Council of the European Union

Brussels, 30 July 2025
(OR. en)

12018/25
ADD 1

TRANS 324

COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	30 July 2025
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union
Subject:	PART 1/2 COMMISSION STAFF WORKING DOCUMENT Accompanying the document REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL Ninth monitoring report on the development of the rail market under Article 15(4) of Directive 2012/34/EU of the European Parliament and of the Council

Delegations will find attached document SWD(2025) 239 final.

Encl.: SWD(2025) 239 final

EUROPEAN
COMMISSION

Brussels, 30.7.2025
SWD(2025) 239 final

PART 1/2

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Ninth monitoring report on the development of the rail market under Article 15(4) of Directive 2012/34/EU of the European Parliament and of the Council

{COM(2025) 439 final}

Contents

1. Rail and sustainability 12
1.1. Environmental performance of rail 12
1.1.1. Emissions 12
1.1.2. Energy consumption 13
1.1.3. Noise 14
1.2. Infrastructure expenditure and PSO compensation cost 15
1.3. Impact of COVID-19 pandemic on the rail sector 16
2. The state of the union railway network 19
2.1. Description 19
2.1.1. Length of rail network and its evolution 19
2.1.2. Infrastructure density 19
2.1.3. Electrified lines 20
2.1.4. High-speed lines 21
2.2. Infrastructure management 23
2.2.1. Infrastructure governance 23
2.2.2. Infrastructure development and expenditure 25
2.2.3. Infrastructure funding and financing 34
(1) The Connecting Europe Facility 35
(2) Cohesion policy support for rail transport 37
(3) Financial instruments 38
(4) Horizon Europe 39
(5) Research and innovation - Europe's Rail Joint Undertaking 39
(6) Recovery and Resilience Facility 40
3. The evolution of rail services 42
3.1. Traffic volumes 42
3.2. The rail passenger market 45
3.2.1. Rail passenger policy developments 45
3.2.2. Evolution of rail passenger volumes 47
3.2.3. Evolution of rail passenger revenues 53
3.3. The rail freight market 57
3.3.1. Rail freight policy developments 57
3.3.2. Evolution of rail freight volumes 60
3.3.3. Evolution of rail freight revenues 64
3.3.4. Multimodal and intermodal transport 66
4. The evolution of services supplied to railway undertakings 67
4.1. Charging principles for service facilities, additional and ancillary services 68
4.2. Passenger stations 68
4.3. Other service facilities 71
4.4. Complaints related to access to service facilities 75
5. The evolution of framework conditions in the rail sector 77
6. The quality of rail services 77
7. Conclusions 77

Table of figures

Figure 1: Share of GHG emissions by transport mode (rail, road, domestic aviation, domestic navigation, pipeline transport, etc.) (% of million tonnes CO_2 equivalent, EU27 2022) 13
Figure 2: Share of each transport mode (including rail) on total energy consumption per country (% in 2022) 14
Figure 3: Cost of railways per inhabitant (infrastructure expenditure plus PSO compensation, 2018-2022) 16
Figure 4: Length of national networks per country (thousand line-km, 2022) and relative change (2018-2022) 19
Figure 5: Density of railway network relative to surface area and population per country (line-km per million people and line-km per thousand km2, 2022) 20
Figure 6: Percentage of electrified network per country (2022) and change in the percentage of electrified network (2018 vs 2022) 21
Figure 7: Development of high-speed lines in Europe, current and potential (line-km, current 2018-2022, further for those under construction) 22
Figure 8: Length of dedicated high-speed line per country (line-km, 2018-2022) 23
Figure 9: Expenditure on infrastructure and proportion of maintenance and renewals (EUR billion, 2018-2022) 26
Figure 11: Infrastructure expenditure in real terms, 2018 price level (EUR billion, 2018-2022) 28
Figure 11: Expenditure on infrastructure and proportion of maintenance and renewals per country (EUR billion, 2022) 29
Figure 12: Expenditure on infrastructure per inhabitant per country (EUR, 2022) 30
Figure 13: Expenditure on infrastructure per household per country (EUR, 2022) 31
Figure 14: Expenditure on maintenance, renewal, and enhancement per line-km per country (EUR thousand, 2018-2022) 32
Figure 15: Expenditure by category by country (EUR billion, average of 2018-2022) 33
Figure 16: Expenditure on high-speed rail by typology of expenditure and by Member State (EUR billion, average 2018-2022) 34
Figure 17: Rail infrastructure funding by source and country (EUR billion, 2022) 35
Figure 18: Pillar 2 – Budget for clusters and for Joint Research Centre (EUR) 39
Figure 19: Passenger and freight volumes (pax-km, tonne-km, and train-km, 2018-2022) 42
Figure 20: Passenger and freight volumes, compound annual growth rate per country (%, 2018-2022) 43
Figure 21: Relative share of passenger and freight train-km on total train-km per country (%, 2022) 43
Figure 22: Utilisation of rail infrastructure for passenger transport per country (millions of pax-km per line-km, 2022) 44
Figure 23: Utilisation of rail infrastructure for freight transport per country (millions of tonne-km per line-km, 2022) 45
Figure 24: Propensity to travel by rail (pax-km per inhabitant, 2022) 47
Figure 25: Passenger land transport modal split (% in 2018-2022) 48
Figure 26: Passenger land transport modal split by country (% in 2022) and change in percentage points for rail (2018 and 2022) 49
Figure 27: Evolution of rail passenger traffic volumes (domestic, international and proportion of international in total traffic) (billion pax-km, 2018-2022) 49
Figure 28: Passenger traffic volumes (domestic, international and proportion of international on total) by country (pax-km in 2022) 51
Figure 29: Compound annual growth rates of domestic, international, and total passenger traffic volumes per country (%, 2018-2022) 52

Table of figures

Figure 30: Number of pax-km per passenger train-km per country (passenger trains' load factor, 2022) 53
Figure 31: Railway undertakings' revenues from passenger transport services per country (billion EUR, 2022) 54
Figure 32: Railway undertakings' revenues from passenger transport services per pax-km per country (EUR per passenger-km, 2022) 55
Figure 33: Railway undertakings' revenues from passenger transport services per train-km per country (EUR per passenger train-km, 2022) 56
Figure 34: Sources of passenger railway undertakings' revenue per country (% in 2022) 57
Figure 35: Freight land transport modal split (%, 2018-2022) 60
Figure 36: Freight land transport modal split by country (% in 2022) and change in percentage points for rail (2018-2022) 61
Figure 37: Evolution of rail freight traffic volumes (domestic, international and proportion of international in total traffic) (billion tonne-km, 2018-2022) 62
Figure 38: Rail freight traffic volumes (domestic, international and proportion of international on total) by country (tonne-km, 2022) 62
Figure 39: Number of tonne-km per freight train-km per country (freight trains load factor, 2022) .. 63
Figure 40: Railway undertakings' revenues from freight transport services per country (billion EUR, 2022) 64
Figure 41: Railway undertakings' revenues from freight transport services in tonne-km per country (EUR per thousand tonne-km, 2022) 65
Figure 42: Railway undertakings' revenues from freight transport services in freight train-km per country (EUR per freight train-km, 2022) 65
Figure 43: Average distance between stations by country (km, 2022) 69
Figure 44: Number of stations by passengers per day by country (2022) 70
Figure 45: Proportion of stations by passengers per day by country (2022) 70
Figure 46: Number of freight terminals by country (2022) 71
Figure 47: Number of marshalling yards by country (2022) 72
Figure 48: Number of maintenance facilities by country (2022) 73
Figure 49: Number of maritime and port facilities linked to rail activity by country (2022) 74
Figure 50: Number of refuelling facilities by country (2022) 75
Figure 51: Number of complaints being processed, and decisions made by country (2022) 76

Table of tables

Table 1: EU27 Main infrastructure managers with less than 100% share of total route length (2022) 24
Table 2: Contractual agreements between competent authorities and infrastructure managers 24
Table 3: CEF funding by transport mode (EUR billion, number of Actions) 36

List of abbreviations

ASEAN	**Association of Southeast Asian Nations**
B2A	Business to administration
B2B	Business to business
CAGR	Compound annual growth rate
CCA	Cross-cutting activities
CCS-TSI	Control command and signalling - technical specifications for interoperability
CEF	Connecting Europe Facility
CF	Cohesion Fund
CINEA	European Climate, Infrastructure and Environment Executive Agency
CNC	Core network corridor
COTIF	Convention concerning International Carriage by Rail
CO_2	Carbon dioxide
dB	Decibel
DG MOVE	European Commission Directorate-General for Mobility and Transport
DMT	Deployment management team
DTLF	Digital Transport and Logistics Forum
EDP	European deployment plan
EEA	European Environment Agency OR European Economic Area
EET	Economic equilibrium test
EFSI	The European Fund for Strategic investments
EFTA	European Free Trade Association
eFTI	Electronic freight transport information
EIB	European Investment Bank
ELETA	Electronic exchange of information on estimated time of arrival
ENE-TSI	Energy - technical specification for interoperability
ENRRB	European Network of Rail Regulatory Bodies
ERA	European Union Agency for Railways (formerly European Railway Agency)
ERADIS	European Union Agency for Railways database of interoperability and safety
ERDF	European Regional Development Fund
ERTMS	European Railway Traffic Management System
ESIFs	European Structural and Investment Funds, include Cohesion Fund, European Regional Development Fund, European Social Fund, European Maritime and Fisheries Fund and the European Agricultural Fund for Rural Development
ETA	Estimated time of arrival

ETCS	European Train Control System
GEURL	Group of Experts towards Unified Rail Law
GHG	Greenhouse gas
GIS	Geographic Information System
GSM-R	Global System for Mobile communications - Railways
GTFS	General transit feed specification
H2020	Horizon2020
IEA	International Energy Agency
ILU	Intermodal loading unit
IM	Rail infrastructure manager
IPA	Instrument for Pre-Accession assistance
IRG-Rail	Independent Regulators' Group – Rail
ITU	Intermodal transport unit
km	Kilometre
KPI	Key performance indicator
MaaS	Mobility as a service
NEBs	National enforcement bodies
NIP	National implementation plan
NSA	National safety authority
OSJD	Organisation for Cooperation of Railways
OTIF	Organisation for International Carriage by Rail
PAYG	Pay as you go
pax-km	Passenger kilometres
PRIME	Platform of Rail Infrastructure Managers in Europe
PSA	Programme support action
PSC	Public service contract
PSO	Public service obligation
REGIO	European Commission Directorate-General for Regional and Urban Policy
RFC	Rail freight corridor
RMMS	Rail Market Monitoring Survey
RMMS Regulation	Commission Implementing Regulation (EU) 2015/1100 for rail market monitoring
RNE	RailNetEurope
ROSCO	Rolling stock company
RU	Railway undertaking
SERAC	Single European Railway Area Committee
SSMS	European Commission Sustainable and Smart Mobility Strategy

SWD	Staff working document
S2R (JU)	Shift to Rail (Joint Undertaking)
TAC	Track access charges
TAF/TAP - TSI	Telematics applications for freight/passengers
TCR	Temporary capacity restriction
TEG	Technical Expert Group
TEN-T	Trans-European Transport Network
TEU	Twenty-foot equivalent unit
TRAMOS-Rail	Transport Monitoring System – Rail
TTR	TimeTable redesign
TSI	Technical specifications for interoperability
tonne-km	Tonne kilometres
The Agency	European Union Agency for Railways, until June 2016 called European Railway Agency (ERA)
train-km	Train kilometres
UIC	Union Internationale des Chemins de Fer
UIRR	Union Internationale pour le transport combiné Rail-Route
UNECE	United Nations Economic Commission for Europe
WBIF	Western Balkans Investment Framework
WHO	World Health Organization

List of countries

EU	**European Union**	
EU15	EU Member States having joined the EU before 2004	
EU27	All current EU Member States	
EU28	EU Member States between 1 July 2013 and 31 January 2020	
BE	Belgium	
BG	Bulgaria	
CZ	Czechia	
DK	Denmark	
DE	Germany	
EE	Estonia	
IE	Ireland	
EL	Greece	
ES	Spain	
FR	France	
HR	Croatia	
IT	Italy	
CY	Cyprus	
LV	Latvia	
LT	Lithuania	
LU	Luxembourg	
HU	Hungary	
MT	Malta	
NL	Netherlands	
AT	Austria	
PL	Poland	
PT	Portugal	
RO	Romania	
SI	Slovenia	
SK	Slovakia	
FI	Finland	
SE	Sweden	
UK	United Kingdom	EU Member 1973-2020
NO	Norway	Member of EEA since 1994, member of EFTA since 1960

Introduction

This Commission staff working document accompanies the *Ninth Report from the Commission to the Council and the European Parliament on monitoring development of the rail market* ('the Ninth Report'). The data and graphs used in this document have been made available in Excel format on the DG MOVE website[1].

Coverage of the Report

This document presents a non-exhaustive report[2] covering the main developments in the EU rail market, reflecting the **topics listed in Article 15(4) of Directive 2012/34/EU** establishing a single European railway area[3] (the 'Recast Directive'), according to which the European Commission must report to the European Parliament and the Council every 2 years on:

1. the evolution of the internal market in rail services (Chapter 3)
2. services to be supplied to railway undertakings as per Annex II to the Recast Directive (Chapter 4)
3. the framework conditions (Chapter 5 and Chapter 6), including:
   - infrastructure charging
   - capacity allocation
   - investment made in infrastructure
   - developments regarding prices[4]
   - quality of rail transport services
   - rail transport services covered by public service contracts (PSCs)
   - licensing
   - degree of market opening
   - harmonisation between Member States
   - development of employment and related social conditions
4. the state of the Union railway network (Chapter 2)
5. the utilisation of access rights (Chapter 5)
6. barriers to more effective rail services (Chapter 5 and Chapter 6)
7. infrastructure limitations (Chapter 5) and
8. the need for legislation (Conclusions).

An overview of rail as a sustainable mode of transport is also included (Chapter 1).

The focus of the Ninth Report and this accompanying staff working document is on developments between 2018 and 2022. Sources additional to the RMMS Regulation are used when assessing trends over longer periods of time.

---

[1] https://transport.ec.europa.eu/transport-modes/rail/market/rail-market-monitoring-rmms_en

[2] In addition to the rail *market* report, the EU Agency for Railways publishes a bi-annual report on *safety* and *interoperability* performance: Link

[3] Directive 2012/34/EU of the European Parliament and of the council of 21 November 2012 establishing a single European railway area OJ L 343, 14.12.2012, p. 32.

[4] Comprehensive monitoring of rail prices for customers is not possible due to the broad variety of services offered.

The sources of data include responses to the Rail Market Monitoring Survey ('the RMMS'), the *EU Transport in Figures* statistical pocketbook[5], Eurostat[6], IRG-RAIL, statistics collected by various sectoral organisations[7] and ad hoc presentations and studies. Contributions have also been considered from the Member States, national regulatory bodies and stakeholders participating in the Working Group for Rail Market Monitoring under the aegis of the Single European Railway Area Committee (SERAC).

All current EU Member States are covered, except Cyprus and Malta where there are no railways.

As Norway participates in the RMMS but is not a Member of the European Union, Norwegian data are shown in graphs per country but not included in EU27 totals and EU27 averages.

The implementing act for rail market monitoring

The first five RMMS reports drew on Member States' voluntary responses to the RMMS questionnaire.

The Ninth Report is the fourth report to draw on the mandatory data collection set out in the Commission Implementing **Regulation (EU) 2015/1100 for rail market monitoring**[8] ('the RMMS Regulation') applicable from 1 January 2016. The questionnaire annexed to the RMMS Regulation was developed in close cooperation with the Member States and stakeholders participating in the SERAC Working Group for Rail Market Monitoring. While building mainly on the previous RMMS, the new questionnaire added some new indicators, particularly related to revenues and traffic outputs, public service obligation (PSO), infrastructure charges and employment.

In addition, under the new regime, Member States' reports have been submitted electronically and validated through exchanges with the Commission using the TRAMOS-Rail (Transport Monitoring System – Rail) web tool. Member States have until 31 December of each year to submit in TRAMOS-Rail the data from the RMMS questionnaire for the previous year. DG MOVE then reviews the consistency of inputs for each Member State in January, asking for additions or clarifications if needed. The process is closed by the end of the first quarter. Every 2 years, when preparing the biennial report, DG MOVE performs more in-depth data checks across countries and years to verify the coherence and consistency of the RMMS database. Estimates or other reliable data sources are used in case of data gaps. Finally, time series are checked against data published in the previous RMMS report and other similar (though not fully comparable) data to identify and explain any major deviation. Estimates, alternative sources, and discontinuities are duly reported in the relevant parts of the accompanying staff working document.

The refinements implemented during the transitional period ended in 2018 may have led some Member States to alter the data and approach they use to respond, which may result in some comparability issues over time. However, steps have been proactively taken by both the Commission and Member States to ensure that these comparability issues have been minimised wherever possible. The Commission has started discussions with Member States to identify developments in the rail market, improvements in data availability, new methodologies, definitions, and methods of

[5] The Report is based on preliminary Statistical pocketbook data available on 2 October 2024. The 2024 Statistical pocketbook is available on the DG MOVE website.
[6] https://ec.europa.eu/eurostat/web/transport/database
[7] UIC, UIP.
[8] Commission Implementing Regulation (EU) 2015/1100 of 7 July 2015 on the reporting obligations of the Member States in the framework of rail market monitoring, OJ L 181, 9.7.2015, p. 1.

collecting data that may make it desirable to amend the RMMS questionnaire in the Annex to the RMMS Regulation.

1. Rail and sustainability

Reducing pollution and promoting healthier habits and ways of life more respectful of our environment is a major political objective across Europe. With respect to transport, travellers and shippers are increasingly conscious of the sustainability of their choices.

Transport plays a key role in the transition to a more sustainable economy. The entire transport sector accounts for 26.2% of the total GHG emissions in the EU27, of which less than 0.1% is generated by rail.

The European Green Deal[9] calls for a 90% reduction in greenhouse gas emissions from transport, for the EU to become a climate-neutral economy by 2050, while also working towards a zero-pollution ambition.

In this context, there are opportunities for rail, as one of the greener and safer transport modes. The role of rail is acknowledged and reflected in EU policy goals, as expressed in the Sustainable and Smart Mobility Strategy[10]:

- Doubling high-speed traffic by 2030, tripling it by 2050
- Making scheduled collective travel of under 500 km carbon neutral within the EU by 2030
- Doubling rail freight traffic by 2050
- Making the multimodal Trans-European Transport Network (TEN-T) equipped for sustainable and smart transport with high-speed connectivity will be operational for the comprehensive network by 2050.

1.1. Environmental performance of rail

Rail has the potential to play a significant role in accelerating the reduction of transport emissions, being the most carbon-efficient motorised way to travel. In 2022, rail accounted for only 0.6% of total EU27 energy consumption in transport, while carrying 16.6% of goods and 8.1% of passengers of all transport modes (land, air, and waterways).

1.1.1. Emissions

The transport sector (including international aviation and maritime) accounts for one quarter of the total GHG emissions[11] in the EU27. Within the transport sector, Figure 1 shows how rail represented only 0.3% of GHG emissions from all transport modes in the EU27, while continuing to be the only

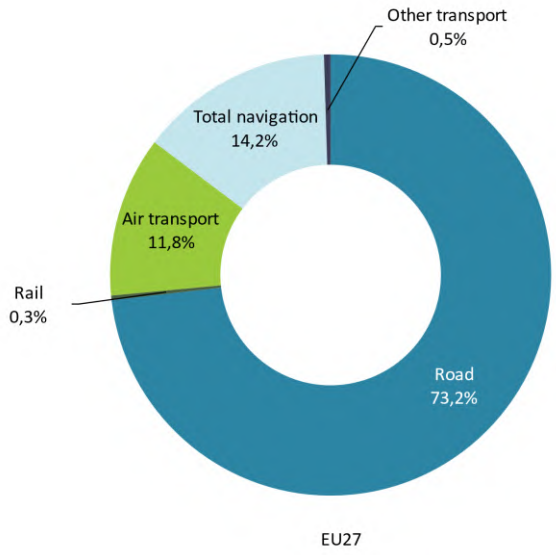
[9] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social committee, and the Committee of the Regions – The European Green Deal (COM/2019/640 final).

[10] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social committee, and the Committee of the Regions - Sustainable and Smart Mobility Strategy – putting European transport on track for the future (COM/2020/789 final).

[11] GHG emissions from transport by mode, including international bunkers and indirect CO_2 but excluding land use, land use change and forestry. Rail excluding indirect emissions from electricity consumption. The European Environment Agency (EEA, https://www.eea.europa.eu/) is the main provider for EU-wide GHG emissions data. The GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFC), perfluorocarbons (PFC).

mode to have almost continuously reduced such emissions since 1990[12]. In 2022, the GHG emissions from air transport accounted for 11.8%, while in 2018 they were responsible for 13.2%. Conversely, the share of GHG emissions from road transport increased from to 71.7% in 2018 to 73,2% in 2022.

Figure 1: Share of GHG emissions by transport mode (rail, road, domestic aviation, domestic navigation, pipeline transport, etc.) (% of million tonnes CO_2 equivalent, EU27 2022)



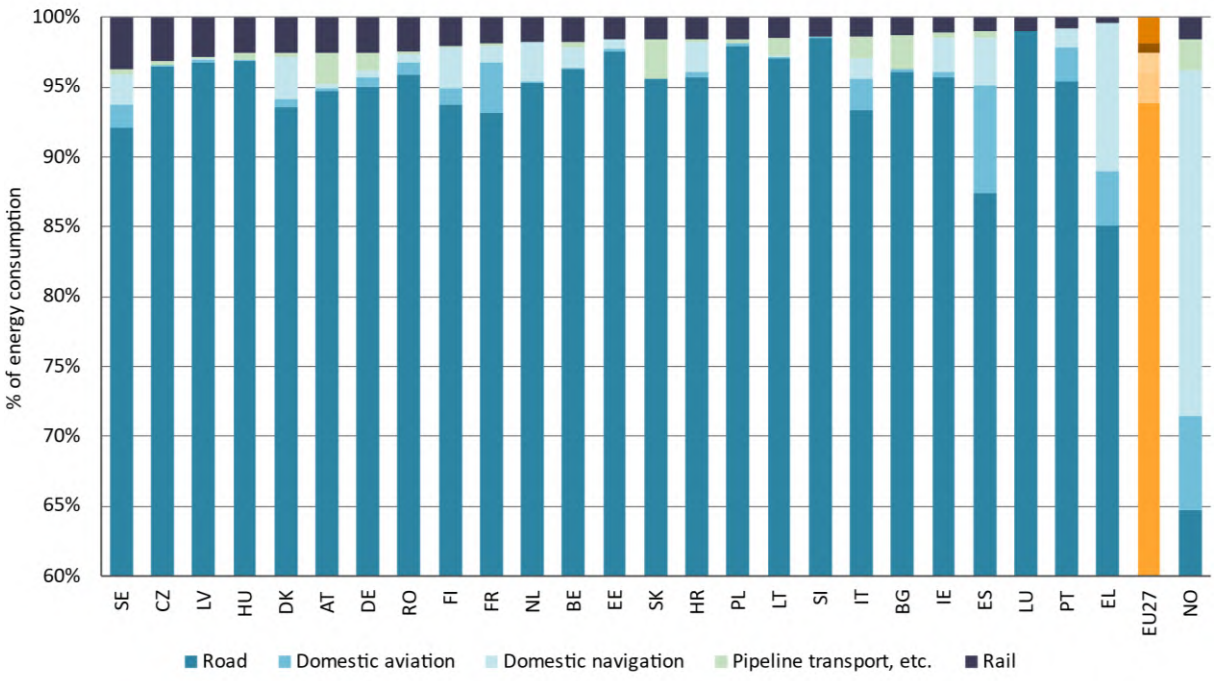
Source: Statistical Pocketbook, 2024

1.1.2. Energy consumption

The transport sector accounted for 31.0% of the total final energy consumption in the EU27 in 2022. Within the transport sector, rail accounted for only 0.6% of the final energy consumption. The distribution per country is available in Figure 2.

[12] The Statistical pocketbook 2022 provides further details by country, sector, and mode.

Figure 2: Share of each transport mode (including rail) on total energy consumption per country (% in 2022)



Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/ten00124/default/table?lang=en)

1.1.3. Noise

According to the World Health Organization (WHO), environmental noise is an important public health issue with negative impacts on human health and well-being, featuring among the top environmental risks to health. European Environment Agency (EEA) figures for 2017 show that the number of people exposed to harmful noise levels produced by railways, although significant, is lower than the number of people exposed to harmful noise levels produced by road[13].

Railway noise affects nearly 22 million people (of which approximately 10.9 million people exposed to railway noise outside urban areas and approximately 10.7 million people exposed to railway noise inside urban areas[14]).

Freight transport is the main responsible of railway noise. Given that more than 50% of rail freight wagons run across borders, any attempt to reduce rail noise at source needs a coordinated European response. The most cost-efficient measure to achieve this reduction is the retrofitting of existing freight wagons with 'silent', composite brake blocks, replacing cast iron brake blocks. Recently built wagons are already equipped with composite brake blocks, thereby complying with the more stringent noise limit values introduced in 2011.

Several initiatives have been already adopted at the EU level to reduce noise exposure. These include:

[13] While noise from roads or railways causes similar health effects, aviation noise is more harmful at the same noise levels. Any comparison between modes should consider not only the number of people exposed, but also the magnitude of health effects at similar noise levels.

[14] Environmental noise in Europe – 2020, EEA Report No 22/2019 (https://www.eea.europa.eu/publications/environmental-noise-in-europe).

- the Environmental Noise Directive 2002/49/EC
- the technical specification for interoperability (TSI) on noise, which was revised in 2019[15]
- financial assistance under the CEF for the retrofitting of rail freight wagons with 'silent' brake technology[16] (which to date has allowed for the co-financing of retrofitting of some 207 000 'noisy' wagons, with the recent 2021 CEF-call still being implemented), and
- until December 2021, a European framework laying down modalities for noise-differentiated track access charges[17].

However, despite the efforts of the Commission and Member States, there is still a risk that excessive levels of railway noise can lead to uncoordinated unilateral actions by Member States, such as applying speed limits and restrictions on operating at night.

The 2019 revision of the TSI Noise mandates the introduction of 'quieter routes' from December 2024. With its further amendment in 2023, implementation rules have been introduced for the application of that TSI to already existing wagons as well as to wagons operating on those 'quieter routes'. This affects the railway lines in the EU with the busiest freight traffic, on which only 'silent' freight wagons, meeting a specific noise limit, may be operated. By the end of 2017, some 350 000 freight wagons present in the EU still needed to be retrofitted with 'silent' brake blocks[18]. By mid-2020 this number had fallen to approximately 100 000, excluding freight wagons that cannot be retrofitted for technical reasons, as well as freight wagons for which retrofitting would not be economically feasible. In the TSI Noise revisions planned for 2029 and later, the Commission together with ERA and Member States will be working to introduce further requirements with the objective to further decrease rail noise, like defining specification for composite brake blocks (silent brake blocks) for Nordic winter conditions as well as defining noise limits for parked trains.

The Commission has evaluated Commission Implementing Regulation on noise differentiated track access charges (EU) 2015/429 (NDTAC). Based on the results of the evaluation, the Commission has repealed this Implementing Regulation in 2024.

1.2. Infrastructure expenditure and PSO compensation cost

In 2022, the total cost of railways, defined as infrastructure expenditure (irrespective of the funding source[19]) plus PSO compensation, was around EUR 178.31 per EU27 inhabitant, which is an increase of 29% in nominal terms compared to 2018. This results from a 31% increase in infrastructure expenditure and a 26% increase in PSO compensation according to the figures reported in the RMMS

[15] Commission Regulation (EU) No 1304/2014 of 26 November 2014 on the technical specification for interoperability relating to the subsystem 'rolling stock — noise', as amended by Commission Implementing Regulation (EU) 2019/774 of 16 May 2019.

[16] Regulation (EU) No 1316/2013 of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010.

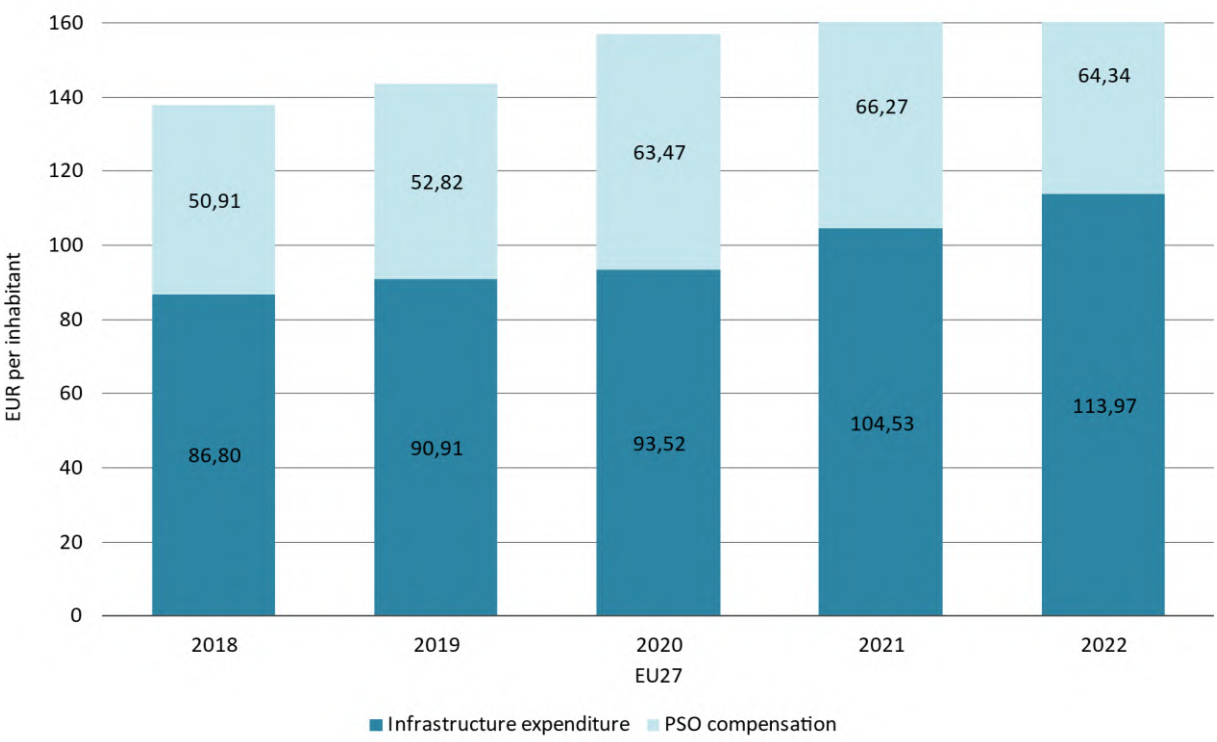
[17] Commission Implementing Regulation (EU) 2015/429 of 13 March 2015 setting out the modalities to be followed for the application of the charging for the cost of noise effects.

[18] ERA, Full Impact Assessment, Revision of the Noise TSI: Application of NOI TSI requirements to existing freight wagons (https://www.era.europa.eu/system/files/2022-10/Recommendation%20on%20the%20amendment%20of%20TSI%20NOISE%20-%20Full%20impact%20assessment_0.pdf?t=1717006173)

[19] Funding infrastructure sources reported in the RMMS are public domestic funds, EU funds and own funds of the main infrastructure managers and other owners of major stations and freight terminals, like access charges.

(Figure 3). By way of comparison, over the same period both the Eurostat "Construction producer prices or costs, new residential buildings"[20] index (used as a proxy to assess the increase in infrastructure expenditure cost) as well as the "Harmonized Index of Consumer Prices (HICP)" [21] indexes increased by about 25%, suggesting that a large part of the increase in both infrastructure expenditure and PSO compensation was driven by inflation.

Figure 3: Cost of railways per inhabitant (infrastructure expenditure plus PSO compensation, 2018-2022)



Source: RMMS, 2022, Eurostat, 2022

1.3. Impact of COVID-19 pandemic on the rail sector

The COVID-19 pandemic had a significant impact on the European rail sector from 2020 to 2022, particularly on passenger services, as the demand declined due to travel restrictions and confinement measures.

[20] EUROSTAT - Construction producer prices or costs, new residential buildings (https://ec.europa.eu/eurostat/databrowser/view/sts_copi_a/default/table?lang=en&category=sts.sts_cons.sts_cons_pri)

[21] EUROSTAT, Consumer prices – inflation (https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=572316&title=Consumer_prices_-_inflation)

The monthly rail traffic figures provided to the Commission by infrastructure managers in the context of Regulation (EU) 2020/142922 show that the pandemic had in general a higher impact on passenger services than on freight services, with some differences among Member States.

Passenger services

Regarding passenger services, the significant impact of decreased demand due to the pandemic is illustrated in Figure 19. Passenger kilometres fell from 412 billion in 2019 to 223 billion in 2020, marking a 46% decline within the EU27. Over the following two years, demand rebounded to 96% of the 2019 level, reaching 395 billion passenger kilometres by 2022. It is important to note, however, that if the pre-pandemic growth trend continued after 2019, the rail passenger kilometres would now be some 13% higher. So, it is still early to claim a full recovery in passenger services.

The reduction in passenger numbers also led to a decrease in railway companies' revenues from passenger services, which include commercial fares, PSO (Public Service Obligation) fares, and PSO compensation. Total revenue in the EU27 declined from EUR 57.5 billion in 2019 to EUR 47.04 billion in 2020. By 2022, revenue had recovered to EUR 61.83 billion, surpassing 2019 levels. This recovery (107%) notably outpaced the recovery in passenger numbers (96%), primarily driven by an increase in PSO compensation from EUR 23.56 billion to EUR 28.67 billion.

International passenger traffic as a share of total traffic nearly halved to 4% in 2020, as international travel was more restricted than domestic travel due to the pandemic. By 2022, however, the proportion of international passenger traffic had returned to its pre-pandemic level of 6.8%.

Freight services

Freight services registered a smaller impact, as the provision of goods had to be maintained due to its crucial role for basic services. Figure 19 shows that the total tonne kilometres declined from 422 billion in 2019 to 405.5 billion in 2020. This decline was already recovered in 2021, with total tonne-kilometres exceeding the 2019 level.

Consequently, the reduction of railway undertakings' revenues was also lower for the freight services than for passenger services, with a decline of 7.5% between 2019 and 2020. This decline has already been recovered with 2022 revenues exceeding 2019 revenues by 15%. In contrast to the passenger services, the proportion of international freight traffic remained stable with a share of 54% in 2020.

Measures by the Commission

The European Commission, European Parliament and Member States have supported the sector with specific and temporary measures, supporting transport stakeholders in dealing with the challenges[23]. These measures aimed at ensuring the continuity of supply chains and at reducing regulatory burden and costs for transport companies, e.g. via waivers or postponements relating to certificates, licences and authorisations, measures to ensure the cross-border mobility of transport staff. As specific support for the rail sector, the Commission proposed to the European Parliament and the Council to

[22] Regulation (EU) 2020/1429 of the European Parliament and of the Council of 7 October 2020 establishing measures for a sustainable rail market in view of the COVID-19 outbreak, OJ L 333, 12.10.2020, p. 1–5.
[23] For an overview, see https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/transportation-during-pandemic_en.

adopt Regulation (EU) 2020/1429[24] allowing Member States to reduce, waive or suspend access charges due by the railway undertakings to infrastructure managers, to counteract the negative economic effects of the COVID-19 outbreak in March 2020. The Regulation left to Member States the decision on whether to derogate from the rules of Directive 2012/34/EU that for the use of the rail infrastructure impose, as a minimum, the charging of the direct cost caused by the train operation. The Regulation required Member States to compensate infrastructure managers for the financial losses due to the possible derogation. The reference period of the Regulation was extended four times until its final end-date of December 31, 2022.

In 2023 the Commission launched a study to assess the financial impact of the COVID-19 pandemic on the rail sector. The Study was concluded in 2024[25].

[24] Regulation (EU) 2020/1429 of the European Parliament and of the Council of 7 October 2020 establishing measures for a sustainable rail market in view of the COVID-19 outbreak, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02020R1429-20220701.

[25] https://transport.ec.europa.eu/transport-modes/rail/rail-studies_en?utm

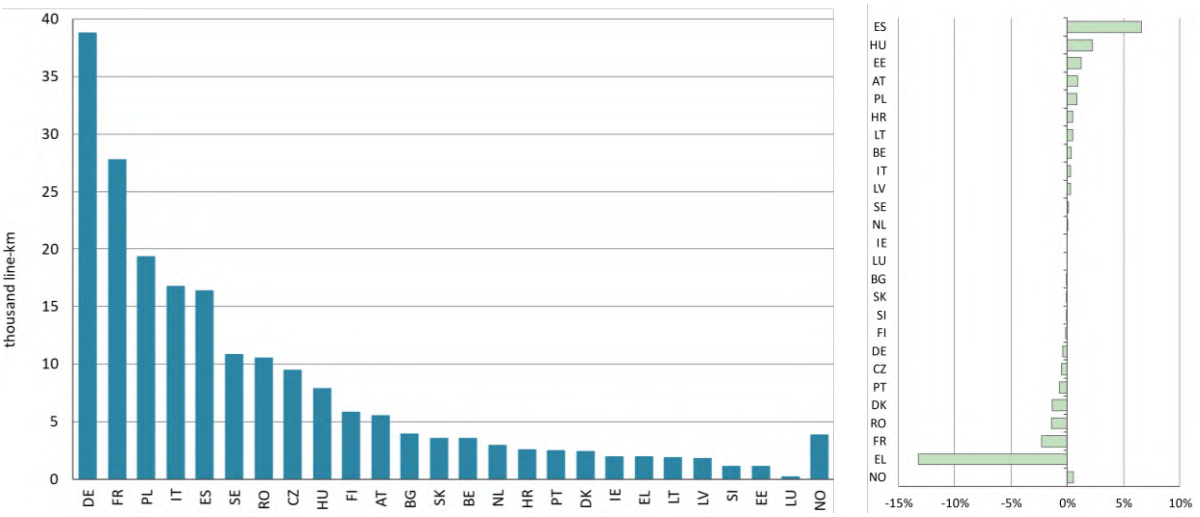
2. The state of the union railway network

2.1. Description

2.1.1. Length of rail network and its evolution

The reported length of the national rail networks of the EU Member States and Norway[26] are shown in Figure 4.

Figure 4: Length of national networks per country (thousand line-km, 2022) and relative change (2018-2022)



Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/ttr00003/default/table?lang=en&category=t_rail)

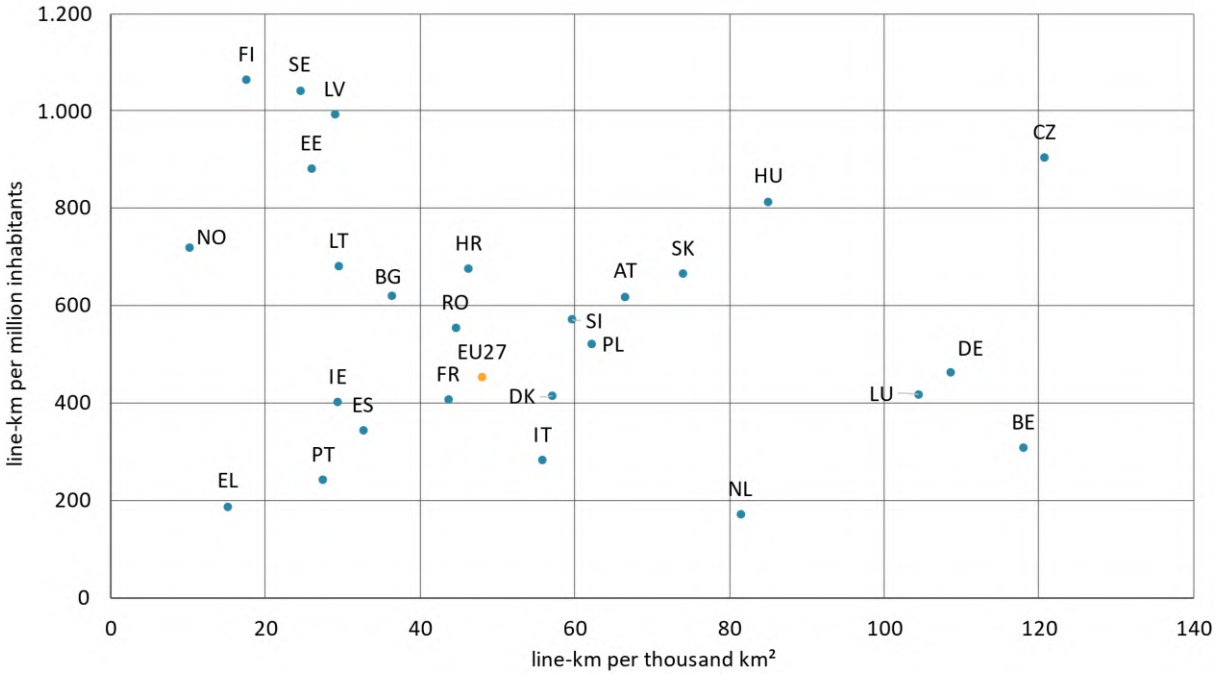
In 2022, the total length of the EU27 rail network was around 202 131 line-kilometres, a slight increase of 0.1% compared to 2018. Spain and Hungary show the highest relative change since 2018. Germany is the country with the largest network with more than 39 000 line-kilometres.

2.1.2. Infrastructure density

Figure 5 illustrates the diversity of railways in the different Member States. It compares the number of line kilometres per thousand square kilometres, on the horizontal axis, with the number of line kilometres per million inhabitants, on the vertical axis.

[26] Cyprus and Malta are not represented in this report since they do not have railways.

Figure 5: Density of railway network relative to surface area and population per country (line-km per million people and line-km per thousand km2, 2022)



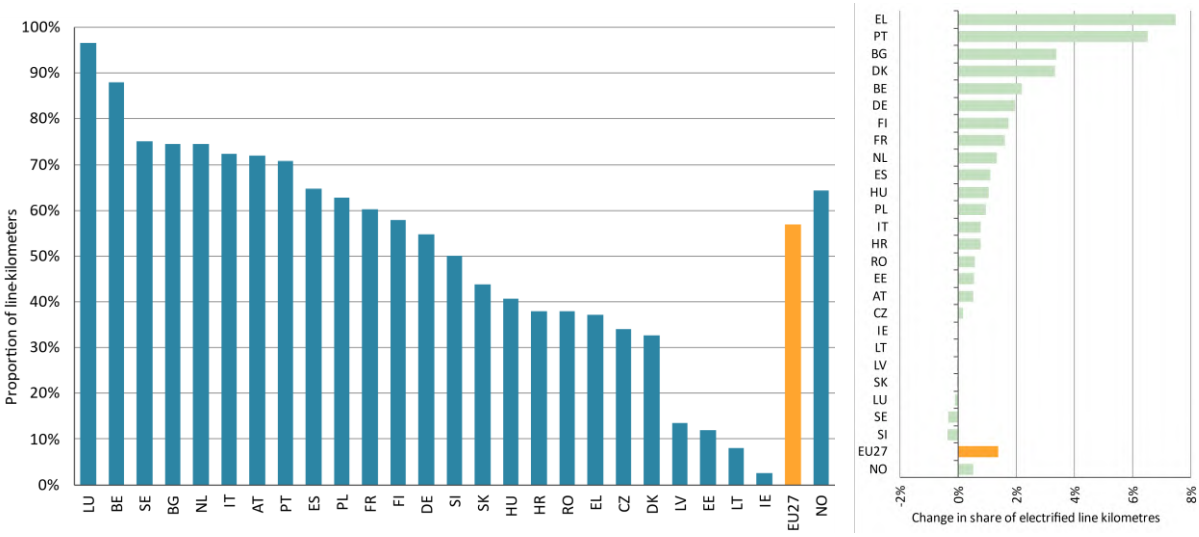
Source: Eurostat, 2024
(https://ec.europa.eu/eurostat/databrowser/view/ttr00003/default/table?lang=en&category=t_rail)

The figure shows how the rail network of Nordic and Baltic countries (Finland, Norway, Sweden, Estonia, Latvia, and Lithuania) is very dense when related to their population, but quite sparse if related to their surface area. On the other hand, countries like Belgium, Germany, Luxembourg, and the Netherlands, have a very dense rail network when related to their territory, but sparse when related to their population. In Greece, the rail network is sparse both in relation to the population and the country's surface area, whereas Czechia has the densest network when looking at both indicators.

2.1.3. Electrified lines

Figure 6 shows the proportion of the electrified network in 2022, measured in line-kilometres, and the relative change compared to 2018.

Figure 6: Percentage of electrified network per country (2022) and change in the percentage of electrified network (2018 vs 2022)



Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/rail_if_tracks/default/table?lang=en&category=rail.rail_if)

In 2022 57% of the total EU27 had been network electrified, although the proportion varies from 3% in Ireland to 91% in Luxembourg. Since 2018 the network electrification rate has increased by 1.4%.

According to the latest PRIME benchmarking report, in 2022, around 82% of total train-kilometres were travelled thanks to electricity-powered trains[27].

2.1.4. High-speed lines

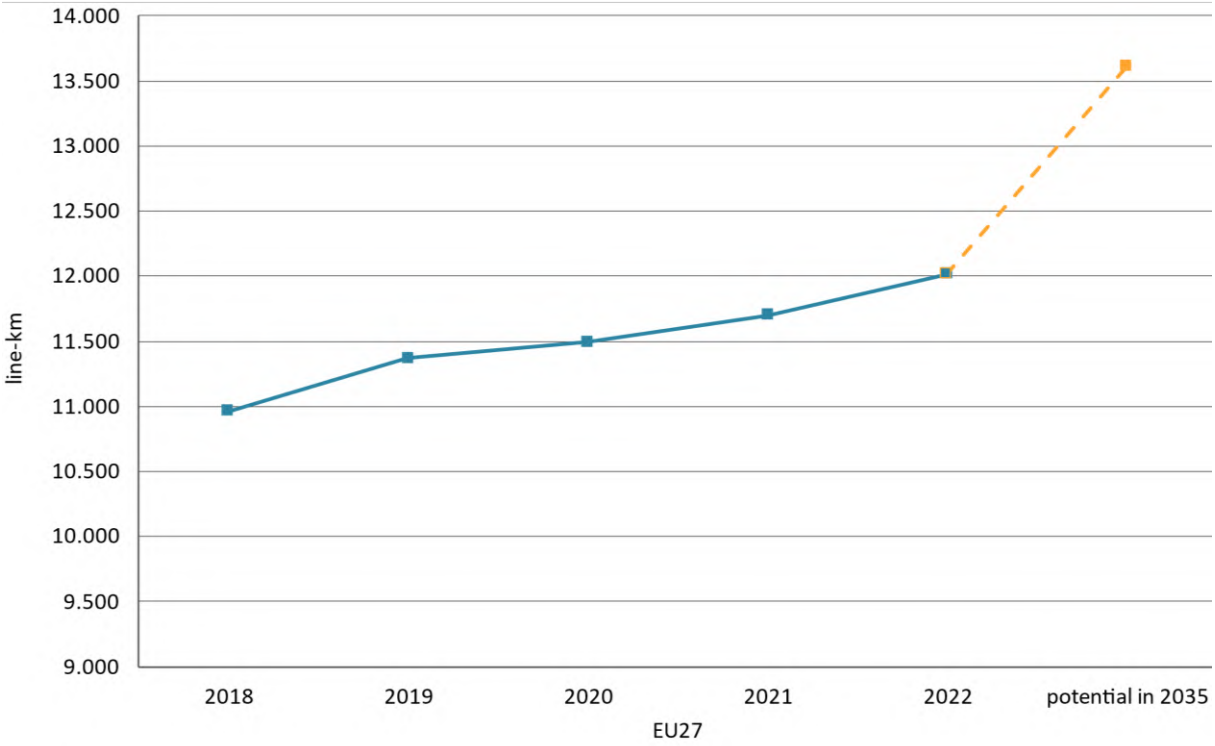
The Commission reports every year statistics on high-speed lines, which are defined as the lines or sections of lines on which trains can go faster than 250 km/h at some point during the journey[28].

Figure 7 shows the development of the EU's high-speed network, which by the end of 2022 extended to 12 015 line-kilometres. When also considering the length of high-speed lines currently reported under construction, the estimated EU27 network will increase to 13 616 line-kilometres in 2035.

[27] 2022 PRIME Benchmarking Report (https://wikis.ec.europa.eu/pages/viewpageattachments.action?pageId=44167372&metadataLink=true&preview=/44167372/136316178/PRIME_External%20Report_2022%20data_Final.pdf)

[28] Except for Austria, for which a maximum speed of 230 km/h is considered.

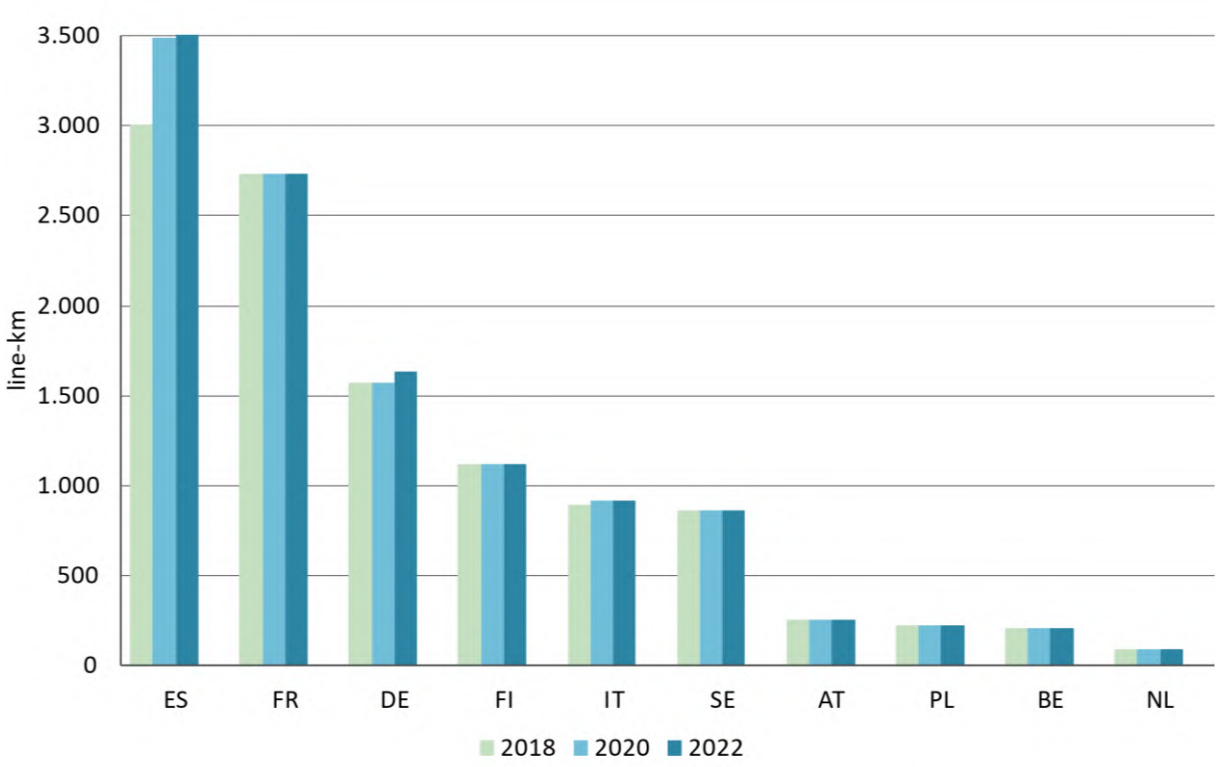
Figure 7: Development of high-speed lines in Europe, current and potential (line-km, current 2018-2022, further for those under construction)



Source: Statistical Pocketbook, 2024

The EU27 high-speed network increased by almost 1 100 km between 2018 and 2022. Figure 8 shows how the length of high-speed lines evolved from 2018 to 2022 in different countries.

Figure 8: Length of dedicated high-speed line per country (line-km, 2018-2022)



Source: Statistical Pocketbook, 2024

Spain is the country with the largest high-speed network with almost 4 000 line-kilometres in 2022. No new lines were added to the relatively small networks in Poland, Belgium, and the Netherlands between 2018 and 2022.

Additional Information

Between 2018 and 2022, Spain continued to expand its high-speed rail network. Over this period, its network grew by 914 kilometres, reaching a total length of approximately 3,916 kilometres by 2022. As a result, Spain reinforced its position as the country with the longest high-speed rail network in Europe and the second longest in the world. Opening of new lines over the period considered included new sections on several main corridors: North-western (Madrid – Galicia), North (Madrid – Burgos), Eastern (Madrid – Murcia), Southern (Antequera – Granada), South-western (Madrid – Extremadura) and Mediterranean (Catalonia – Andalusia)

2.2. Infrastructure management

2.2.1. Infrastructure governance

An efficient management and adequate funding of the rail infrastructure is crucial for the provision of efficient and sustainable rail transport services.

Member States often have a single national infrastructure manager responsible for the entire national network. In other cases, the main infrastructure manager operates together with smaller ones responsible for specific lines, regional infrastructure, or service facilities as shown in Table 1.

Table 1: EU27 Main infrastructure managers with less than 100% share of total route length (2022)

Member state	Share of total route length
ES	>= 99%
CZ	98%
FR	98%
PL	96%
HU	94%
IT	92%
SE	89%
AT	88%
DE	85%
EE	85%
DK	76%

Source: Twelfth Annual Market Monitoring Working Document, IRG-Rail 2024

EU transport policy aims to set the legal framework for infrastructure managers and Member States to provide efficient rail infrastructure services. Maintaining the infrastructure is crucial for the competitiveness of the rail system. However, there is still concern about the sustainable financing of existing rail infrastructure, the quality of infrastructure service and the issue of how to get infrastructure managers to perform better.

Article 30(2) of Directive 2012/34/EU provides for contractual agreement to be concluded between the competent authority and the infrastructure manager, covering a period of not less than 5 years, and including elements as specified in the Directive. Table 2 shows the contractual agreements as reported in 2022 by Member States in the RMMS. The presence of several contractual agreements typically indicates:

- Multiple Infrastructure Managers, each responsible for a different part of the network;
- Rail infrastructure being managed at both national and regional levels, with different authorities signing separate contracts with the infrastructure manager to cover their specific networks.

Table 2: Contractual agreements between competent authorities and infrastructure managers

	Number of contractual agreements	Performance indicators included	Monitoring body
AT	1	YES	YES
BE	1	YES	YES
BG	1	YES	YES
CZ	1	NO	NO
DE	1	YES	YES
DK	1	NO	YES
EE	1	YES	YES
EL		n/a	n/a
ES		n/a	n/a
FI		n/a	n/a
FR	1	YES	NO
HR	1	NO	NO

HU	2	YES YES	NO NO
IE	1	YES	YES
IT	14	YES (5) NO (9)	YES (5) NO (7)
LT	1	YES	YES
LU	1	NO	NO
LV	1	YES	NO
NL	1	YES	YES
PL	4	YES (all)	YES (3) NO (1)
PT	3	YES (all)	YES (all)
RO	1	YES	YES
SE	2	NO NO	NO NO
SI	1	NO	YES
SK	1	YES	YES
NO	1	YES	NO

Source: RMMS, 2022

2.2.2. Infrastructure development and expenditure

On 13 June 2024, the revised Regulation for the development of the trans-European transport network (TEN-T) was adopted (Regulation (EU)2024/1679). The revised Regulation significantly enhances EU efforts to build a sustainable and resilient multimodal network as the backbone of the internal market.

The new TEN-T ensures reliable connectivity throughout the EU by 2050, promotes green mobility in view of addressing the climate change challenges, advances digitalisation, and improves multimodality.

To this end, the revised TEN-T Regulation sets ambitious quality standards and targets for all transport modes but puts a special emphasis on railways. To give a few examples it requires:

- Electrification and a minimum axle load of 22.5 t on the entire network;
- A loading gauge requirement (27 cm) to allow for the circulation of semi-trailers on main lines of the European Transport Corridors;
- A 160 km/h minimum design speed requirement for all passenger lines to boost the existing high-speed rail network across Europe;
- A 100 km/h minimum design speed requirements for freight lines;
- A 740 m train length requirement on the entire network, matched with targets of train path allocation for 740 m long trains;
- A better distribution of multimodal freight terminals with adequate transhipment capacity across Europe;
- An increased number of multimodal passenger hubs and a better connection of airports to the long-distance railway infrastructure;
- The integration of the 11 Rail Freight Corridors with the 9 Core Network Corridors into 9 European Transport Corridors;

- The deployment of ERTMS across the entire TEN-T network as the single European signalling system and the gradual de-commissioning of national class-B systems by 2040, 2045 and 2050.

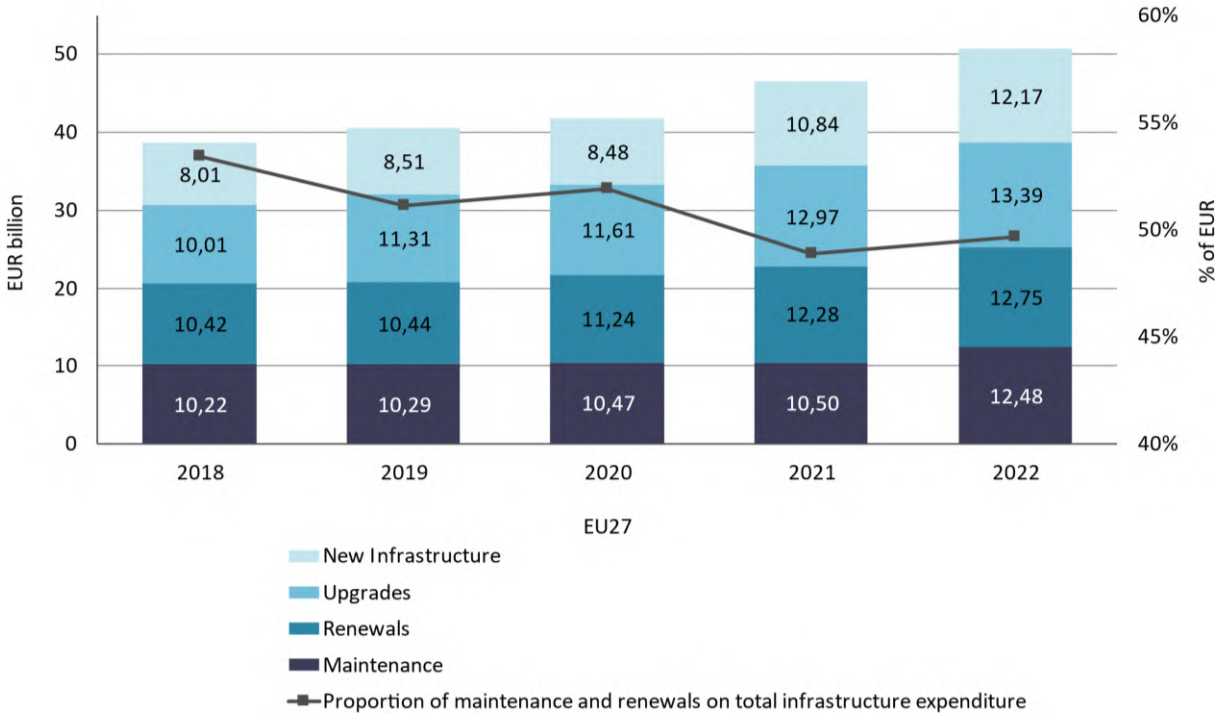
Overall, the vision is to gradually develop a trans-European transport network at highest standards in three steps: the completion of a core network by 2030, of an extended core network by 2040 and the completion of the comprehensive network by 2050.

The investment needs associated to the realisation of the TEN-T core network by 2030 (taking into account also the new requirements of the revised TEN-T) are estimated at around EUR 515 bn. In addition, the investment needs to implement the new TEN-T requirements for the core network and for the completion of the extended core network are estimated at approximately EUR 330 bn until 2040. This would bring the total investment needs to complete the core and extended core TEN-T to EUR 845 bn during the next fifteen years.

Enhancing rail infrastructure investments is also one of the main objectives of national transport policies. Member States have the obligation, stemming from Article 8 of Directive 2012/34/EU, to publish an indicative rail infrastructure development strategy to meet future mobility needs in terms of maintenance, renewal and development of their infrastructure based on sustainable financing of the railway system.

Figure 9 shows the total annual infrastructure expenditure as the sum of network maintenance, renewals, upgrades, and investments into new infrastructure of the EU27 Member States for the years 2018 to 2022 for EU27. The dotted line indicates the share of maintenance and renewals on total infrastructure expenditure.

Figure 9: Expenditure on infrastructure and proportion of maintenance and renewals (EUR billion, 2018-2022)



Source: RMMS, 2022

Total EU27 infrastructure expenditure rose from EUR 38.7 billion in 2018 to EUR 50.8 billion in 2022. In 2022, 25% of the expenditure was on maintenance, 25% on renewals, 26% on upgrades and 24% on investments into new infrastructure.

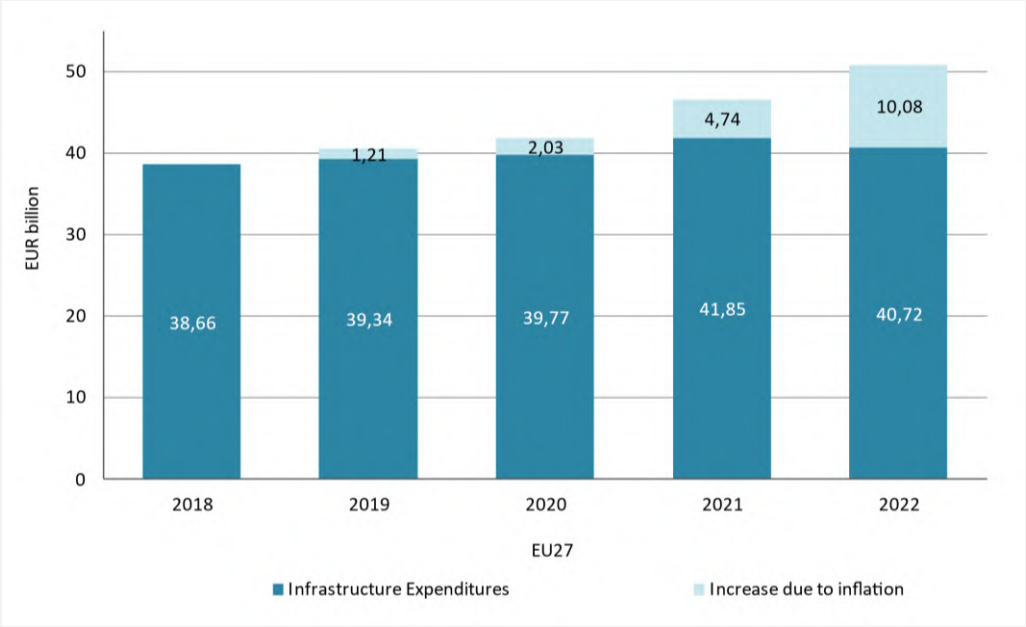
Between 2018 and 2022, the share of maintenance and renewals expenditures into the existing network slightly decreased, whereas the share of new investments increased.

Additional Information

Infrastructure expenditure in the EU27 railway sector grew by 31% from 2018 to 2022, marking a substantial increase. However, this period also experienced the highest inflation rates in the past decade. To accurately assess this growth, adjusting each year's expenditure to 2018 price levels reveals a more modest increase, from EUR 38.7 billion in 2018 to EUR 40.7 billion in 2022—a rise of just 5%. This adjustment provides a view of the real growth in infrastructure in real terms, accounting for inflation.

When isolating the maintenance and renewal segment only of total infrastructure expenditure, data show a steady rise in nominal terms from 2018 to 2022. However, much like the overall spending figures, inflation has tempered this growth in real terms. After adjusting to 2018 price levels, the increase in maintenance and renewal expenditures remains positive but notably smaller than the nominal change would suggest.

Figure 10: Infrastructure expenditure in real terms, 2018 price level (EUR billion, 2018-2022)



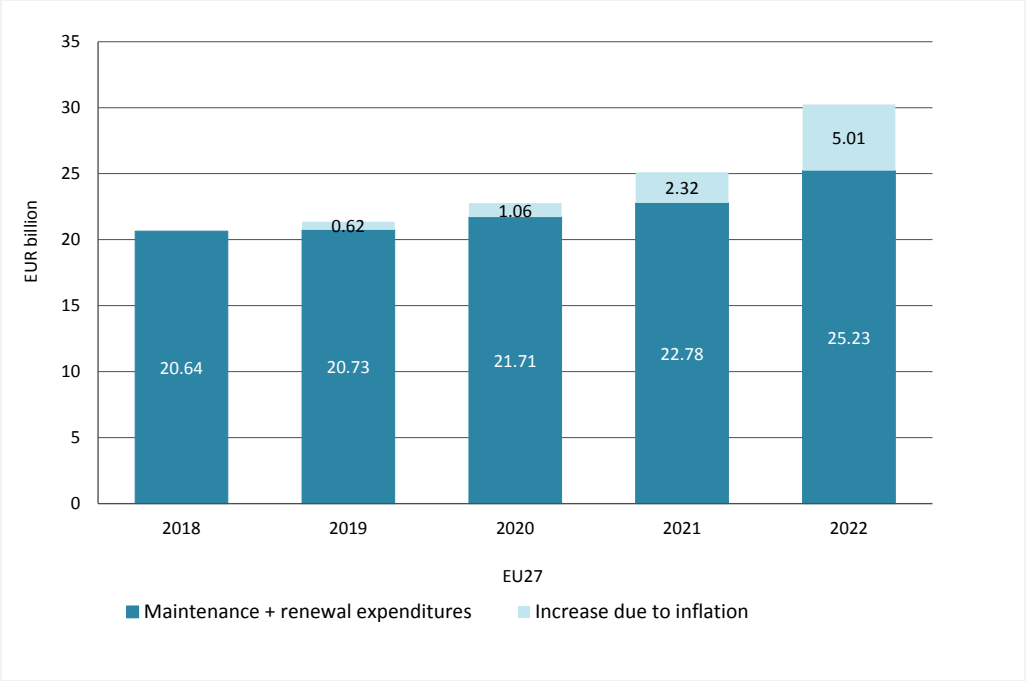
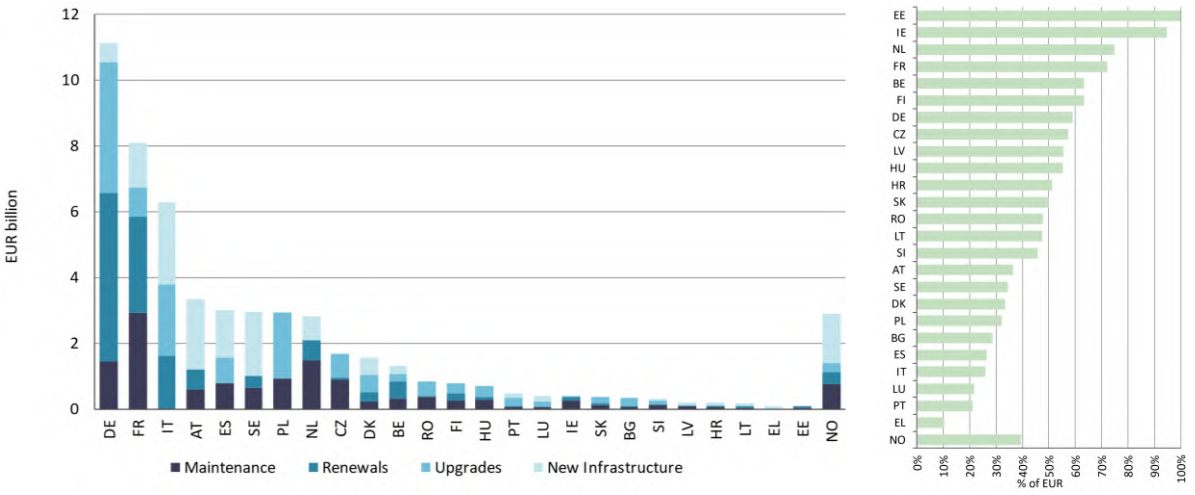


Figure 11 shows the total annual infrastructure expenditure per country in 2022 as the sum of network maintenance, renewals, upgrades, and investments into new infrastructure. The horizontal bar chart indicates the relative share of maintenance and renewals of existing infrastructure in total annual expenditures.

Figure 11: Expenditure on infrastructure and proportion of maintenance and renewals per country (EUR billion, 2022)



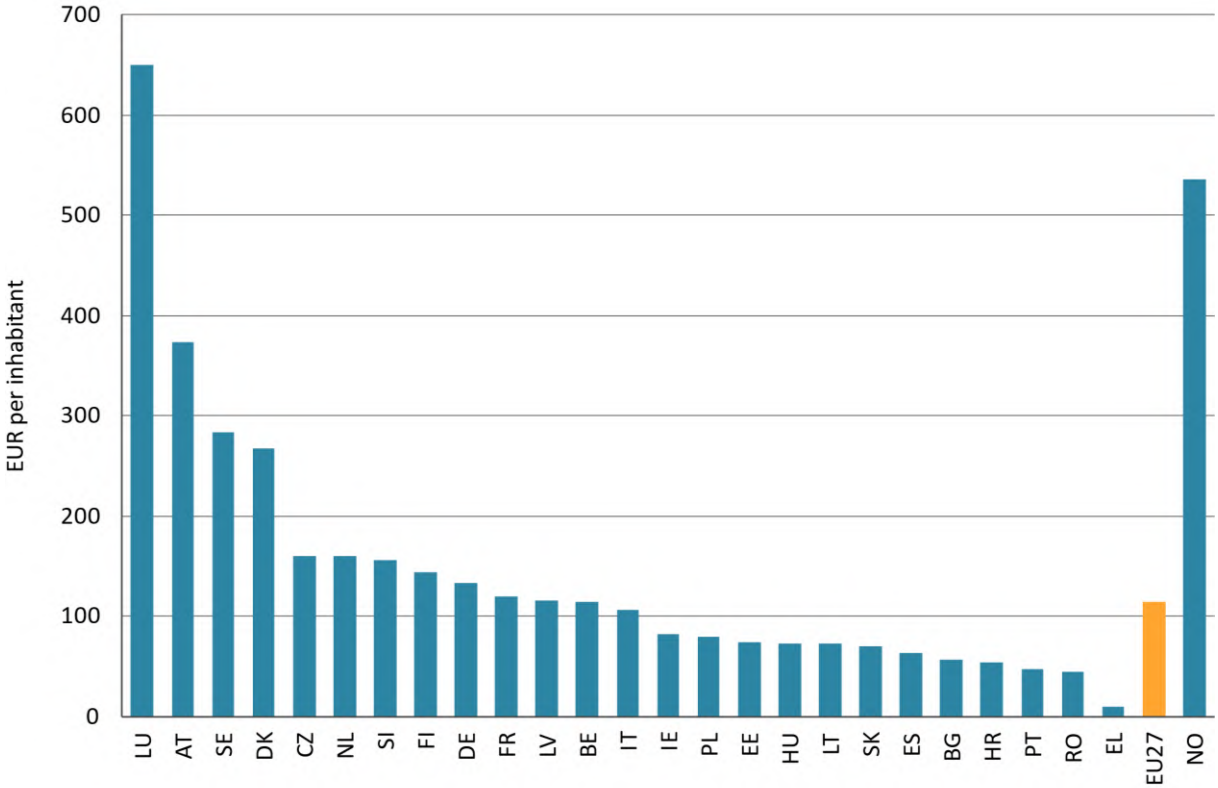
Source: RMMS, 2022

Total infrastructure expenditure in 2022 was highest in Germany, France, Italy, and Austria. Austria, Norway, and Italy had the highest expenditure for new infrastructure, whereas the highest expenditure for infrastructure upgrades was reported in Germany, Italy, and Poland[29]. In 2022, total maintenance and renewal expenditure in the EU27 amounted to EUR 25.2 billion, i.e. 50% of the total expenditure. The highest proportion was for Estonia (100%), and the lowest was for Greece (10%).

Figure 12 shows the total annual infrastructure expenditure per inhabitant in 2022 per country.

[29] Not all countries were able to distinguish in their reporting between investment in new infrastructure and upgrades.

Figure 12: Expenditure on infrastructure per inhabitant per country (EUR, 2022)



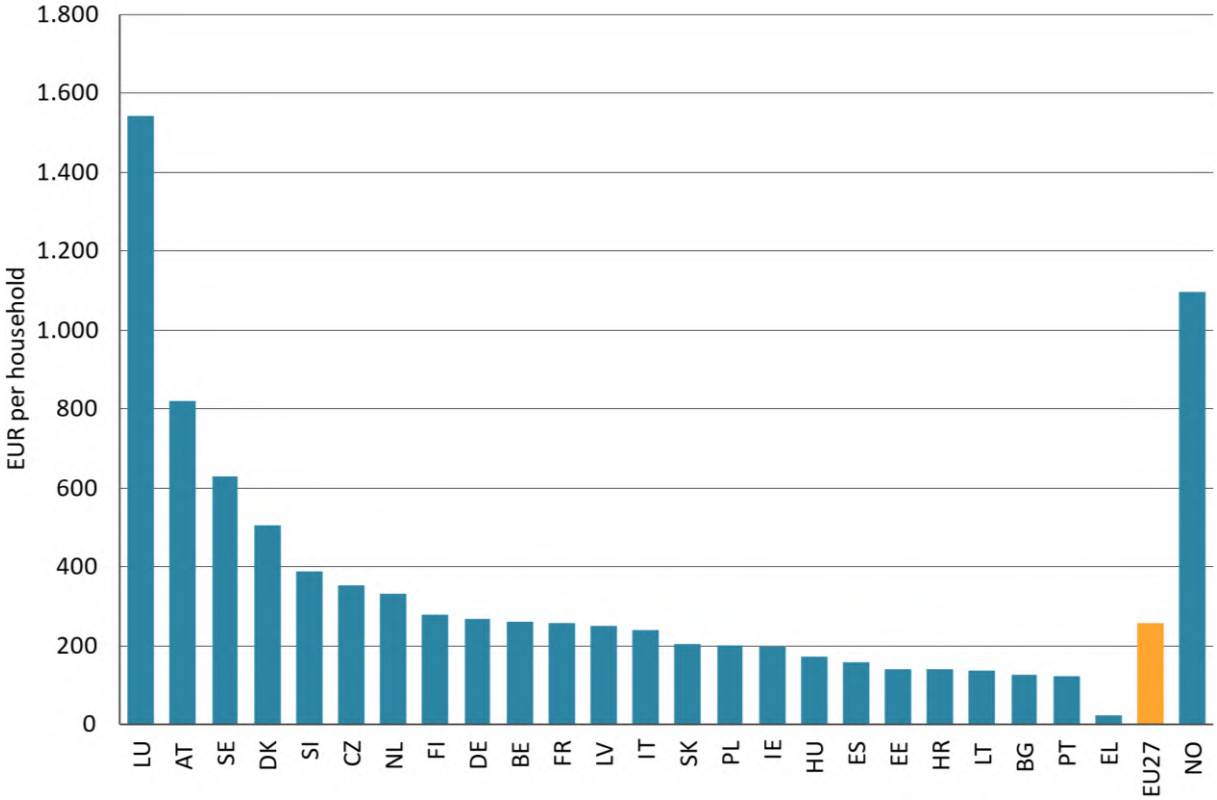
Source: RMMS, 2022; Eurostat, 2022

In 2022 the average infrastructure expenditure per inhabitant in the EU27 was EUR 114. The highest expenditures were made in Luxembourg, with EUR 649 per inhabitant, and the lowest in Greece with EUR 10 per inhabitant.

If the infrastructure expenditure is expressed per household, the EU27 average was EUR 256 in 2022. Looking at the distribution per country (Figure 13), again Luxembourg reports the highest value with EUR 1 543 per household.

Between 2018 and 2022, the highest increase in the average expenditure per inhabitant was recorded in Portugal (225%) and Hungary (146%).

Figure 13: Expenditure on infrastructure per household per country (EUR, 2022)

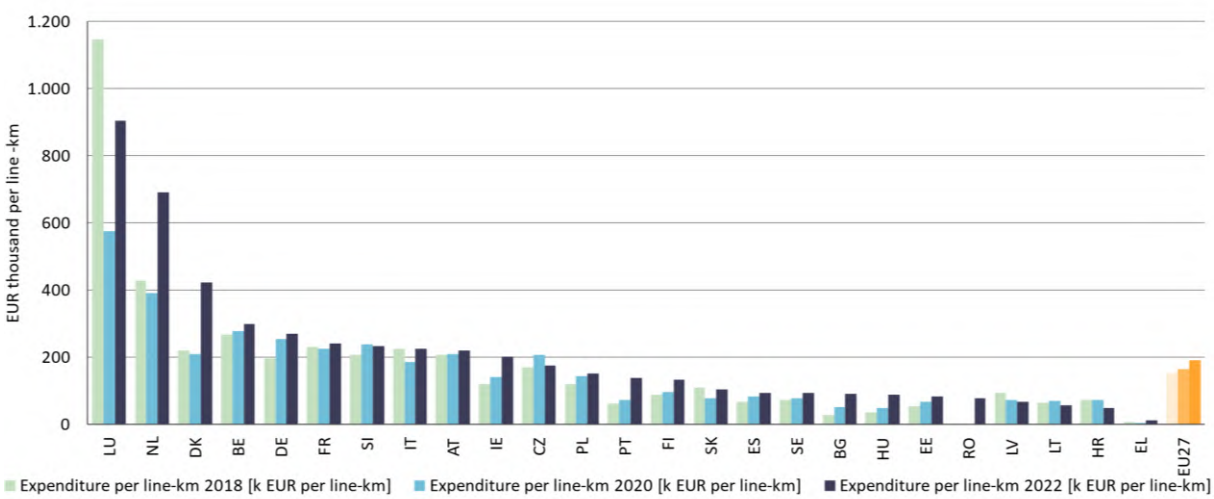


Source: RMMS, 2022, Eurostat, 2022. RO not available. Household data for NO not available in Eurostat, taken from Statistics Norway[30].

Figure 14 shows the sum of annual infrastructure maintenance, renewal, and enhancement expenditure per line kilometre per country for the years 2018 to 2022.

[30] https://www.ssb.no/en/statbank/table/09747/tableViewLayout1/

Figure 14: Expenditure on maintenance, renewal, and enhancement per line-km per country (EUR thousand, 2018-2022)

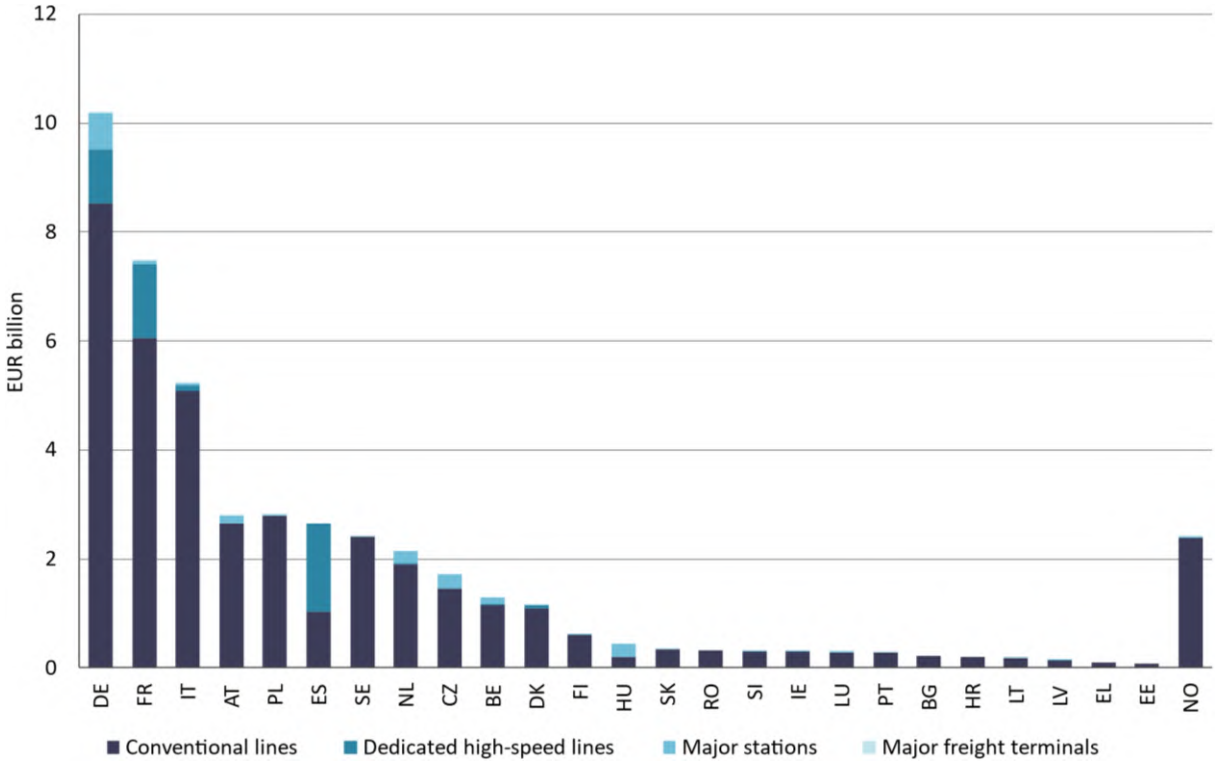


Source: RMMS, 2022, Statistical Pocketbook, 2024. RO not available.

The EU27 average increased from around EUR 151 743 per line-kilometre in 2018 to EUR 191 092 per line kilometre in 2022. Luxembourg reported the highest expenditure, whereas Greece is at the lowest end of the surveyed countries.

Figure 15 shows the average annual infrastructure expenditure per country from 2018 to 2022 as a sum of average expenditures for conventional lines, high-speed lines, major stations, and major freight terminals.

Figure 15: Expenditure by category by country (EUR billion, average of 2018-2022)



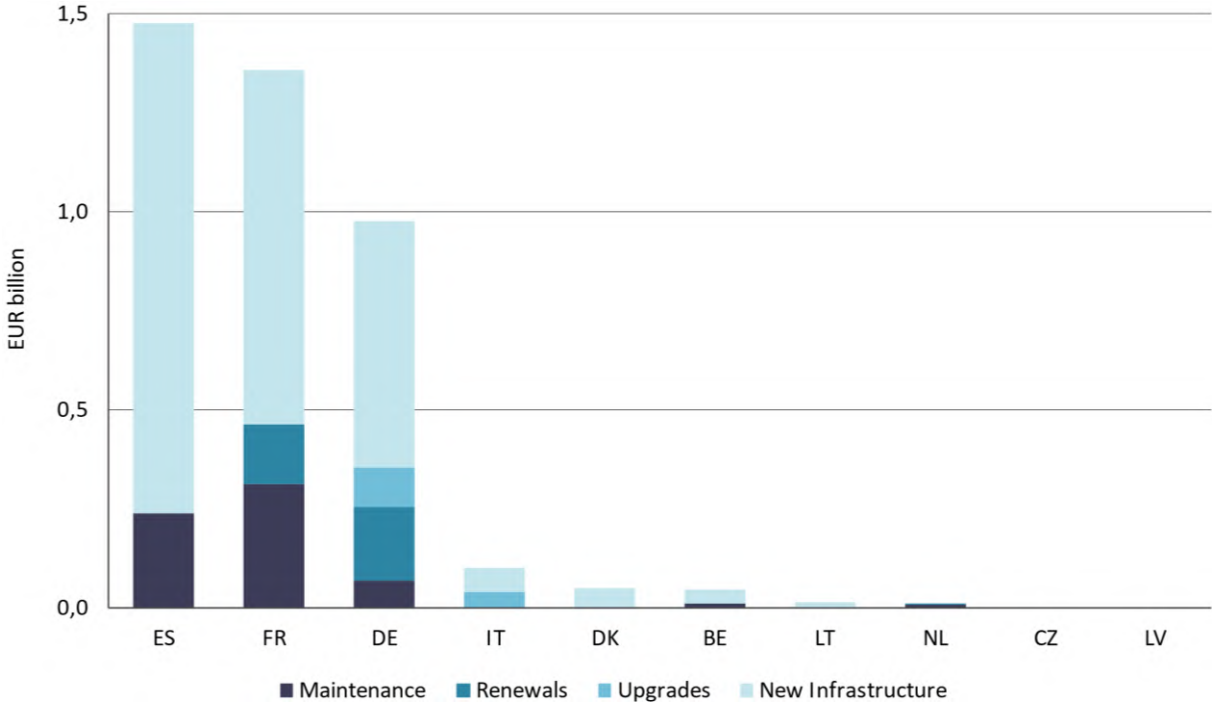
Source: RMMS, 2022

Average total infrastructure expenditure was highest in Germany, France, and Italy. The same applies for expenditure for conventional lines. Average expenditure for high-speed lines was highest in France and Spain. According to the figures reported in the RMMS[31], expenditure for major stations was highest in Germany, the Netherlands, Hungary, and Czechia, while expenditure for major freight terminals was highest in Austria.

Figure 16 shows the data available on average annual expenditure dedicated to high-speed lines between 2018 and 2022.

[31] Reporting on stations and freight terminals expenditure is quite fragmented.

Figure 16: Expenditure on high-speed rail by typology of expenditure and by Member State (EUR billion, average 2018-2022)



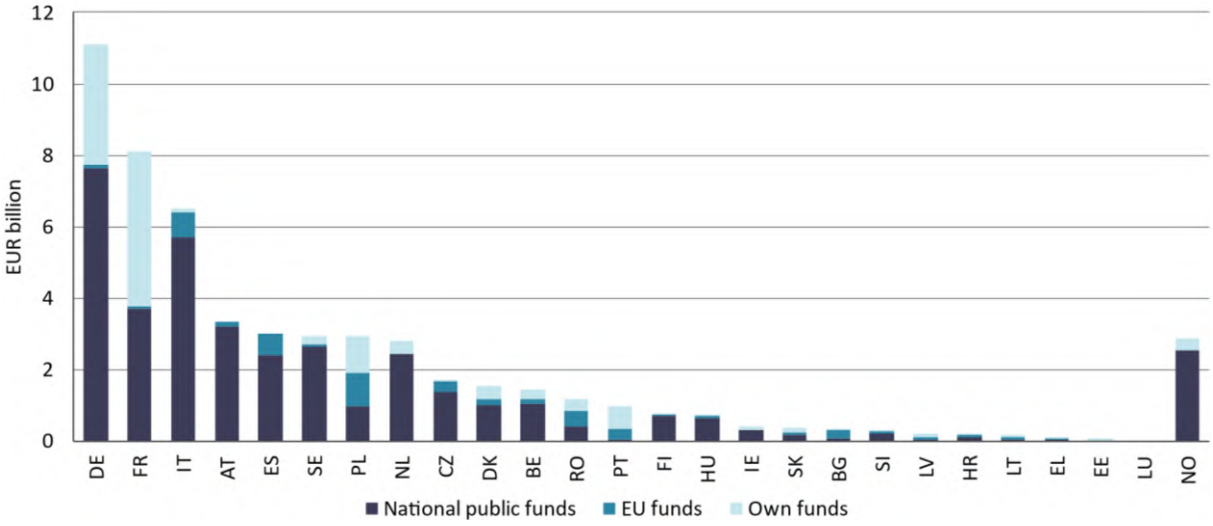
Source: RMMS, 2022

Spain was the Member State which allocated most of its expenditure on high-speed rails between 2018 and 2022 (on average EUR 1.5 billion per year), followed by France and Germany with EUR 1.4 and 1.0 respectively. In these three countries most funds were allocated to new infrastructure, whereas upgrades and renewals played a minor role.

2.2.3. Infrastructure funding and financing

Overall, the EU27 Member States reported EUR 40.65 billion of funding for rail infrastructure in 2022. National budgets contributed to total expenditure and investment by 70%, whereas EU co-financing accounted for 8%. The remaining share of financing with 22% for EU27 came from other sources, including loans, equity financing and charges. Germany, Poland, and France show a significant share of own funds. Bulgaria had the highest share of EU funds in funding, whereas Poland had received the highest sum from EU funds (Figure 17).

Figure 17: Rail infrastructure funding by source and country (EUR billion, 2022)



Source: RMMS, 2022

Additional Information

EU funds contributed significantly to the development of rail infrastructure across Member States through various funding mechanisms. One prominent example is the Rail Baltica project, which aims to integrate the Baltic States – Estonia, Latvia, and Lithuania – into the European rail network. This greenfield project has received substantial support from the Connecting Europe Facility (CEF), with an additional €1.2 billion allocated in 2024 to accelerate its development and construction works.

In Poland, the modernisation of the E30 railway corridor, particularly the section between Kraków and Katowice, has been a focal point of EU investment. This project, co-financed by the EU, aims to enhance the efficiency and safety of rail transport, contributing to the broader objectives of the Trans-European Transport Network (TEN-T).

Spain has also benefited from EU funding, notably through the Cohesion Fund, which supports projects aimed at reducing economic and social disparities and promoting sustainable development. The Cohesion Fund has been instrumental in financing various rail infrastructure projects in Spain, enhancing regional connectivity and mobility.

(1) The Connecting Europe Facility

The Connecting Europe Facility (CEF)[32] is a key EU funding instrument in delivering the European Green Deal and an important enabler towards the Union's decarbonisation objectives for 2030 and 2050. With a budget of EUR 30.5 billion for the years 2014 to 2020 and EUR 33.7 billion for the years 2021 to 2027, it supports the development of high performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy, and digital services.

[32] Source of data: CINEA

Within the CEF, the CEF Transport supports the Trans-European Transport Network (TEN-T) policy. It aims at supporting investments in building new transport infrastructure in Europe or rehabilitating and upgrading the existing one. It focuses on cross-border projects and projects aiming at removing bottlenecks or bridging missing links, as well as for horizontal priorities such as traffic management systems. It also supports innovation in the transport system to improve the use of infrastructure, reduce the environmental impact of transport, enhance energy efficiency, and increase safety. Finally, it contributes to a more environmentally friendly transport sector with more than 80% of the planned investments addressing sustainable transport modes.

CEF Transport 2021-2027

Between 2021 and 2027 CINEA will manage EUR 25.8 billion to support transport infrastructure projects throughout the EU and beyond. A total of EUR 11.29 billion will be earmarked for countries eligible to receive support from the cohesion Fund. CEF transport will also aim to improve military mobility within the EU, with EUR 1.69 billion earmarked to fund dual-use infrastructure compatible with both civilian and military needs.

Since 2021, CEF Transport has already supported 499 projects with EUR 14.6 billion in EU funding. Cohesion countries (excluding AFIF) receive EUR 5.6 billion, Military Mobility projects receive EUR 1.7 billion and EUR 1.3 billion is invested under the Alternative Fuel Infrastructure Facility, the remaining EUR 6 billion is invested under the general envelope.

CEF Transport 2014-2020

A total of 32 calls for proposals have been concluded for the implementation of 2014-2020 financial envelope of the CEF, supporting 1 036 Actions with EUR 22.8 billion in funding.

A predominant part of the CEF grants (74%) has been allocated to railway actions, as shown in Table 3. Many Actions have already been successfully concluded, while the remaining ones are expected to be closed in 2024.

Table 3: CEF funding by transport mode (EUR billion, number of Actions)

CEF Transport Mode	Number of Projects	Actual funding (EUR bn)	% funding
Rail	473	16.8	74%
Road	227	2.1	9%
Maritime	168	1.2	5%
Air	71	1.4	6%
Inland waterways	97	1.3	6%
Grand Total	1036	22.8	100%

Source: CINEA, 2024. Furthermore, CEF Transport supported 34 Programme Support Actions (PSAs).

More than 300 CEF Transport co-funded actions aim to build, adapt, upgrade, and improve 4,300 kilometres of railway lines all over Europe. The total indicative investment in these actions is EUR 30 billion, of which EUR 15 billion is EU support. Within the 4,300 km of new or upgraded rail lines CEF Transport Actions aim to[33]:

- Electrify (including upgrades) around 3,000 km of line tracks and sidings;

[33] Several interventions (e.g. electrification and gauge upgrades) can be financed on the same line.

- Construct/upgrade 4,000 km of freight or mixed lines;
- Adapt more than 500 km of railway to the European standard gauge.

The European Rail Traffic Management System – ERTMS (a command-and-control system composed of the European Train Control System – ETCS and the data/radio communication system) is a major EU horizontal railway priority aiming at increasing rail transport safety, capacity and interoperability of the railway network. CEF Transport funds 70 Actions implementing ERTMS with a total CEF support of more than EUR 900 million. CEF1 Transport Actions contribute to:

1. ERTMS track-side deployment, including:
   - 4,467 km of first deployment and
   - Upgrade of the old baselines of existing system on more than 840 km of railway lines.
2. ERTMS on-board deployment
   - Retrofitting of 1,465 vehicles
   - Upgrade of 562 vehicles
   - Fitment of 766 vehicles
   - Prototype on 86 vehicles

(2) Cohesion policy support for rail transport

Although the TEN-T is the backbone of the European rail transport network, for the development of a European transport system which offers seamless and safe door-to-door mobility, the other layers of the rail network, at national, regional and local level, are also important because they ensure connectivity to the TEN-T and thus play a key role in meeting the daily regional and local mobility needs of citizens and businesses. Whereas the Connecting Europe Facility and Cohesion policy support TEN-T, Cohesion policy also pays attention to improving access to TEN-T, connecting regions to the large railway networks, allowing for proper transport and public transport connections with citizens' places of work, hospitals, education centres, etc., integrating transport in place-based regional development plans.

Cohesion policy support to transport 2021-2027

EU Cohesion policy provides co-financing for investments that mitigate territorial disparities in transport infrastructure and in facilitating the green and digital transitions to the transport sector. The European Rail Traffic Management System will be deployed across the entire TEN-T network, enhancing rail safety and efficiency. Major airports with over 12 million passengers annually must be connected by long-distance rail, making rail a competitive alternative to airplanes. Freight terminals will help the shift to sustainable transport modes.

Efficient rail transport of goods and passengers is crucial to the EU economic and social cohesion, strengthening EU cohesion by linking the major cities, urban nodes, maritime and inland ports, airports, and multimodal terminals. Cohesion policy supports a significant share of the public investments in transport in EU Member States and regions. In Poland for example, ERDF and Cohesion Fund cover 33% of all rail investments in 2021-2027.

For the programming period 2021-2027, Cohesion policy has allocated EUR 59.3 billion to transport and mobility investments under Policy Objective 3 (TEN-T, non-TEN-T, and connecting infrastructure) and Special Objective 2.8 (sustainable urban transport): EUR 34.6 billion ERDF, EUR 24.2 billion Cohesion Fund, and EUR 550 million from the Just Transition Fund; predominantly (97%) to the less developed ('Cohesion') Member States. EUR 18.2 billion (30.7%) has been dedicated to railway infrastructure and rolling stock. In addition, EUR 11.3 billion from the Cohesion Fund has been

transferred to the Connecting Europe Facility and earmarked for countries eligible to receive support from the Cohesion Fund, to support TEN-T infrastructure investments, mostly railways.

EUR 18.2 billion or 31% of the Cohesion policy allocations to transport is dedicated to completing railway networks and rolling stock: EUR 6.2 billion to core TEN-T, EUR 4.5 billion to comprehensive TEN-T, EUR 4.5 billion to other railway, including cross-border sections to connect with neighbouring networks, EUR 2.5 billion to rail rolling stock, and EUR 0.55 billion to ERTMS and digitalisation of railway transport. This financial support should result into:

- Length of new / reconstructed / upgraded / modernised TEN-T lines: 3 905 km
- Length of ERTMS equipped TEN-T lines: 1 549 km (+ 66 km non-TEN-T)
- Length of non-TEN-T new / reconstructed / upgraded / modernised lines: 1 952 km
- New / modernised railway stations and stops: 135 (+ 178 urban rail under Specific Objective 2.8)

Cohesion policy support to transport 2014-2020

In the programming period 2014-2020, EUR 69.1 billion in Cohesion policy funds were allocated to transport investments. Some selected output indicators (December 2023):

- Length of reconstructed or upgraded railway lines: 2 164 km (planned 4 544 km)
- Length of new TEN-T railway lines: 146 km (planned 422 km)
- Length of newly built TEN-T roads: planned 2 507 km, implemented 2 492 km
- Length of new / improved tram and metro lines: 257 km (planned 543 km)

(3) Financial instruments

In addition to grants, the EU supports investments through financial guarantees, in partnership with the EIB and other Promotional Banks. As of 2022, such guarantees are provided under the InvestEU Programme[34].

InvestEU consolidates under the same umbrella both the EU financial instruments and their related advisory facilities. It is expected to mobilise more than EUR 372 billion of public and private investment through an EU budget guarantee of EUR 26.2 billion that backs the investment of financial partners such as the European Investment Bank (EIB) Group and others.

InvestEU supports four Policy Windows, focusing on investments where the EU can add the most value:

1. **Sustainable infrastructure**

Financing projects in sustainable energy, digital connectivity, transport, the circular economy, water, waste, other environment infrastructure and more.

2. **Research, innovation and digitalisation**

[34] https://investeu.europa.eu/what-investeu-programme/investeu-fund/about-investeu-fund_en . The EU has also developed blending instruments combining grants with loans or guarantees, as explained in the previous paragraph.

Financing projects in research and innovation, taking research results to the market, digitisation of industry, scaling up larger innovative companies, artificial intelligence and more.

3. **Small and medium-sized companies**

Facilitating access to finance for small and medium-sized companies (SMEs), small mid-cap companies, including innovative ones and those operating in the cultural and creative sectors.

4. **Social investment and skills**

Financing projects in skills, education, training, social housing, schools, universities, hospitals, social innovation, healthcare, long-term care and accessibility, microfinance, social enterprise, integration of migrants, refugees, and vulnerable people, and more.

The EU guarantee for the Sustainable Infrastructure window amounts to EUR 9.9 billion without ring fencing between infrastructure sectors, as the instrument is demand driven. Under this policy window, at least 60% of the investment should contribute to meeting the Union objectives on climate and environment. Rail infrastructure and rolling stock are eligible for support.

(4) Horizon Europe

Within the Horizon Europe's second pillar dedicated to global challenges and European industrial competitiveness, EUR 15.2 billion have been allocated to cluster 5, which includes mobility.

Figure 18: Pillar 2 – Budget for clusters and for Joint Research Centre (EUR)

		In current prices
Cluster 1	Health	€ 8.1 billion
Cluster 2	Culture, Creativity & Inclusive Societies	€ 2.3 billion
Cluster 3	Civil Security for Society	€ 1.6 billion
Cluster 4	Cluster 4 Digital, Industry & Space	€ 15.0 billion
Cluster 5	Cluster 5 Climate, Energy & Mobility	€ 14.8 billion
Cluster 6	Cluster 6 Food, Bioeconomy, Natural Resources, Agriculture & Environment	€ 8.7 billion
	JRC (non-nuclear direct actions)	€ 2.0 billion

Clusters are including a budget for Partnerships and Missions

Source: EC, 2024

(5) Research and innovation - Europe's Rail Joint Undertaking

The rail research and innovation are done beyond traditional work programmes in Horizon Europe in the Europe's Rail Joint Undertaking (EU-Rail) [35], established by Council Regulation (EU) No 2021/2085[36].

[35] https://rail-research.europa.eu/

The general aim of the partnership is to ensure a fast transition to more attractive, user-friendly, competitive, affordable, easy to maintain, efficient and sustainable European rail system, integrated into the wider mobility system. EU-Rail will support the development of a strong and globally competitive European rail industry while contributing towards the achievement of the Single European Railway Area (SERA). Europe's Rail will develop research and innovation actions in the following areas:

1. European Rail Traffic Management and supporting rail's key role in a multimodal transport system
2. Digital and Automated Train Operations
3. Sustainable and Digital Assets
4. Competitive digital green rail freight
5. Smart solutions for low density traffic lines (cost-efficient regional lines)

EU-Rail novelty compared to its predecessor (Shift2Rail) is the setup of a System Pillar that ought to help the sector to coordinate and converge on a common evolution of the rail as a system. The System Pillar will:

- Define the fundamental design principles and a layered functional architecture for rail as a system (as has been used for decades in many industries such as aviation, defence, energy, and telecoms).
- Harmonise this system architecture approach at European level, including standardisation of interfaces, communications, and data exchange.
- Consider the migration path from current systems to the future system.
- Ensure that the long-term system view can be reflected in a predictable regulatory framework, while modularity ensures the necessary flexibility to innovate.

All these activities together with exploratory research should result in:

- Meeting evolving customer requirements
- Improved performance and capacity
- Reduced costs
- More sustainable transport
- Harmonised approach to evolution and greater adaptability
- Reinforced role for rail in European transport and mobility
- Improved EU rail supply industry competitiveness

The overall budget of EU-Rail is EUR 1 267 million and the maximum financial contribution of the Union to the joint undertaking is EUR 600 million.

EU-Rail has launched its first call in 2022 with demonstrators expected in 2025. Further demonstrators will follow in 2027 and 2031.

(6) Recovery and Resilience Facility

Entered into force on February 2021, the Recovery and Resilience Facility (RRF) is a temporary recovery instrument aiming to mitigate the economic and social impact of the coronavirus pandemic

---

[36] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R2085
The Horizon Europe cluster 5 contains also several cross-modal topics for which the rail supply industry may apply.

and make European economies and societies more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions.

The RRF finances reforms and investments in Member States from the start of the pandemic in February 2020 until 31 December 2026. It makes available to Member States EUR 723.8 billion (in current prices), part in the form of loans (EUR 385.8 billion) and part in the form of grants (EUR 338 billion).

The RRF is structured around six pillars:

(1) green transition
(2) digital transformation
(3) smart sustainable and inclusive growth
(4) social and territorial cohesion
(5) health and economic, social, and institutional resilience and
(6) policies for the next generation.

To benefit from the support of the RRF, Member States submit their recovery and resilience plans (RRPs) to the European Commission. Each plan sets out the reforms and investments to be implemented by end-2026 and Member States can receive financing up to a previously agreed allocation.

Under the national RRPs financed by the RRF, almost EUR 50 billion was allocated to railways. The rail investments foreseen in 21 Member States relate mainly to the development of the rail infrastructure (creation and upgrade of lines, stations, ERTMS equipment), including on the TEN-T network, but also to digitalisation (e.g. ticketing, information system), accessibility for passenger with reduced mobility and deployment of new more environment-friendly rolling stock.

3. The evolution of rail services

Traffic volume indicators of this section expressed in passenger kilometres and tonne kilometres are based on RMMS data as available from 2005 on. This data covers exactly the scope of Directive 2012/34/EU and provides breakdowns of volumes in terms of market segments (passenger/freight, domestic/international, PSO/non-PSO). Eurostat also reports traffic volumes in passenger kilometres and tonne kilometres per country, but figures could show slight differences with those reported in the RMMS due to variations in the scope of reporting, potential double counting of transit volumes and adjustments performed in the RMMS (estimates and integration from other sources for missing data).

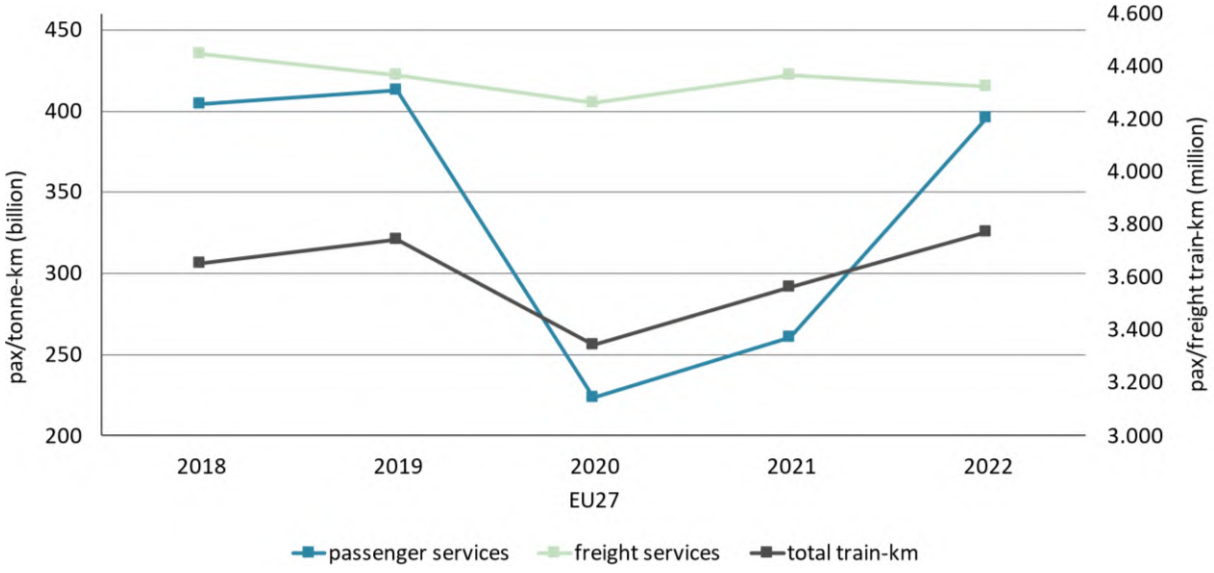
Since data on train kilometres has been reported in the RMMS only after the entry into force of Regulation 2015/1100, figures reported by Eurostat, UIC and IRG-Rail have been combined to acquire a dataset as complete as possible for the years before 2018.

Finally, to assess the modal split, which requires combining the data of different modes, only Eurostat data from the Statistical Pocketbook are used.

3.1. Traffic volumes

The effects of the COVID-19 pandemic are clear looking at the number of transported passengers, which almost halved in 2020 compared to 2019. The impact of the pandemic was more limited on rail freight traffic, which decreased in 2020 by less than 4% compared to 2019 levels. The decrease in total train kilometres from 2019 to 2020 was around 10%.

Figure 19: Passenger and freight volumes (pax-km, tonne-km, and train-km, 2018-2022)

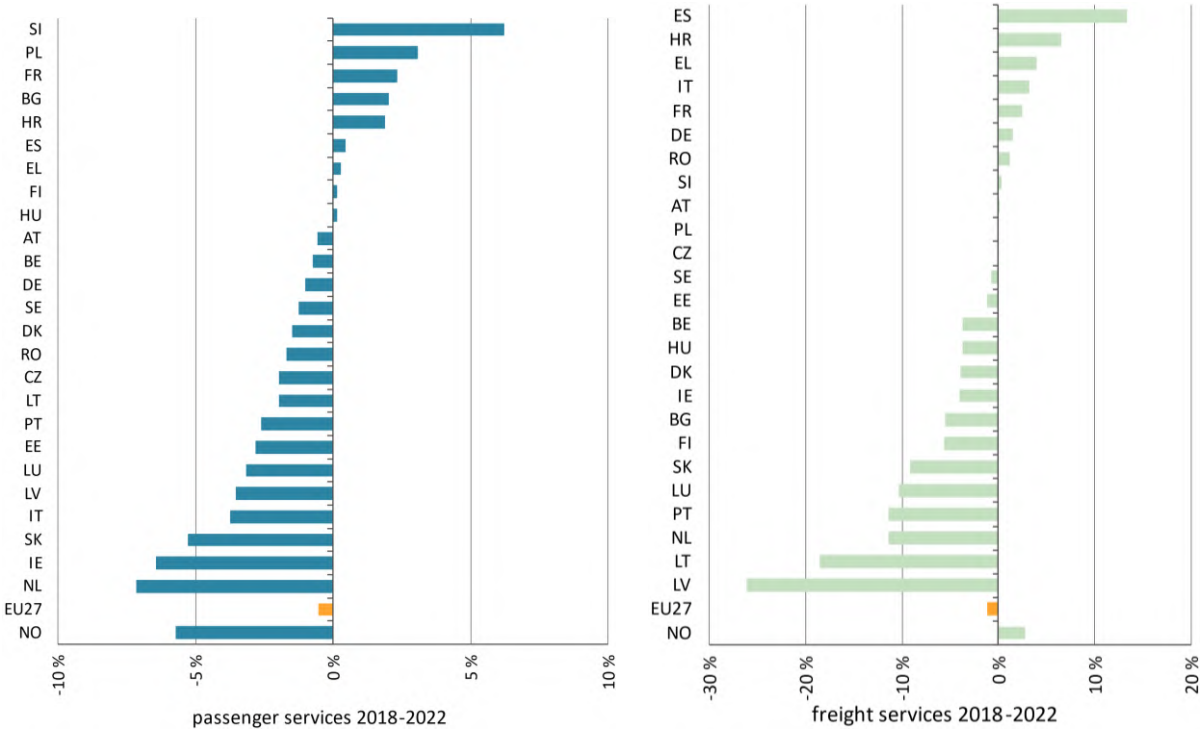


Source: RMMS, 2022

On average, passenger traffic in terms of passenger kilometres in Europe decreased by 1% annually between 2018 and 2022 (CAGR), as shown by Figure 20, which results from the combined effect of the pandemic and of a positive underlying trend. In fact, there has been a remarkable recovery after the pandemic, considering that the passenger kilometres shrank dramatically by 46% in the EU27 due to confinement or travel restrictions in 2020.

Between 2018 and 2022 freight traffic in terms of tonne kilometres increased annually by 1% (CAGR). The reduction from 2019 to 2020 was less radical than for passenger services, with only an 8% decline in the EU27, as freight service continued to maintain the provision of basic goods.

Figure 20: Passenger and freight volumes, compound annual growth rate per country (%, 2018-2022)

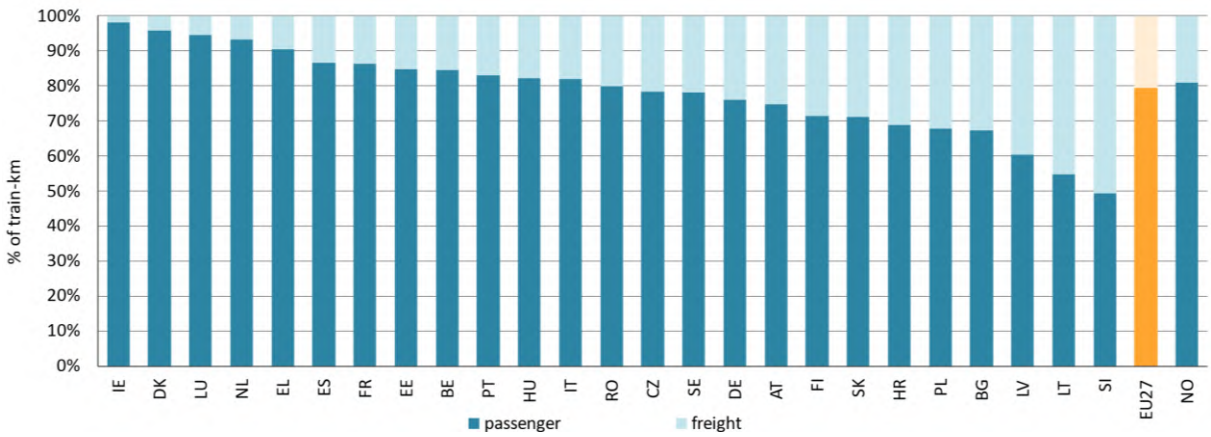


Source: RMMS, 2022

The focus of rail transport varies between countries. On average, 79% of all train kilometres in the EU27 in 2022 were performed by passenger services.

Figure 21 shows that the highest share of passenger services in 2022 is reported for Ireland (98%), Denmark (96%), Luxembourg (95%). The highest share of freight services in 2022 is reported for Slovenia (51%), Lithuania (45%) and Latvia (40%).

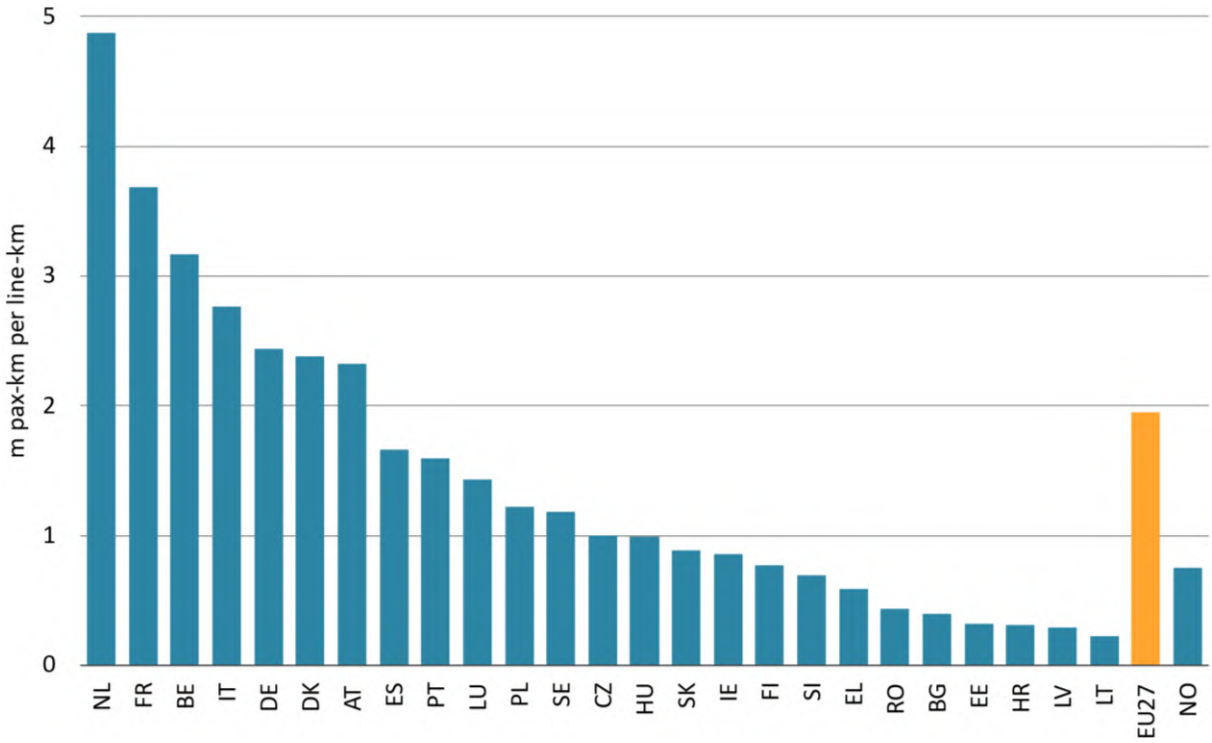
Figure 21: Relative share of passenger and freight train-km on total train-km per country (%, 2022)



Source: RMMS, 2022

Figure 22 shows the intensity of use of the rail network for passenger transport measured in million passenger kilometres per line kilometre in 2022 per country.

Figure 22: Utilisation of rail infrastructure for passenger transport per country (millions of pax-km per line-km, 2022)

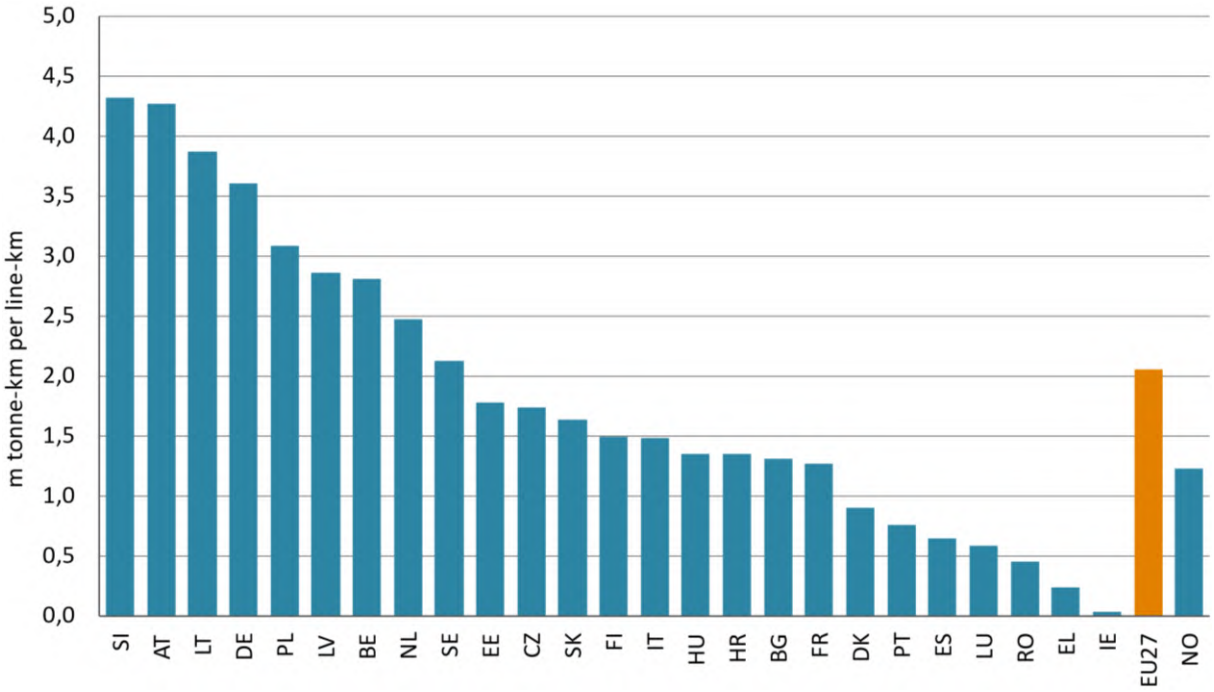


Source: RMMS, 2022

In 2022, the EU27 network was used by 1.95 million passenger kilometres per line kilometre on average. The Netherlands had by far the highest passenger traffic density (4.88), while Lithuania had the lowest (0.23). Overall, between 2018 and 2022 European passenger traffic density decreased by 0.06 million passenger kilometres per line kilometre. According to data available in the RMMS, over the same period the Netherlands reported the highest decrease (- 1.68 million passenger kilometres per line kilometre).

Figure 23 shows the intensity of use of the rail network for freight transport measured in million tonne kilometres per line kilometre in 2022 per country.

Figure 23: Utilisation of rail infrastructure for freight transport per country (millions of tonne-km per line-km, 2022)



Source: RMMS, 2022

In 2022, the EU27 rail network saw an average usage of 2.06 million tonne-kilometres per line kilometre. Slovenia and Austria reported the highest freight traffic density, with 4.3 million tonne-kilometres per line kilometre, while Ireland had the lowest at 0.04. From 2018 to 2022, freight traffic density across the EU27 decreased slightly by 0.10 million tonne-kilometres per line kilometre. According to RMMS data, Croatia saw the highest increase in freight traffic density (+0.30 million tonne-kilometres per line kilometre), while Latvia recorded the largest decrease (-6.78 million tonne-kilometres per line kilometre). The conflict between Russia and Ukraine notably impacted freight services in Baltic countries, with a decline of 49% in Lithuania and 40% in Estonia from 2021 to 2022. In Latvia, freight services had already fallen to their lowest level in 2021, before the war even started.

3.2. The rail passenger market

3.2.1. Rail passenger policy developments

On 14 December 2021, the Commission adopted the Efficient and green mobility package[37], which includes the Action plan to boost long-distance and cross-border passenger rail. The Action plan follows up on the Sustainable and Smart Mobility Strategy of December 2020 and presents concrete actions which are meant to contribute to achieving the ambitious milestone formulated for rail in the Strategy.

The Action plan contains 10 action areas which are meant to help removing obstacles to long-distance and cross-border passenger rail:

[37] https://transport.ec.europa.eu/news/efficient-and-green-mobility-2021-12-14_en

1. **Better implementation of the Union rail acquis and accelerated interoperability**

This action addresses the correct and full implementation of the four railway packages, removal of redundant national rules, accelerated roll-out of ERTMS, a revision of the Technical Specifications for Interoperability and the work of the European Union Agency for Railways (ERA) and of Europe's Rail Joint Undertaking. The follow-up of this action is ongoing and in 2023 a TSI package revising a number of key TSI's has been adopted.

2. **A strengthened infrastructure for passenger rail**

This action addresses the revision of the trans-European transport network (TEN-T) Regulation, which was adopted by European Parliament and Council in 2024 (Regulation (EU) 2024/1679 of 13 June 2024)

3. **Sufficient rolling stock availability**

In December 2021, the European Investment Bank (EIB) launched the Green Rail Investment Platform, to finance, among other things, rolling stock. Further, the 'Luxembourg Protocol' – that reduces risks when investing in rolling stock - has entered into force on 8 March 2024, and the revised LOC&PAS TSI includes "go-everywhere" specifications for passenger rolling stock. Ongoing financing programmes for fitting rolling stock with ERTMS.

4. **Bringing train drivers and railway staff training and certification in line with future needs**

This action addresses a revised regulatory framework for train drivers, expected for 2025, and the 2022 Year of Youth included initiatives to bring a career in rail under the attention of young people.

5. **A more efficient use of the networks**

In July 2023, the Commission adopted a proposal for a Regulation on the use of infrastructure network capacity. The proposal has been assessed by the European Parliament and the Council. Trilogue started in November 2024.

6. **Appropriate pricing for track access**

The Commission is preparing guidelines, expected to be adopted in 2025, which aim to help the setting of track access charges which incentivise the uptake of new rail services, such as on the long-distance.

7. **User-friendly ticketing and access to the rail system**

This action addresses an initiative for a new Regulation on multimodal digital mobility services (MDMS), a new Regulation on Single Digital Booking and ticketing and associated initiatives on passenger rights for the whole trip, as well as the monitoring of compliance with the recently revised Rail Passenger Rights Regulation

8. **A level playing field with other transport modes**

This action addresses the Fit-for-55 package and a possible exemption of VAT on international train services

9. **Public Service Obligations to promote sustainable cross-border and/or multimodal collective transport**

This action addresses the interpretative guidelines for applying the Land PSO Regulation which were adopted on 22 June 2023[38]

10. Empowering youth

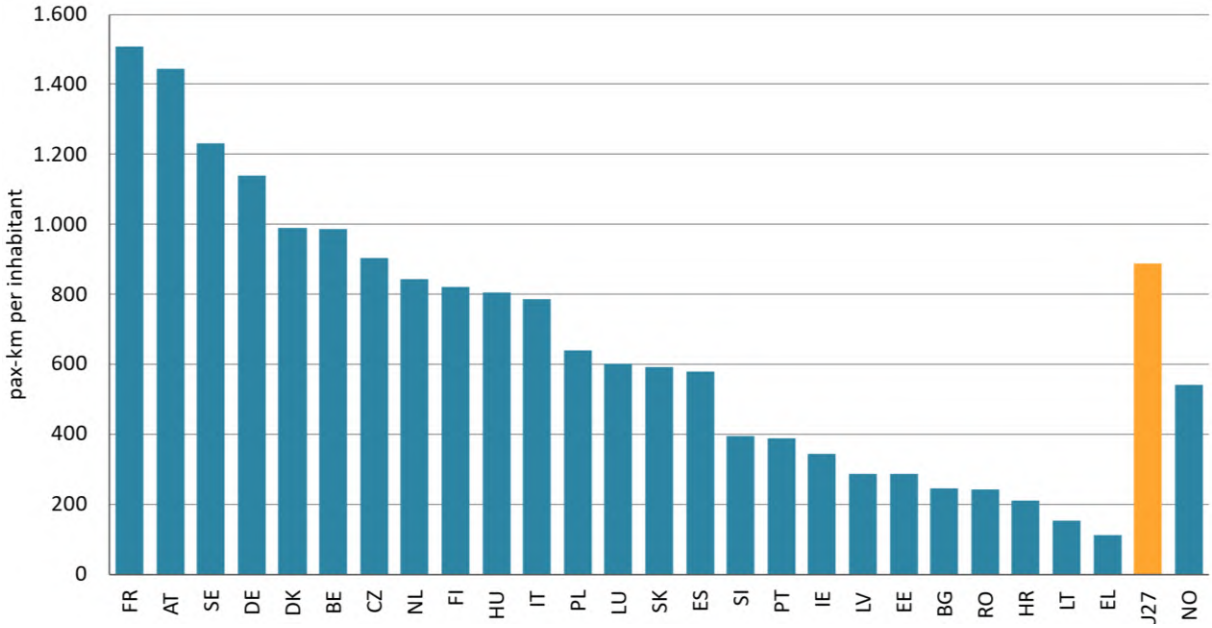
This action addresses the Erasmus reimbursement rules to promote the use of sustainable transport modes

Further, the Action plan introduces the possibility for stakeholders to submit, from 2022, proposals for cross-border rail pilot services to the Commission. Ten Pilot services have been selected which are meant to address obstacles identified in the Action plan. The Commission will support these pilots by facilitating contact with relevant stakeholders, by aiding and investigating rail capacity and traffic management aspects through CEF technical assistance.

3.2.2. Evolution of rail passenger volumes

Figure 24 shows how propensity to travel by rail, measured as annual passenger kilometres per inhabitant, varies significantly between states.

Figure 24: Propensity to travel by rail (pax-km per inhabitant, 2022)



Source: RMMS, 2022; Statistical Pocketbook, 2024

Each citizen of the European Union travelled 888 passenger kilometres on average annually in 2022, which is a dramatic decrease compared to 2018 with 911 km. The highest propensity to travel by rail can be observed in France (1 507), and the lowest in Greece (112). Compared to 2018, Ireland and the Netherlands showed the largest reduction in passenger kilometres per inhabitant with a 6% and 6% decline respectively, whereas Slovenia had the biggest increase with 5 %.

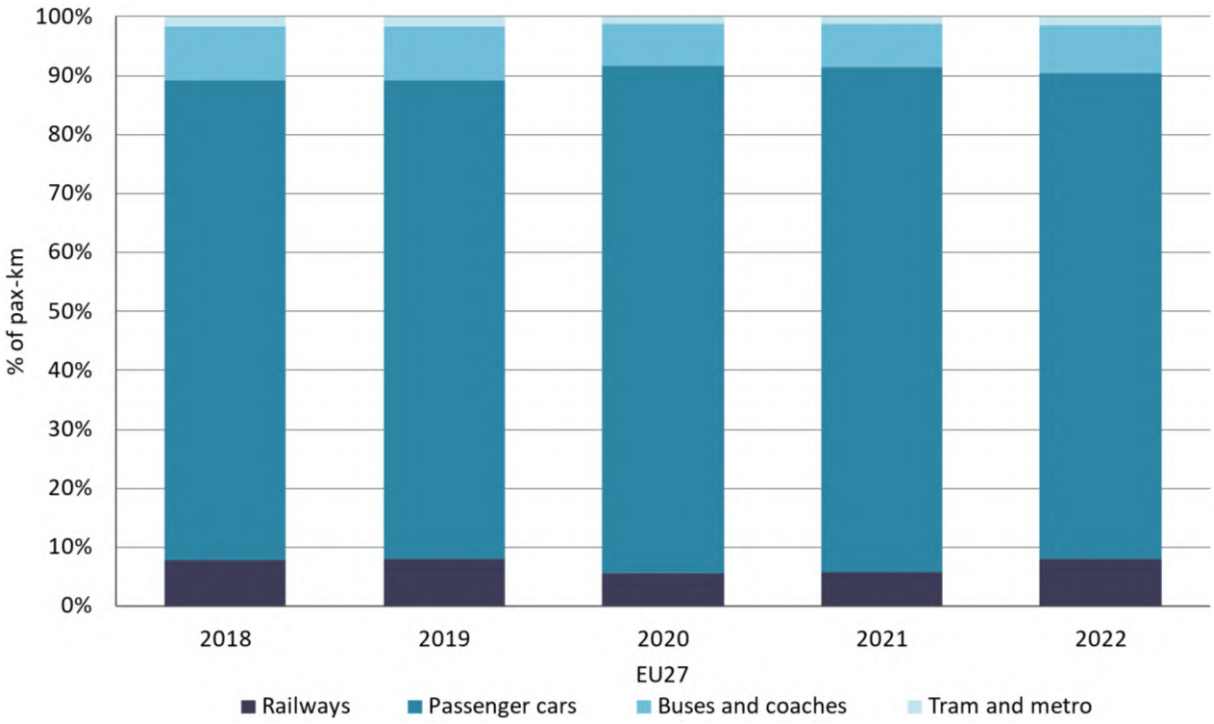
[38] https://transport.ec.europa.eu/news-events/news/increasing-public-transport-use-eu-commission-adopts-interpretative-guidelines-public-service-2023-06-22_en?utm

Passenger transport modal split

Looking at the EU27 performance by mode (all modes included i.e. land, air, and sea transport modes), in 2022, railways had a modal share of only 8.1% against 82.4% for passenger cars[39].

Figure 25 shows the passenger land transport modal split between 2018 and 2022 in the EU27, with land transport including passenger cars, buses and coaches, railways and tram and metro.

Figure 25: Passenger land transport modal split (% in 2018-2022)



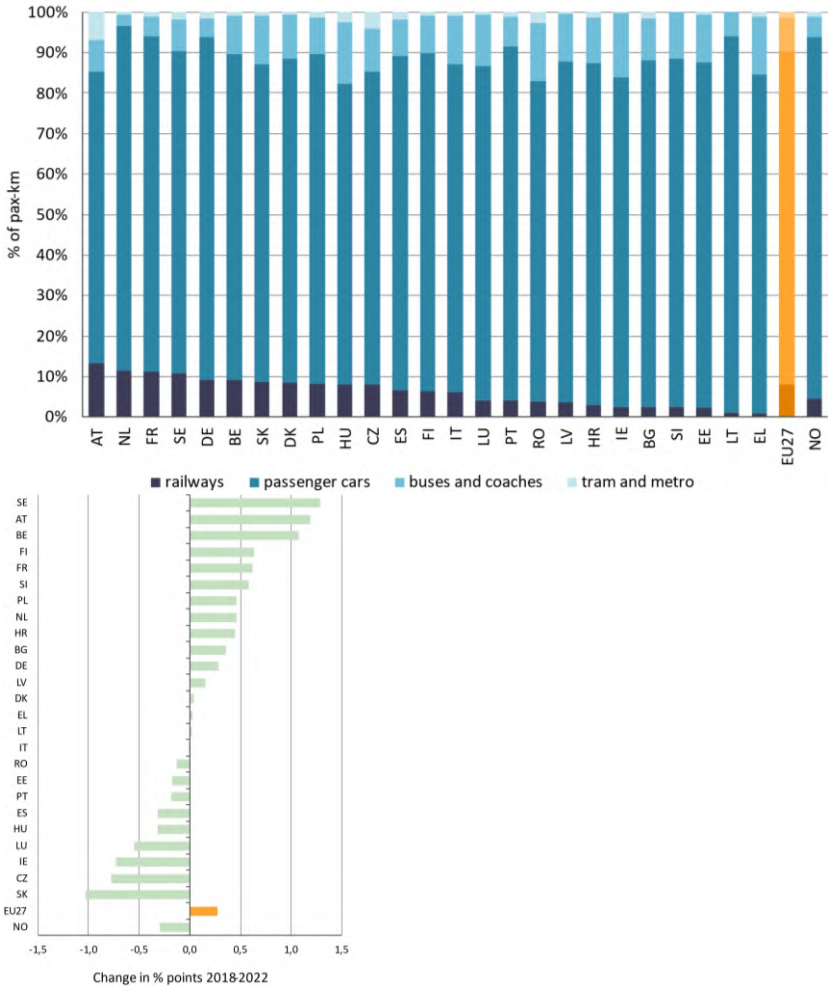
Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/TRAN_HV_PSMOD/default/table?lang=en)

Passenger car transport dominates total passenger land transport within the EU27, with a share consistently higher than 80% between 2018 and 2022. Between 2018 and 2022, the rail modal share rose from 7.8% to 8.1%, while tram and metro's modal share decreased from 1.7% to 1.4%. At the same time, the modal share of bus and coach transport fell from 9.1% to 8.2%.

In 2022, Austria, the Netherlands, France, and Sweden were the countries with the highest rail share (more than 10%), as shown in Figure 26. Between 2018 and 2022, in the majority of countries the modal share of rail transport increased slightly, on average by 0.27 percentage points. This is even more remarkable, considering the share decreased 2.4 percentage points in the EU27 in 2020 due to the pandemic. Looking at Figure 25 shows how the travel measures linked to the pandemic pushed passengers towards the use of individual means of transport (cars) and how it evolved back to the situation before the pandemic.

[39] See Statistical pocketbook 2022.

Figure 26: Passenger land transport modal split by country (% in 2022) and change in percentage points for rail (2018 and 2022)

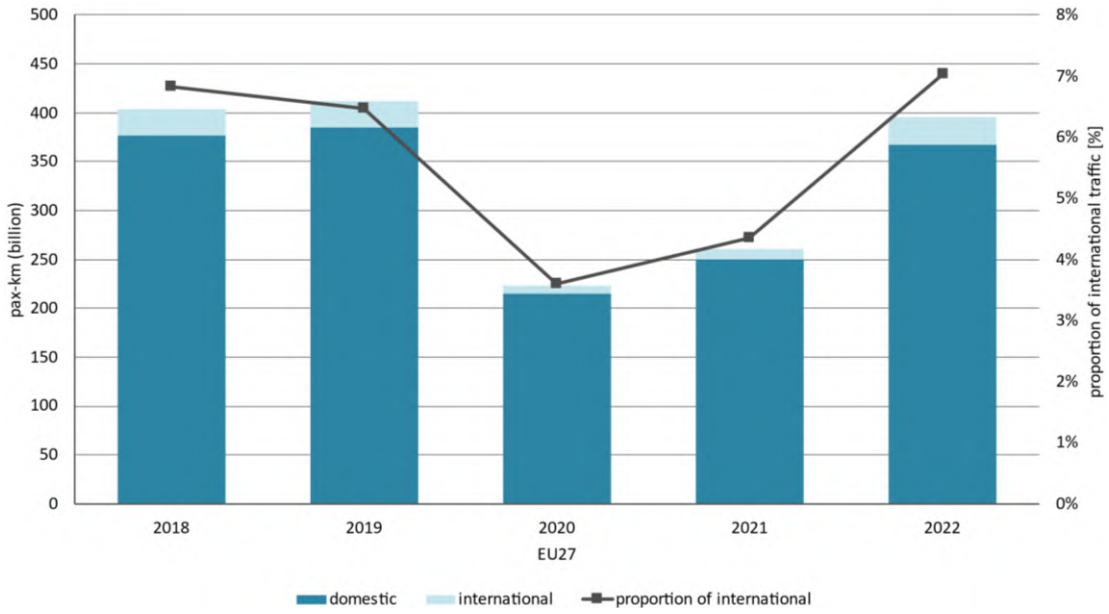


Source: Eurostat, 2024; excluding CY and MT (https://ec.europa.eu/eurostat/databrowser/view/TRAN_HV_PSMOD/default/table?lang=en)

Evolution of rail passenger volumes

Figure 27 shows the evolution of rail passenger traffic as a sum of domestic and international services for the EU27 between 2018 and 2022. The dotted line indicates the share of international in total passenger traffic services.

Figure 27: Evolution of rail passenger traffic volumes (domestic, international and proportion of international in total traffic) (billion pax-km, 2018-2022)

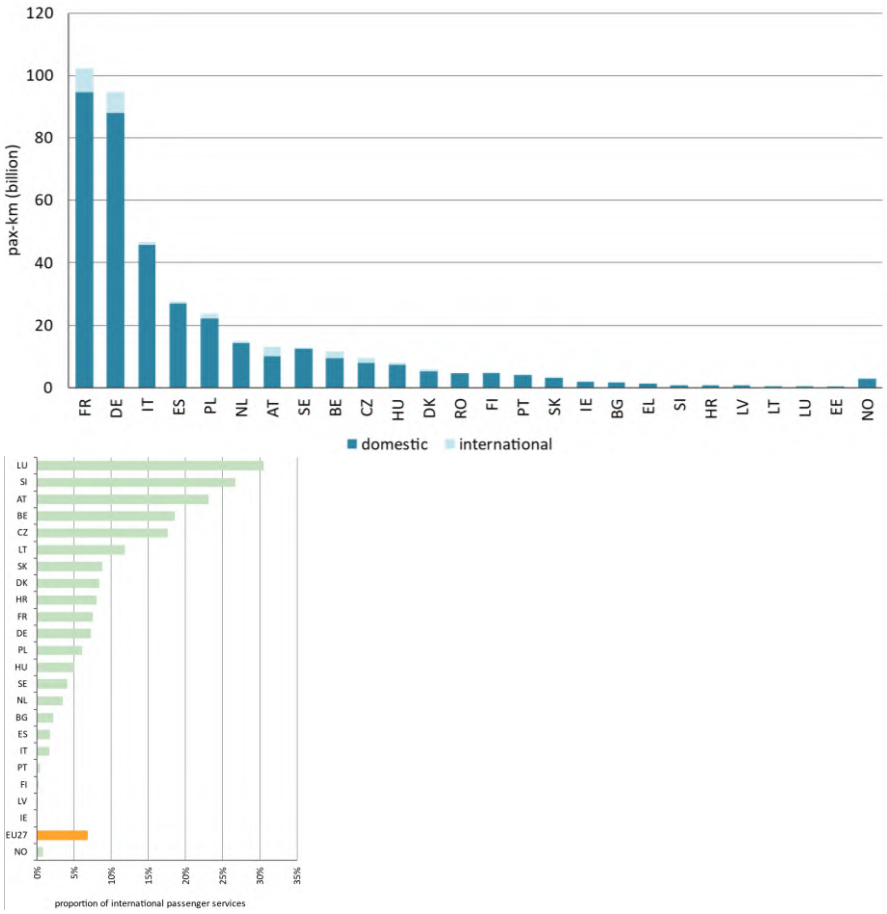


Source: RMMS, 2022

Total EU27 rail passenger traffic could not recover from COVID-19 pandemic completely, 395.5 billion passenger kilometres in 2022 being still slightly lower than 411.8 billion passenger kilometres in 2019. Domestic services decreased from 385.1 to 215.3 billion passenger kilometres due to the pandemic from 2019 to 2020 and recovered to 367.7 billion passenger kilometres in 2022. After falling to 4% due to pandemic in 2020, the proportion of international passenger services recovered to 7% in 2022, slightly surpassing the pre-pandemic level.

Figure 28 shows the volumes of domestic and international passenger rail travel, measured in passenger kilometres, and the proportion of international traffic by country in 2022.

Figure 28: Passenger traffic volumes (domestic, international and proportion of international on total) by country (pax-km in 2022)

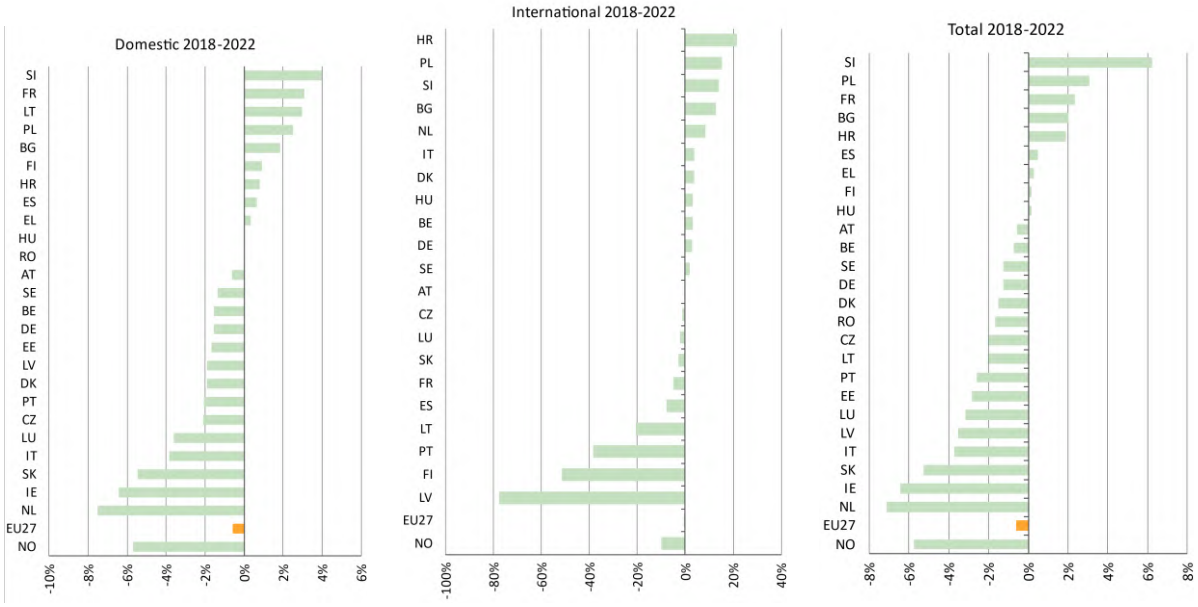


Source: RMMS, 2022

The largest rail passenger markets are in France, Germany, and Italy. In 2022, domestic passenger services accounted for more than 93% of all passenger kilometres in the EU27. Unsurprisingly, considering its size and location, Luxembourg is the country with the most internationally oriented rail passenger market (30% of the total passenger traffic), whereas Ireland doesn't have any international passenger travel at all.

Figure 29 shows the compound annual growth rates for domestic, international, and total passenger traffic volumes from 2018 to 2022 for each country.

Figure 29: Compound annual growth rates of domestic, international, and total passenger traffic volumes per country (%, 2018-2022)



Source: RMMS, 2022

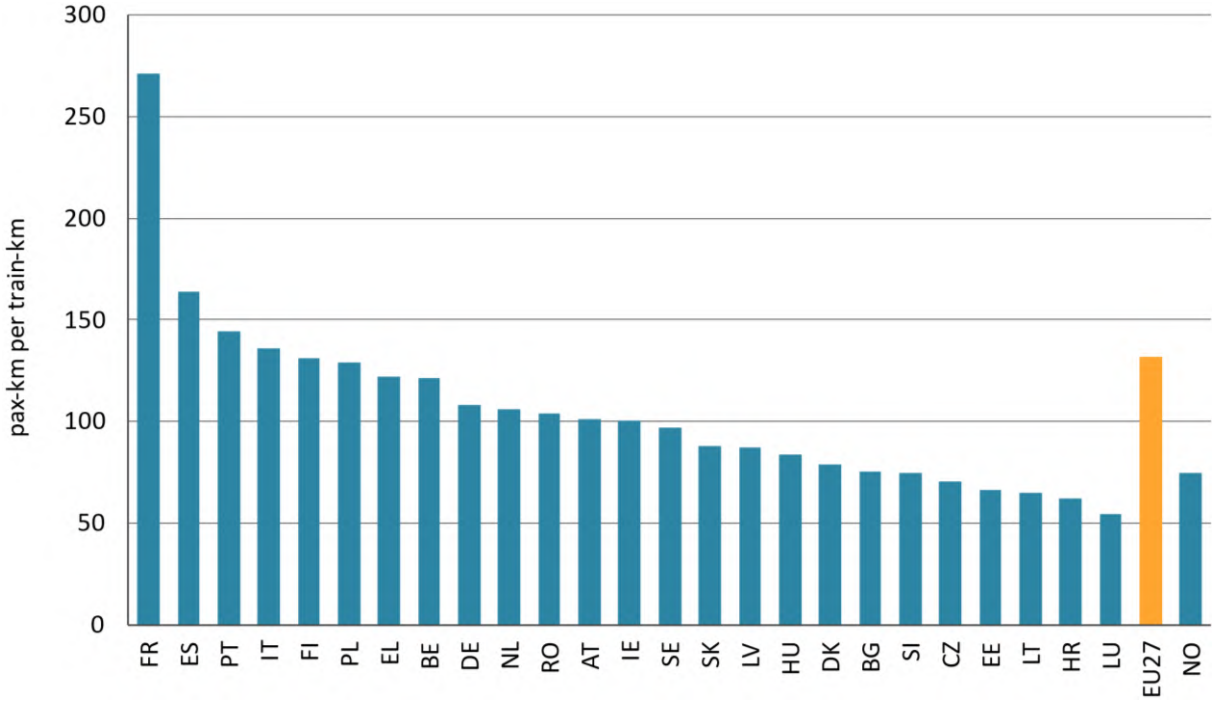
Total passenger traffic decreased by 0.6% annually in the EU27 between 2018 and 2022. Passenger volumes increased in Slovenia, Poland, France, Bulgaria, Croatia, Spain, Greece, Finland and Hungary.

For the period 2018 to 2022 domestic passenger kilometres decreased by 0.7% annually in the EU27.

International passenger kilometres decreased by 0.7% annually as well in the EU27, altough a number of countries reported an increase in international passenger volumes. For the period 2019 to 2020 the decrease in international passenger kilometres was even more pronounced than for domestic, with an average decline of 70.5%, due to international travel restrictions because of the COVID-19 pandemic.

Figure 30 provides an overview of passenger trains' load factor, measured as the ratio between passenger kilometres and passenger train kilometres per country in 2022. Since no train occupancy rate (expressed for example as the percentage of available seats occupied) is available, this indicator allows an alternative assessment of how the supply of rail passenger services matches the demand.

Figure 30: Number of pax-km per passenger train-km per country (passenger trains' load factor, 2022)



Source: RMMS, 2022

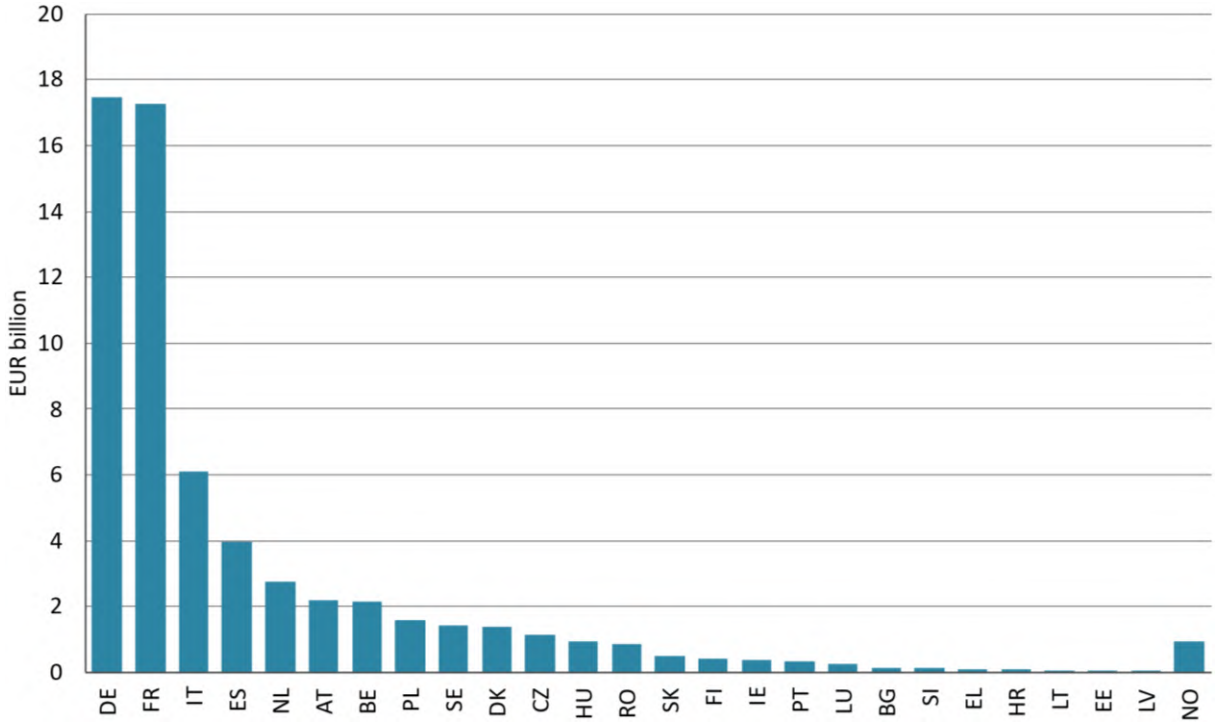
On average in 2022, EU27 passenger trains were loaded with 131 passengers, compared to 139 in 2018. In 2022, France had by far the highest load factor followed by Spain, Portugal, and Italy.

3.2.3. Evolution of rail passenger revenues

The RMMS collects data on total revenues from passenger services and its components (fare revenues from commercial services, fare revenues from PSO services and PSO compensation). Despite the clear improvement in data quality since the first year of implementation of the RMMS Regulation in 2015, some gaps and inconsistencies in the input data remain.

Figure 31 shows the reported revenues from passenger transport services per country in 2022.

Figure 31: Railway undertakings' revenues from passenger transport services per country (billion EUR, 2022)

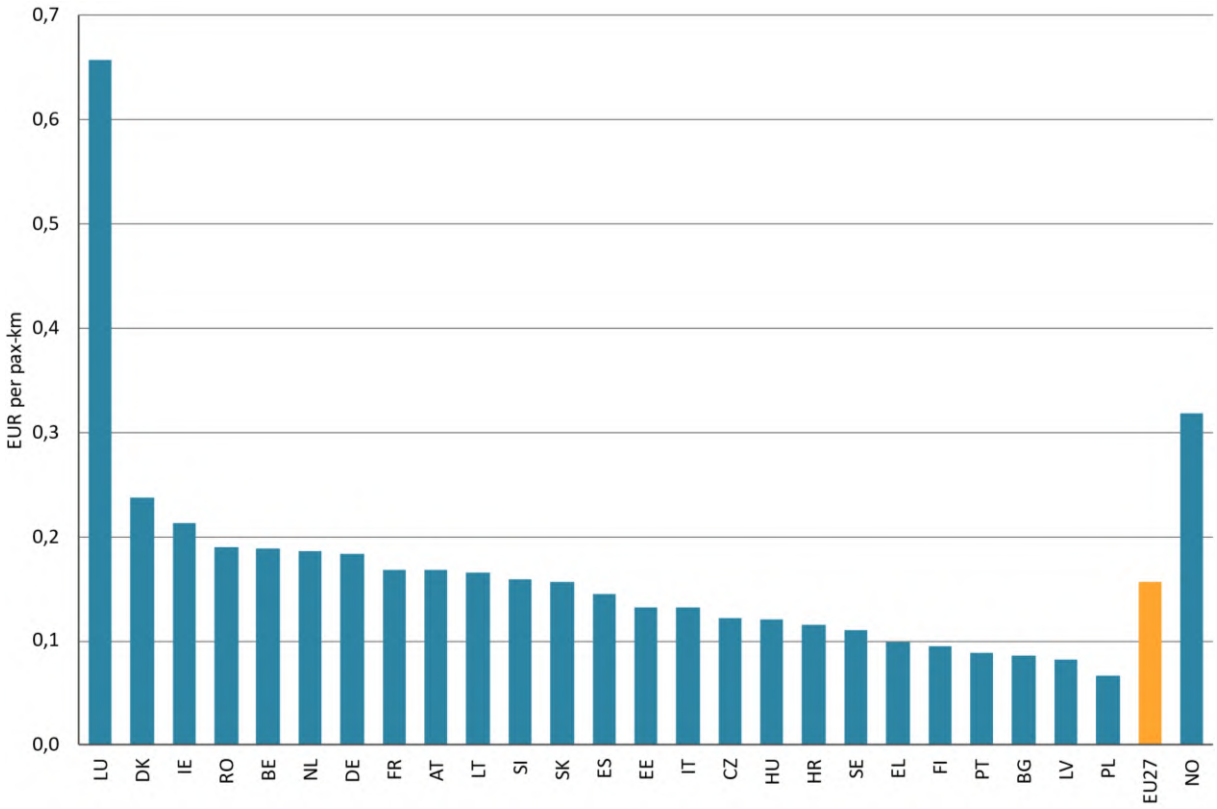


Source: RMMS, 2022

Germany and France have had by far the highest amounts of revenues from passenger transport services in 2022 (EUR 17.45 and 17.25 billion respectively). The lowest amount was reported for Latvia (EUR 0.04 billion).

Figure 32 shows the railway undertakings' revenues from passenger transport services in 2022 per country, measured in EUR per passenger kilometre.

Figure 32: Railway undertakings' revenues from passenger transport services per pax-km per country (EUR per passenger-km, 2022)

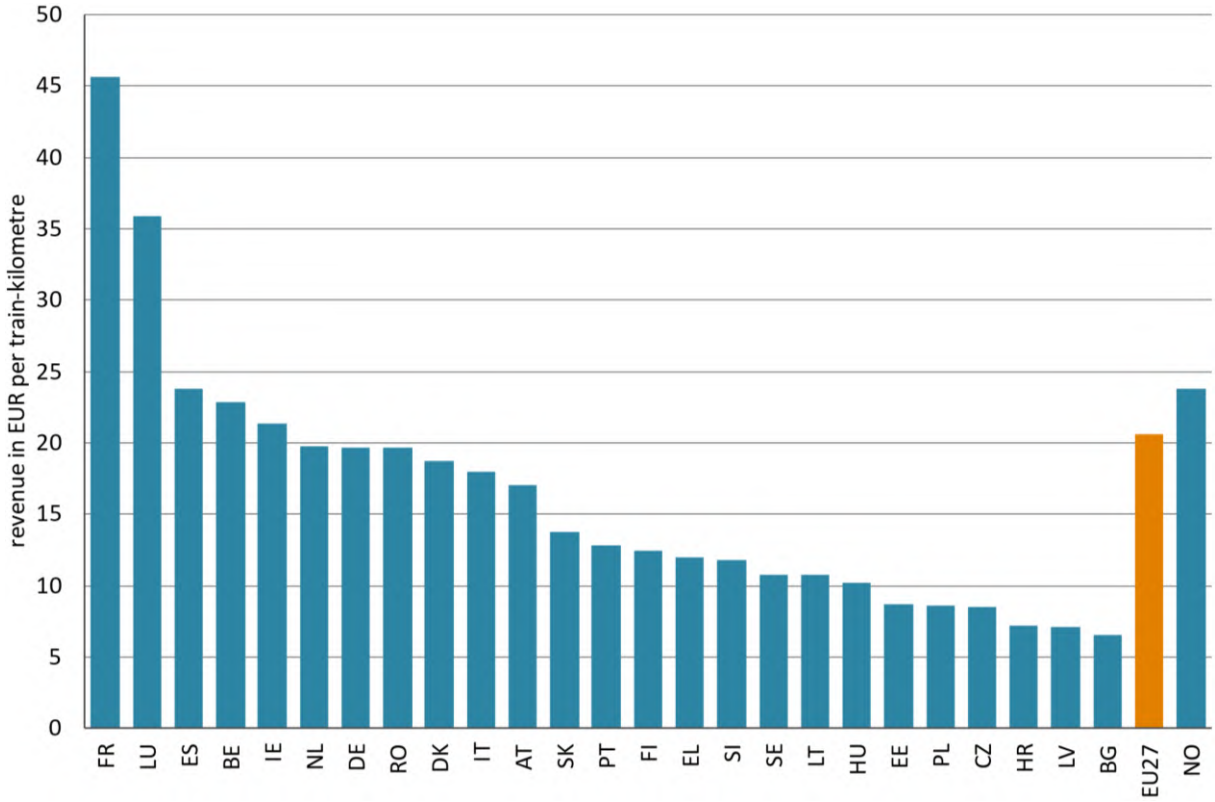


Source: RMMS, 2022

In 2022, the EU27 railway undertakings' revenue per passenger kilometre was on average EUR 0.16. Luxembourg had by far the highest unit revenue (EUR 0.66), and Poland the lowest (EUR 0.07). Unit revenues based on passenger kilometres decreased between 2018 and 2022 by EUR 0.02 in the EU27. According to RMMS reporting, Luxemburg had the highest increase (+EUR 0.20) and Czechia the biggest decrease (-EUR 0.10).

Figure 33 shows the railway undertakings' revenues from passenger transport services in 2022 per country, measured in EUR per passenger kilometre.

Figure 33: Railway undertakings' revenues from passenger transport services per train-km per country (EUR per passenger train-km, 2022)



Source: RMMS, 2022

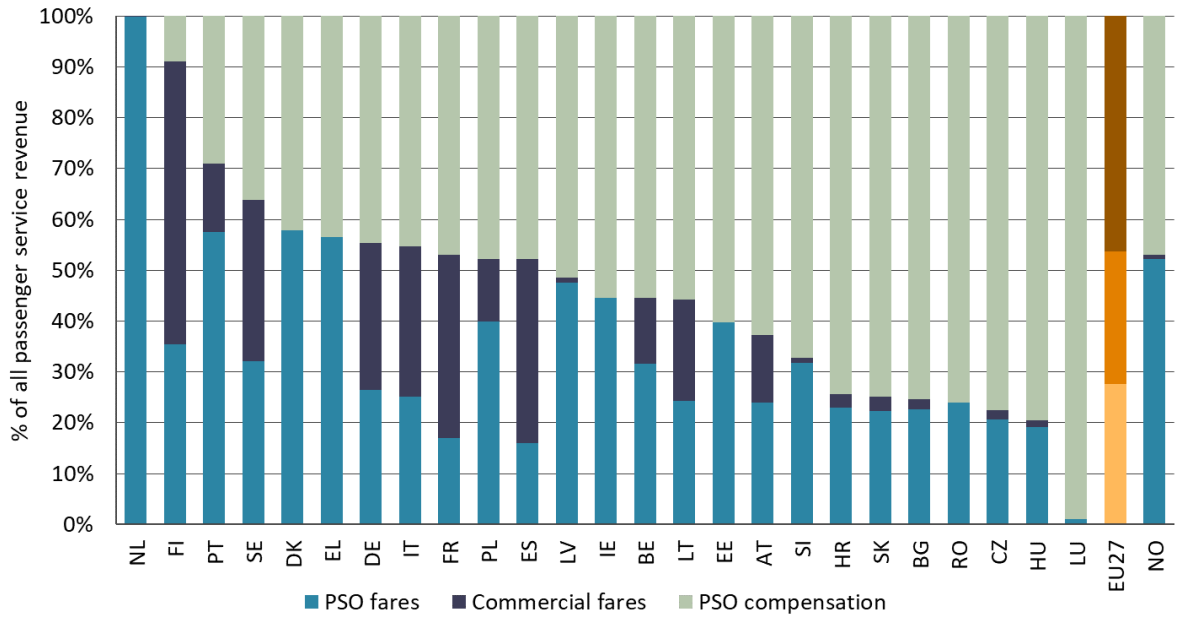
In 2022, the EU27 railway undertakings' revenue per train kilometres was on average EUR 20.65. France had the highest unit revenues (EUR 45.68), and Bulgaria the lowest (EUR 6.51).

Figure 34 shows the sources of railway undertakings' revenues from the provision of passenger services as reported in the RMMS for the year 2022.

The figure is structured as follows:

- Above the horizontal axis is the revenue contributed by passengers through fares paid on either PSO or (if reported) commercial services.
- Below the horizontal axis is the proportion of revenue contributed by competent authorities in the form of PSO support.

Figure 34: Sources of passenger railway undertakings' revenue per country (% in 2022)



Source: RMMS, 2022.

In many EU Member States, a significant portion of railway undertakings' revenue comes from PSO support provided by competent authorities. In 2022, PSO compensation accounted for 46.4% of the total revenues for passenger railway undertakings across the EU27, up from 40.8% in 2019, prior to the pandemic. In contrast, revenues from PSO fares and commercial fares contributed 27.6% and 26.0%, respectively, both lower than pre-pandemic levels. The share of PSO compensation varies significantly across Member States, ranging from 0% in the Netherlands to 99% in Luxembourg.

3.3. The rail freight market

3.3.1. Rail freight policy developments

Increasing the modal share of rail freight remains a Commission policy objective, highlighted in the Communication on the European Green Deal[40] and in the Commission's Sustainable and Smart Mobility Strategy[41].

Rail freight transport continues to face performance issues with punctuality and reliability in comparison to road transport. The sector has continued to struggle with challenges over infrastructure bottlenecks, interoperability problems and digitalisation. In terms of planning and operations, challenges remain in the provision of capacity (train paths) of sufficient quality and

[40] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal COM/2019/640 final (https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en).
[41] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Sustainable and Smart Mobility Strategy – putting European transport on track for the future, COM/2020/789 final (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789)

quantity, with inefficient operational processes at borders between networks and ineffective management of incidents and crisis situations.

The overall situation of rail freight remains unsatisfactory: its modal share is around 19%. Figure 35 shows that road transport is still predominant with more than 70% of the modal split.

In its communication on a European Green Deal, the Commission stated that '…a substantial part of the 75% of inland freight carried today by road should shift onto rail and inland waterways.' The Sustainable and Smart Mobility Strategy details the objectives defined in the Green Deal, setting the target of doubling rail freight transport until 2050 compared to its level in 2015. In addition, the strategy sets out a programme of initiatives to accelerate the migration towards a smart and sustainable European transport system. An Action Plan proposes 82 concrete initiatives to be launched in the period from 2021 to 2024[42].

A number of these initiatives are relevant for rail freight transport. Key examples of initiatives very close to the sector include the revision of the guidelines for the trans-European transport networks (TEN-T), measures to better manage and coordinate cross-border rail traffic, a revision of the technical specifications for rail interoperability, the revision of the rules on certification of train drivers, the further development of the R&I partnership for the rail sector, Europe's Rail Joint Undertaking, as well as a revision of the guidelines for State aid in support of railways. In addition, the action plan comprises measures targeting transport in a transversal way, including initiatives to introduce harmonised methodologies for carbon and emission accounting for freight transport and to review the regulatory framework for multimodal freight transport.

Rail freight transport has also been affected by recent geopolitical developments and has had an important role in addressing them.

During the COVID-19 pandemic rail freight transport has been a stable backbone for the EU's freight transport system.

More recently, rail freight transport plays a crucial role in the European Union's response in the transport sector to Russia's war of aggression in Ukraine. The war has had a severe impact on the economy of Ukraine and on its ability to trade with its partners. The blockage of Ukraine's ports has impeded the export of agricultural goods, of which 90% passed through Ukraine's ports before the war and which are of crucial importance to Ukraine and its trading partners in Europe, Africa and China.

The war has thus created the need to establish alternative logistics routes. Rail freight transport offers an important potential to increase transport. However, its potential is limited by several challenges including the limited availability of rolling stock, shortages in capacity to tranship between the Ukrainian and the European network due to the difference in track gauges (1520 mm vs. 1435 mm) and several administrative barriers related to border-related controls and certifications.

To address the challenges, the European Commission launched an action plan for EU-Ukraine Solidarity Lanes in May 2022.[43] The initiative covers both the short term need to keep Ukraine integrated in global supply chains in the and the medium to long-term challenge to strengthen connectivity and interoperability of transport systems of the European Union and Ukraine.

[42] https://transport.ec.europa.eu/transport-themes/mobility-strategy_en
[43] COM(2022) 217 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0217.

In the short term, the Commission closely cooperates with Member States, Ukrainian authorities and industry stakeholders to set up a matchmaking platform to facilitate exchanges between logistic chain actors with a view to optimise cargo flows. The platform addresses issues such as the provision of rolling stock by private players, the identification of additional facilities to ensure a smooth flow of rail freight transport between the networks with European and Ukrainian track gauges, securing capacity on the European rail network and in European ports and the organisation transport services. In addition, short-term measures relevant for all modes address barriers related to border controls, certification of transport staff and assets and others.

In the medium to long term, the key challenges are to rebuild transport infrastructure in Ukraine and to improve the interoperability and connectivity between the Union and Ukraine. In implementing the measures envisaged in the Communication on the Solidarity Lanes' the Commission put forward an amendment to the Commission's proposal to revise the TEN- T guidelines on 27 July 2022.[44] The proposal includes an extension of four European Transport Corridors to Ukraine and Moldova, modifications to the indicative maps of the TEN-T network in Ukraine, the removal of the indicative maps of the TEN-T network for Russia and Belarus, the downgrade of cross-border connections to Russia and Belarus on EU territory and the definition of the 1435 mm track gauge as European standard gauge, with a view to remove the barriers created by the different track gauge in Ukraine.

An important change in the policy framework for rail freight transport will result from the revision of the Union guidelines for the development of the trans-European transport network (TEN-T)[45]. The Commission has published its legislative proposal in December 2021[46], which was adopted on 13 June 2024[47]. The Commission's proposal contains several measures in support of rail freight transport as described above in section 2.2.2. In terms of infrastructure requirements relevant for rail freight transport, the proposal includes a new parameter enabling the ubiquitous circulation of intermodal trains on the network (P400 loading gauge) and strengthens existing requirements, notably with respect to 740 m freight train length and ERTMS deployment. In terms of multimodality, there is a stronger focus and more stringent requirements on multimodal freight terminal, including the access lines linking them to the main rail network. Infrastructure requirements are gradually extended from the core to the comprehensive network and a new intermediate deadline of 2040 for compliance of the network is introduced in conjunction with the introduction of an 'extended core network'.

Commission initiatives by themselves will not be sufficient to trigger growth of rail freight transport and multimodal transport involving rail. The ultimate success criterion for making rail freight transport an attractive choice is a competitive offer to those who choose between different transport options, i.e. the shippers and organisers of supply chains in logistics, industry and commerce. Improving the competitiveness of rail freight services requires that policy initiatives proposed by the Commission are followed-up, supported and complemented by action on the part of Member States and operational players, including infrastructure managers, railway undertakings and other transport operators and service providers.

---

[44] COM(2022) 384 final, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52022PC0384

[45] Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02013R1315-20190306

[46] COM(2021) 812 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0812

[47] Regulation (EU) No 1679/2024 of the European Parliament and of the Council of 13 June 2024 on Union guidelines for the development of the trans-European transport network, amending Regulations (EU) 2021/1153 and (EU) No 913/2010 and repealing Regulation (EU) No 1315/2013, https://eur-lex.europa.eu/eli/reg/2024/1679/oj/eng

3.3.2. Evolution of rail freight volumes

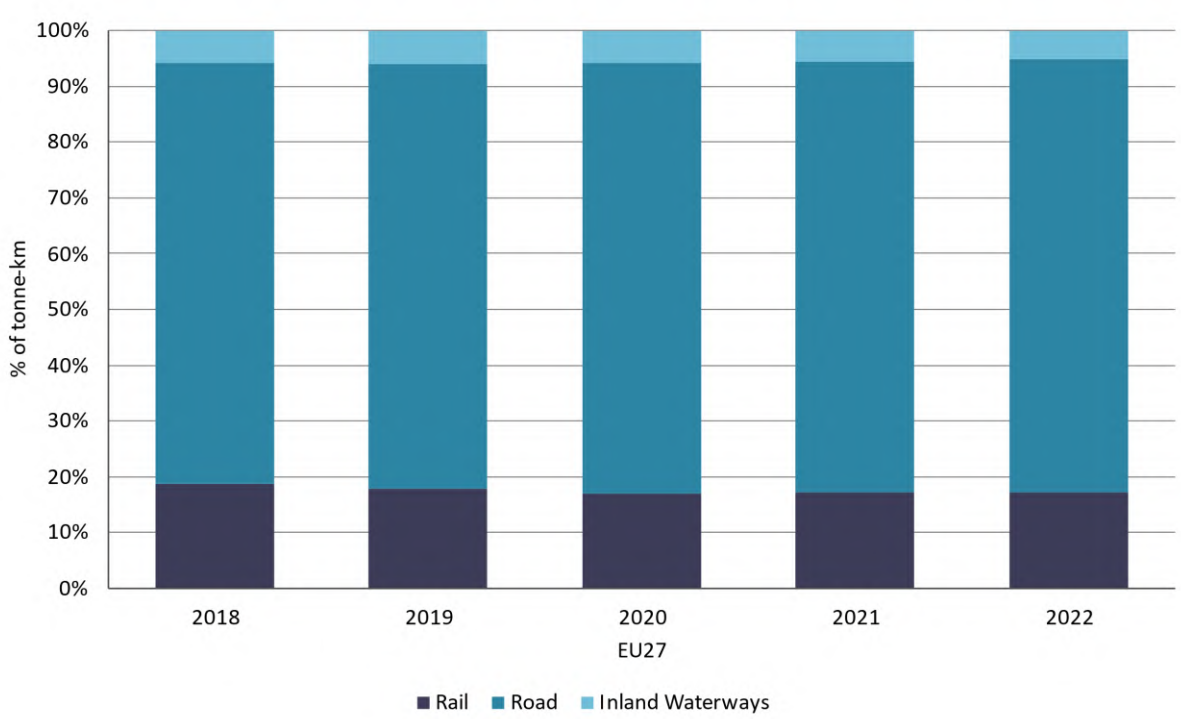
Freight transport modal split

Looking at the EU27 performance of all modes (i.e. road, rail, inland waterways, pipelines, sea, and air transport) in 2022, rail had a modal share of 11.9%[48].

Focusing instead only on land transport (road, rail and inland waterways but excluding pipelines[49]), Figure 35 shows the freight modal split between 2018 and 2022. Road transport dominates total freight land transport within the EU27, with a share consistently higher than 75% between 2018 and 2022. In 2022, the share of road transport reached 77.7%, a new maximum. Throughout the same period, the rail modal share decreased from 18.7% to 17.2%, although developments in the individual segments of rail freight (bulk materials, intermodal transport and single wagonload) present significant differences, with intermodal transport performing better (see also paragraph 3.3.4 below).

Inland waterways are a major competitor ofr rail for the transport of bulk materials in Member States with access to major rivers including the Netherlands, Romania, Bulgaria and Belgium. Inland waterways decreased from 5.8% to 5.1%, which suggests that the entire segment of the transport of bulk commodities is suffering from changes in the economy and reduced demand for this type of transport.

Figure 35: Freight land transport modal split (%, 2018-2022)

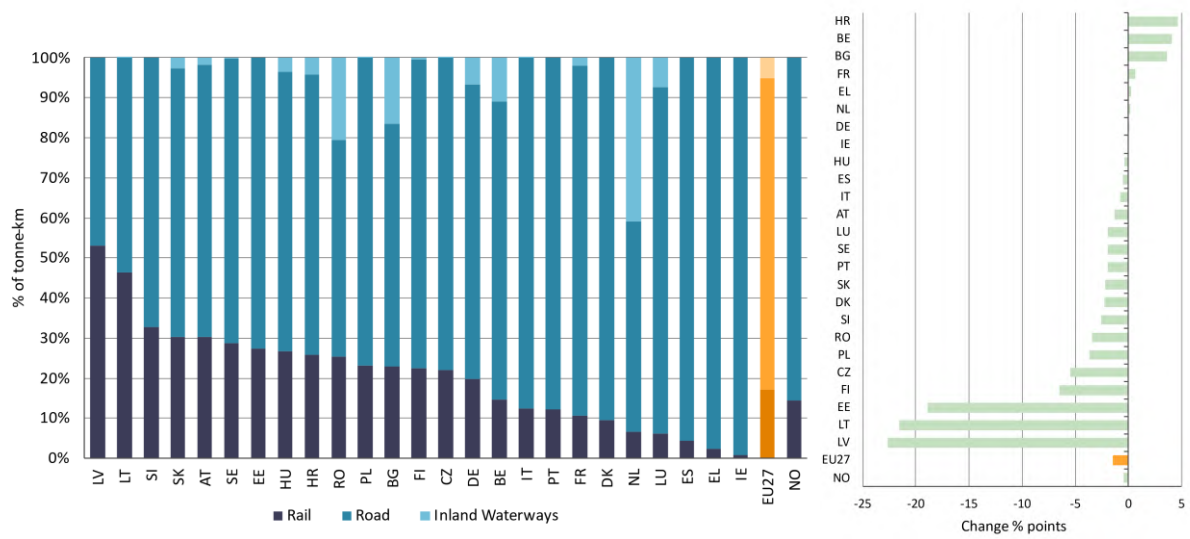


[48] See Statistical pocketbook 2024.
[49] Figures related to land freight transport including pipelines are available in the Statistical pocketbook 2022.

Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/tran_hv_frmod/default/table?lang=en&category=tran.tran_hv_ms)

Figure 36 shows the modal shares for rail, road, and inland waterways in each Member State.

Figure 36: Freight land transport modal split by country (% in 2022) and change in percentage points for rail (2018-2022)



Source: Eurostat, 2024 (https://ec.europa.eu/eurostat/databrowser/view/tran_hv_frmod/default/table?lang=en&category=tran.tran_hv_ms)

The decline in the modal share of rail between 2018 and 2022, is also observed at the level of most individual EU Member States. Croatia and Belgium saw the largest increases in rail's modal share, while Latvia, Estonia, and Lithuania experienced significant decreases due to the plunge in exchanges with Russia. Despite this, Latvia and Lithuania maintained the highest modal share for rail in 2022. Rail's share was also notably high in Slovakia and Slovenia. Ireland, Greece, and Spain recorded the lowest modal shares for rail.

Evolution of rail freight volumes

Figure 37 shows the evolution of rail freight traffic in Europe from 2018 to 2022 measured in tonne kilometres, separately for domestic and international services (bars), as well as the proportion of international on total rail freight traffic (line).

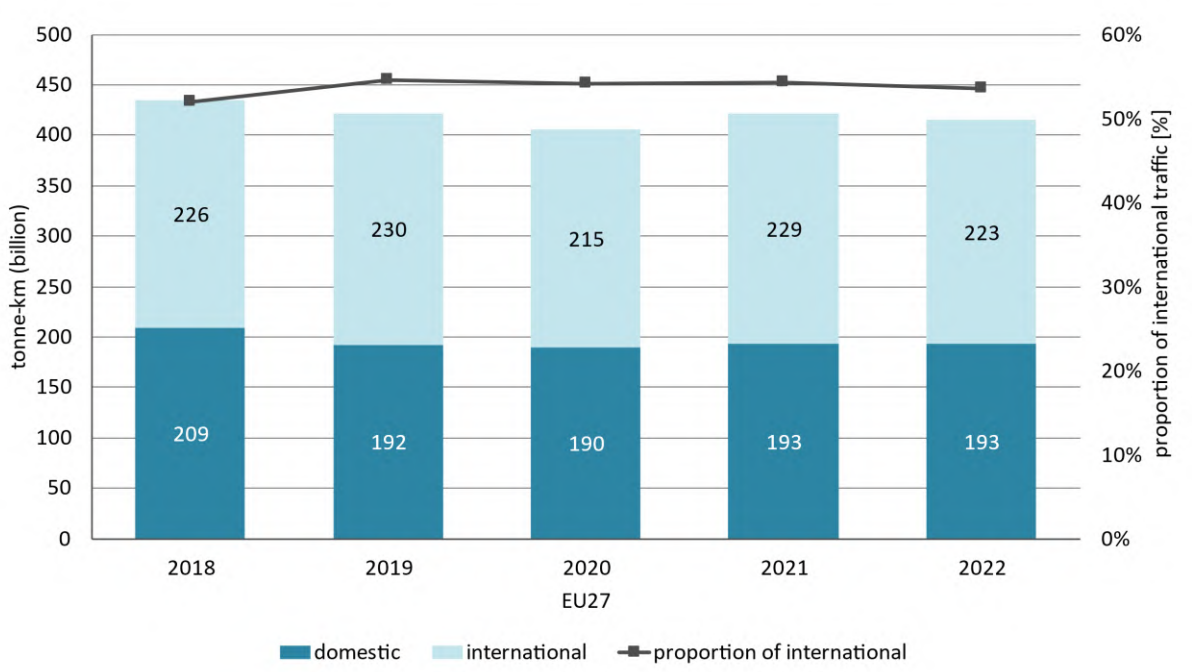
Total rail freight traffic in the EU27 decreased from 421 billion tonne-kilometres in 2018 to 397 billion tonne-kilometres in 2020, before recovering to 416 billion tonne-kilometres in 2022, nearly reaching pre-pandemic levels.

Domestic rail freight services declined from 209 billion tonne-kilometres in 2018 to 192 billion tonne-kilometres in 2019 and then remained stable at this level through 2022. Germany recorded the largest nominal decline in domestic freight traffic, with a decrease from 77 billion tonne-kilometres in 2018 to 65 billion tonne-kilometres in 2019.

International rail freight services consistently accounted for over 50% of total rail traffic across the EU27 throughout this period, peaking at 55% in 2019 and remaining at 54% thereafter. This stability

contrasts sharply with the pandemic's more significant impact on international rail passenger connections.

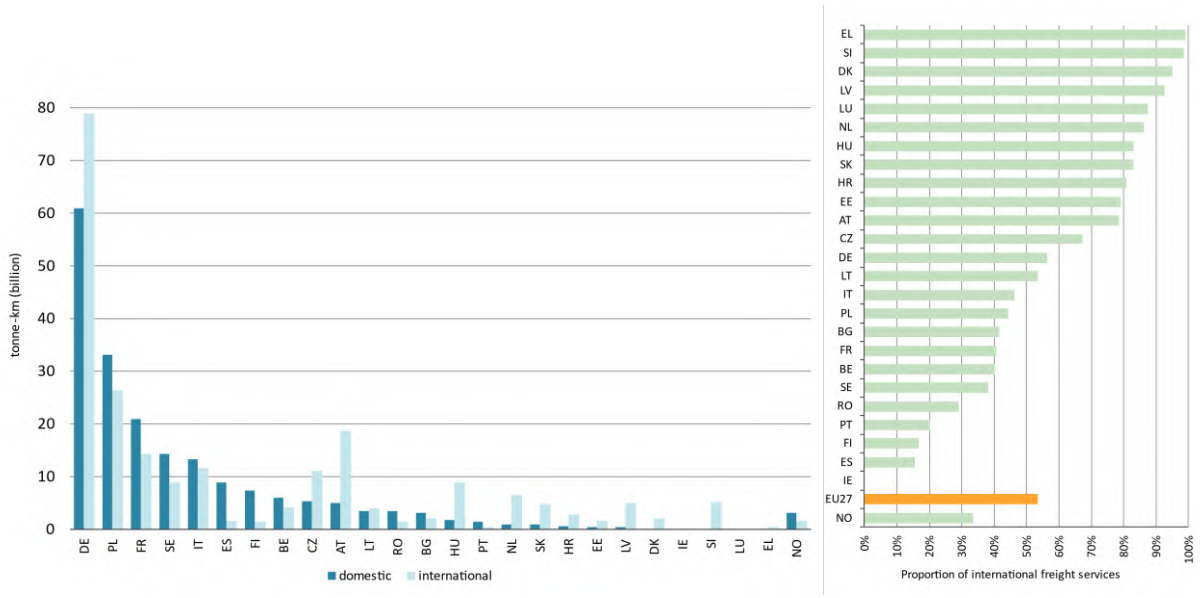
Figure 37: Evolution of rail freight traffic volumes (domestic, international and proportion of international in total traffic) (billion tonne-km, 2018-2022)



Source: RMMS, 2022

Figure 38 shows the volumes of domestic and international rail freight traffic by country in 2022, as well as the evolution of tonne kilometres compared to 2018.

Figure 38: Rail freight traffic volumes (domestic, international and proportion of international on total) by country (tonne-km, 2022)

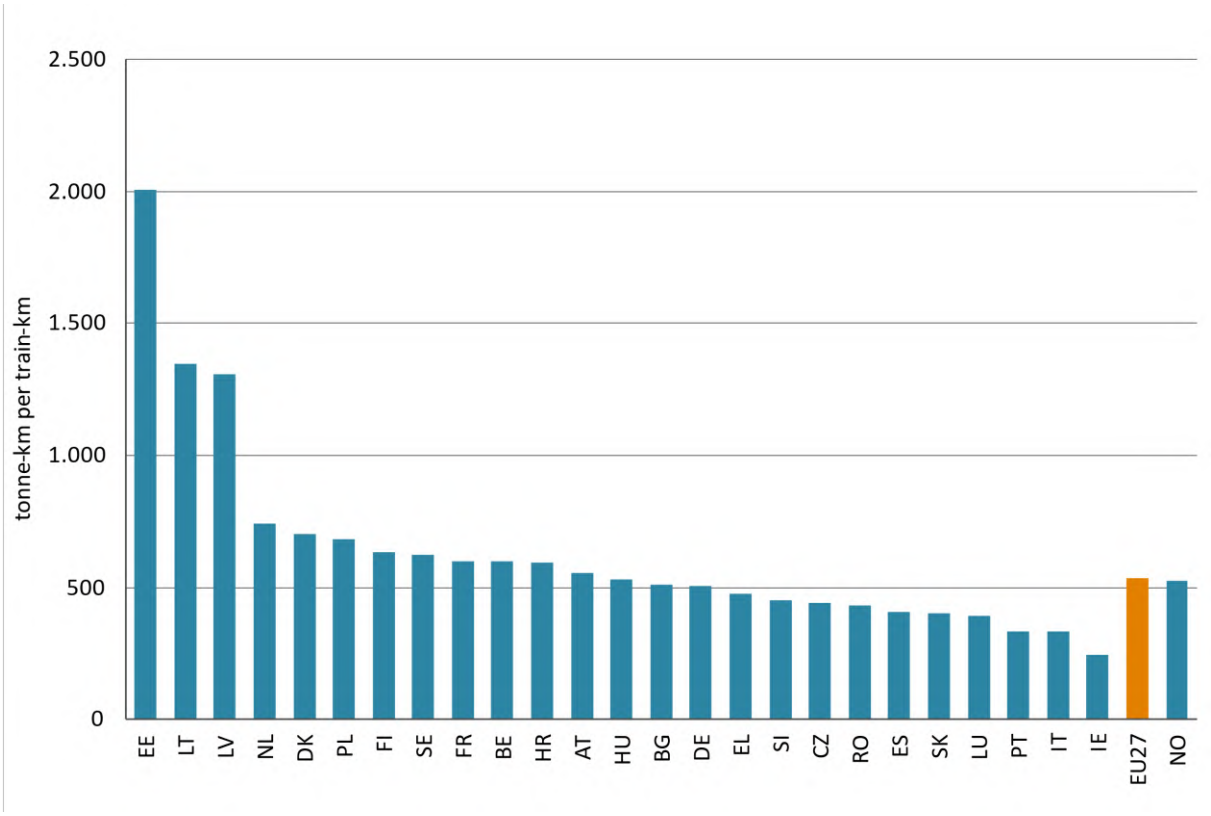


Source: RMMS, 2022

Rail freight traffic volumes in 2022 were highest in Germany, Poland, and France. Greece and Slovenia reported the highest proportion of international rail freight traffic (99%), whereas Ireland reported the lowest proportion with 0%.

Traffic expressed in tonne kilometres provides a first measure of the demand for rail freight services. Figure 39 gives an overview of the load factor of freight trains, measured as the ratio between tonne kilometres and freight train kilometres per country in 2022.

Figure 39: Number of tonne-km per freight train-km per country (freight trains load factor, 2022)



Source: RMMS, 2022

On average, EU27 freight trains were loaded with 520 tonnes in 2022. The Baltic countries have a significantly above-average load factor (the highest being in Estonia, with 2005 tonnes); the lowest load factor is in Ireland (242 tonnes).

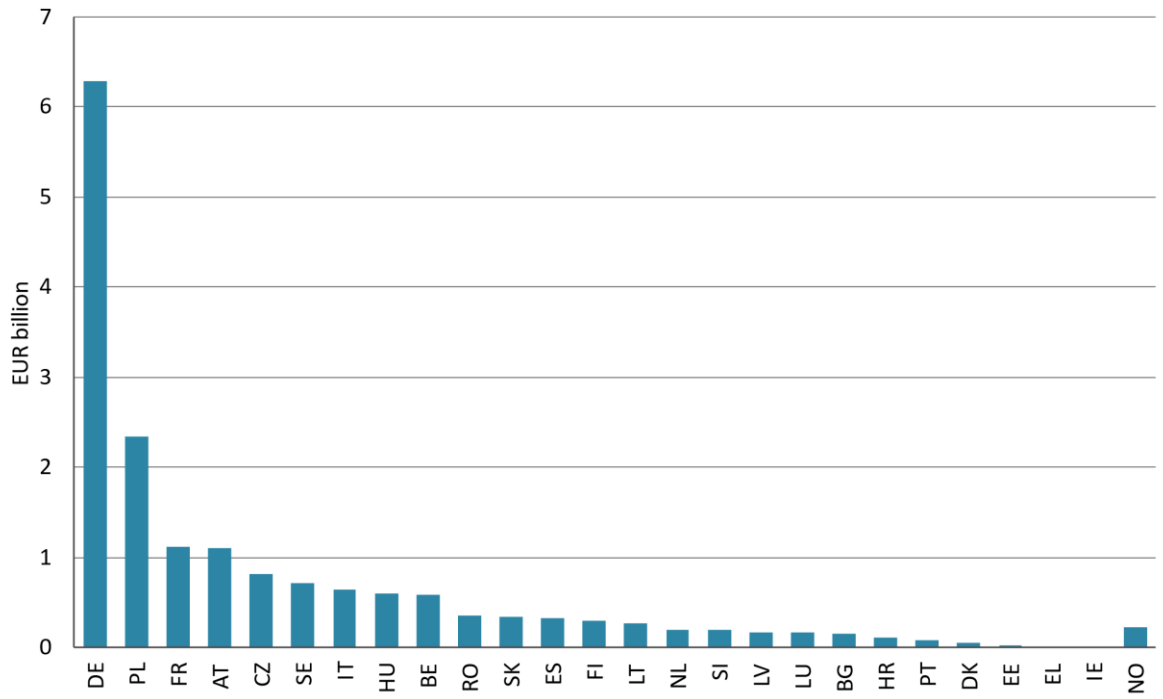
Between 2018 and 2022, total freight volume measured in tonne-kilometres declined from approximately 435 billion to 416 billion. Despite this decrease in freight volume, the number of train movements, measured in train-kilometres, increased from around 746 billion to 779 billion over the same period. As a result, the freight train load factor, expressed as tonne-kilometres per train-kilometre, dropped by approximately 8.5%. This indicates that trains, on average, were carrying lighter loads in 2022 compared to 2018, suggesting a shift in the type of goods transported, with a possible increase in lighter freight such as container cargo over bulk commodities like coal or iron ore.

3.3.3. Evolution of rail freight revenues

The RMMS collects data on railway undertakings' total revenues from the provision of freight services. Despite the clear improvement in data quality since the first year of implementation of the RMMS Regulation in 2015, some gaps and inconsistencies in the input data remain.

Figure 40 shows the reported revenues from rail freight per country in 2022.

Figure 40: Railway undertakings' revenues from freight transport services per country (billion EUR, 2022)

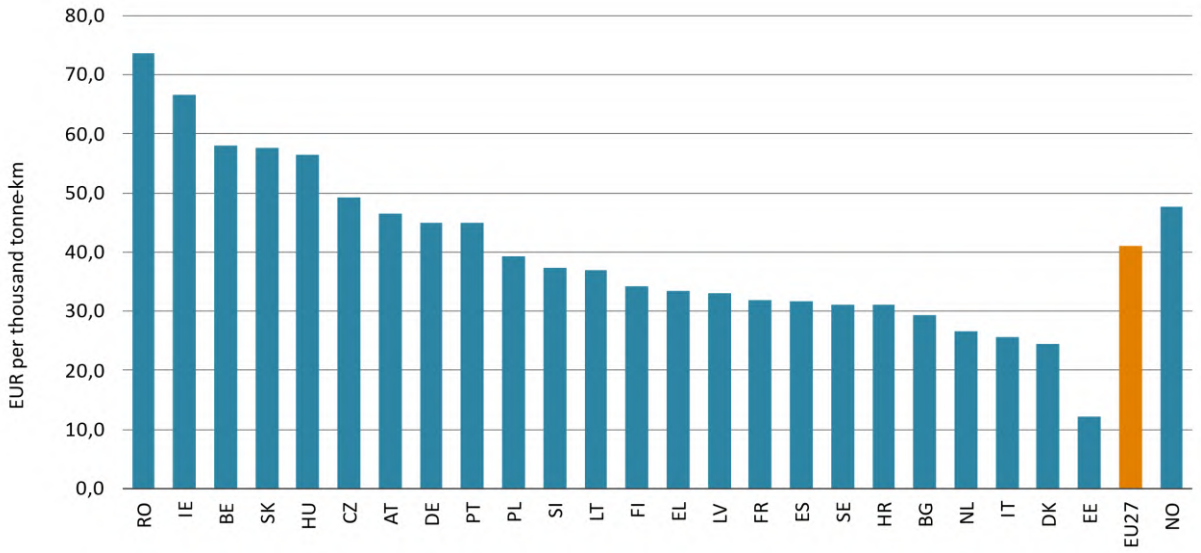


Source: RMMS, 2022

Germany reported by far the highest rail freight revenues in 2022 (EUR 6.29 billion), while Ireland reported the lowest (almost zero). Based on RMMS data, Germany experienced the highest increase (+EUR 0.79 billion), while France recorded the highest decrease (-EUR 0.21 billion) compared to 2018.

Figure 41 shows the railway undertakings' revenues from freight transport services in 2022 per country, measured in EUR per thousand tonne kilometres.

Figure 41: Railway undertakings' revenues from freight transport services in tonne-km per country (EUR per thousand tonne-km, 2022)

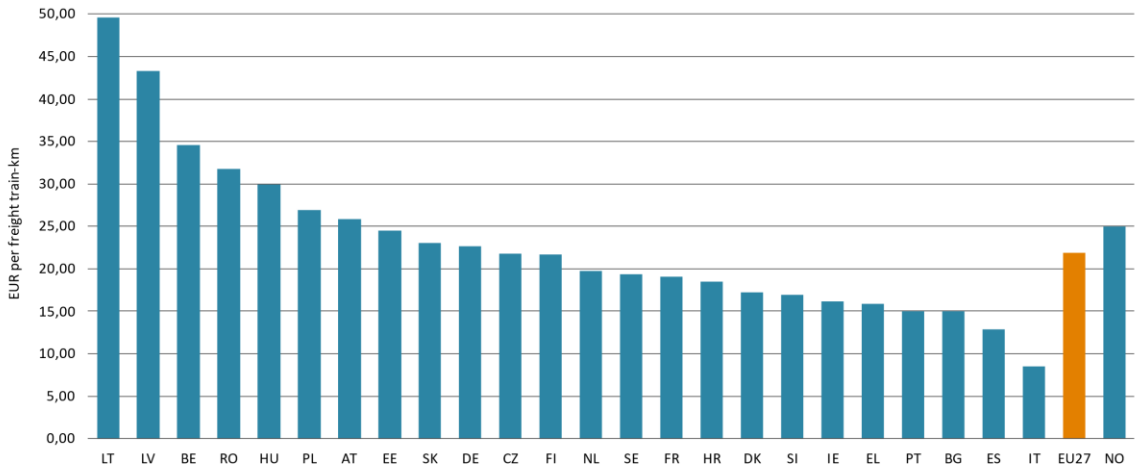


Source: RMMS, 2022

On average, in 2022 the EU27 railway undertakings' revenues from freight transport services were EUR 41 per thousand tonne kilometres. Romania reported the highest freight revenues per thousand tonne kilometres (EUR 74), while Estonia had the lowest (EUR 12).

Figure 42 shows the railway undertakings' revenues from freight transport services in 2022 per country, measured in EUR per freight train kilometres.

Figure 42: Railway undertakings' revenues from freight transport services in freight train-km per country (EUR per freight train-km, 2022)



Source: RMMS, 2022

On average, in 2022 the freight revenues of railway undertakings in the EU27 were EUR 21.87 per train kilometre. Lithuania reported the highest revenues per train kilometre (EUR 49.61), while Italy reported the lowest (EUR 8.48).

3.3.4. Multimodal and intermodal transport

While no comprehensive and comparable data are currently gathered systematically on intermodal / multimodal transport in general, nor on intermodal / multimodal transport involving a rail leg, intermodal transport[50] appears to continue to be the fastest-growing segment in rail transport. Intermodal transport is expected by stakeholders to grow in the period 2019-2029 by approximately 49% (ton-km), while in the same period total rail freight is expected to grow by only 16%.[51] Under present circumstances, the constraints on terminal and network capacity are likely to hinder considerable growth in the short term. The recent study on intermodal transhipment technologies[52] estimates, based on current plans for both terminal upgrades and new terminal constructions, that terminal capacity in the EU will increase by only 18% until 2030.

Even though spare terminal capacity exists on paper, several factors inhibit its full utilisation and restrict the growth of intermodal transport. Capacity may be available in regions with low freight demand, while areas with higher demand continue to experience congestion, meaning that unused capacity does not necessarily translate into increased throughput where it is most needed. Moreover, the overall efficiency of rail freight depends not only on the physical space in terminals but also on factors such as available train paths, track access, and scheduling. Bottlenecks – particularly on lines shared with passenger services – can limit the effective use of terminal capacity. Freight shippers assess rail transport on the basis of reliability, transit times, and cost, and if these criteria are not met, they may opt for alternative modes of transport even when terminal capacity remains underutilised. Additionally, an adequate supply of rolling stock, locomotives, and skilled personnel is essential to handle increased volumes. Deficiencies in these areas can hinder the effective use of terminal capacity.

While current capacity is not used in full for the outlined reasons and the new TEN-T guidelines[53] include an effort to ensure additional terminal capacity, such investments take time and thus a major growth of intermodal/multimodal transport is only possible once capacity constraints have been removed.

The growth of intermodal/multimodal transport is an important objective and the SSMS[54] calls for action to achieve this. Today's direct support to intermodal transport comes from the Combined Transport Directive[55]. According to the 2017 Commission study, 58% of intermodal operations are

---

[50] The following definitions are used:
(1) 'Multimodal transport' is any transport using several modes of transport for one journey without any specific characteristics or limitations.
(2) 'Intermodal transport' is a type of multimodal transport where the goods are carried in an intermodal load unit such as a container or trailer and it is the load unit that is transhipped from one mode to another as opposed to the goods being reloaded.
(3) 'Combined transport' is a type of intermodal transport where the different legs distances and geographical scope are limited as defined in Directive 92/106/EEC.

[51] 2022 UIC-UIRR Report on Combined Transport in Europe: Link

[52] Comparative evaluation of transhipment technologies for intermodal transport and their cost, 2022, https://op.europa.eu/en/publication-detail/-/publication/d37790ea-b6ef-11ec-b6f4-01aa75ed71a1

[53] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Union guidelines for the development of the trans-European transport network, amending Regulation (EU) 2021/1153 and Regulation (EU) No 913/2010 and repealing Regulation (EU) 1315/2013

[54] Sustainable and Smart Mobility Strategy, https://transport.ec.europa.eu/transport-themes/mobility-strategy_en

[55] Council Directive 92/106/EEC of 7 December 1992 on the establishment of common rules for certain types of combined transport of goods between Member States, OJ L 368, 17.12.1992, p. 38.

covered by the Directive, while 37% are excluded from preferential treatment due to being national operations and further 5% are excluded for not fulfilling the different distance criteria in the Directive.[56] An average rail intermodal operation has a rail leg of 615 kilometres and involves 2.2 transhipments. Road legs of such operations are on average 51 kilometres each (without the pre-and on-carriage of empty containers to/from depot, or 102 kilometres with the empty container depot-leg).

In November 2017, the Commission proposed to amend the Combined Transport Directive in order to increase the uptake of more sustainable modes of transport by providing new and more effective support measures. However, considering amendments made by the co-legislators, as well as the new far-reaching objectives of the European Green Deal, the Commission decided to withdraw this proposal. A new, more ambitious proposal was then published on 11 July 2023 as part of the Greening Freight Package, aiming to increase ambition, simplify eligibility, provide more effective support tools, and improve analysis of the intermodal/multimodal transport market. The accompanying impact assessment has also been finalized and published.

To support the development of intermodal transport from a technical point of view, the Commission continues to refine the Technical Specification for Interoperability relating to Telematics Applications for Freight Services (TAF-TSI) to digitalise information related to rail freight traffic flows. Objectives include:

- Establishing a **Single train ID** and accompanying tools to facilitate tracking of trains and goods by rail and other operators;
- Allowing the two-way exchange of a **dynamic, reliable estimated time of arrival** (**ETA)** between freight terminals, ports, intermodal operators, and shippers;
- Linking the train positioning (or train running information) and its ETA to a **harmonised train composition** (Issues Logbook action No 3);
- Linking the above-mentioned data to wagons, intermodal loading units (ILUs) and eConsignment notes in a commercially sound way, preventing accidental disclosure/diffusion and making the information available along the logistics chain.

A 2023 update[57] has further refined the TAF-TSI requirements, ensuring that the specification remains aligned with evolving digitalization objectives and continues to facilitate more efficient, transparent, and sustainable rail freight operations.

4. The evolution of services supplied to railway undertakings

Directive 2012/34/EU lays down rules for service facilities and services supplied therein. The aim of the Directive was to increase the transparency of access conditions and charges applied and ensuring non-discriminatory access.

Provisions apply to a broad range of facilities and services, listed in points 2, 3 and 4 of Annex II to Directive 2012/34/EU. These include passenger stations, freight terminals, marshalling yards and

[56] The Combined Transport Directive specifically covers rail intermodal operations involving at least two Member States where the rail leg is at least 100 km, and the road leg is up to the nearest suitable rail station (see Article 1 for a more precise definition of the scope).
[57] Commission Implementing Regulation (EU) 2023/411

train formation facilities, storage sidings, maintenance facilities, cleaning and washing facilities, maritime and inland port facilities, and refuelling facilities. Additional and ancillary services are also covered, such as traction current supply, pre-heating of trains, arrangements for transport of dangerous goods, access to telecommunication networks and ticketing services.

Implementing Regulation (EU) 2017/2177 lays down the details of the procedure and criteria to be followed for access to service facilities and to the services supplied in these facilities. It also makes provision for sharing and accessing information and for developing cooperation between service facility operators and infrastructure managers.

The RMMS monitors service facilities. However, whereas information is largely complete and reliable for stations, information on other service facilities remains fragmented and not always comparable across countries. Data presented in this section must therefore be interpreted with care.

4.1. Charging principles for service facilities, additional and ancillary services

Charging principles for service facilities and rail-related services differ from the ones applied to rail infrastructure. While direct costs and possibly mark-ups (and eventually other charging components) are levied for the access to rail infrastructure, charges imposed for track access within service facilities and the supply of basic services in such facilities[58] must not exceed the cost of providing them plus a reasonable profit. The charge for additional and ancillary services must similarly not exceed the cost of providing the single service including a reasonable profit, except when these services are offered by more than one supplier.

Applicants must have easy access to information on any service facility and its rail-related services. For that reason, it is mandatory that the network statement, available free of charge, contains a section on information on access to and charging for gaining access to service facilities, as well as for the provision of rail-related services. Alternatively, the information can be published on the website of the service facility or on a common web portal (see https://railfacilitiesportal.eu).

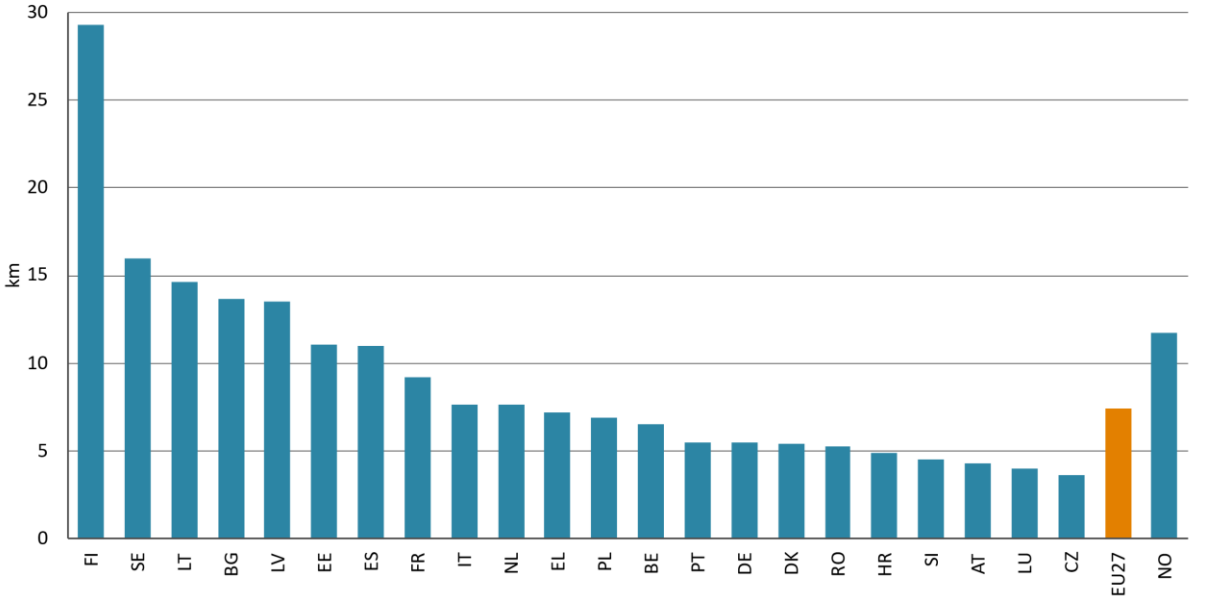
4.2. Passenger stations

There were more than 27 000 stations in the EU27 in 2022, of which 281 were large stations serving more than 25 000 travellers per day.

In 2022, the average distance between stations in the EU27 was 7.45 kilometres. In Finland there is by far the greatest average distance between stations (29.3 kilometres) whereas the Czech network has the shortest average distance between stations with 3.6 kilometres (Figure 43).

[58] Different service facility types and rail-related services are enumerated in points 2 to 4 of Annex II to Directive 2012/34/EU.

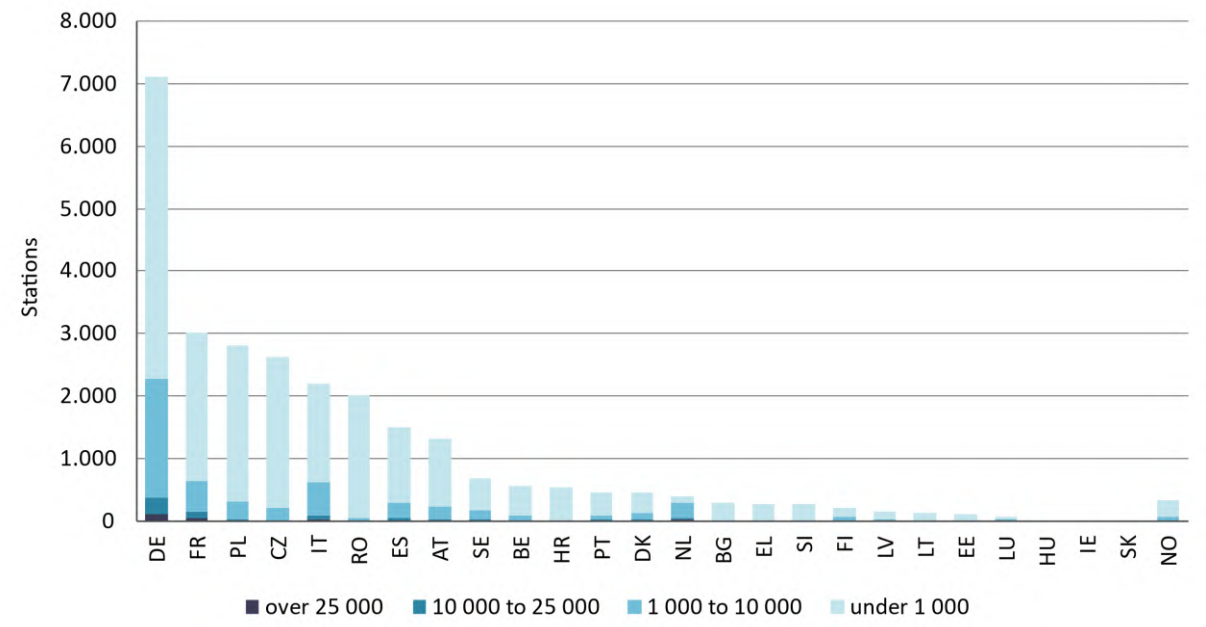
Figure 43: Average distance between stations by country (km, 2022)



Source: RMMS, 2022; Statistical Pocketbook, 2024

Figure 44 shows the numbers of stations with different passenger volumes per day in 2022 per country.

Figure 44: Number of stations by passengers per day by country (2022)

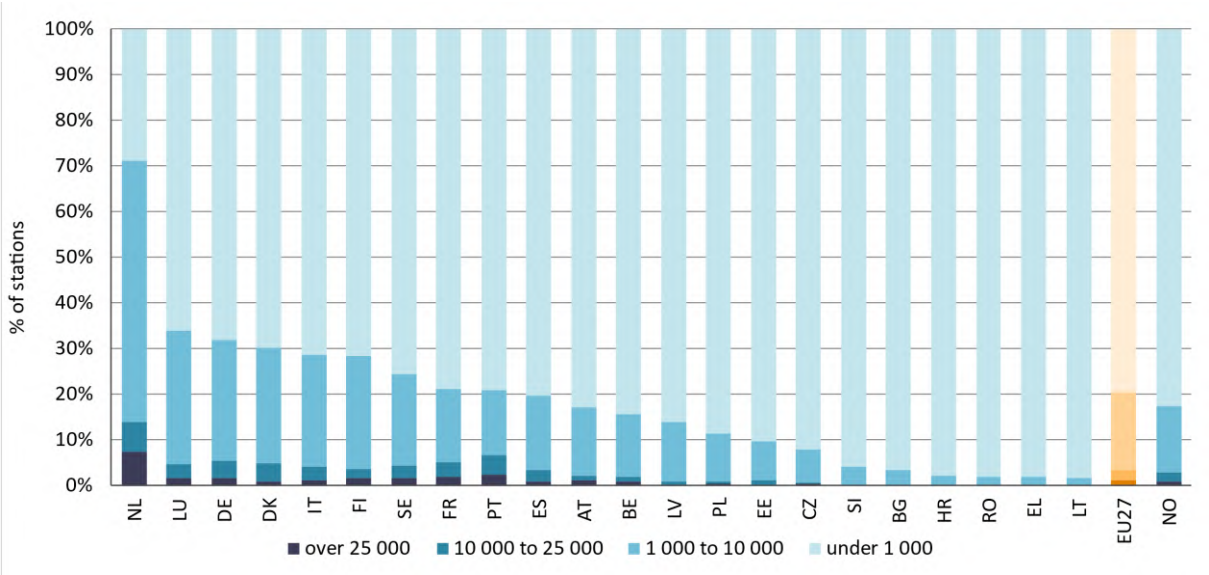


Source: RMMS, 2022

The highest number of stations by far was reported by Germany (7 109, 26.6% of the EU27 total), while the lowest was reported by Luxembourg (68).

Figure 45 shows the proportion of stations with different passenger volumes per day in 2022 per country.

Figure 45: Proportion of stations by passengers per day by country (2022)



Source: RMMS, 2022

With the notable exception of the Netherlands, most of the stations on all networks serve fewer than a thousand travellers per day. These smaller stations make up the majority (80%) of all stations in the

EU27. Large stations serving more than 25 000 travellers per day are less relevant in numerical terms (representing only 1% of the total), despite their major importance for network interconnection.

4.3. Other service facilities

The RMMS collects data from Member States on the number of other service facilities as referred to in Annex II to Directive 2012/34/EU.

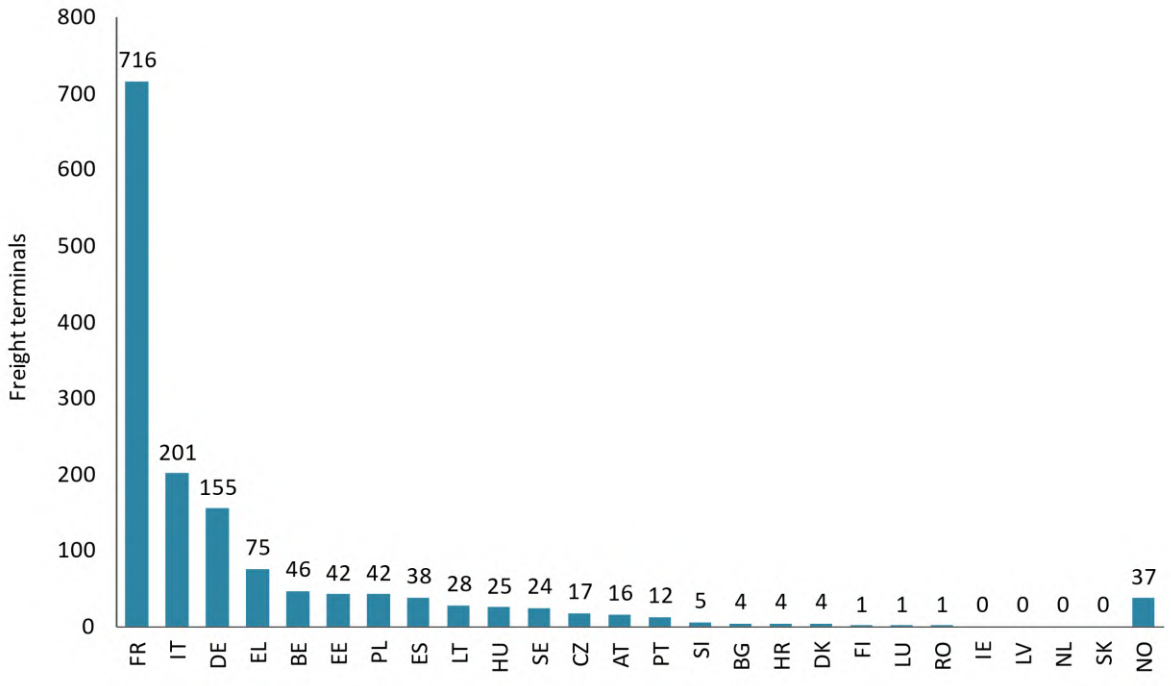
However, discrepancies in the definition of each type of service facility and gaps in inputs at national level limit the comparability of figures across Member States and across years, meaning that caution is necessary when drawing conclusions from the inputs received.

Further to this, the RMMS does not collect data on the actual or foreseeable use of such facilities: the mere reporting of a facility in the RMMS therefore does not necessarily imply that this facility is regularly used (or could be used at short notice or in the near future).

Freight terminals

Based on RMMS data, in 2022 the EU had 1 457 freight terminals. Figure 46 shows the reported number of freight terminals in 2022 by state.

Figure 46: Number of freight terminals by country (2022)



Source: RMMS, 2022

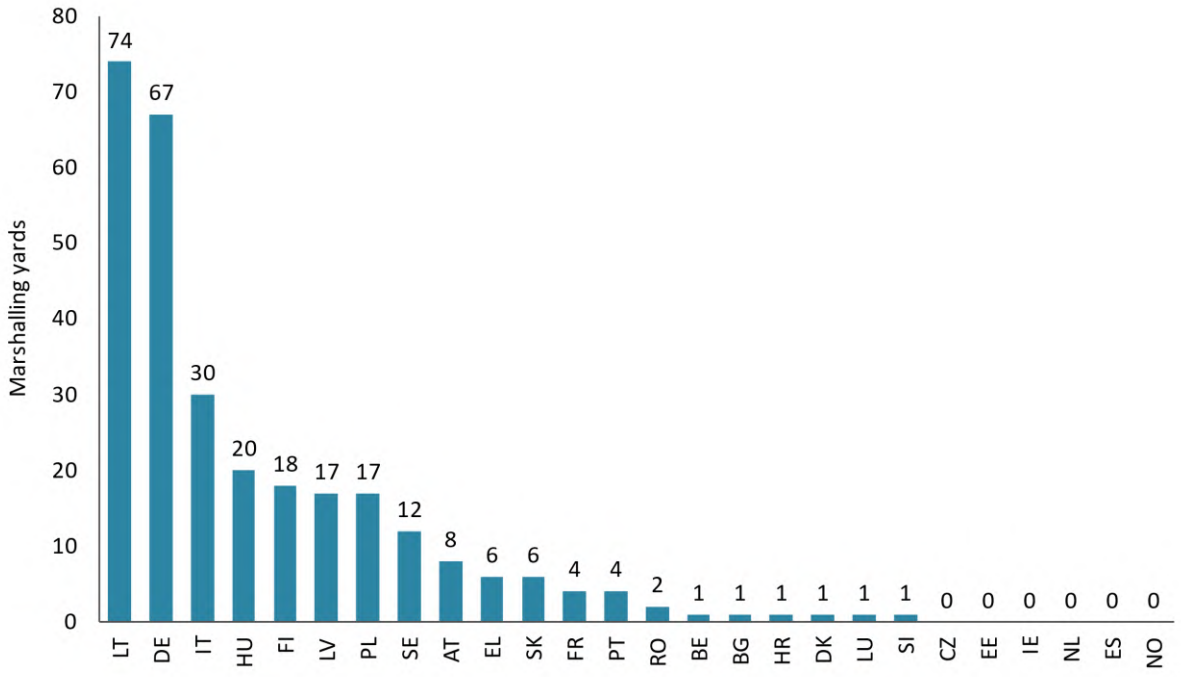
The RMMS Regulation defines freight terminals as a facility equipped for the transhipment and storage of intermodal transport units, where at least one of the modes of transport is rail. France reported the highest number of freight terminals in the EU27, with 716 terminals.

Marshalling yards and train formation facilities

Based on RMMS data, the EU27 had 291 marshalling yards and train formation facilities in 2022.

Figure 47 shows the reported number of marshalling yards and train formation facilities in 2022 by country.

Figure 47: Number of marshalling yards by country (2022)



Source: RMMS, 2022

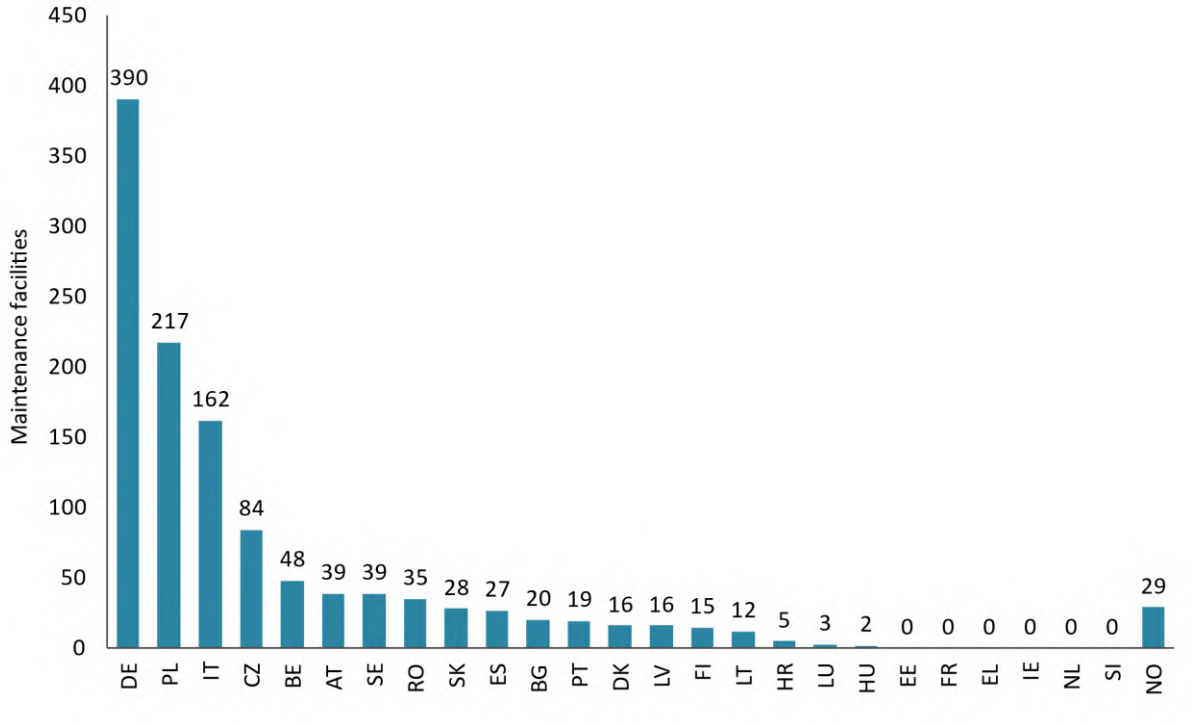
The RMMS Regulation defines a marshalling yard as a site or a part of a site equipped with several tracks or other equipment used for railway vehicle marshalling operations, including switching, and which use gravity to form or rearrange trains.

Maintenance facilities

Based on RMMS data, there were around 1 177 maintenance facilities in the EU27 in 2022.

Figure 48 shows the reported number of maintenance facilities in 2022 per country.

Figure 48: Number of maintenance facilities by country (2022)



Source: RMMS, 2022

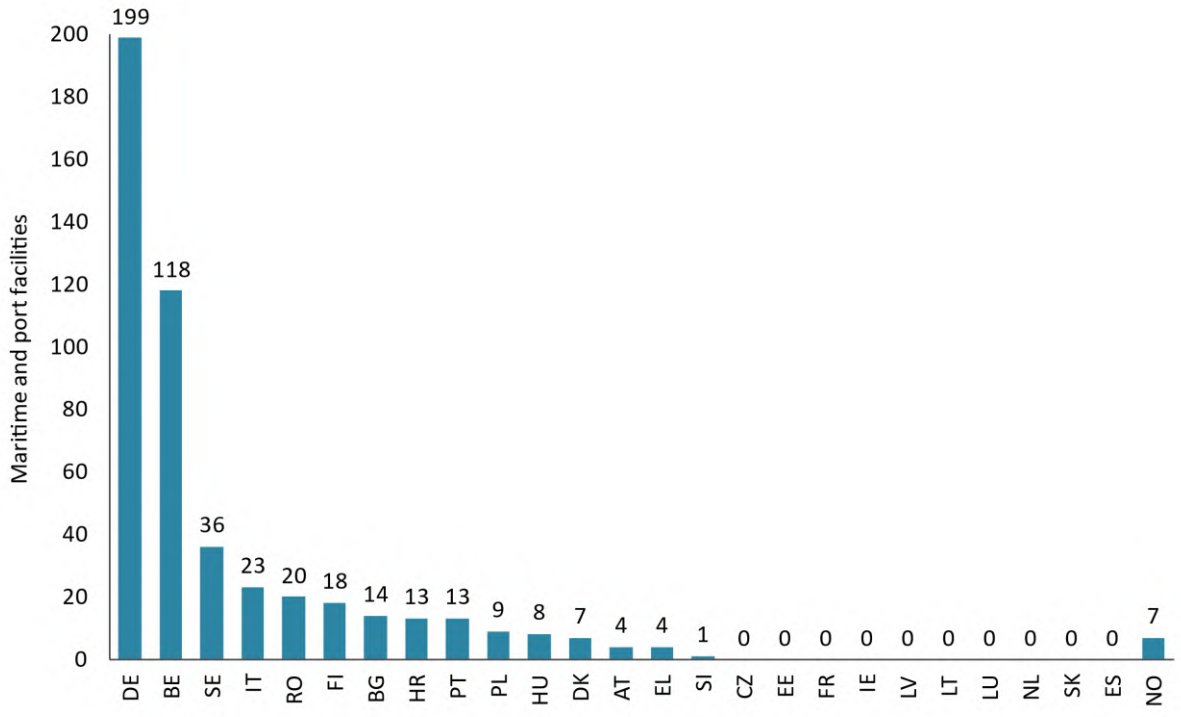
Maintenance facilities are facilities where rolling stock is maintained, including both heavy and light maintenance, to keep it in operation.

Maritime and port facilities

Based on RMMS data, in 2022 the EU27 had 487 maritime and port facilities.

Figure 49 shows the reported number of maritime and port facilities in 2022 per country.

Figure 49: Number of maritime and port facilities linked to rail activity by country (2022)



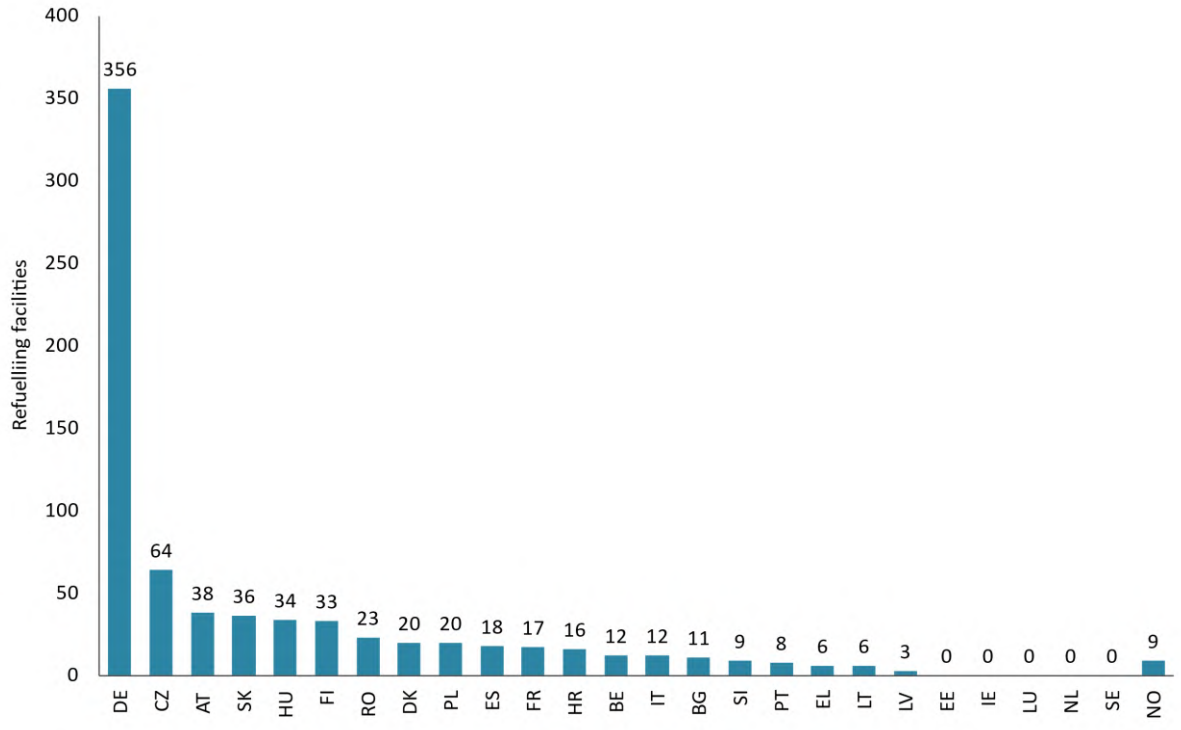
Source: RMMS, 2022

Refuelling facilities

Based on RMMS data, in 2022 the EU27 had 742 refuelling facilities.

Figure 50 shows the reported number of refuelling facilities in 2022 per country.

Figure 50: Number of refuelling facilities by country (2022)

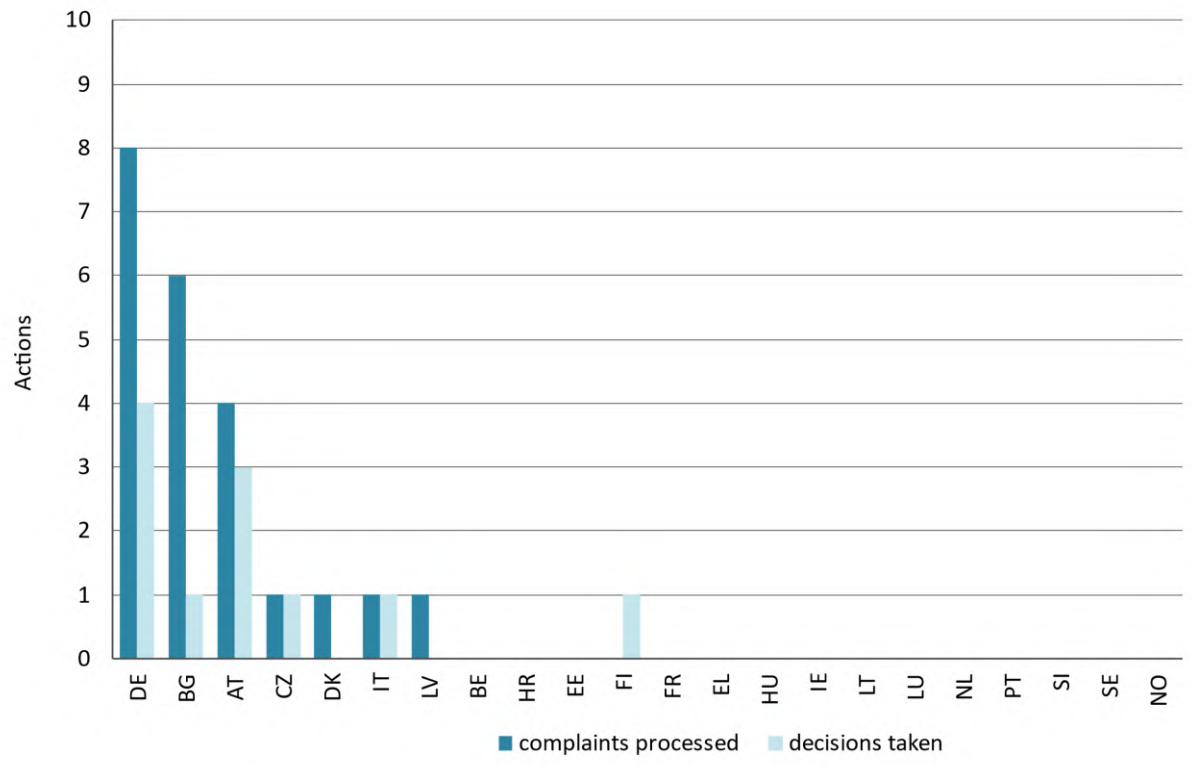


Source: RMMS, 2022

4.4. Complaints related to access to service facilities

Figure 51 shows the number of complaints being processed by regulators, as well as the number of decisions taken by regulators in 2022 per country. It should be noted that reported decisions are not necessarily in response to complaints raised in the same year, since there could be a considerable time lag between the filing of a complaint and its resolution.

Figure 51: Number of complaints being processed, and decisions made by country (2022)



Source: RMMS, 2022

Germany's regulator processed the highest number of complaints on access to service facilities in 2022 (8) and took 4 decisions on such complaints.

5. The evolution of framework conditions in the rail sector

Covered in part 2

6. The quality of rail services

Covered in part 2

7. Conclusions

Covered in part 2