

AUSTRIA
VIENNA
2024

IRSC

INTERNATIONAL
Railway Safety Council



17-21
Sept. 2024



Vienna, Austria
Aula der Wissenschaften

Embracing new realities in rail freight

Gilles PETERHANS



UIP – INTERNATIONAL UNION OF WAGON KEEPERS

WHO DO WE REPRESENT?

250



We represent **250** Wagon Keepers and Entities
Charge of Maintenance



14

National
Associations



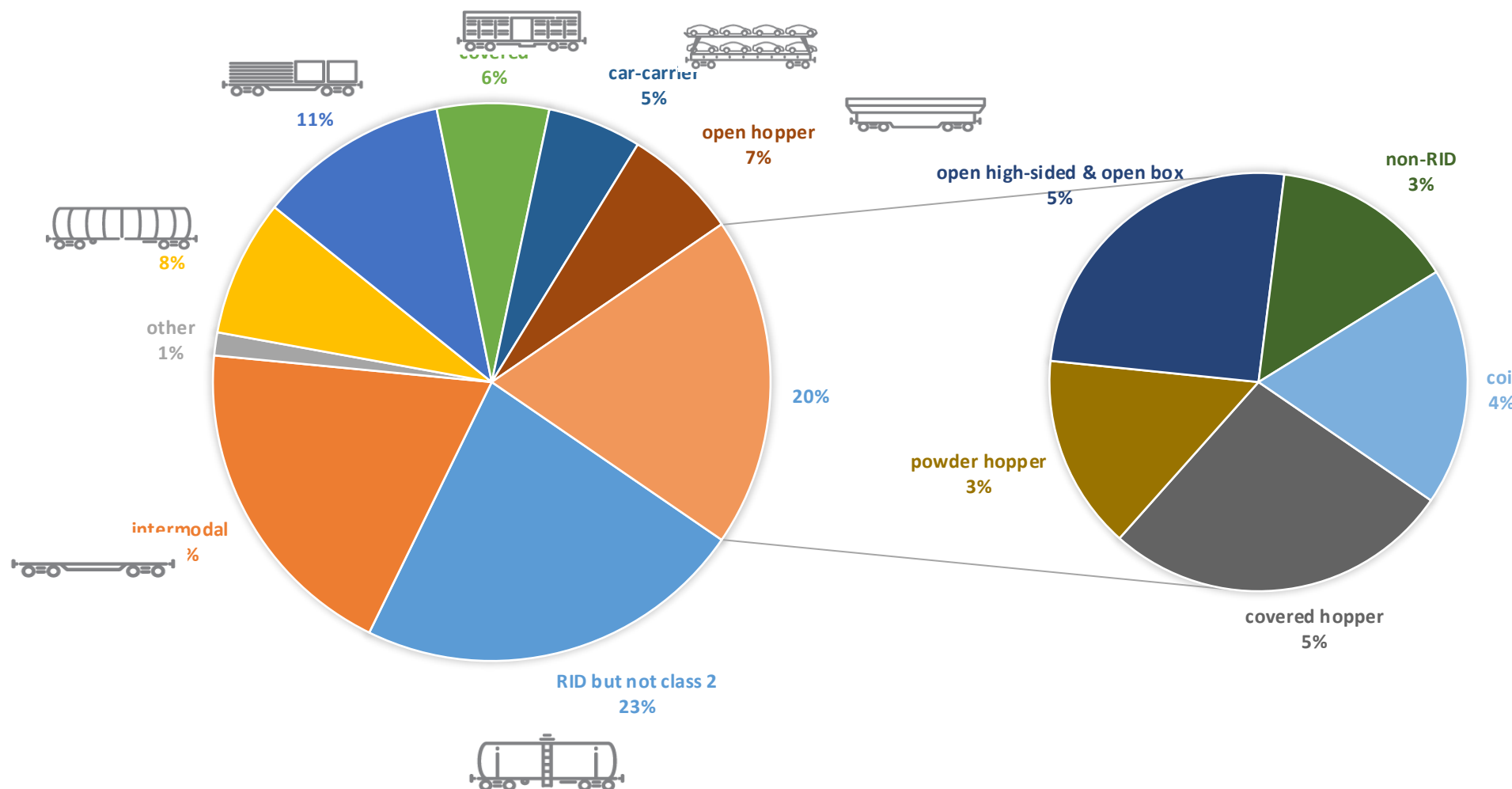
Our members have approximately **248,000** freight wagons that produce **50%** of the total of tonne-kms around Europe.

UIP – INTERNATIONAL UNION OF WAGON KEEPERS

WHAT DO WE REPRESENT?

A fleet of 248'000 rail freight wagons:

> ~50% of European fleet



MARKET ENVIRONMENT - POLICY

VISION: GREEN DEAL - ENVIRONMENTAL POLICY AS A TRIGGER

- EC calls for a **90% reduction** in transport-related greenhouse gas emissions **by 2050**
- EU's climate, energy, transport and taxation policies fit for reducing **net** greenhouse gas emissions **by at least 55% by 2030, compared to 1990 levels**
- Mission defined in the [Strategy for Sustainable and Smart Mobility](#) from 9 Dec 2020

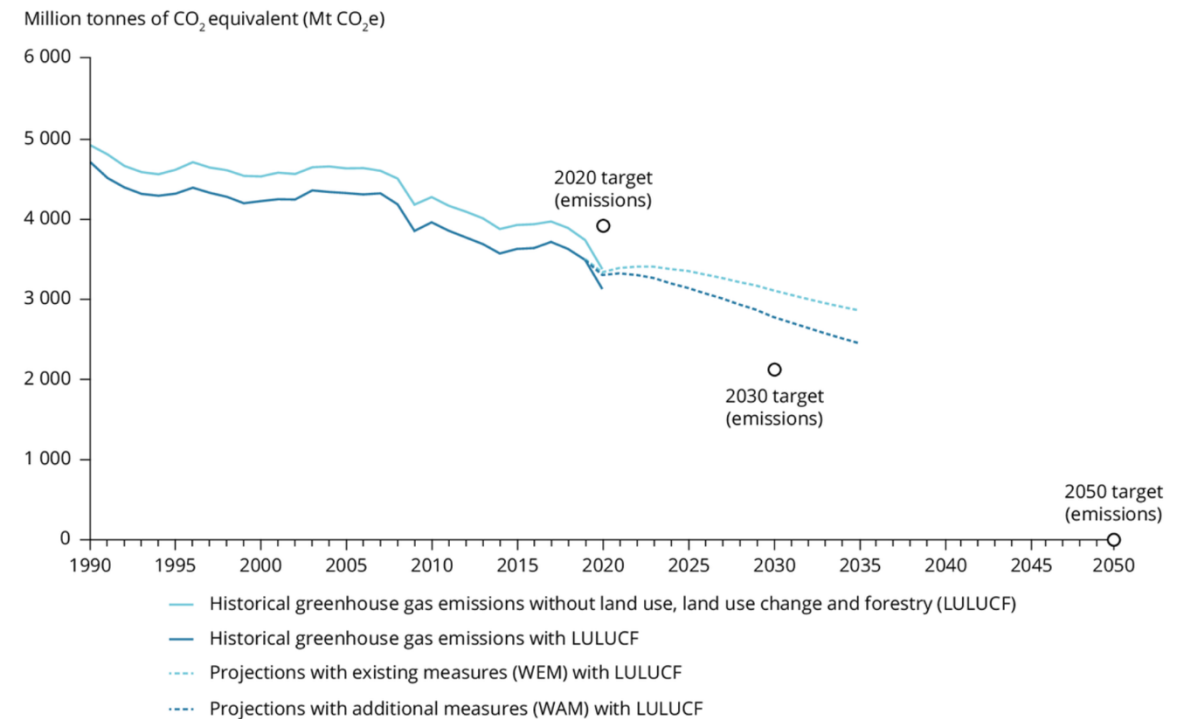
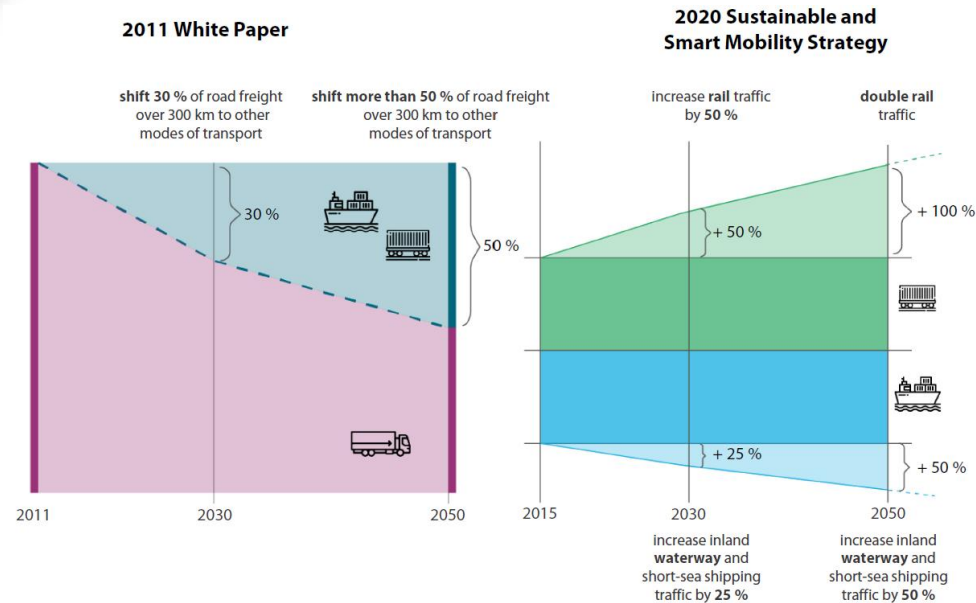


Chart source: EEA, 18 Nov 2021

FREIGHT MARKET ENVIRONMENT – AMBITIONS

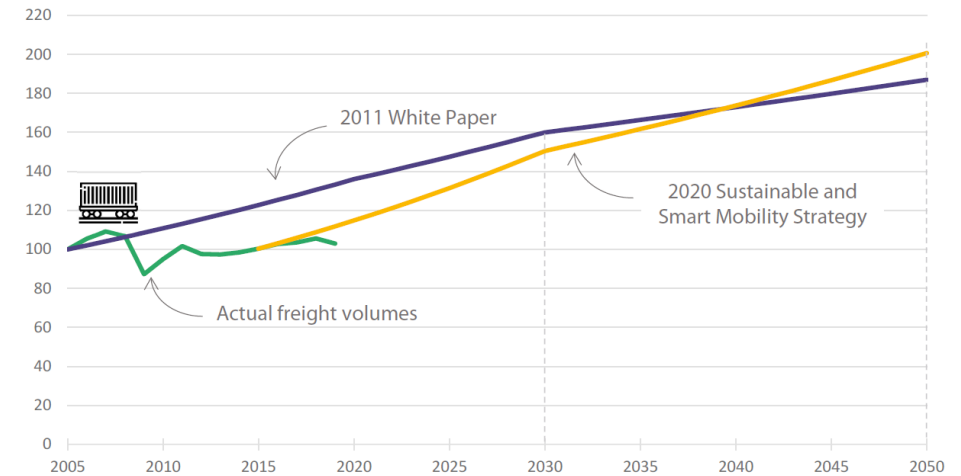
FREIGHT MARKET ENVIRONMENT – AMBITIONS



Source: ECA.

Objectives

- White paper 2011: +60% for the period 2005-2030 and +87% for the period 2005-2050
- Sustainable Strategy 2020: lower volume targets for 2030 but higher for 2050



Source: ECA, based on Commission estimates and data from the EU Statistical Pocketbook.

@European court of auditors: special report 08/2023

Prerequisites/assumptions

- White paper 2011: freight trains of 1.500m length...
- Sustainable Strategy 2020: close 100mrd€/year investment gap

FREIGHT MARKET ENVIRONMENT – WHERE DO WE GO?

CREATING A SINGLE EUROPEAN RAILWAY – TOO MANY NATIONAL FACTORS?

Modal split of inland freight transport, 2022
(%, based on tonne-kilometres)

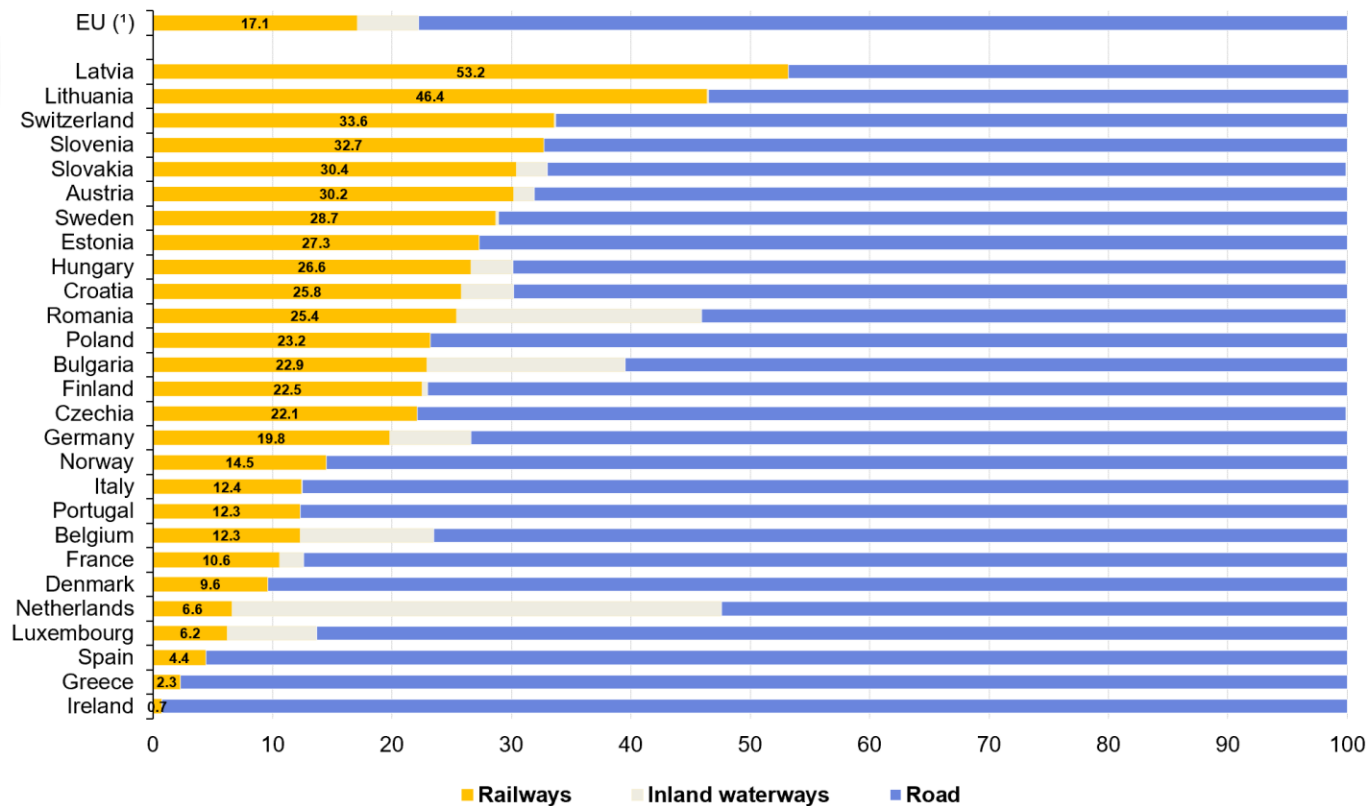


Chart source: EUROSTAT, March 2024

- EU rail modal split in 2012:
17.2% (407.2 mrd tonne-km incl. UK)
- EU tonne-km rail in 2022:
397.6mrd
- Germany contribution
amount to **31% of total rail freight performance** (125mrd tonne-km)
- Biggest decrease in rail market share between 2012 – 2022: Baltic Member States:
 - Estonia (down 74.9 %)
 - Latvia (down 66.1 %)
 - Lithuania (down 48.0 %)

FREIGHT MARKET ENVIRONMENT – WHERE CAN WE GO?

ACTUAL MODAL SHIFT POTENTIAL ON LONG-DISTANCE & INTERMODAL?

EU Road Freight		
Total (1 000 t)	13 687 883	
Distance (km, in %)		
0-300	86,03	
300+	1 897 141	13,86
Freight carried over 300+ km (1 000 t)		% of total
Metal ores, other mining products, uranium	56 837	1,68
(non-metallic) mineral products	125 629	7,26
Agriculture, forestry	184 431	14,50
Basic metals	142 903	25,30
Chemicals, rubber, plastic	144 389	25,68
Wood, straw, paper	123 223	22,36
Coke, refined petroleum products	31 631	7,87
Unidentifiable and other goods	76 129	20,82

EU Rail Freight	
Total (1 000 t)	1 493 215
Top 5 type of goods (%)	
Unidentifiable and other goods	24,43
Metal ores, other mining products, uranium	15,30
Coal, crude petroleum, natural gas	11,90
Coke, refined petroleum products	9,23
Chemicals, rubber, plastic	7,64

Distribution of road freight transport, by type of transport

(% based on vehicle-kilometres, 2022)

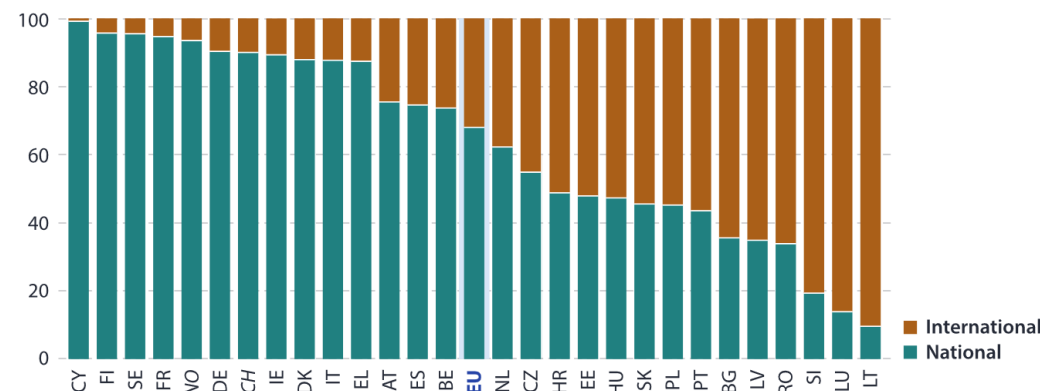
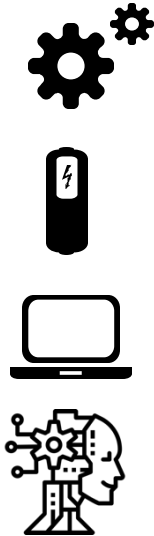


Chart source: EUROSTAT, July 2023

NAVIGATING THE INDUSTRIAL REVOLUTIONS

OPPORTUNITIES AND CHALLENGES FOR RAIL FREIGHT



STEAM POWER

Mechanical production with water and steam power

ELECTRIFICATION

Mass production through assembly lines and electricity

AUTOMATION

Digital revolution (the use of electronic and IT systems)

DIGITALISATION

Industry 4.0 (industrial production combined with modern information and communication technology)

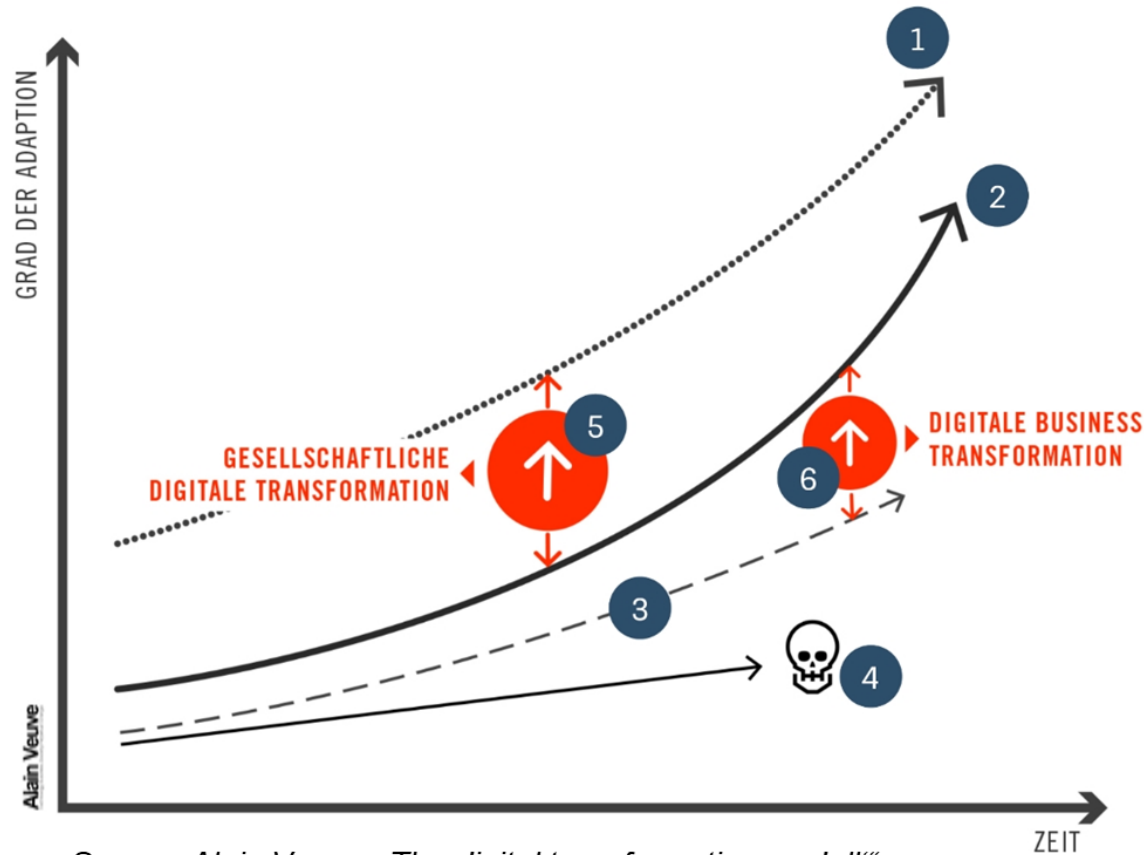


CHANGE MANAGEMENT

Change management encompasses all measures used to change the strategies, structures, processes and behavior

A REAL REVITALISATION OF THE RAIL FREIGHT MARKET...

A BETTER MODAL SPLIT FOR RAILWAYS NEED NEW REALITIES



- 1 Technological evolution: always ahead
- 2 Acceptance of technology by the customers
- 3 Adaption curve of the average company
- 4 Adaption curve of a death-bound company
- 5 Digital transformation of the society
- 6 Digital business transformation

Source: Alain Veuve: „The digital transformation modell“;
URL: <http://www.alainveuve.ch/digital-transformation-model/> [December 2016]

MOVING TOWARDS A SUSTAINABLE AND SAFE RAIL SYSTEM

ANALYSING DATA TO ALIGN FUTURE ACTIONS AND PRIORITIES

Rail accidents by type of accident, 2022
(%)

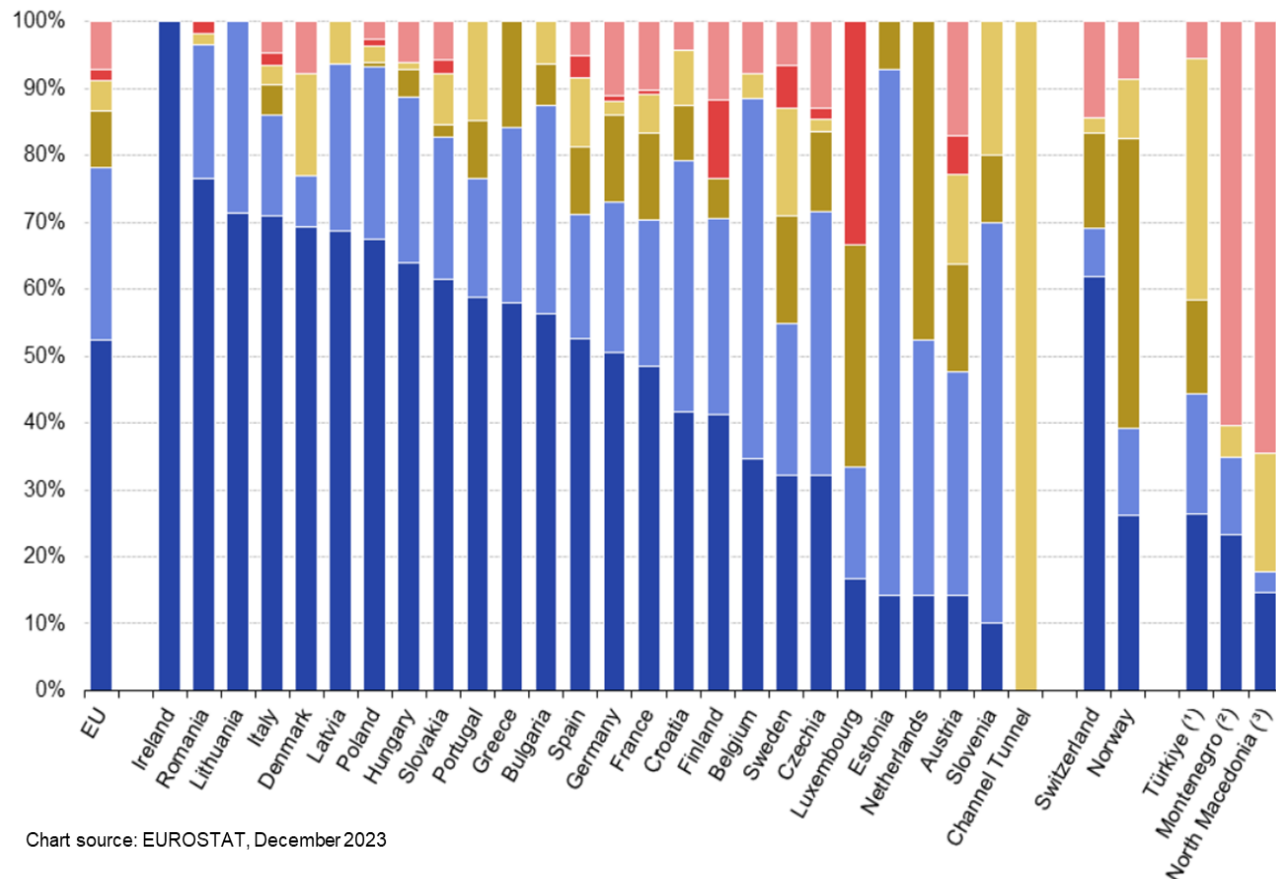


Chart source: EUROSTAT, December 2023

- Accidents to persons by rolling stock in motion
- Collisions
- Fires in rolling stock
- Level crossing accidents
- Derailments
- Other accidents

- Rail safety improved: -614 accidents in 2022 compared to 2010 (reduction **27.5%**)
- Accidents due to rolling stock in motion: 846 reported (**52%**)
- Accidents at level crossing: 416 reported (**26%**)

MOVING TOWARDS A SUSTAINABLE AND SAFE RAIL SYSTEM

INCREASING SAFETY AND THE COSTS TO THE SYSTEM

Estimated costs of railway accidents per country, million EUR (EU-27 + CH + NO, 2022)

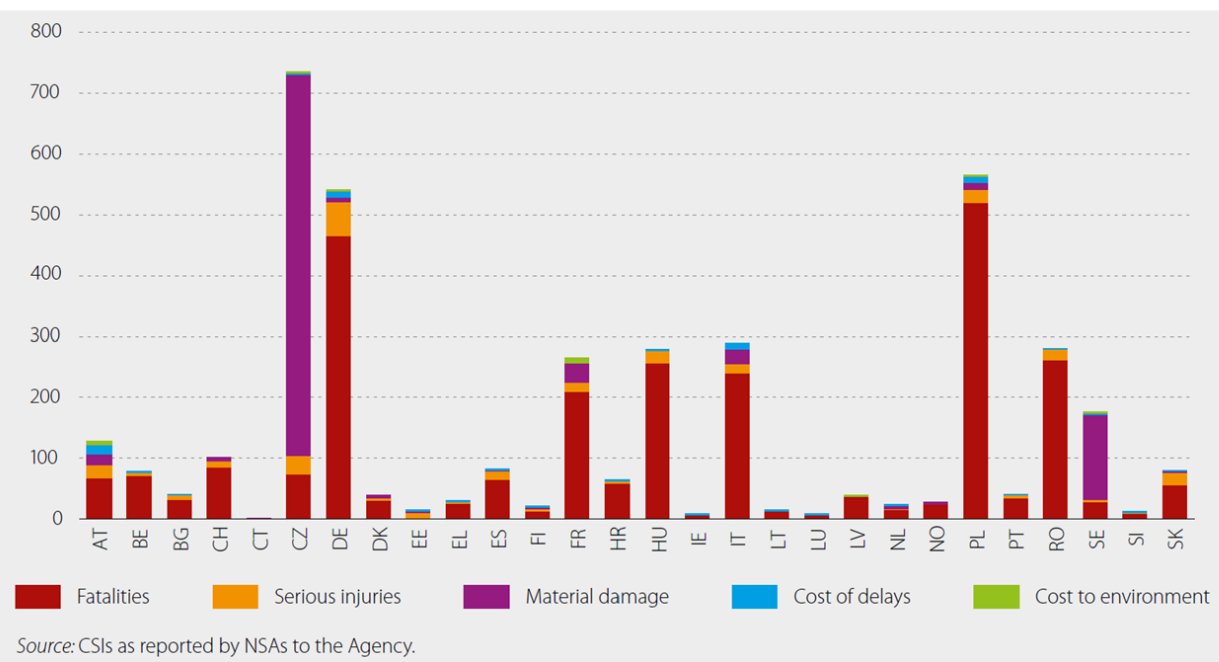
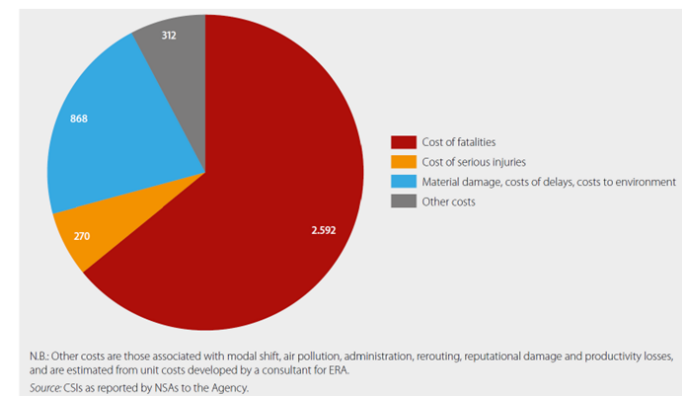


Chart source: ERA report safety and interoperability, May 2024



- Based on per-unit cost estimates from economic studies
- Total cost of significant railway accidents in 2022 estimated at about **EUR 4 billion** (in the EU-27).
- Reliability of cost data to be considered on case-by-case

MODAL SHARE, DIGITAL & SAFETY – NECESSITY TO TRANSFORM

RAIL AS THE BACKBONE OF SAFE FREIGHT TRANSPORT IN EUROPE



Ports

- gates to the world

Modular systems

- flexible and customised

Digital Platform

- a new way of working together

Intelligent Infrastructure

- cloud-based signalling

Efficient land use

- loading/ unloading/ capacity

Integrated in city logistics

- combined and multimodal

Digitally connected in the train

- Full Digital Freight Train Operations
FDFTO

THE POSSIBILITY TO TRANSFORM

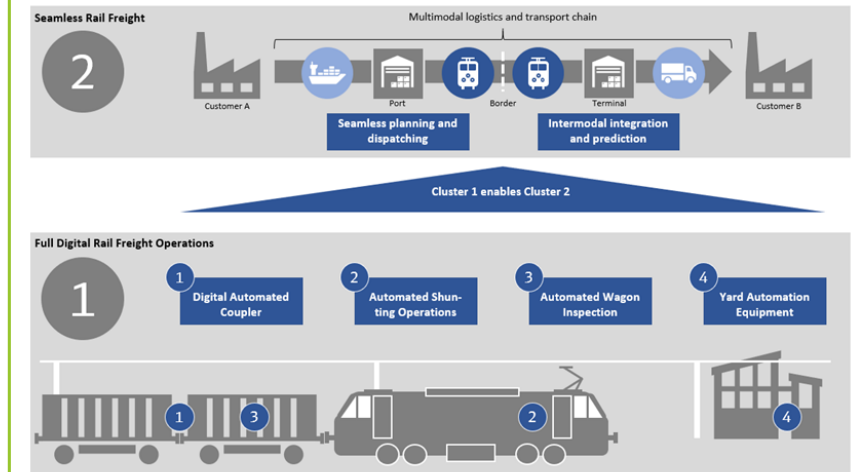
EUROPE'S RAIL JOINT UNDERTAKING: THE INNOVATION PILLAR



Innovation Pillar	2021 – 2031 (in EUR million)	Multi Annual Call 2022 (in EUR million)
Flagship Area 1: Network management planning and control & Mobility Management in a multimodal environment & Transversal Topics: Digital Enablers	173.7	87.4
Flagship Area 2: Digital & Automated up to Autonomous Train Operations	251.9	121.5
Flagship Area 3: Intelligent & Integrated asset management	217.4	104.2
Flagship Area 4: A sustainable and green rail system	169.2	89.7
Flagship Area 5: Sustainable Competitive Digital Green Rail Freight Services	136.3	95.5
Flagship Area 6: Regional rail services / Innovative rail services to revitalise capillary lines	82.3	37.7
Flagship Area 7: Innovation on new approaches for guided transport modes	15.7	7.3
Total	1046,5	543,3

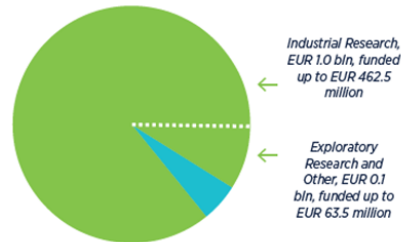


TRANS4M-R



Budget
The total value of the Programme is estimated at EUR 1.2 bln:

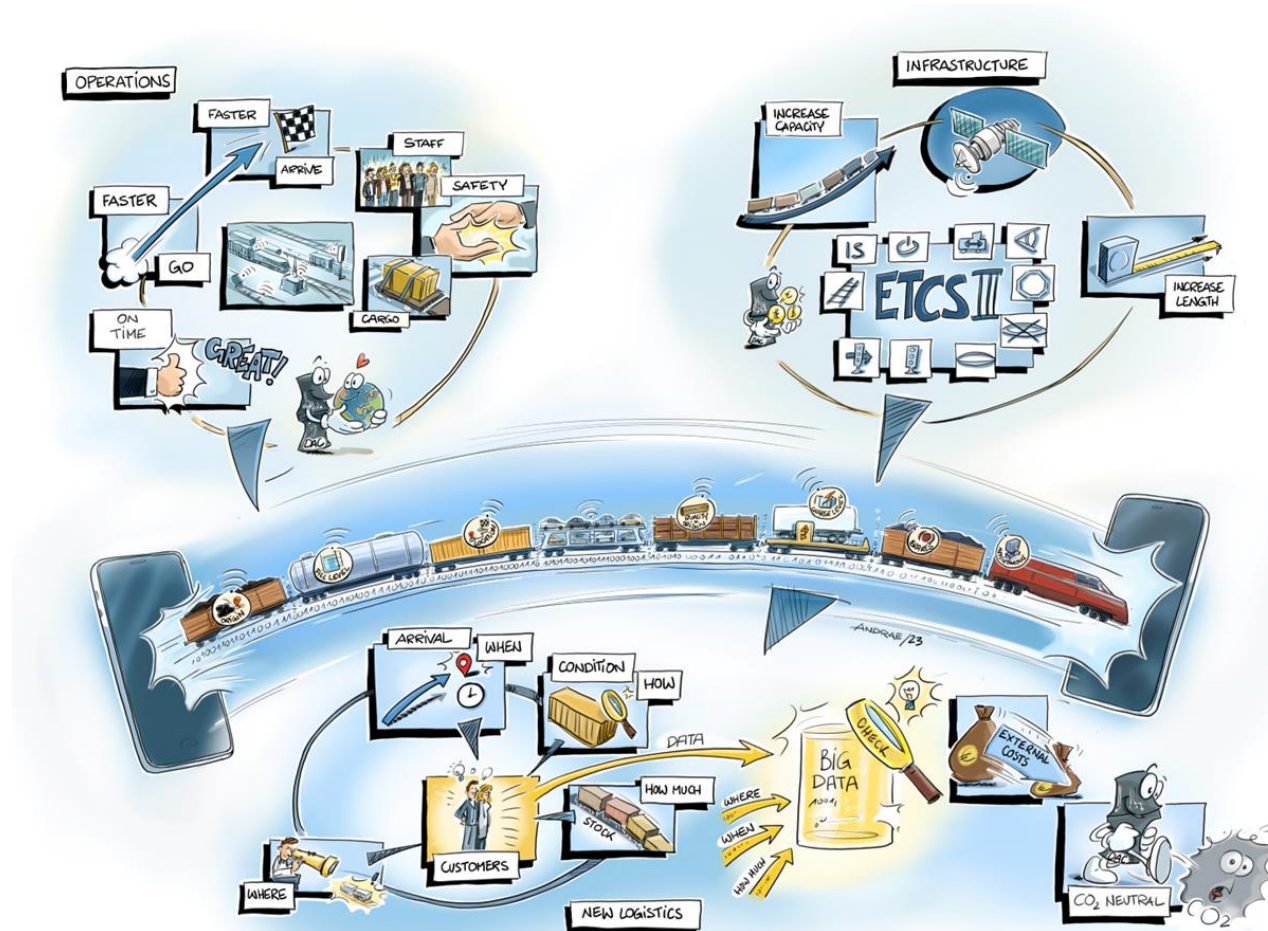
- System Pillar: EUR 58.8 million, funded up to EUR 50.0 million
- Innovation Pillar: EUR 1.1 bln



- A consortium of 71 partners
- Balanced representation of manufacturers, railway undertakings and operators, wagon keepers, universities, researchers

RAIL FREIGHT'S FUTURE IS DIGITAL

DIGITAL AUTOMATED CONNECTED: THE BENEFITS OF DAC FOR THE SYSTEM AND SOCIETY



Operations

- “faster”
- safer
- longer / heavier

Infrastructure

- from ATO to ETCS
- more capacity
- less new construction

Assets

- condition-based maintenance
- attractive
- increased availability

Customers

- reliable, fast transports, real-time tracking
- efficient cargo traffic ready for modal shift
- fully integrated into the supply chain

THERE IS ONLY ONE WAY...

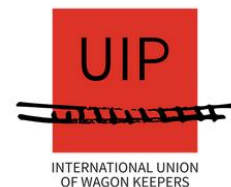
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**THE SECRET TO CHANGE IS TO FOCUS ALL YOUR ENERGY
NOT ON FIGHTING THE OLD, BUT ON BUILDING THE NEW.**

SOCRATES

IF YOU CAN DREAM IT, YOU CAN DO IT

WALT DISNEY



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Secretary General

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**Thank you for
your attention!**

