5G SDA

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GUIDE

Supporting the Strategic Deployment Agendas for The EU Corridors

5G Strategic Deployment Agenda for Connected and Automated Mobility

Introduction

Coen Bresser
Senior Manager at ERTICO ITS Europe

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Real world implementation of 5G-based CAM services

2-3 years time

Nowadays

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Strategic Initiatives

SNS JU Strategic Working Group 5G for CAM (Deployment)

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What is the objective of the 5G SDA for CAM?

A **VISION** of future **MOBILITY BASED ON 5G**-enabled infrastructure, technologies and vehicles

STRATEGIC GUIDANCE for the deployment activities in the context of C-ITS and CCAM

Foster **IMPACT** in European Initiatives

Provide value to **PRIVATE and PUBLIC** sector

BEST PRACTICES from CEF 5G Corridors

Cross-border and non-cross border

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Who will benefit from the 5G SDA?

- Telecommunication vendors
- MNOs
- Tower companies
- Rail Infrastructure providers
- Road operators
- Road authorities
- OEMs
- CAM service providers
- End users

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3 Key Modules

1) 5G SDA (Rail)

2) 5G SDA (Road)

3) Commonalities and joint opportunities

- EU Policy and market context
- Vision and goals for mobile communications
- Service requirements
- Innovation needed to meet service requirements
- Cooperation models
- Regulatory aspects
- Deployment priorities until 2030

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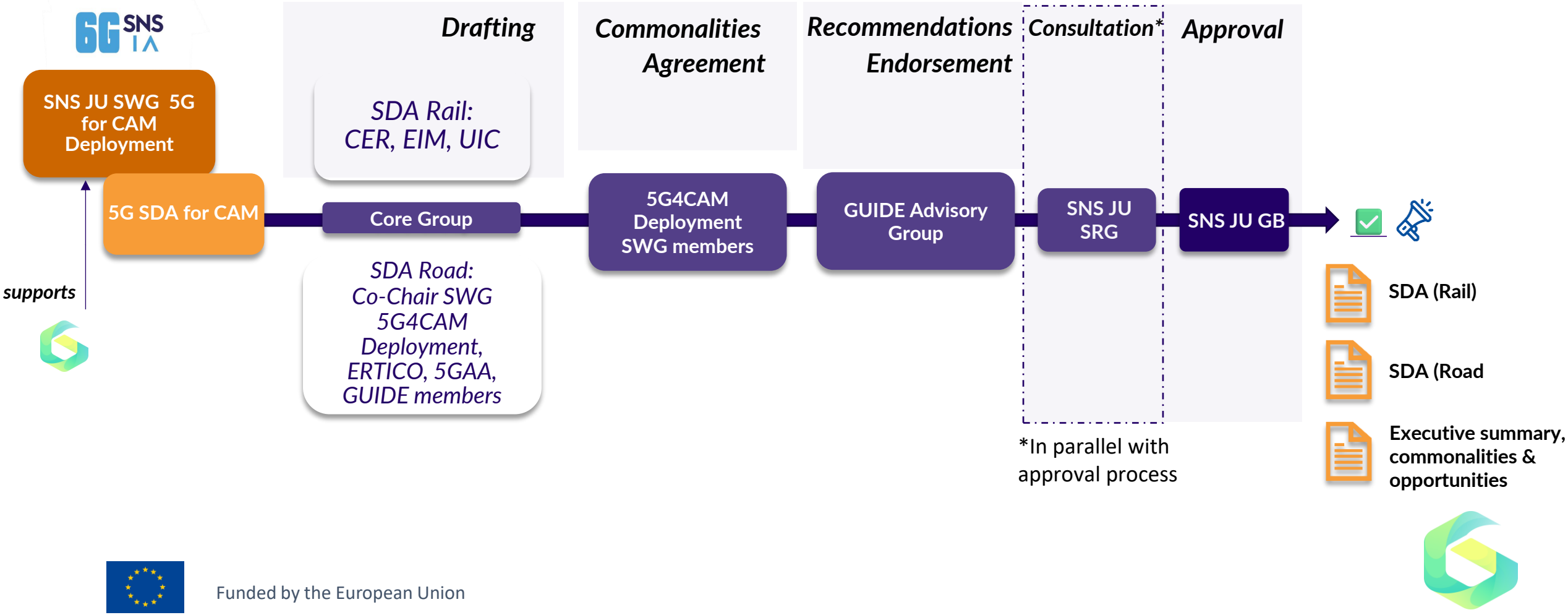
The 5G SDA process



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5G SDA for Rail

Presented by:

European Rail Infrastructure Managers EIM

Jos Nooijen
Chairman of Telecommunications WG at European Rail Infrastructure Managers (EIM)

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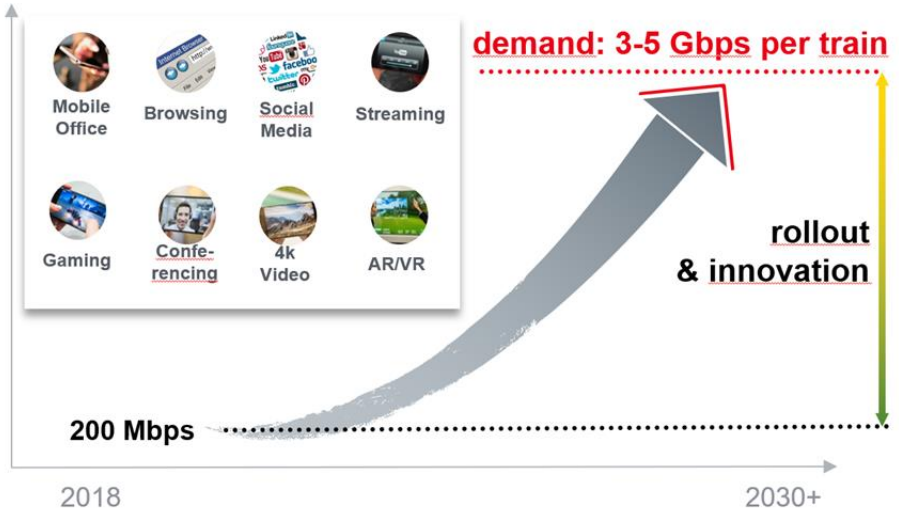
5G Deployment opportunities
Passenger experience and digital rail operations

Two key requirement sets defined

European Rail Infrastructure Managers EIM

Smart Mobility
The Gigabit Train

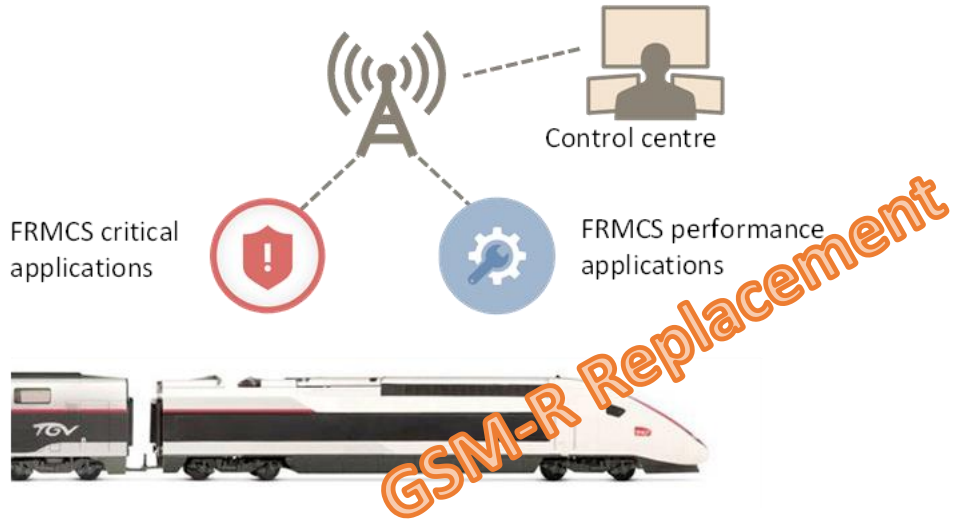


Objectives

Gigabit Train – Ensuring passenger connectivity like @Home or @Work across borders

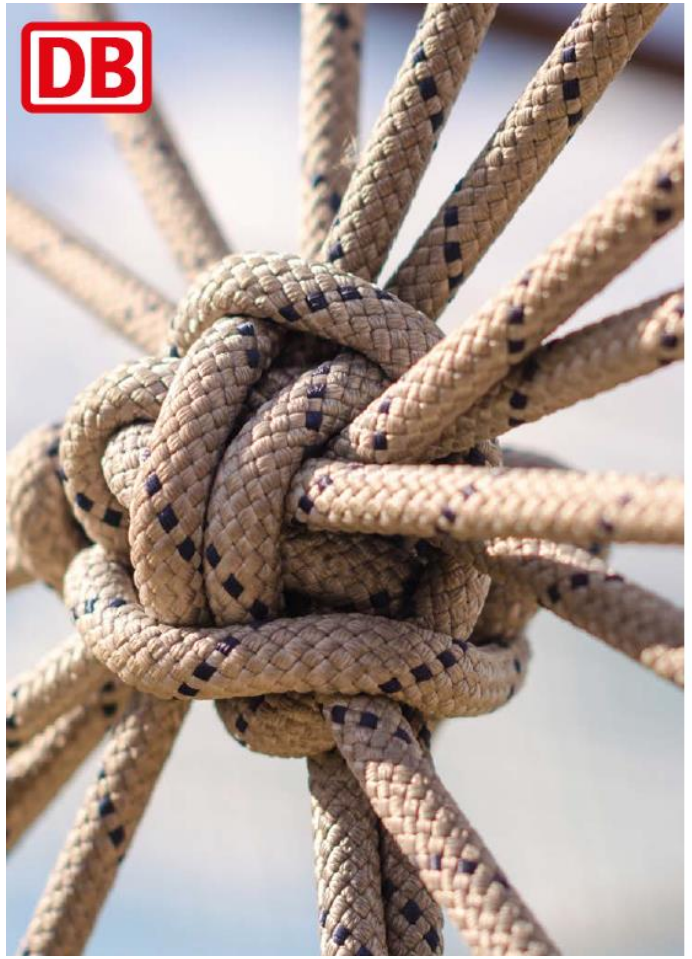
Digital rail operations cross-border including network sharing opportunities

Smart Operations
Tracks and Trains



SDA Objectives

- Identify **railway services** and their key requirements, attributes and associated network performance levels as well as quality of service
- Identify **generic technical constituents and innovations** needed to meet railway service requirements
- Provide an understanding of market situations, **regulations**, standardisation bodies, **cooperation (models)**, sharing of assets (such as trackside infrastructure), and **stakeholders**
- Provide a vision on **deployment scenarios along corridors** and designated areas, taking into account the **EU funding criteria**
- Provide an indication of **the costs of deployment along corridors** and designated area
- Provide guidance on **planning and timelines** for deployment



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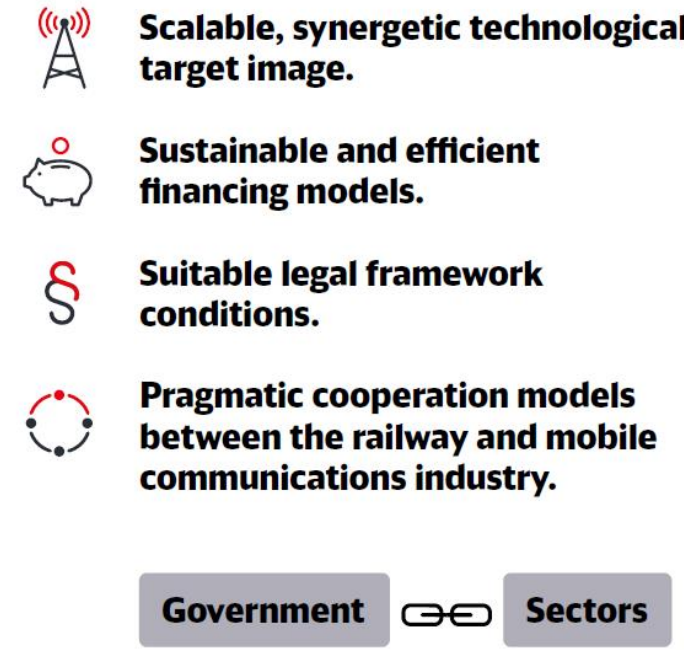
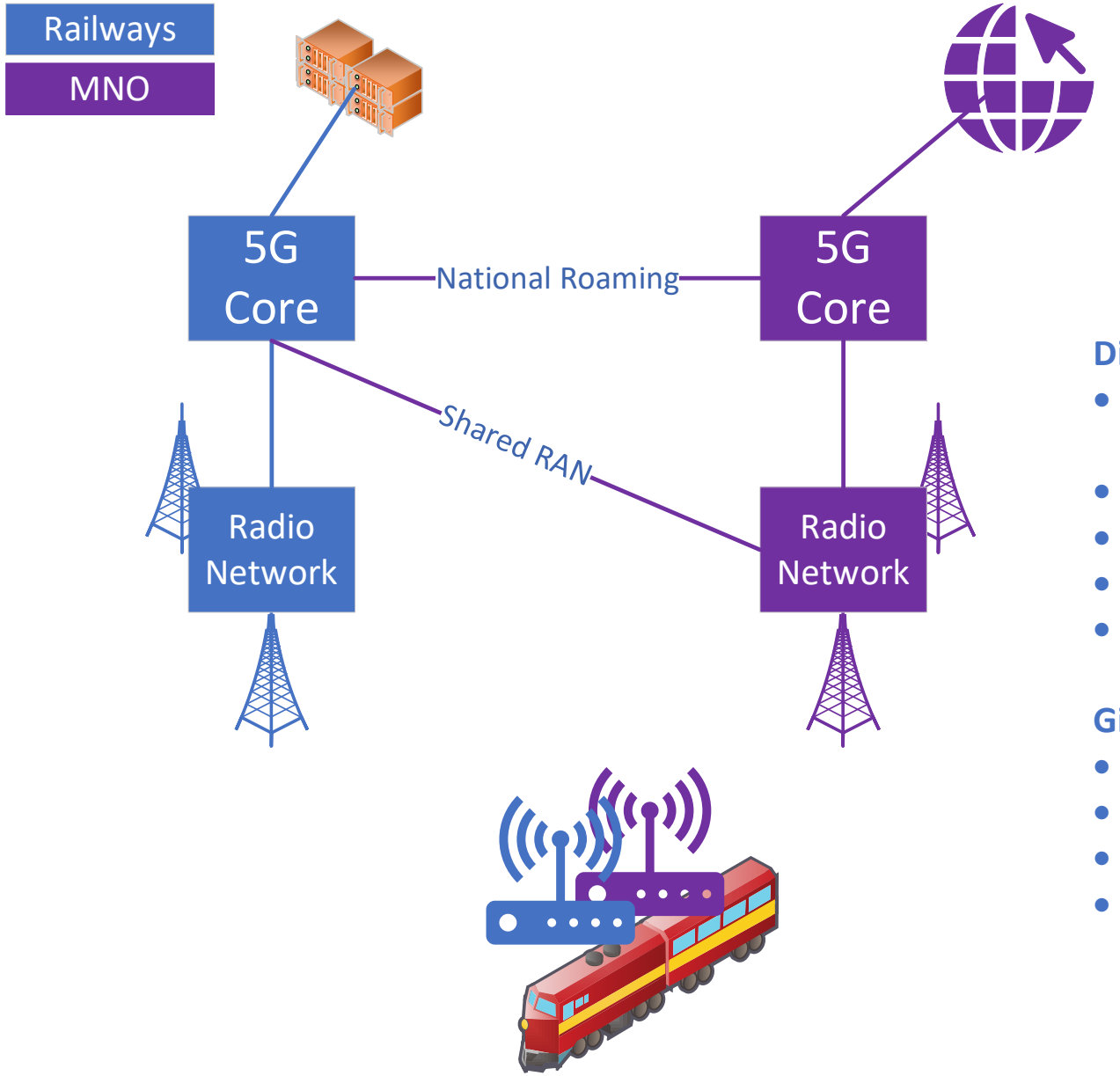


Key opportunities & barriers



Digital Rail Operations (FRMCS)

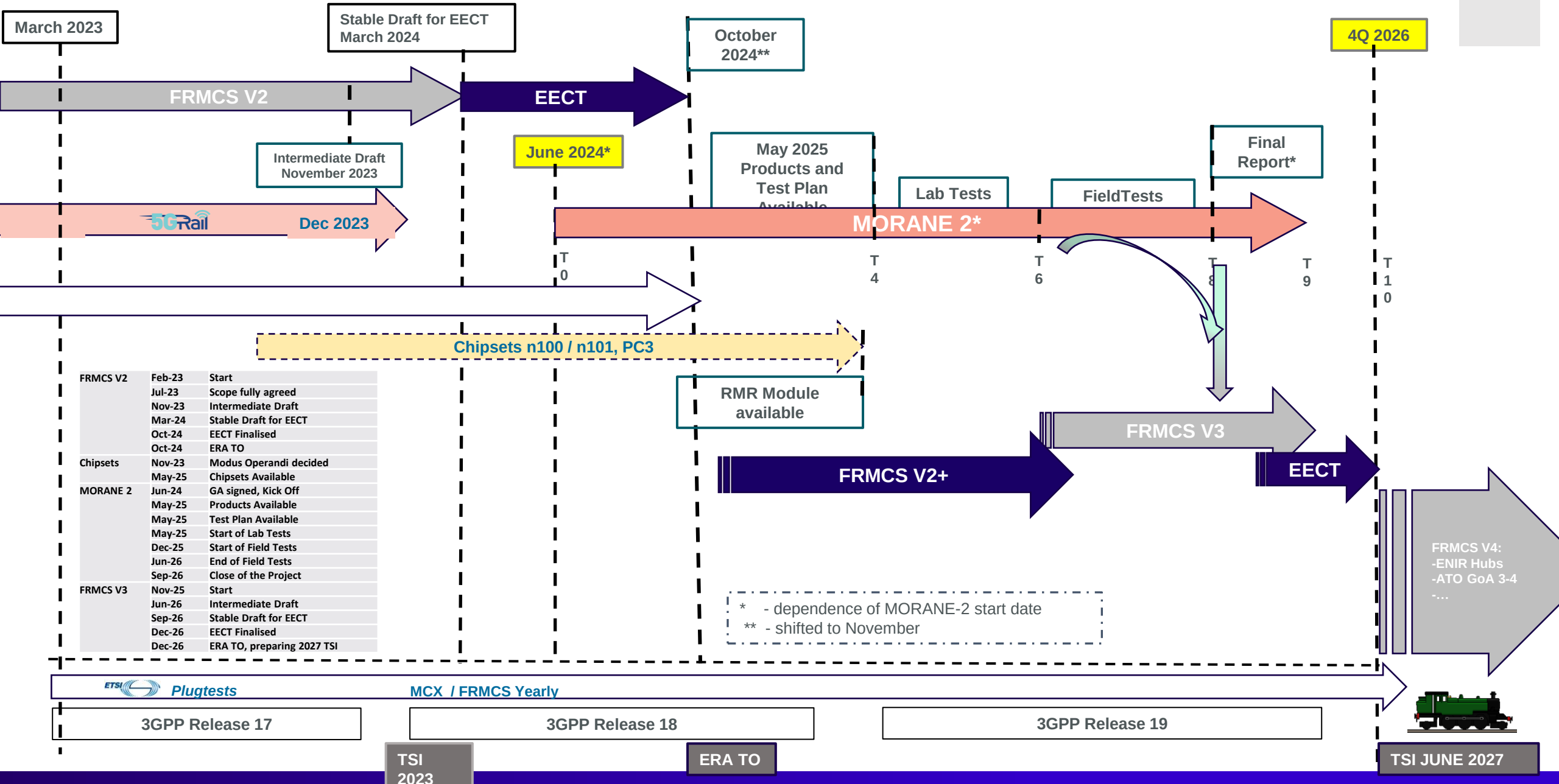
- Hybrid operation (MNO and RMR spectrum)
- Sharing options (MOCN, Roaming)
- Slicing (MNO) and QoS control
- FRMCS Multipath
- Modular installations in trains

Gigabit train

- Broadband technology
- Passive infra sharing (neutral host)
- Modular installations in trains
- Radio transparant windows in trains

Roadmap to FRMCS 1st Edition (*Market Readiness*)

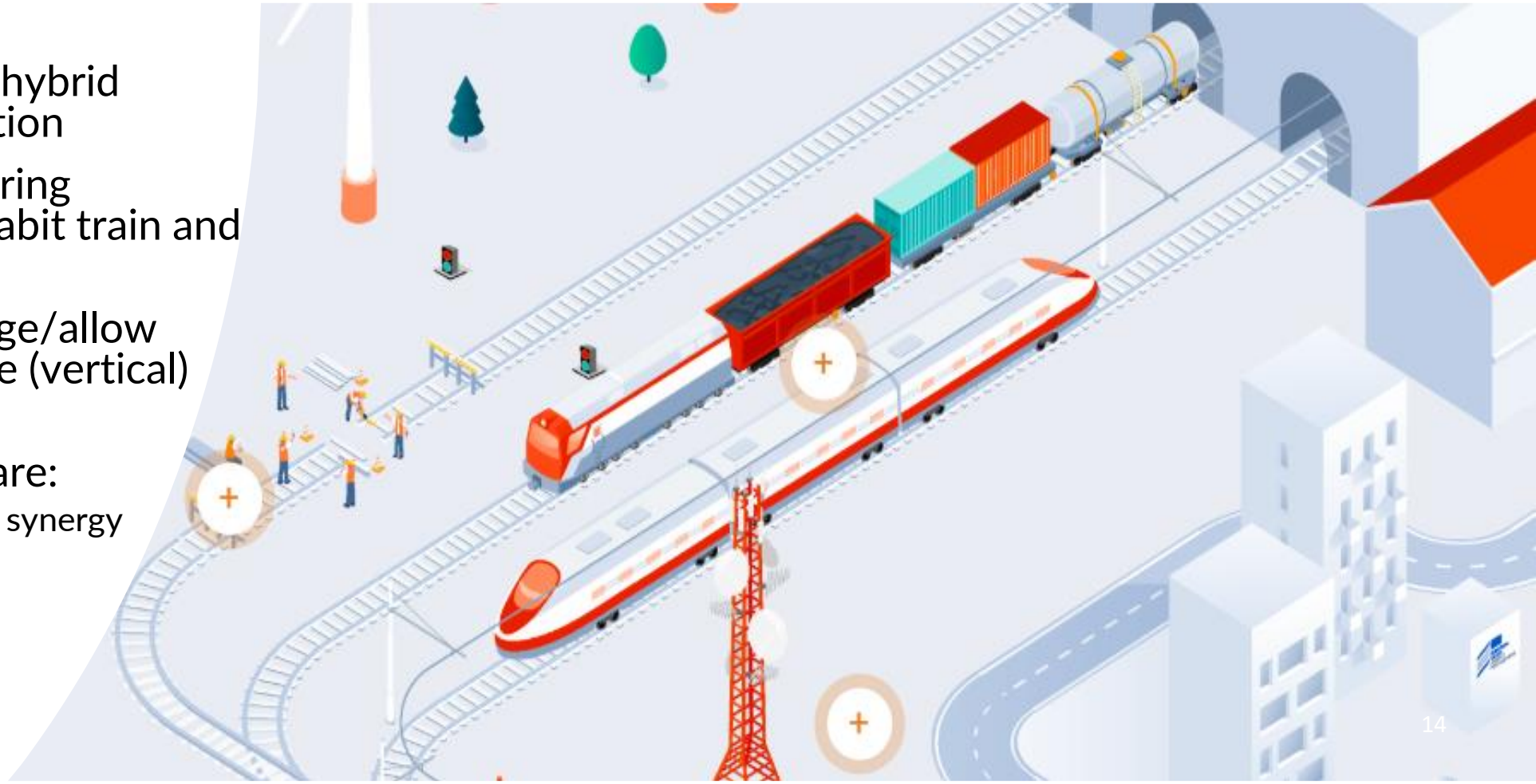
Source: UIC



FRMCS V2	Feb-23	Start
	Jul-23	Scope fully agreed
	Nov-23	Intermediate Draft
	Mar-24	Stable Draft for EECT
	Oct-24	EECT Finalised
	Oct-24	ERA TO
Chipsets	Nov-23	Modus Operandi decided
	May-25	Chipsets Available
MORANE 2	Jun-24	GA signed, Kick Off
	May-25	Products Available
	May-25	Test Plan Available
	May-25	Start of Lab Tests
	Dec-25	Start of Field Tests
	Jun-26	End of Field Tests
	Sep-26	Close of the Project
FRMCS V3	Nov-25	Start
	Jun-26	Intermediate Draft
	Sep-26	Stable Draft for EECT
	Dec-26	EECT Finalised
	Dec-26	ERA TO, preparing 2027 TSI

Removing barriers…

- ➔Develop RMR/MNO hybrid models to ease migration
- ➔Actively promote sharing concepts (RMR & Gigabit train and Rail & Road)
- ➔Regulations (encourage/allow MNOs to step into the (vertical) railway market)
- ➔Make sure solutions are:
  - ➔Scalable and preserve synergy
  - ➔Cost-effective
  - ➔Sustainable
  - ➔Fit for purpose



More information

www.eimrail.org

Download SDA 5G Connectivity & Spectrum at

https://eimrail.org/2024/09/24/strategic-deployment-agenda-5g-connectivity-and-spectrum-for-rail/

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5G SDA for Road

Presented by:
Laura Sanz
CCAM Strategy Lead at i2CAT Foundation

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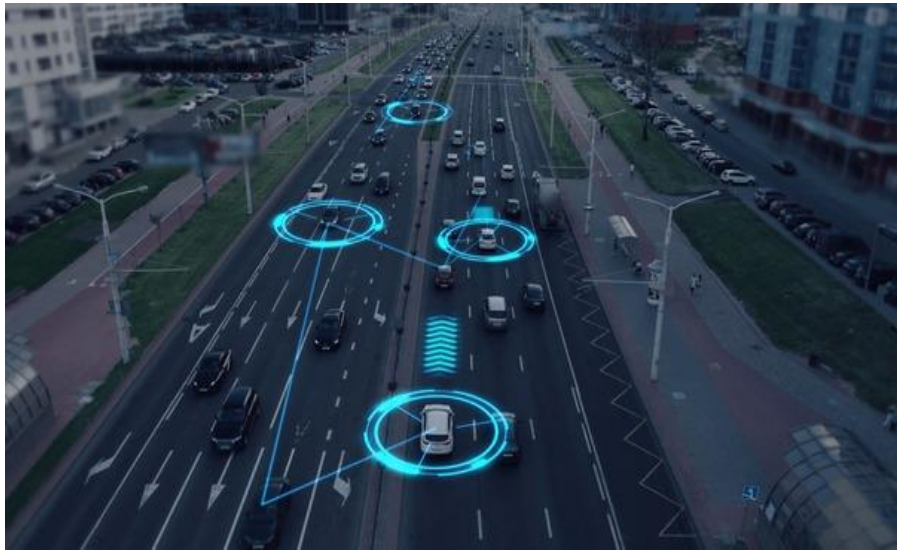
5G deployment opportunities

Road CAM services



- **Safety** and **traffic efficiency**
- Connectivity as Key Enabling Technology for **CCAM**

Connected Passenger services

- **Multimedia** communication
- **Information**
- **Entertainment**

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New 5G SDA for Road

Identify services, requirements, and building blocks

Provide an understanding of the market and ecosystem: stakeholders, cooperation models

Recommendations towards EU Policy and Regulation

Provide deployment options

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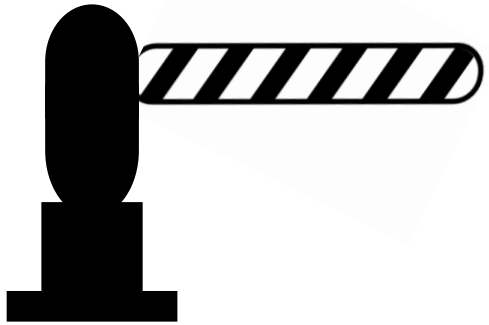
Barriers

- A **harmonized** service deployment roadmap
- What are the **most suitable cooperation models**
- **Feasible deployment** options



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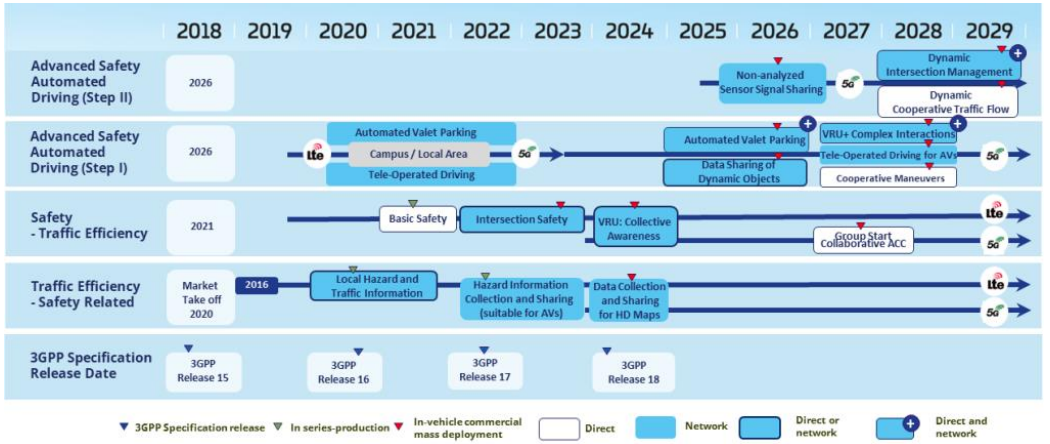
A harmonized service deployment roadmap



Expected timelines for mass deployment of C-V2X use cases(source: 5GAA, published in 2022)

- Service roadmap convergence
- Most prominent use cases and services
- Estimate user demand figures
- Costs, investment, financing

- Identify necessary building blocks (Network coverage, network slicing, spectrum, MEC, cybersecurity, data, etc.)
- Compromise between requirements and business case feasibility

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Cooperation models

Communication Service Providers (CSPs)
Original Equipment Manufacturers (OEMs)
Road Operators (ROs)

✓Objectives
✓High-level requirements
✓Business models

- Different models already identified; not mutually exclusive
- Explore feedback from CEF 5G Corridors on suggested cooperation models
- Work towards an integrated, holistic model that responses to higher complexity

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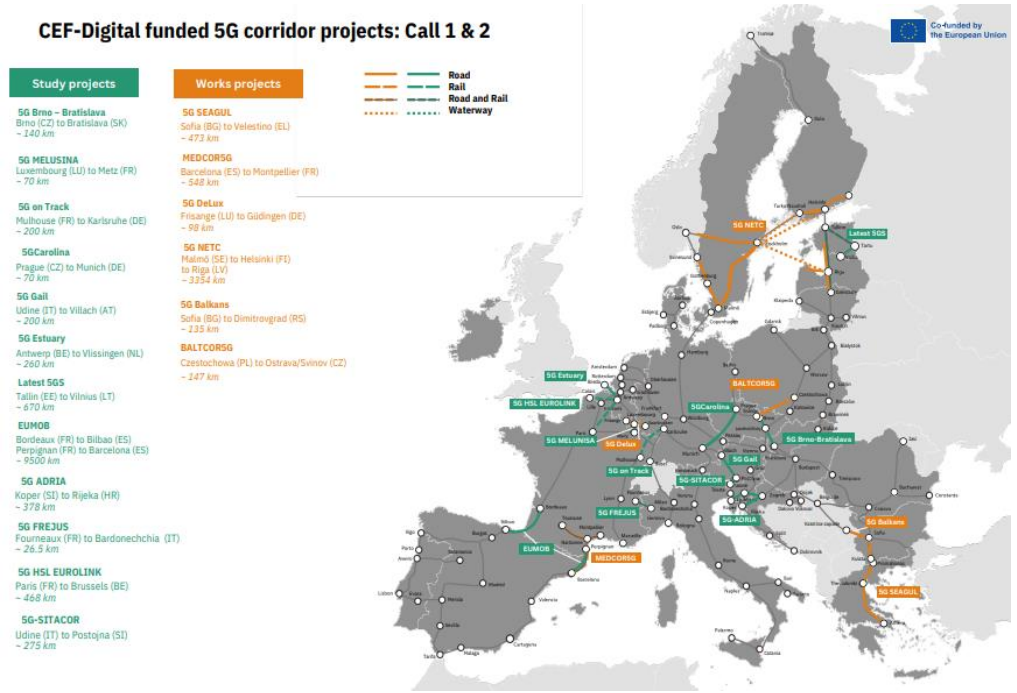
Deployment options

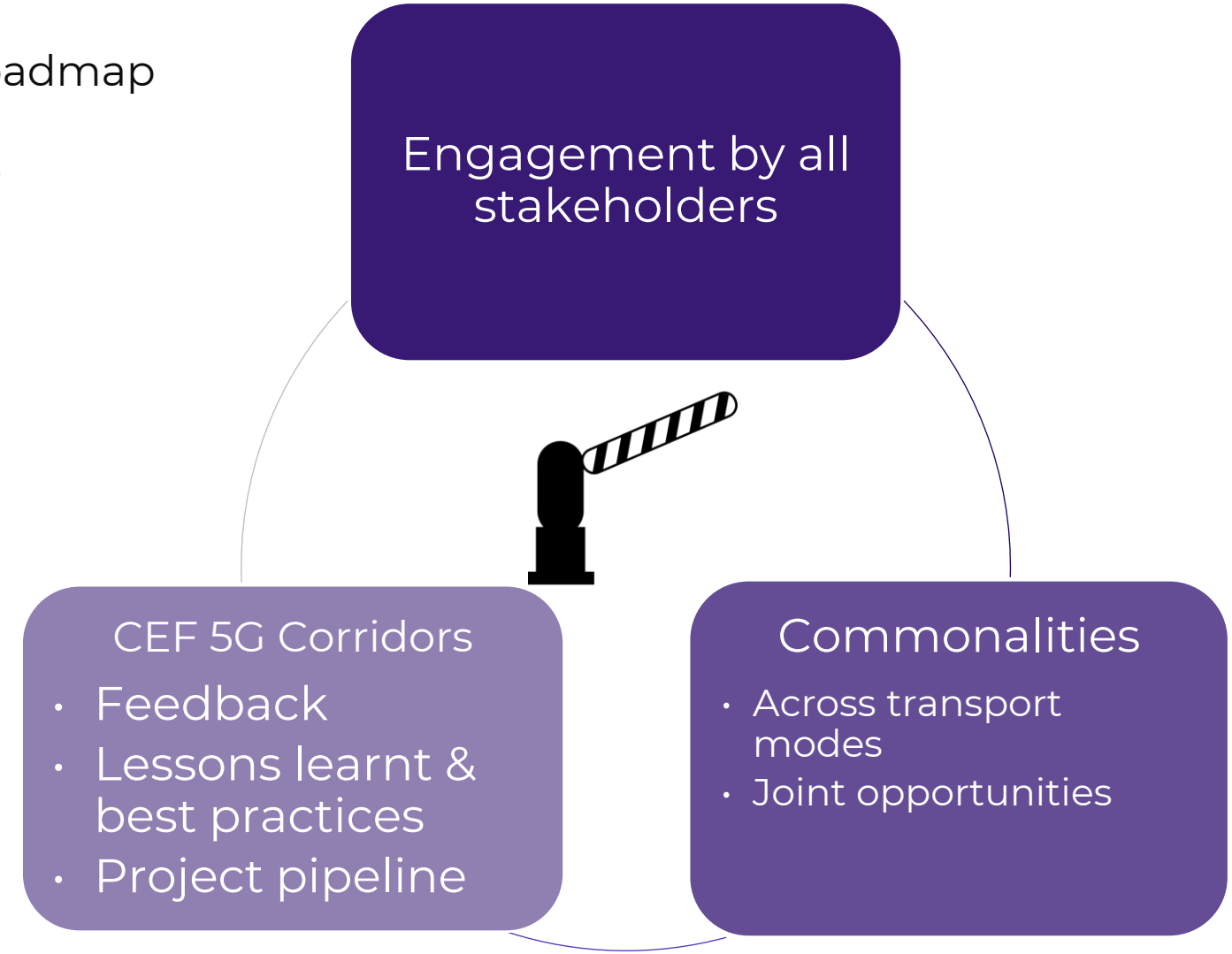
- **Feasible business models** for a scalable, sustainable deployment
- **Optimal cooperation** options and **contractual relations** between stakeholders
- Guidance on **planning and timelines**
- Incorporate **best practices**
- Recommendations for **public funding**
- Recommendations for policy and regulation to **encourage private investments**

CEF 5G Corridor map. Source: GUIDE project, 2024



Removing barriers

- **Harmonized** service deployment roadmap
- **Most suitable cooperation models**
- **Feasible deployment** options



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Panel discussion:
5G SDA for Rail & Road

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5G SDA for Rail & Road

Moderator:

- **Coen BRESSER,** Senior Manager Innovation and Deployment at ERTICO

Panellists:

- **Jos NOOIJEN,** Chairman of Telecommunications WG at European Rail Infrastructure Managers(EIM)
- **Laura SANZ,** CCAM Strategy Lead at i2CAT Foundation
- **Christian MICAS,** Senior Policy Officer at DG CONNECT, Co-Chair of the SNS SWG 5G for CAM Deployment Stream
- **Pablo PASTOR,** Head of Transport Corridors at Vantage Towers
- **Maxime FLAMENT,** CTO at 5G Automotive Association at the 5G Automotive Association (5GAA)
- **Fofy SETAKI,** Principal Scientist at COSMOTE
- **Dan MANDOC,** Head of FRMCS at International Union of Railways (UIC)

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5G SDA for Rail & Road

Coen Bresser
ERTICO

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i2CAT

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Thanks!

Contact details:

SDA activities in GUIDE Project:
Laura Sanz laura.sanz@i2cat.net

5G for CAM Working Group (Deployment stream):
Edwin Fischer edwin.fischer@telekom.de

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