

# The cost of non-interoperability

Cutting Cost in Rail, High-level Event  
Copenhagen, 5 November 2025

Oana Gherghinescu, Executive Director, ERA



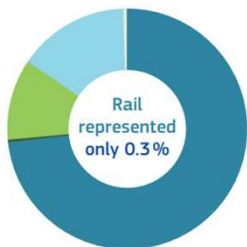
EUROPEAN  
UNION  
AGENCY  
FOR RAILWAYS



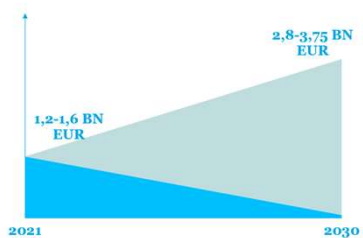
### Greenhouse gas emissions by transport mode

EU27 (2022)

Rail  
Waterborne  
Air  
Road  
Other



Source: RMMS Report, European Commission, 2025



■ Development in backlog from before 2021  
■ Total backlog

Transportministeriet



### Ecological

Energy  
consumption/CO<sub>2</sub>  
5 – 10 x lower



### Safe

Passengers  
40 x more safe  
than on the road



### Expensive Infrastructure

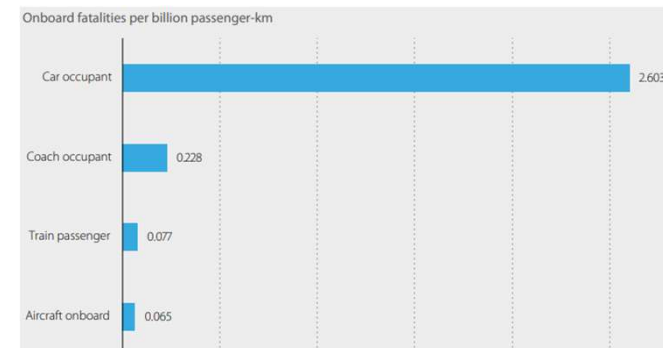
Investment and  
Maintenance



### Vulnerable Infrastructure

Cyber Attacks, Natural  
Disasters

## Rail is special...



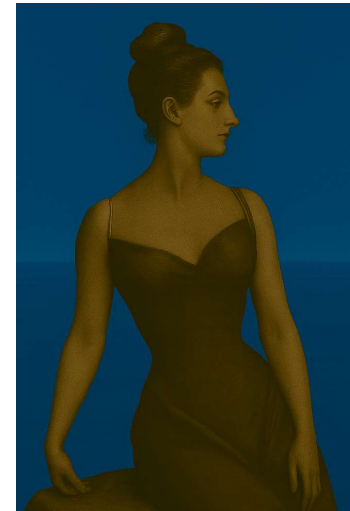
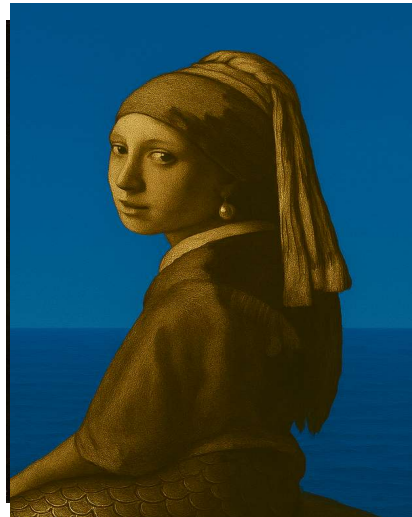
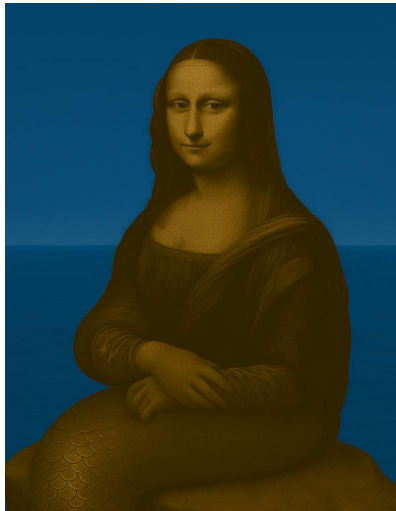
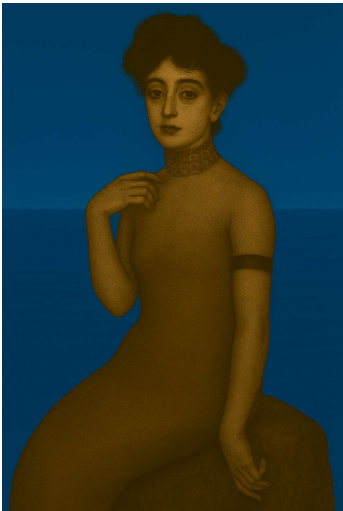
Source: Report on Railway Safety and Interoperability in the EU, ERA, 2024



www.spiegel.de

...but should not aim to be fine art

1. Unique concepts
2. Custom-made for pretentious clients
3. Originals only, replicas are not tolerated
4. Prices are huge and increase with time
5. Locked in small private collections or in museums

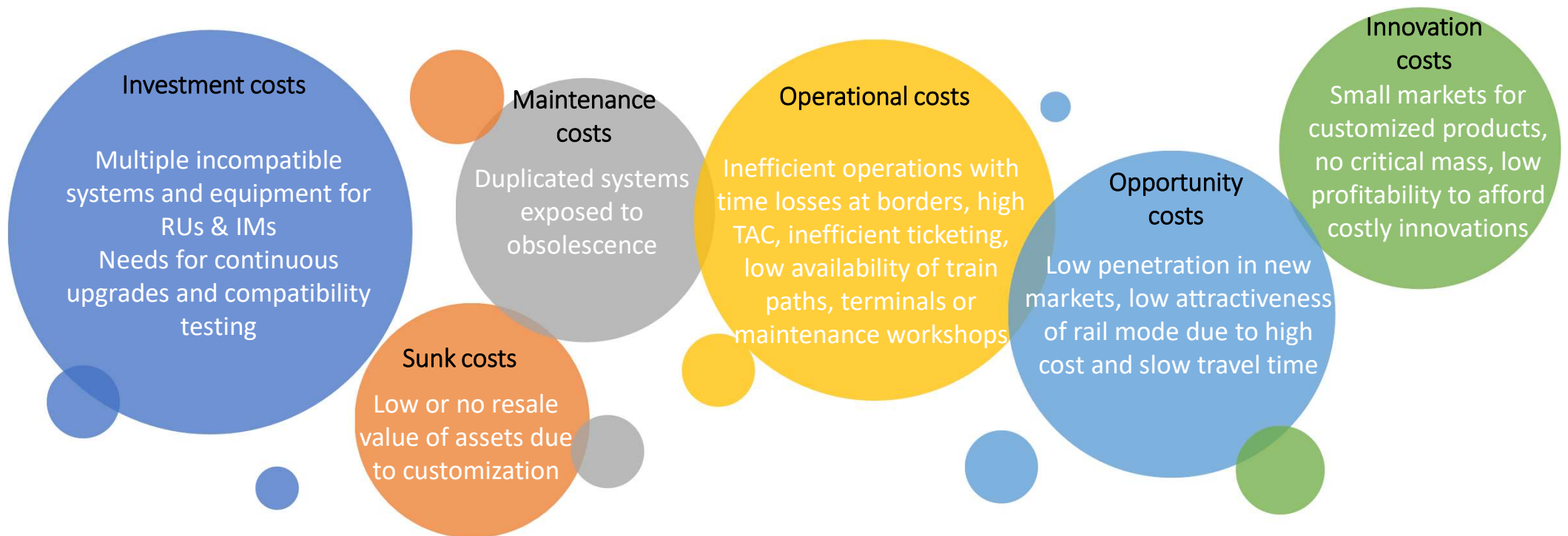


Unlike fine art, rail is a masterpiece when:

1. It is based on **standardization**
2. It follows an **industrial approach, with economies of scale**
3. It **crosses borders** seamlessly as a true **EU solution**
4. It is **affordable and safe** for the wide public
5. It follows an **integrated deployment and financing plan**

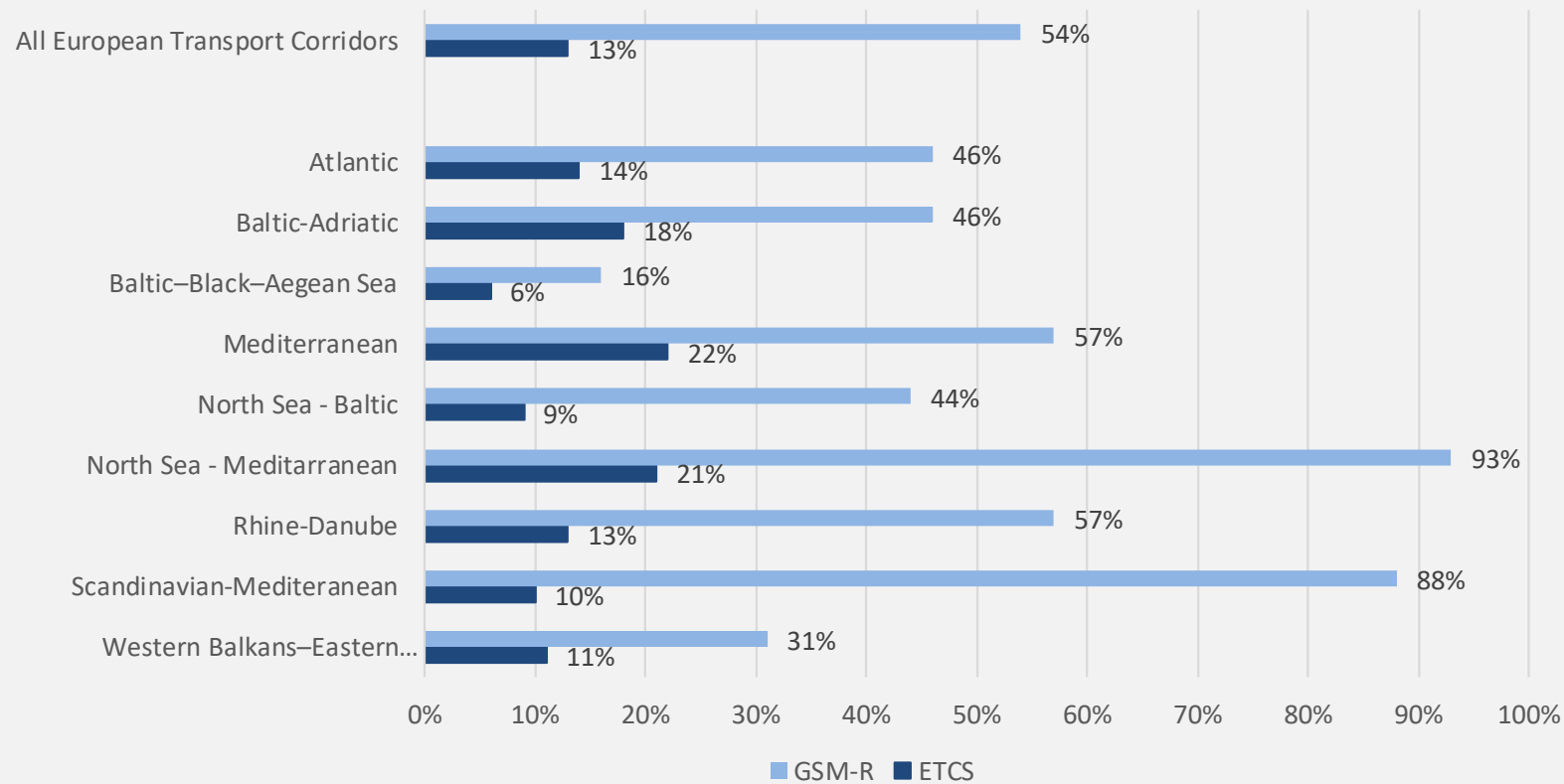


# Non-interoperability - I



### Deployment of ERTMS on European Transport Corridors (end 2024)

ETCS and GSM-R equipped lines among the whole corridors



Source: DMT / TENtec (Directorate-General for Mobility and Transport)

## Border Crossing Dwelling Time Report

### Annex 1

Process Time																		Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019	
RU	North/South	Maximum time that trains need to arrange their border procedures																		
DB Cargo	Malmö	Process time	from arrival to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	23/22 minutes DB Cargo, scheduled time, arrival/departure Shunting time,	All trains less ahead the schedule (30' earlier)
		Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
			Train ready message/route control																	
			Duration of procedure: 23 minutes																	
Process Time																		Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019	
RU	North/South	Maximum time that trains need to arrange their border procedures																		
DB Cargo	Padborg	Process time	from arrival to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	26 min; only DB Cargo trains with one train number are counted - train number changes are not considered and there isn't many trains running	Gained!" only DB Cargo trains with one train number are counted - train number changes are not considered and there isn't many
		Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
			Train ready message/route control																	
			Duration of procedure 26 min																	
Process Time																		Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019	
RU	North/South	Maximum time that trains need to arrange their border procedures																		
Rail Cargo Austria	Kufstein	Process time	from arrival to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	17 Minutes Source OBB ARAMIS (only trains with one train number are counted - train number changes are not considered)	13 Minutes Source OBB ARAMIS (only trains with one train number are counted - train number changes are not considered)
		Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
			Train ready message/route control																	
			Duration of procedure: 60 minutes																	

## RFC7 : Waiting time on border crossing

1

Current situation

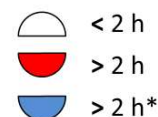


Measuring of average

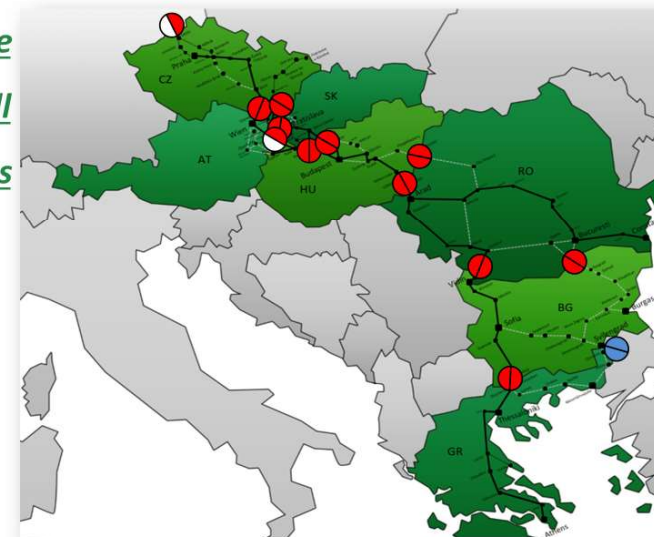
waiting time at all

RFC 7 border crossings

### Results



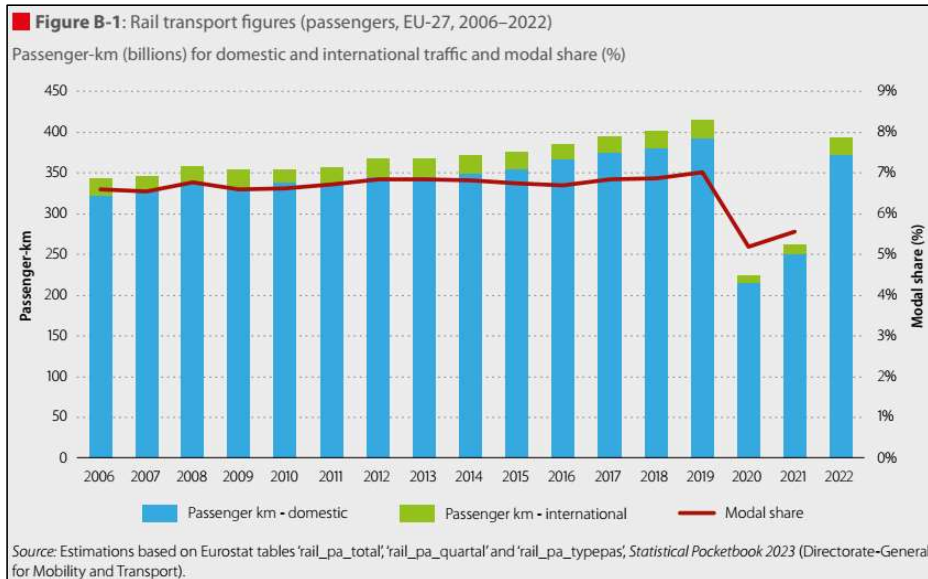
\*Third country cross-border link. Only has an informative character, and does not form part of the Action Programme.



RFC 7 Management Board

Waiting time on border crossing

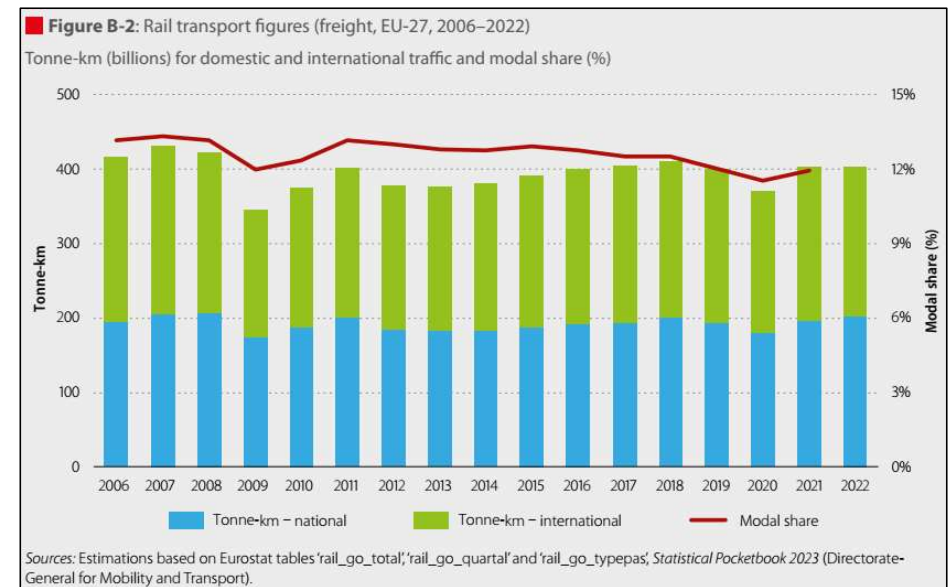
12



Interoperability barriers are among the top reasons for the low competitiveness of rail ([Costs of non-interoperability-2023 - Briefing note-final.pdf \(europa.eu\)](#))

## Non-interoperability - IV

The modal share of rail transport in Europe is stagnating around quite low levels (around 6 % for passenger and 12 % for freight respectively)





## Some ideas on how to make progress, while guarding safety

### 1. Think **time, money and knowledge**

- Mature technical specifications
- Strike the right balance between innovating and protecting existing investments; well thought deployment plans
- Standardised solutions and harmonization at engineering rules level; leave no room for “original” solutions
- Leave no room for system compatibility testing
- Plan production capacity and ensure predictability on orders
- Streamline administrative processes for authorization
- Mainstream TSIs and ERTMS savviness to the “large masses”

### 2. Think **cross-border**

- Where and why do bottlenecks persist; where does it hurt most (follow the high traffic volumes first); further clean up of operational rules
- Native cross-border solutions vs “cleaning work” after
- Talking and listening to the “neighbors” as early as possible
- ERTMS-native investments with fast decommissioning of the legacy systems; large cross-border projects and their positive domino effect

**Non-interoperable, non-standardized rail projects have no chance to become as famous as fine art...**

Bronze plain colour with blue sea background is actually  
great...



# THANK YOU

Moving Europe towards a sustainable and safe railway system without frontiers.

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