NJS Seminar – ERTMS in the Nordic Countries

ERTMS as enabler for future improvements

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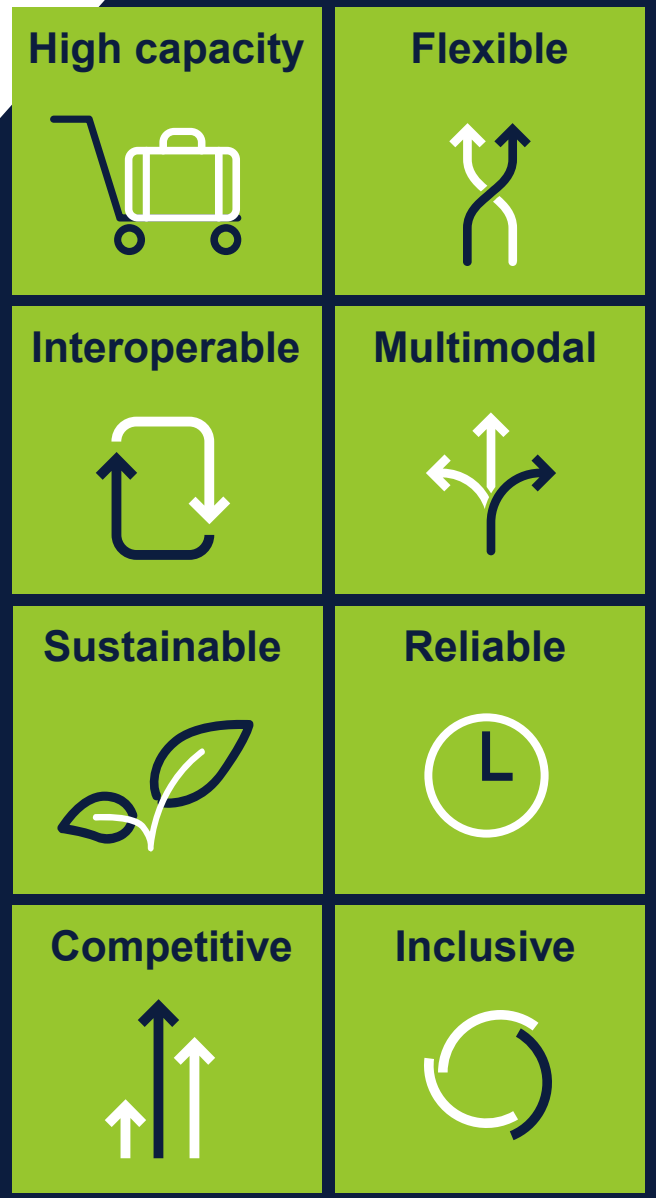
Europe’s Rail Joint Undertaking

Digitalisation a key enabler of the EU-Rail Vision

Vision

To deliver a **fully integrated European railway network for citizens and cargo.**

Rail Research and Innovation to Make Rail the Everyday Mobility



Europe's Rail Members

acciona
adif
ALSTOM
MERMEC AN ANGEL COMPANY
CAF
ceit MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE
DB
DLR
ESGR European Smart Green Rail
Faiveley Transport A Wabtec Company
FERROVIE DELLO STATO ITALIANE
FREQUENTIS FOR A SAFER WORLD
HITACHI Inspire the Next
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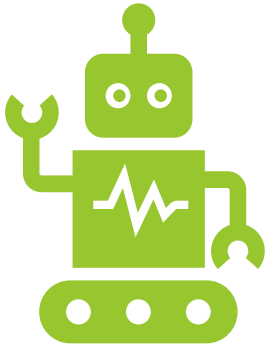
TRAFIKVERKET
RAILWAY SYSTEMS by voestalpine
Slovenske železnice
VIAS

Flagship Area 2 | Overview



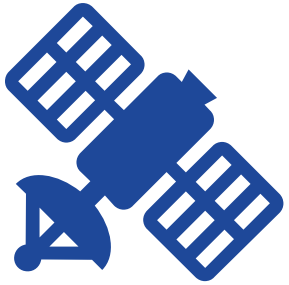
Automation process

ATO up to GoA4

Perception

Remote driving

Automating functions



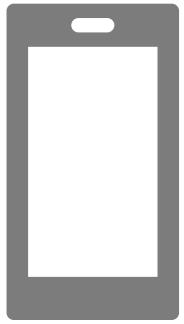
Optimised headway

Moving Block, HTD

Train Positioning

Train integrity/length

NG brake

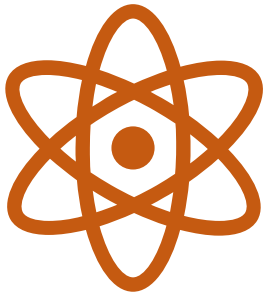


Enabling digital technologies

Connectivity

Modular Platform

Digital register



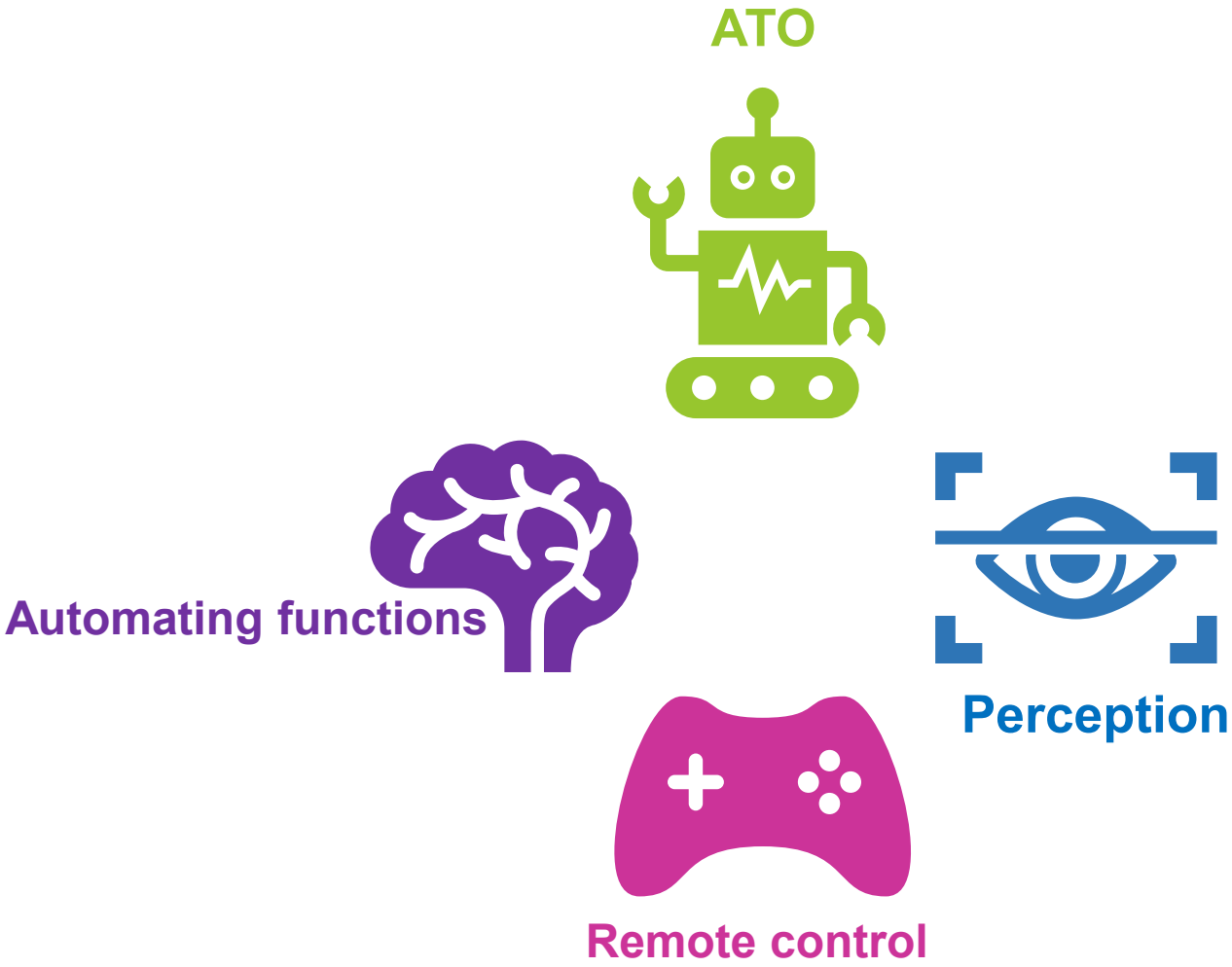
Innovative operational solutions

Self driving wagon

Virtual Coupling

Autonomous route setting

Flagship Area 2 | Automation processes

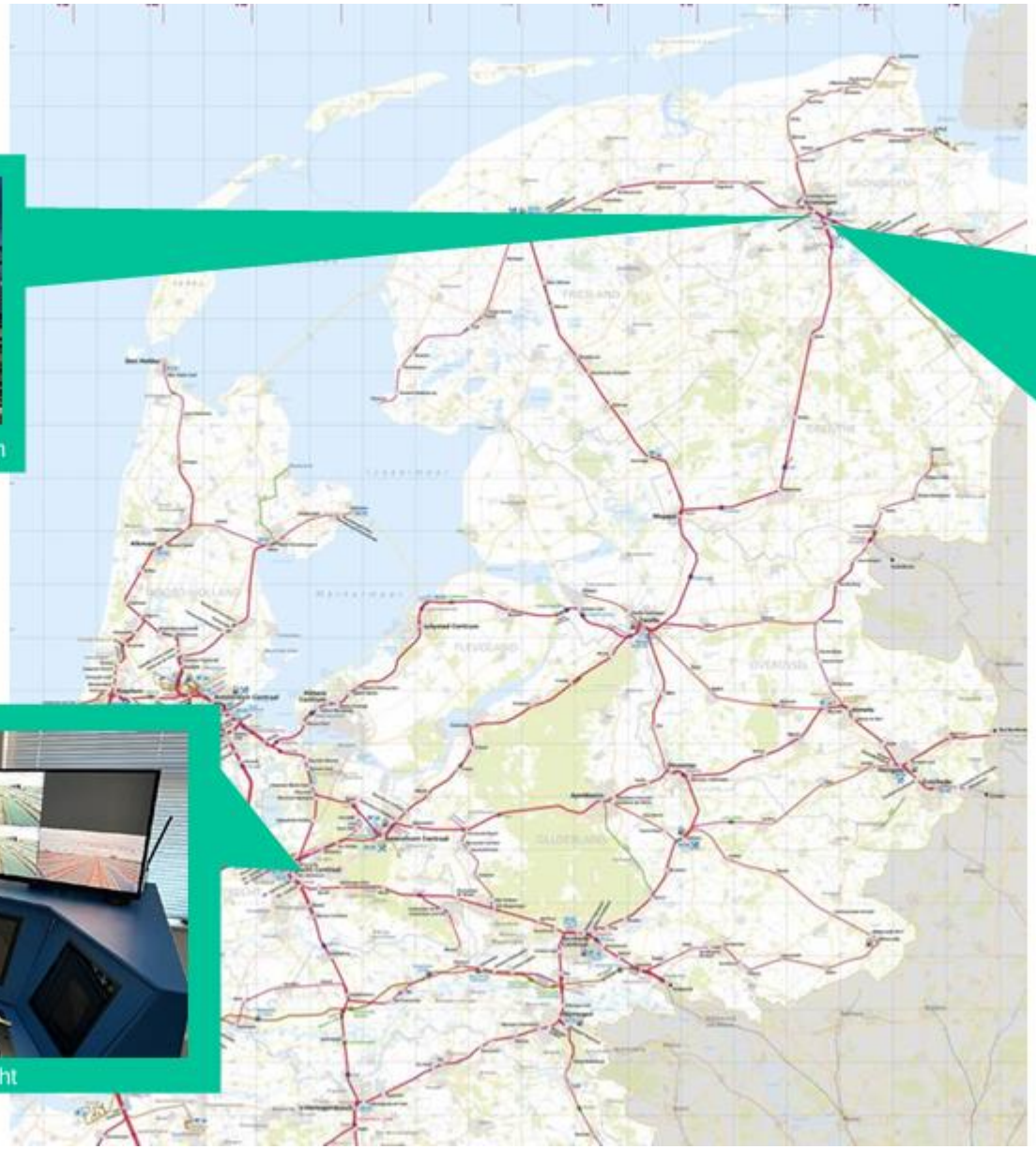


Flagship Area 2 | Automation processes | Remote control

Demo #1

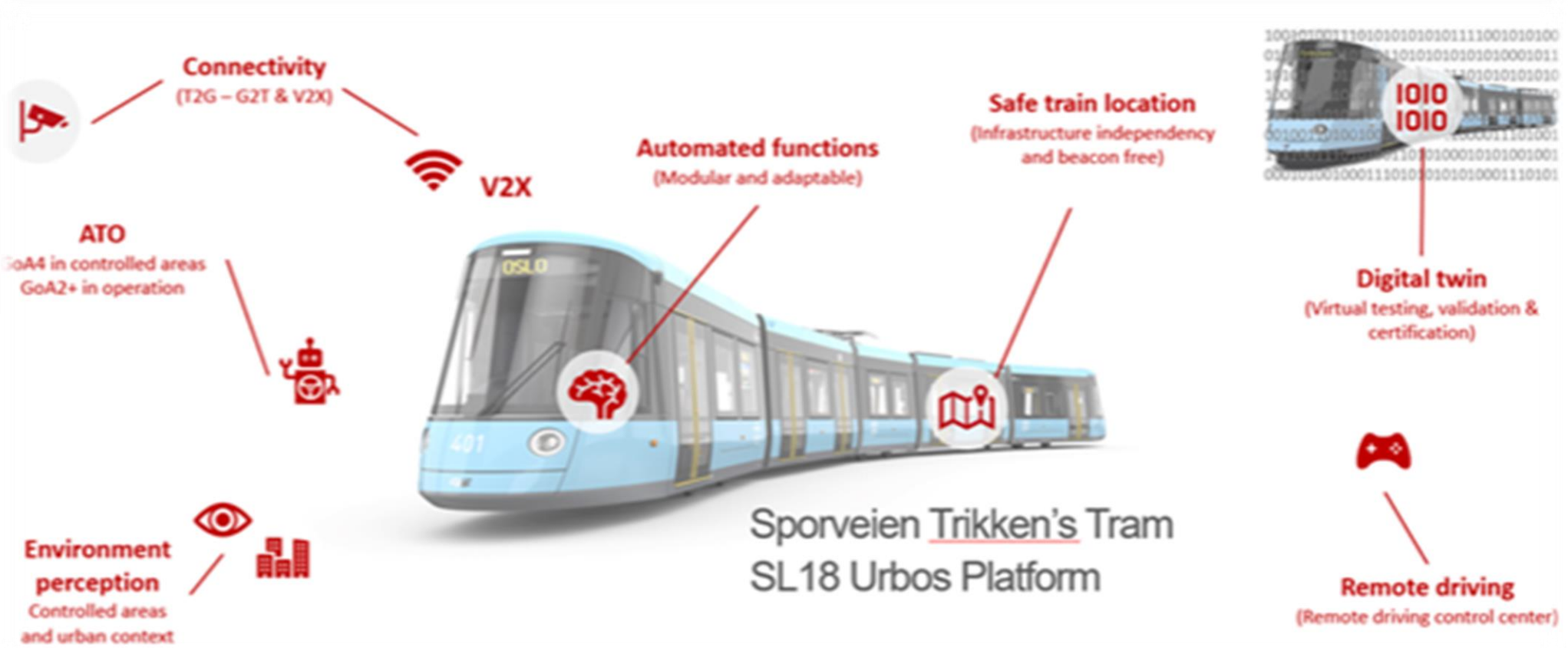
The yard and track to Groningen Central Station

Remote Operating Center Utrecht



Remote controlled train

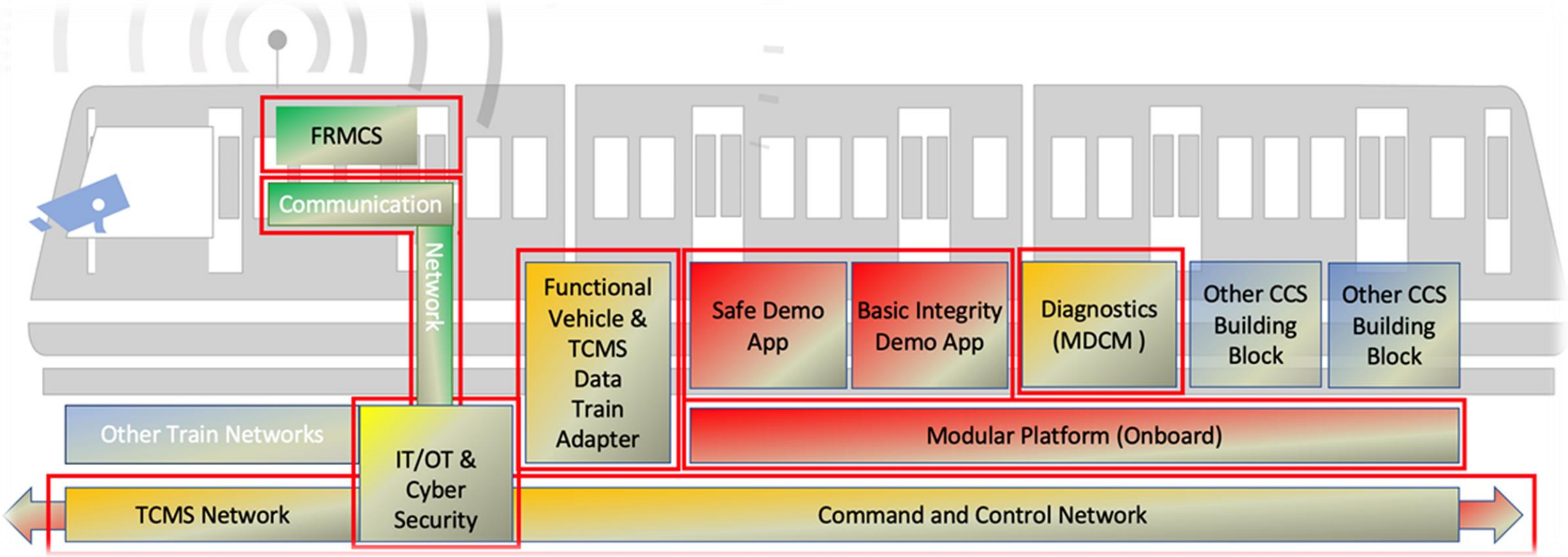
Flagship Area 2 | Automation processes | Urban demo



Flagship Area 2 |Train positioning

- Integrating satellite navigation safely into ETCS
- Increase ETCS performance while reducing legacy infrastructure

Flagship Area 2 | On-board platform



- Validate platform technologies for the CCS-Onboard
- Enable migration and evolution for future onboard architectures, where connectivity & modularity are required in a highly automated and evolving rail system

Flagship Area 2 | Virtual Coupled Train Sets (VCTS)

- Increase flexibility and efficiency of passenger lines
- Enable automatic train size adaptation
- Reduce weight from mechanical coupler
- Dynamic maneuvers

FP6-FutuRe
Cost effective regional lines
Development of Train for frugal lines

Picture: DLR

Call: HORIZON-ER-JU-2025-02

Call: HORIZON-ER-JU-2025-02

Reference Documents:

- Revised Multi-Annual Work Programme (https://rail-research.europa.eu/wp-content/uploads/2025/07/GB-Decision_03-25_Revised_MAWP_EU-Rail_MAWP_v4_Clean.pdf)
- Europe's Rail Work Programme 2025-2026 (https://rail-research.europa.eu/wp-content/uploads/2025/06/GB-Decision_02-25_WP2025-2026_amendment1_Clean-1.pdf)

EU-Rail performs its activities via calls for proposals and calls for tenders:

The next 2025 Call for Proposals (HORIZON-JU-ER-2025-02) should be structured around one topic for each of the Destinations 1 to 6, as well as 4 topics under Destination 8:

- **Destination 1** – Network management planning and control & Mobility Management in a multimodal environment and Digital Enablers.
- **Destination 2** - Digital & Automated up to Autonomous Train Operations
- **Destination 3** - Intelligent and integrated asset management
- **Destination 4** - A sustainable and green rail system
- **Destination 5** – Sustainable Competitive Digital Green Rail Freight Services
- **Destination 6** – Regional Rail Services / Innovative rail services to revitalise capillary lines
- **Destination 8** – Exploratory Research and other activities

Call: HORIZON-ER-JU-2025-02

Call Opening: 08 October 2025
Deadline(s) for submission of proposal: 11 February 2026

Call	Budgets (EUR million)		Deadline
	2025	2026	
HORIZON-JU-ER-2025-02	119,2	28,4	11 February 2026
Minimum overall indicative budget	148,2		

By analogy with the Horizon Europe Annual Work Programme 2023-2024 call conditions, The EU-Rail Executive Director may decide to open the call up to one month prior to or after the envisaged date(s) of opening as well as may decide to delay the deadline(s) by up to two months. This provision applies to all call topics here-in detailed.

2025 Calls for Flagship Projects (Focus on Destination 2)

HORIZON-JU-ER-2025-FA2-01: DIGITAL & AUTOMATIC UP TO AUTOMATED TRAIN OPERATIONS

Destination 2
EU Contribution: 33,1 M€
TRL 5-8
Innovation Action

Capability for improving operation performance

- Automating functions, such as train preparation
- Absolute safe train positioning and train integrity highly accurate and safe
- ATO
- FRMCS
- Remote driving and command
- Digital Register (central data source for e.g. Safe train positioning, ATP, TMS...)

Capability for offering more capacity to customers

- ETCS Hybrid Level 3; ETCS Level 3 and Moving block systems
- Virtual coupling
- Self-driving freight wagons
- New generation of brake systems

Capability for supporting cost-effective deployment

- Develop novel platform and facilities for testing, validation and (virtual) certificationFRMCS

Thank you

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