Jernbane-
direktoratet

Rail ITS in the Nordics

16th of September 2025

Norwegian Rail Network

Present Network:

- 4200 km railway lines
  - 2500 km electrified
  - 246 km double track
- Freight and Passenger Train Services
- 5 Freight Train Operators
- 4 Passenger Train Operators: Vy, Flytoget, SJ, Go-Ahead
- Suburban and Regional (4 city areas), National (5) and International (4) Passenger Services
- 4 Border Crossings to Sweden

Norwegian Railway Family

Ministry of Transport

Railway Directorate
Advisor to Ministry of Transport
Sector Coordinating Body
PTA Railway Passenger Transport

Railway Authority
Safety and Market Regulation

Bane NOR SF
Infrastructure Manager
Development and Maintenance
Capacity Management

Train Operators
Passenger operators
Freight Operators

Norske Tog AS
Vehicle Owner
(PSO operations)

ECM

Suppliers

Customers

Suppliers

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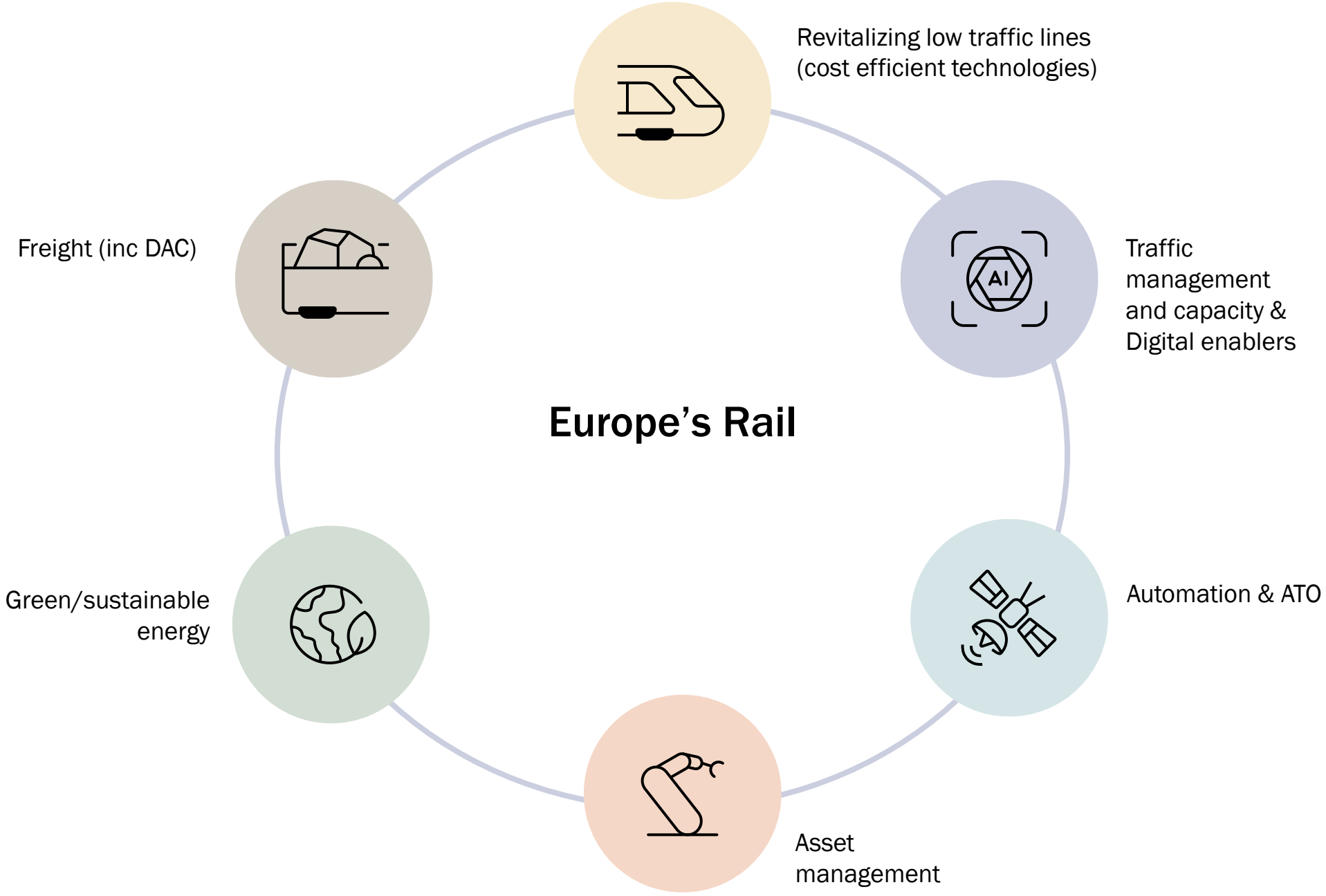
Freight and Commercial Passenger operators (incl Airport Express train) own their vehicles

Europe's Rail

Europe's Rail

- Ever largest Innovation program for rail in Europe
- 10 years duration
- Public private partnership
- High Technology Readiness Level (TRL 7-9)



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Founding Members

adif

ALSTOM

mermec
AN ANGEL COMPANY

AŽD

CAF

ceit
IK4 Research Alliance

CD

DB

DLR

eSGR
European Smart Green Rail

Faiveley Transport
A Wabtec Company

FERROVIE DELLO STATO ITALIANE

Hitachi Rail STS

indra
Talgo

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KNORR-BREMSE

ÖBB

PKP
POLSKIE KOLEJE PAŃSTWOWE
Spółka Akcyjna

ProRail

SIEMENS
Ingenuity for life

SNCF

Strukton
Rail

THALES
Together • Safer • Everywhere

TRAFIKVERKET

RAILWAY SYSTEMS
by voestalpine

Europe's Rail Joint Undertaking

Norwegian Railway Directorate (NRD) founding partner, coordinating the National Team:

- 75+ people involved in Norway
- Part of all 6 Innovation Pillar Projects in the 1st call
- Part of projects worth 600 000 000 €
- Part of projects consisting of 450+ companies

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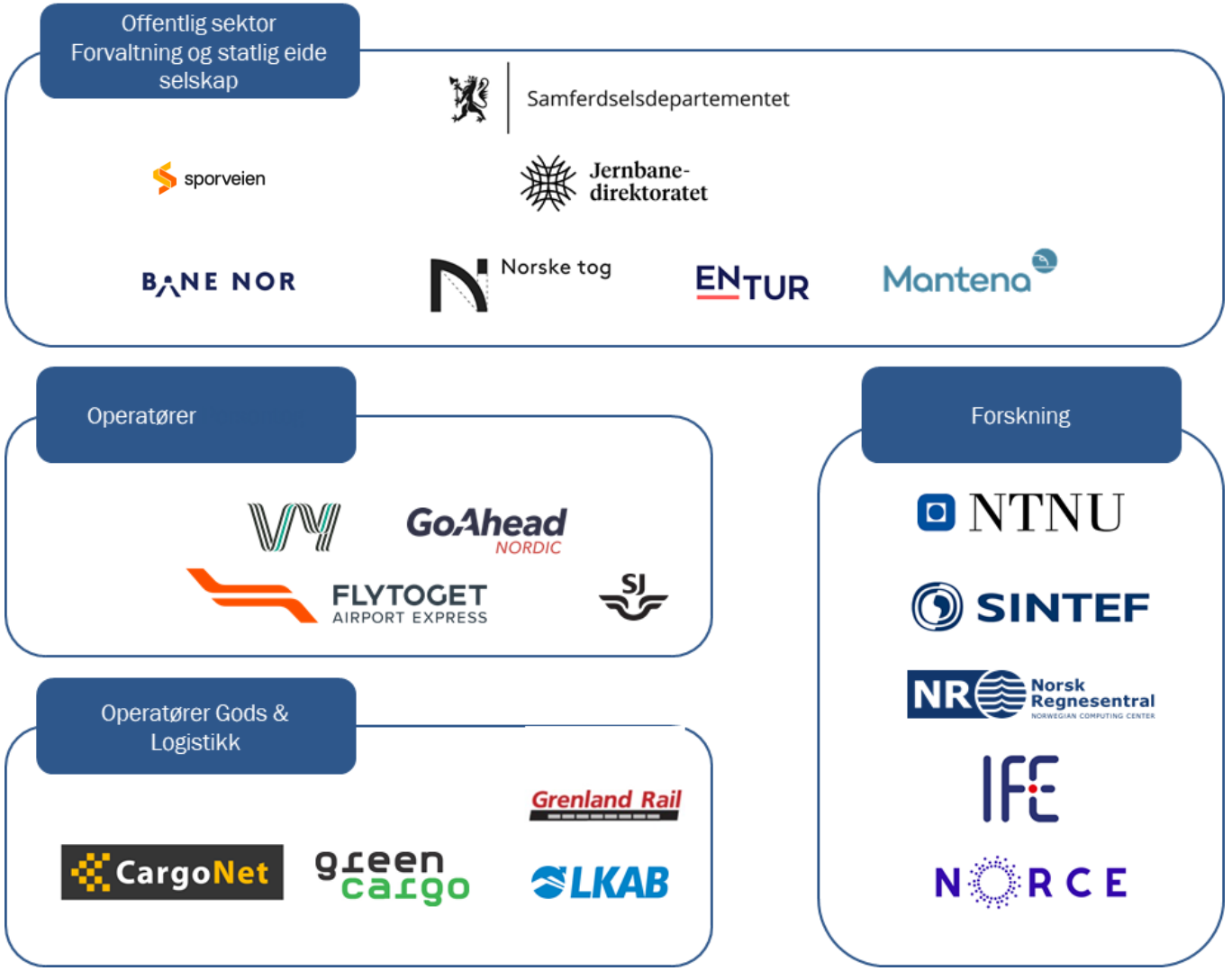
Europe's Rail

MEASURE YOUR TECHNOLOGY READINESS LEVELS - TRL

How technology ready is your service/product?

National team



Europe's Rail

FP1 MOTIONAL

European Rail Network and Mobility Management

Mobility management multimodal environment and digital enablers

- Total project costs: 92 600 000 €
- Number of partners: 87
- Project duration: 46 months

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SINTEF

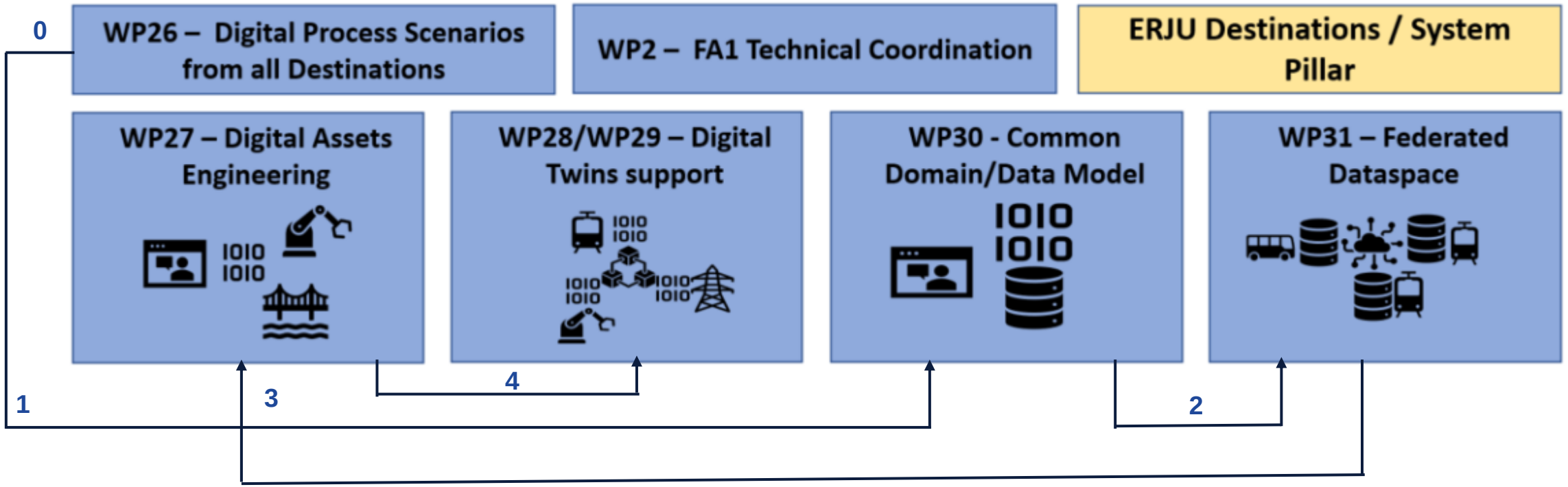
IFE

- Improve planning and operational management of rail services
- Develop a future European Traffic Management System (TMS) (interoperable, resilient, adaptable, integrate all services, last mile operations.

- Two major work streams:

1. Planning, operations and integration
2. Digital enablers across the programme. Such as Digital Twins

Digital Enablers



Digital assets (CCS, stations, bridges, energy etc)

Sandbox environment for DT

Topology

Rail data space

Europe's Rail

FP3 iam4Rail

Holistic and Integrated Asset Management for Europe's RAIL System

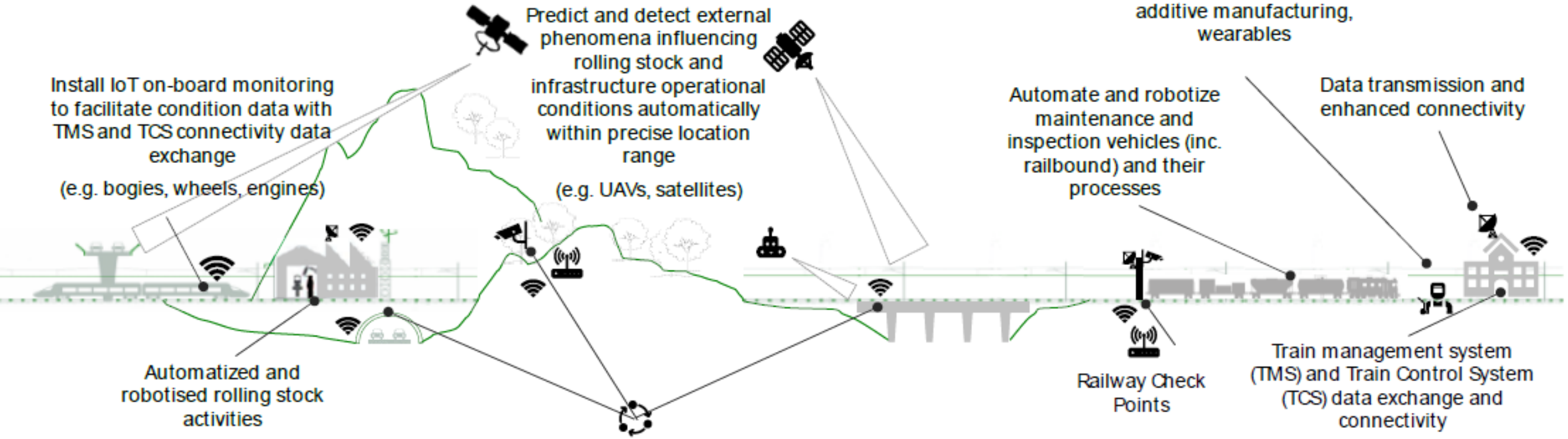
- Total project cost: 106.900.000,00 €
- Number of partners: 93
- Project duration: 48 months

Jernbane-direktoratet BANE NOR

NORCE SINTEF NTNU

- Next generation of Intelligent and Integrated Rail Asset Management
- Minimising the life cycle costs of assets and extend their lifetime, meeting safety requirements and improving the reliability, availability and maintainability of the rail system.
- Combine available information with artificial intelligence and digital twins are covered as key topics through a European cross-border, interoperable and holistic integrated approach

IAM4RAIL



Business Case

- *Reduce costs and objectify taxations.*
- *Increase automation level in M&O subsystem.*
- *Harmonised EU frame added value projects.*
- *EU common standards and tech specs.*

Objectives

a. Cost-effective asset management for the railway system.

b. Increase level and technology for automation and robots in construction & maintenance ensuring compatibility with ATO.

c. Sustainable production of resilient assets with new techniques.


Questions?