform slabs.
- **Development of a method for managing environmental hazards affecting Railway Traffic Safety:** The project will develop and test an effective method for obtaining information about trees and shrubs located near railway lines and a methodology for managing them.

- **Development of a concept for using point clouds from scanning measurements to model spatial objects near railway tracks:** The project aims to develop a concept for using scanning measurement data for both maintenance and investment processes. It includes creating and testing software for modeling and analyzing the acquired data in real-world conditions.
- **Development of a system for precise monitoring of railway networks managed by PKP PLK in terms of the impact of railway traffic on the environment:** The project aims to develop an innovative system for precise monitoring and processing of traffic, technical, and environmental data on the railway network, in compliance with current legal regulations. The acquired data will, among other things, streamline the complex investment process in preparing environmental documentation.
- **Development of innovative and ecofriendly solutions for vegetation control on railway lines managed by PKP PLK:** The project aims to enable the use of ecological methods for vegetation control on railway infrastructure.



## PORTUGAL

- **New National Railway Plan (PFN) approved in 2025:** establishing the strategic vision for the long-term development of the rail system; the priorities are the modernisation and expansion of the network, strengthening high-speed and cross-border links, improving regional accessibility, increasing freight capacity and supporting a shift to low-carbon mobility.



## SWEDEN

- **Infrasweden** is a strategic innovation program that has one call per year with different focuses within sustainable transport infrastructure (<https://www.infrasweden.nu/>)



## SLOVAKIA

- **Research and innovation strategy for smart specialisation of the Slovak Republic:**

**Priority area 2-1:** Connected and autonomous mobility The aim of the priority area transformation is to prepare conditions for the use of connected, automated and autonomous means of transport, thereby supporting the future development of related sectors.

**Priority area 2-2:** Intelligent mobility and intelligent transport systems services The objective of the priority area transformation is to ensure the widespread and accessible use of smart mobility services for the transport of people and goods. It includes the promotion of new services aimed at

reducing negative environmental impacts, reducing deaths and serious injuries caused by transport, as well as the time spent transporting people and goods.

**Priority area 2-3: Decarbonisation and sustainable mobility** The aim of the transformation of this priority area is to prepare the territory of the Slovak Republic for the largescale deployment of alternatively fuelled and energy-carrying means of transport in normal operation.



## UNITED KINGDOM

- **First of a Kind Programme:** The aim is to reduce costs and risks for the rail industry associated with implementing new technologies. It supports rail innovation through the demonstration of an innovation on the live railway. There are new competitions annually with approximately EUR 7.5M allocated to new projects as a result.
- **RSBB cross-industry research programme:** The aim is to enable a safe and efficient railway by providing knowledge and solutions to best utilize existing assets and unlock future change. The core funding for the programme is provided by a grant from the Department for Transport (DfT) which is currently around €10m per year. This is run as a three-way partnership involving DfT, RSSB and industry. In addition, industry provides some cash co-funding, significant in-kind support and lead on using the outputs so that they deliver benefits.
- **Railway Construction Innovation:** The aim is to deliver demonstrations of innovation in railway construction working with the teams building the Global Centre of Rail Excellence (GCRE) facility. The current budget is approximately EUR 8M for 2022-2025 (2025 tbc).
- **Control Period (CP) 7 Research and Development Programme:** It refers to the next five-year planning and funding cycle for Network Rail in Great Britain, covering the period from 1 April 2024 to 31 March 2029. The plans include investment in technology and research and development.