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# Railway Safety and Interoperability: the Importance of Data Sharing

24 June 2022

13.00 [CEST]

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Railway Safety and Interoperability in the EU





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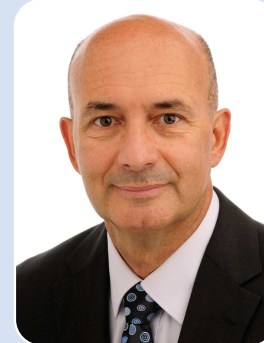
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- The Railway Safety Directive establishes that ‘...*Railway safety should be generally **maintained** and, when practicable, continuously **improved**, taking into account technical and scientific progress, and the development of Union and international law.*
- The Agency Regulation provides for that the Agency shall ‘...*shall monitor the **overall safety performance** of the Union rail system*’
- In particular ‘...*the Agency shall monitor progress on the **safety** and **interoperability** of the Union rail system. Every 2 years it shall present to the Commission, and publish, a report on progress on safety and interoperability in the single European railway area*’
- Latest Biennial report published at the beginning of June 2022 and available [here](#).
- Within this context, **great importance** is played by availability of information in relevant **databases** and by **data sharing/collaboration** among of various institutions, as we will discuss further today with EUROSTAT, RailNetEurope and the ERA Registers Team

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- **Significant accidents and resulting casualties have decreased steadily since 2010**, with 1 331 significant accidents and 687 fatalities (suicides excluded) in 2020
- Although the positive trend depicted at the EU level:
  - The overall **cost of railway accidents remains high** (about 3.2 billion EUR per annum only for significant accidents in EU-27)
  - The **decrease in significant accidents has mainly been driven by “external” accidents**, while ‘internal’ accidents (collisions, derailments, fires in rolling stock and other accidents) show a more stable trend in the last years
  - **Large differences in safety** levels still exist **between EU Member States**
- Due to the **COVID pandemic** the total train-km in Europe (EU-27) decreased by around 10% in 2020 compared to 2019; anyway, while similar decrease was recorded also for the freight tonne-km, the drop in passenger-km was much higher (i.e. over 40%)

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Although interoperability of the Union railway system is improving, progress is slow and uneven: good on aligning rules and procedures, slow in the area of rolling stock and infrastructure. Key highlights:

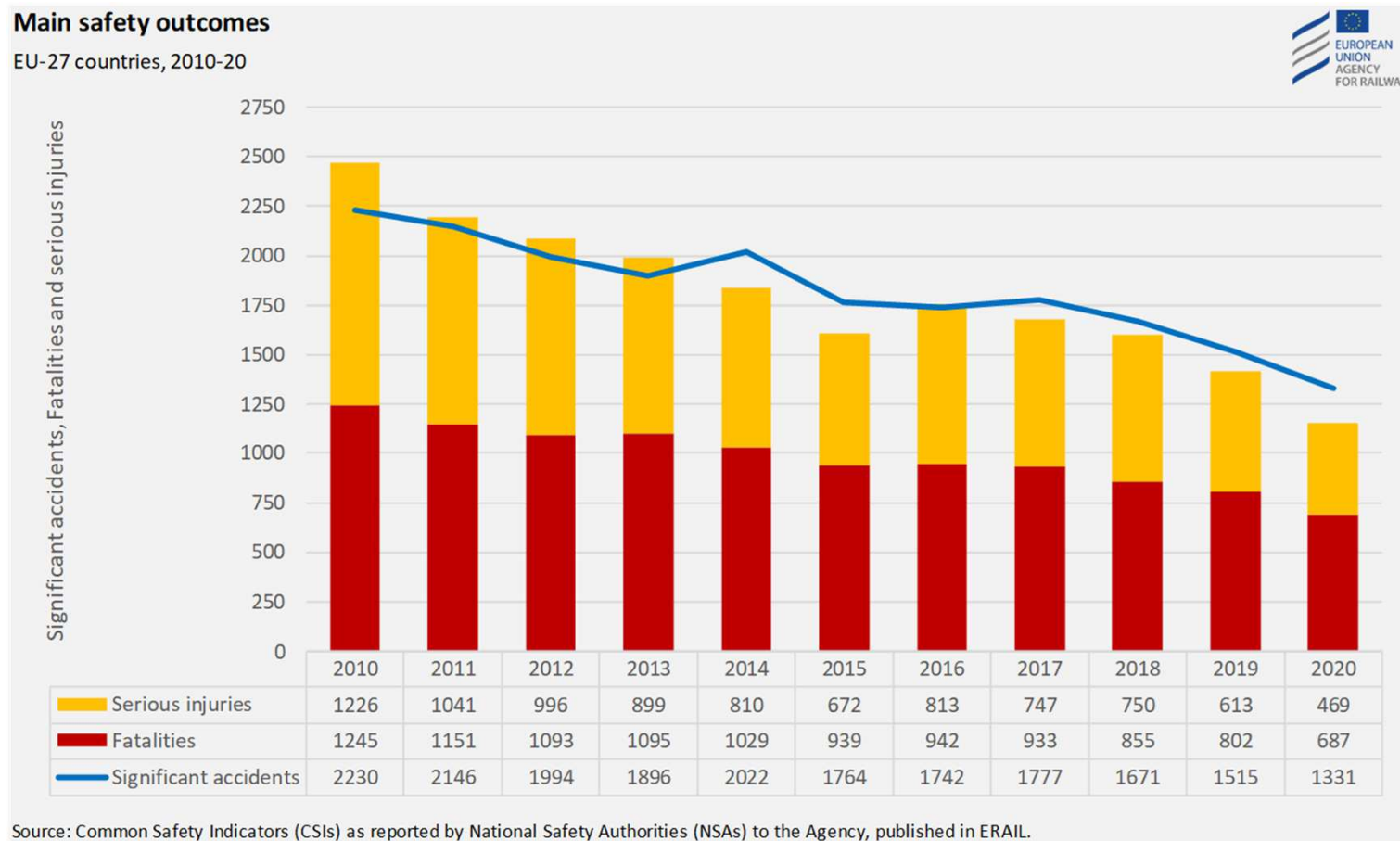
- **Rail modal share is stagnating;**
- **New indicators** of interoperability are presented in the report (for monitoring cross-border rail traffic volumes, transfer time and punctuality at border sections), which may provide an indication on the seamlessness of cross-border rail traffic across Europe year-on-year
- **The degree of implementation of** single functions under **TAP and TAF TSI** by operators varies considerably among functions and it **is progressing very slowly;**
- While the **number of published rules has seen an impressive decrease over the past six years**, it has flattened since 2019, as the potentially removable rules are becoming scarce;
- **The deployment of the ETCS at EU level has been slow so far** and varies considerably among Member States;
- **Non-application of TSI requirements remains a common practice** as visible from the number of derogations requests addressed to the Commission

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## Part A, Safety - Safety outcomes overview

Significant accidents and resulting casualties have decreased steadily since 2010, with 1331 significant accidents, 469 serious injuries and 687 fatalities recorded in 2020

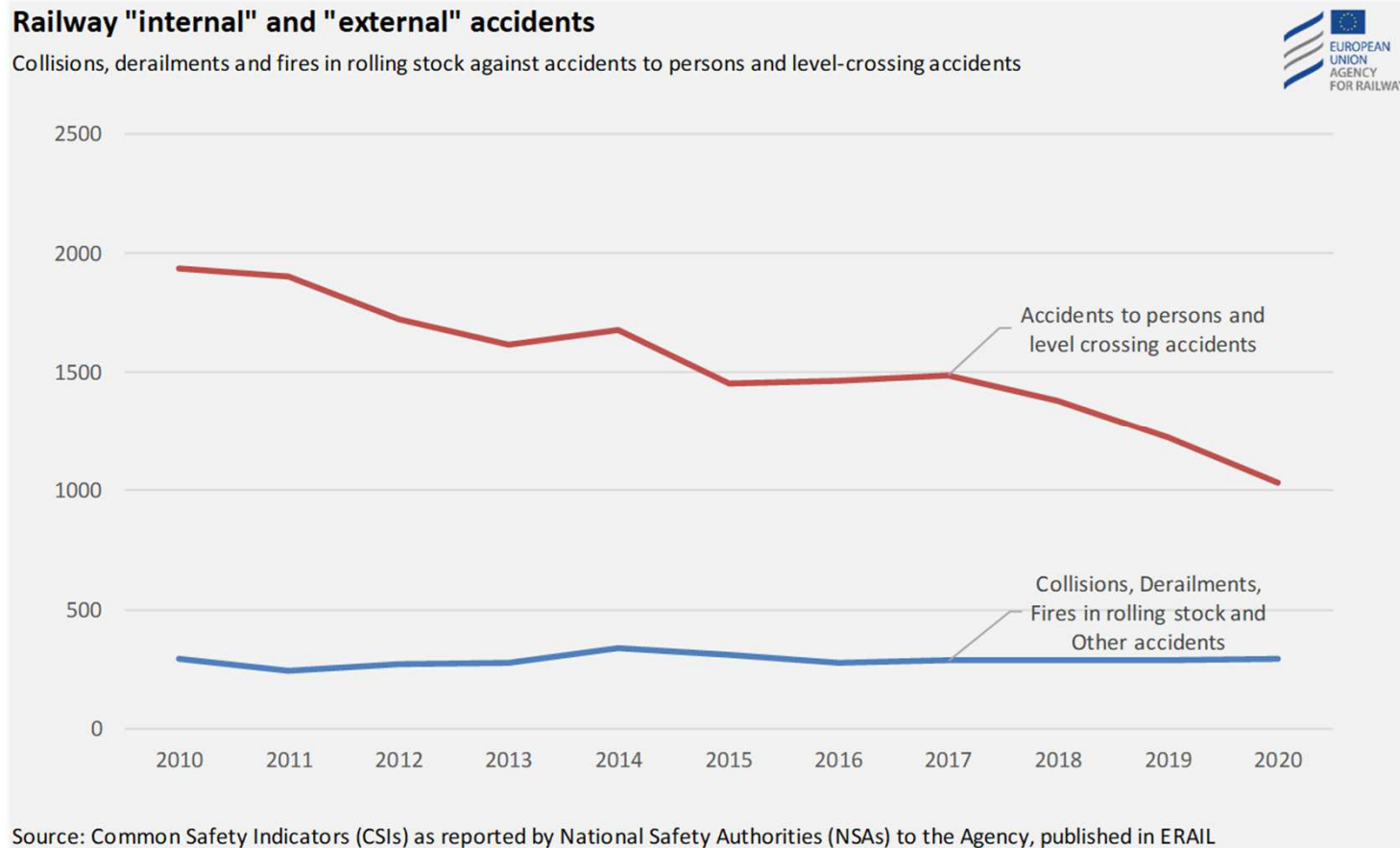


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## Part A, Safety - “Internal” and “external” accidents

The decrease in significant accidents has been mainly driven by “external” accidents (accidents to persons and at level crossings), while ‘internal’ accidents show a more stable trend in the last years.



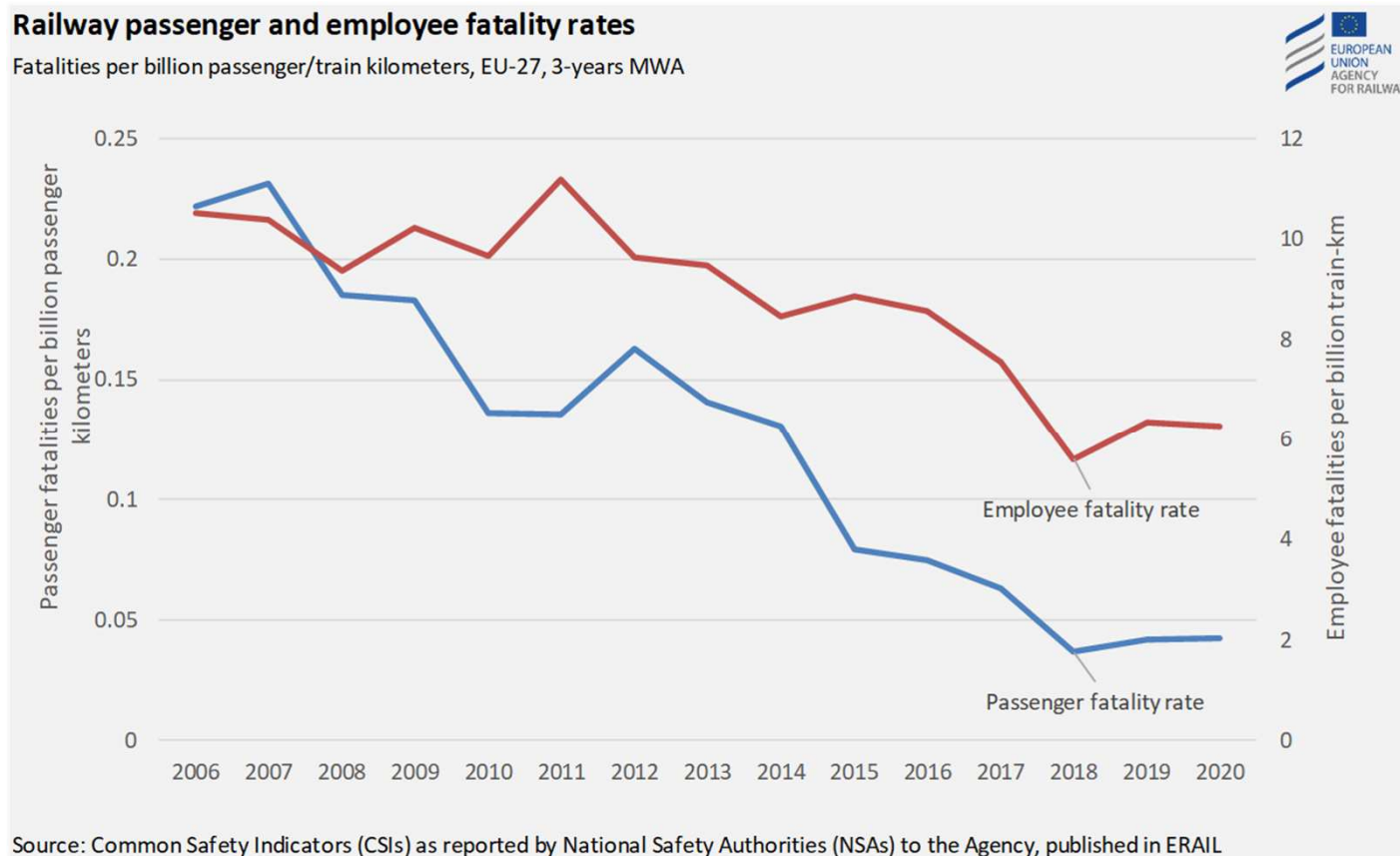
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## Part A, Safety - Railway passenger and employee fatality rates

In 2020, despite the reduction in passenger fatalities, taking in account the significant drop in passenger-km (due to the COVID pandemic), passenger fatality rates slightly increased relative to 2019. Both the railway passenger and employee fatality rates show a weak increasing trend in the last 2 years.

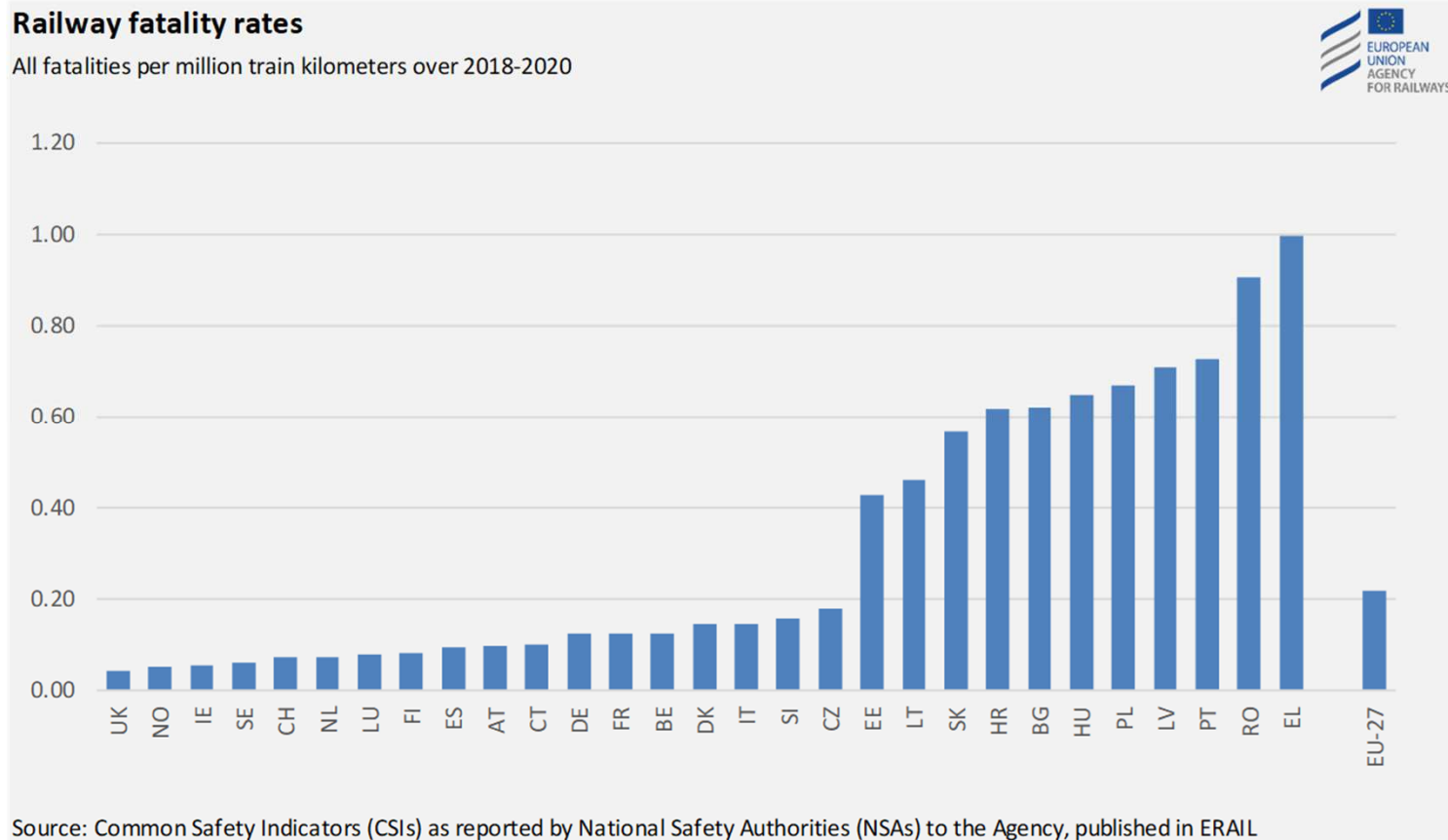


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## Part A, Safety - Railway fatality rates per Member State

Large differences in casualty rates exist among Member States. The figures of fatality rates and passenger fatality rates for Member States show at least a ten-fold difference for countries with the lowest and highest values

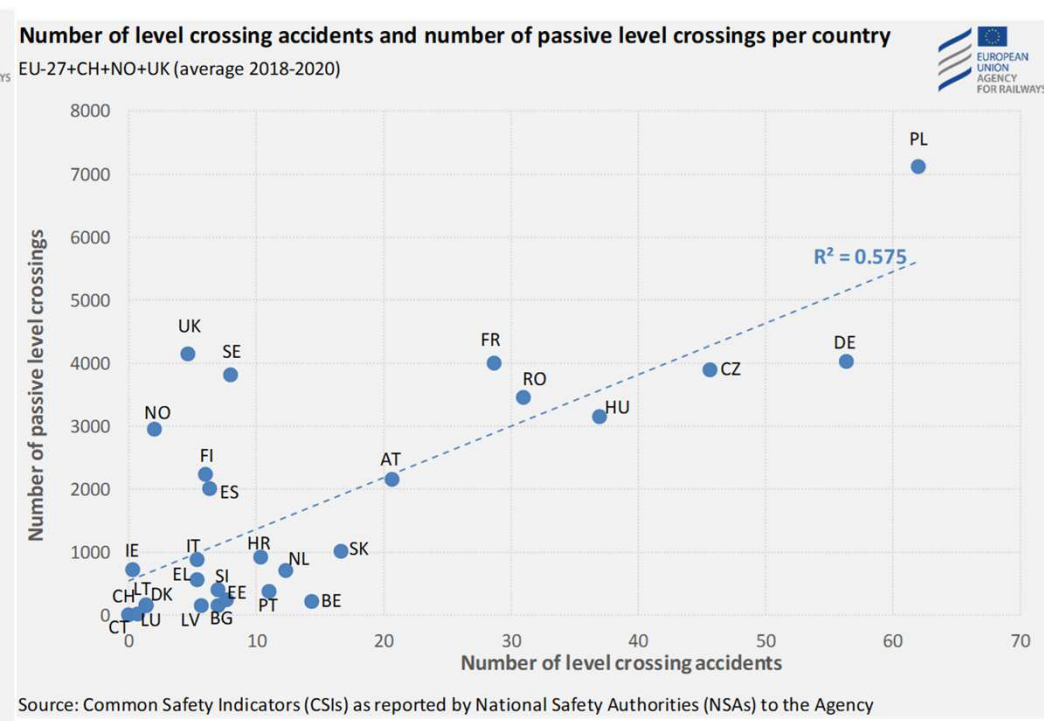
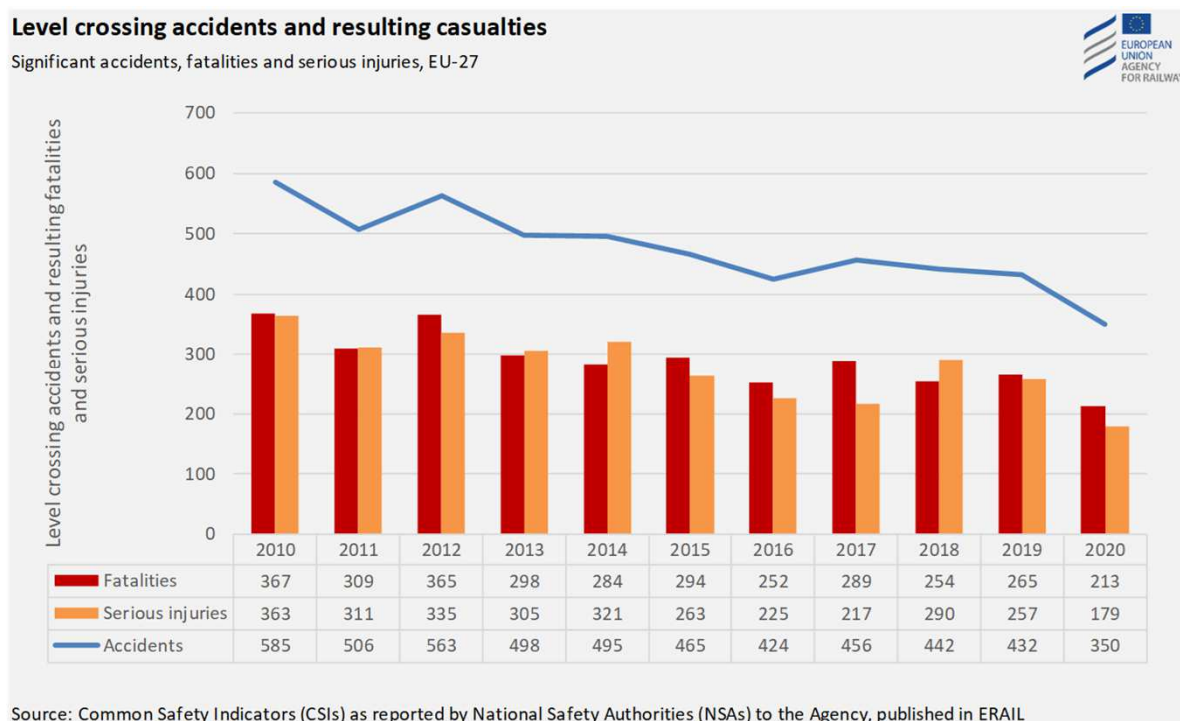


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## Part A, Safety - Level crossing accidents

After a stagnating trend in the last years (2016-2019), in 2020 level crossing accidents and related fatalities registered a significant decrease. Anyway, the number of level crossing accident and the type of protection vary considerably across Europe; the numbers of passive level crossings show a positive relationship with the numbers of level crossing accidents.



## Part B, Interoperability - Rail transport figures

Besides the specific figures for 2020, European rail traffic has increased very little over the last decade. Rail passenger volumes have slightly but constantly increased in the last years until 2019, while freight volumes remained stable.

**Rail transport figures (freight), EU-27, 2006-2020**

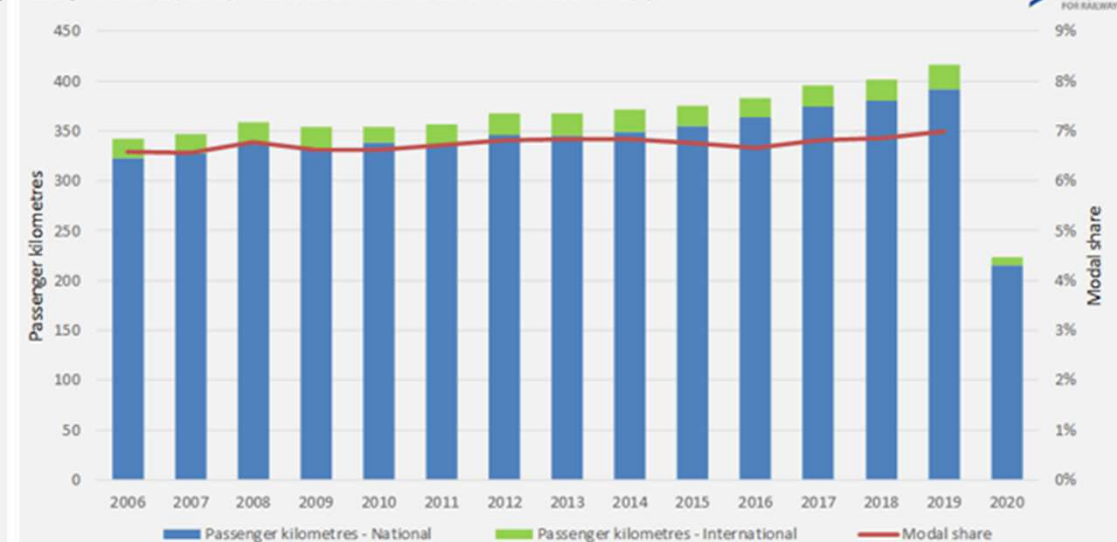
Tonne kilometres (billions) for domestic and international traffic and modal share (%)



Source: Estimations based on Eurostat tables rail\_go\_total, rail\_go\_quartal, rail\_go\_typepas, 2021 Statistical Pocketbook (DG MOVE)

**Rail transport figures (passenger), EU-27, 2006-2020**

Passenger kilometres (billions) for domestic and international traffic and modal share (%)



Source: Estimations based on Eurostat tables rail\_pa\_total, rail\_pa\_quartal, rail\_pa\_typepas, 2021 Statistical Pocketbook (DG MOVE)

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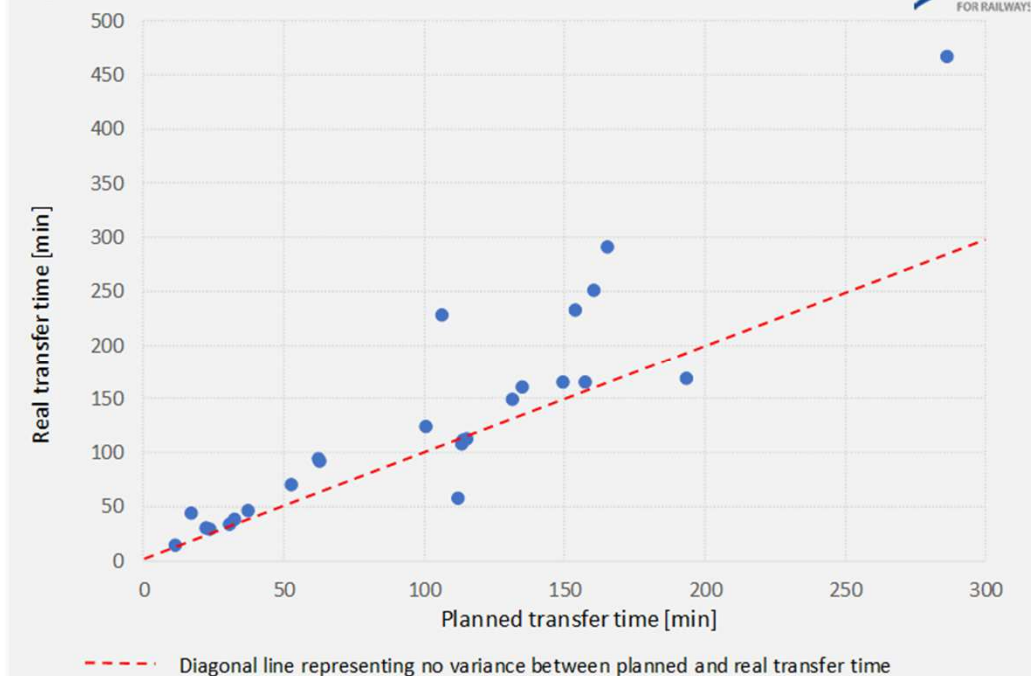


## Part B, Interoperability - Cross borders train services/operations

A new set of indicators to measure seamlessness of rail traffic. The regular monitoring of rail traffic volumes, transfer time and punctuality at border sections may provide an indication of the development of rail interoperability across Europe year on year.

**Planned and real transfer times at selected border sections**

Freight trains, 2021

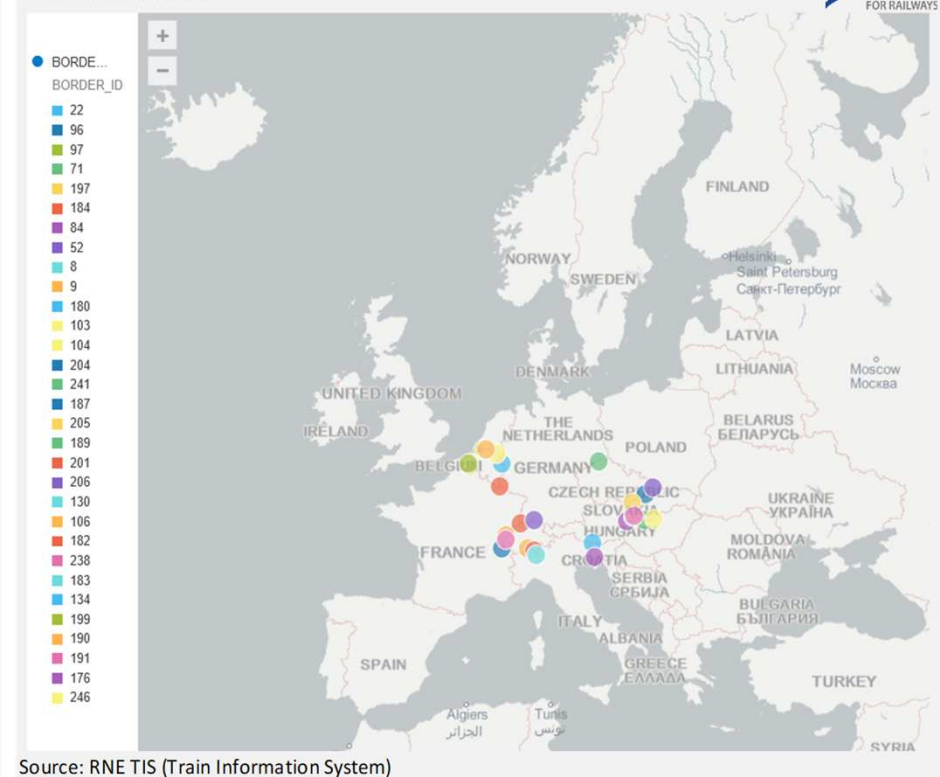


Notes: For some borders the incorrect or missing data may influence the figures; only a limited sample of trains (compared to all trains crossing the border) was considered for calculations (due to the issue of unlinked trains)

Source: RNE TIS (Train Information System)

**Cross Border Points included in the analysed dataset**

Location and Border ID



Source: RNE TIS (Train Information System)

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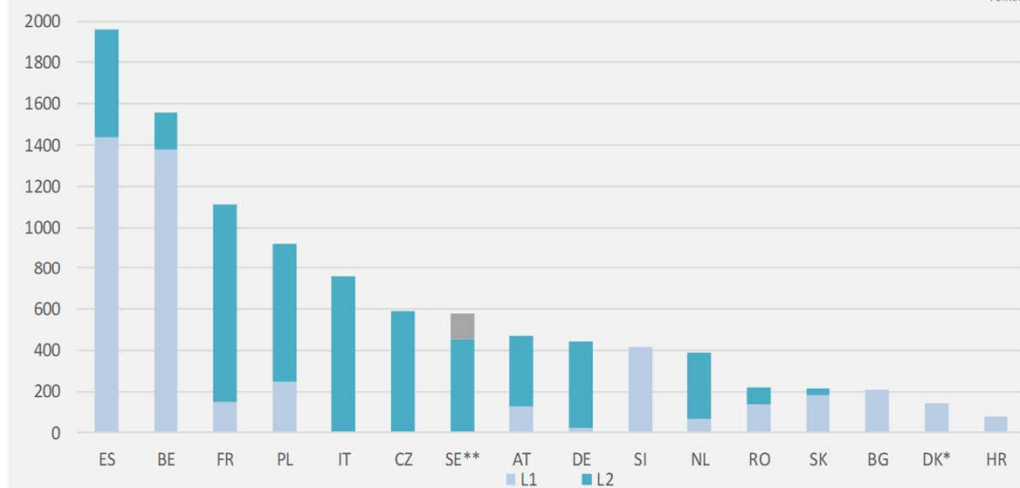


## Part B, Interoperability - ERTMS trackside deployment

The deployment of the ETCS at EU level has been slow so far and varies considerably among Member States (and among CNCs)

Length of railway lines equipped with ETCS (EU-27, end 2021)

Length in kilometers per ETCS level



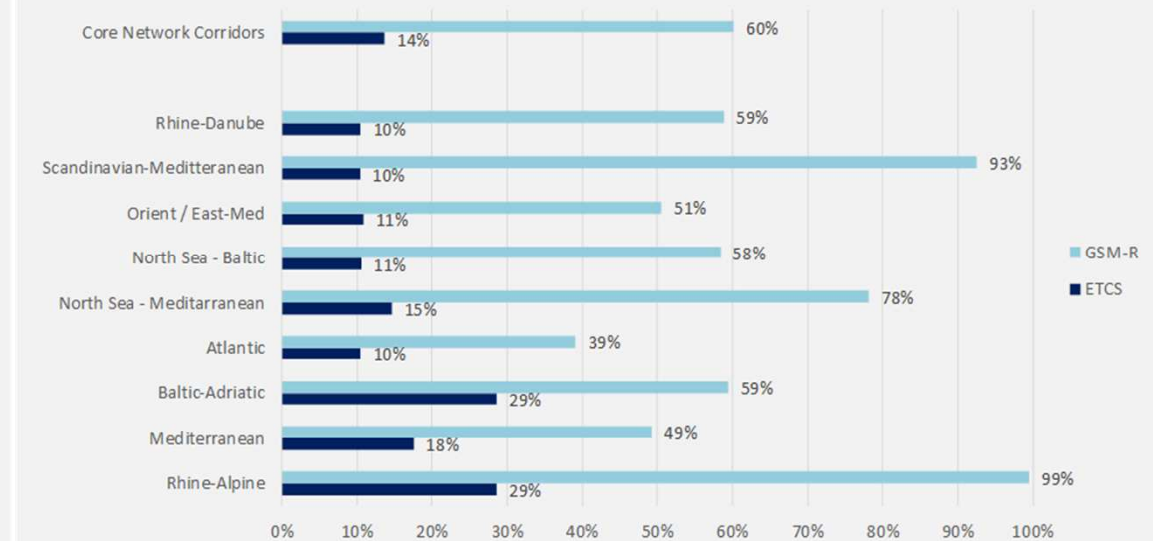
Notes: \*Data for DK limited to CNC, sourceTENtec; \*\*Grey histogram for Sweden refer to an ERTMS Regional solution without a Train Integrity function implemented on low traffic lines (<https://www.ertms.net/wp-content/uploads/2021/06/19.ERTMS-in-Sweden.pdf>)

Source: Register of Infrastructure (RINF), data extracted on 4<sup>th</sup> January 2022



Deployment of ERTMS on Core Network Corridors (end September 2021)

ETCS and GSM-R equipped lines among core network corridor lines



Source: DMT/TENtec database (DG MOVE)

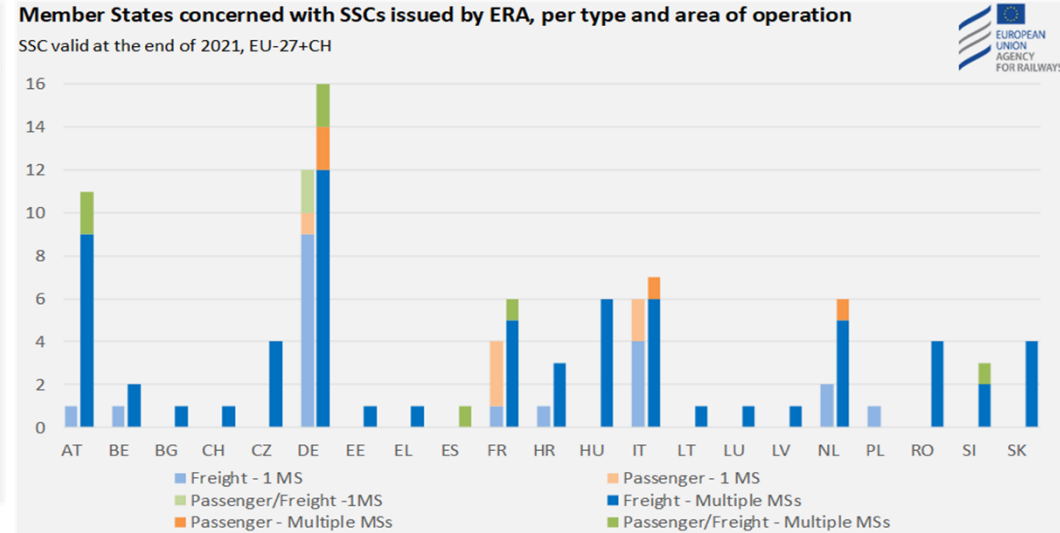
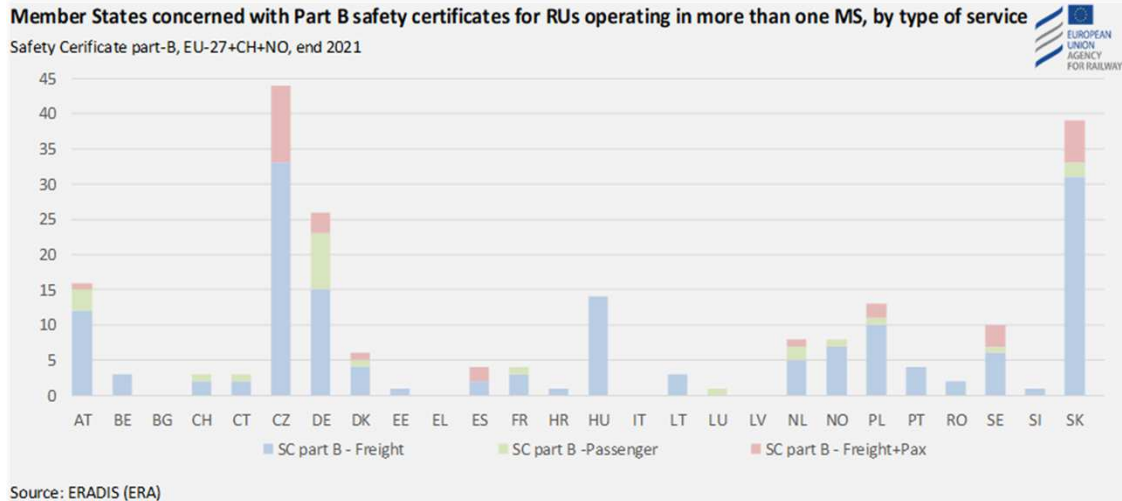
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## Part B, Interoperability – Safety certificates

Safety certificates/SSC are an indication of internationalization of rail operations. Records in ERADIS indicate a total of 214 part B safety certificates valid in more than one Member State; furthermore, 33 SSCs with international areas of operation were issued by ERA. More freight services than rail passenger services are registered or operated internationally.

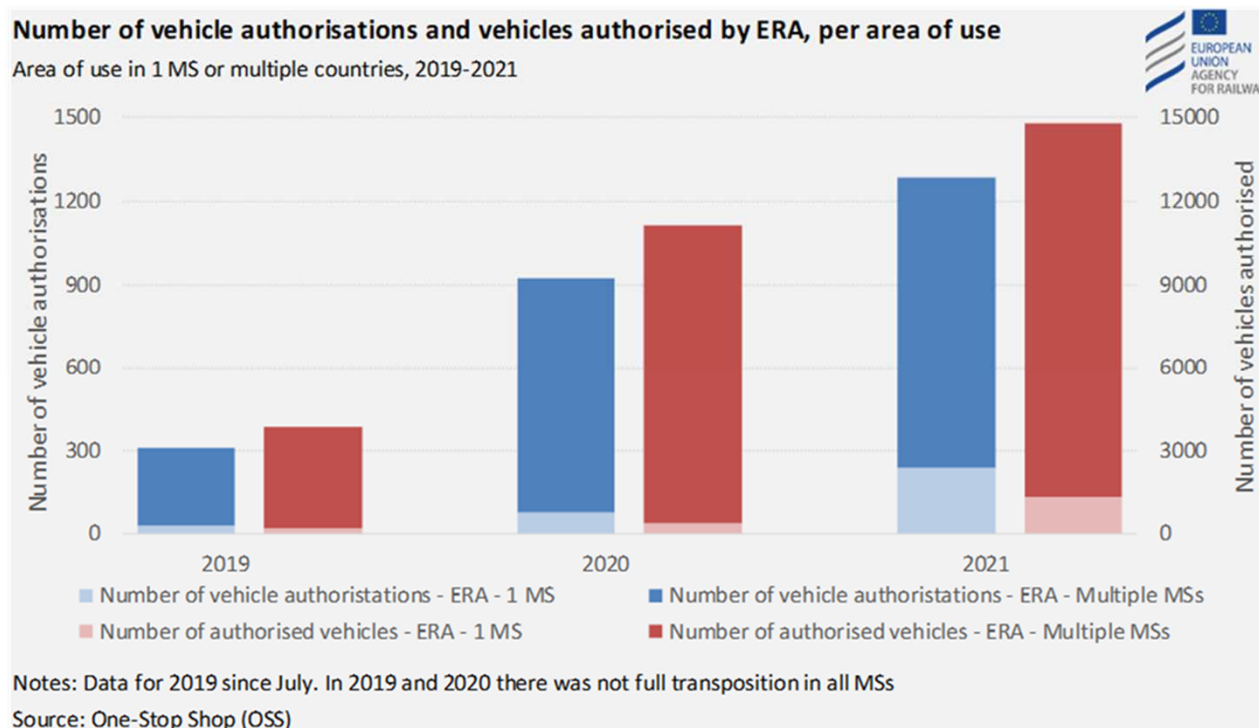


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## Part B, Interoperability - Vehicles with area of use in more than one MS

Around **1 280 vehicle authorisation applications** were submitted and handled by ERA in 2021, with **more than 1 040** authorisations (for more than 13 480 vehicles) concerned an area of use in multiple countries (mostly wagons)



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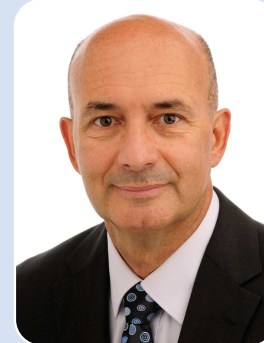
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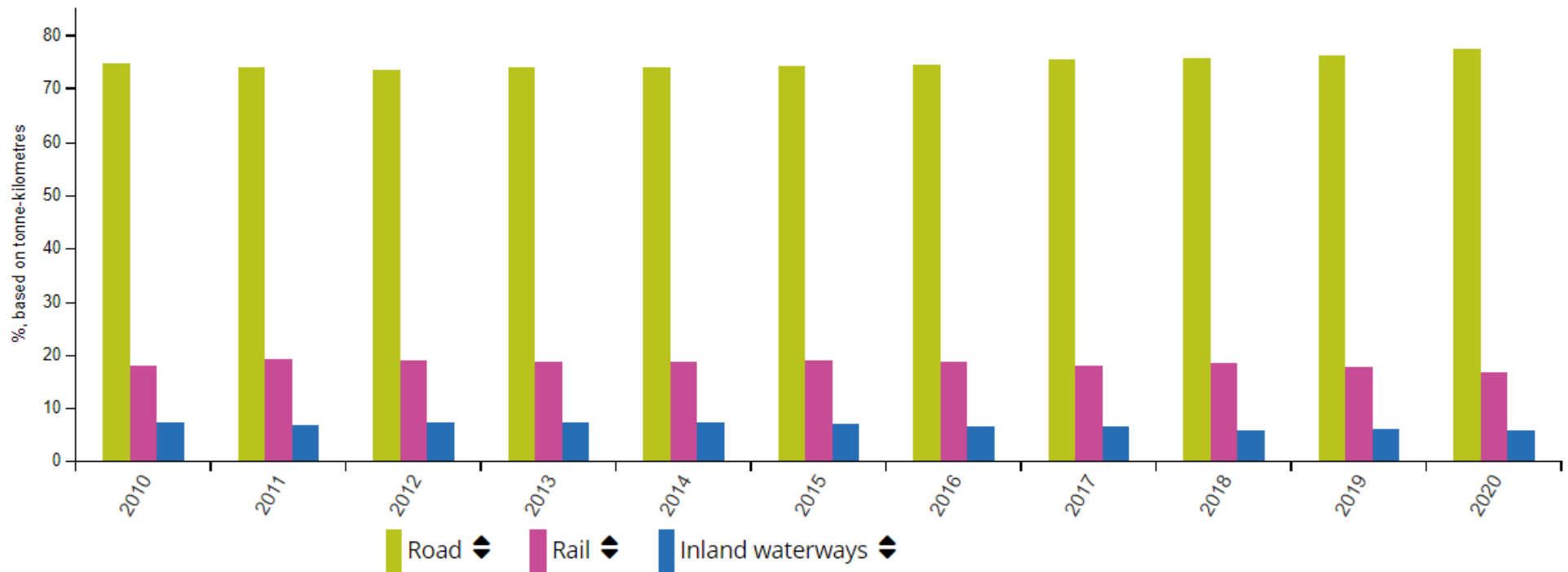


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Policy Officer

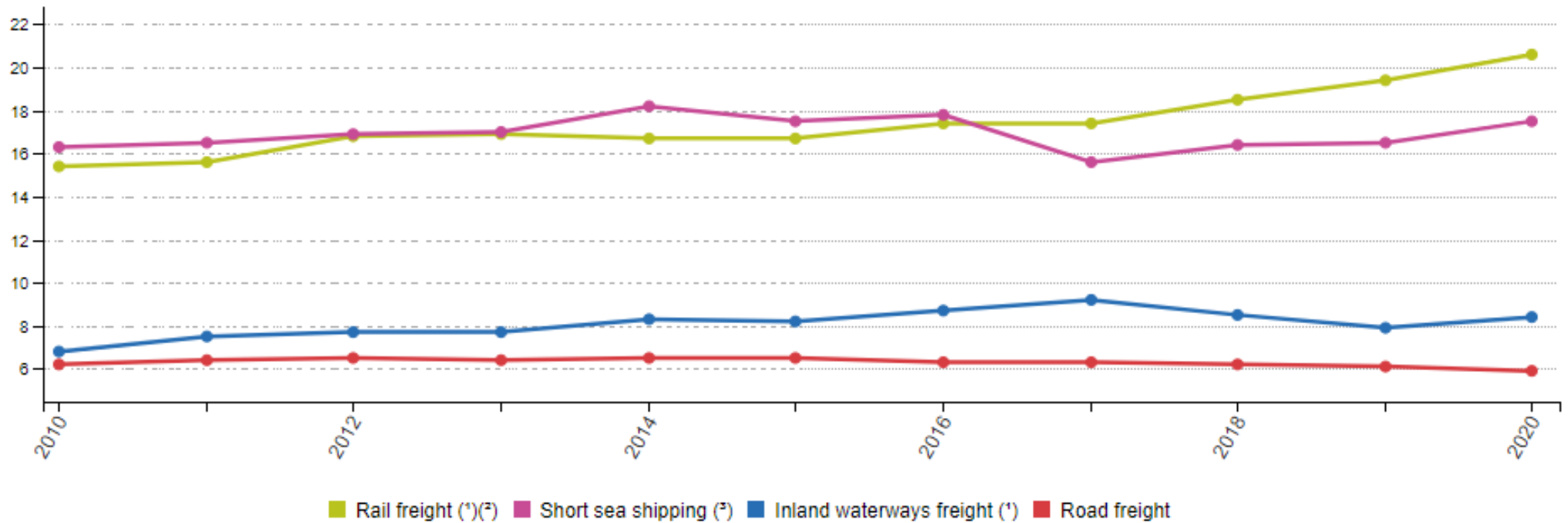
# Shifting goods transport from road to rail

Modal split of inland freight transport, EU, 2010-2020



# Container transport

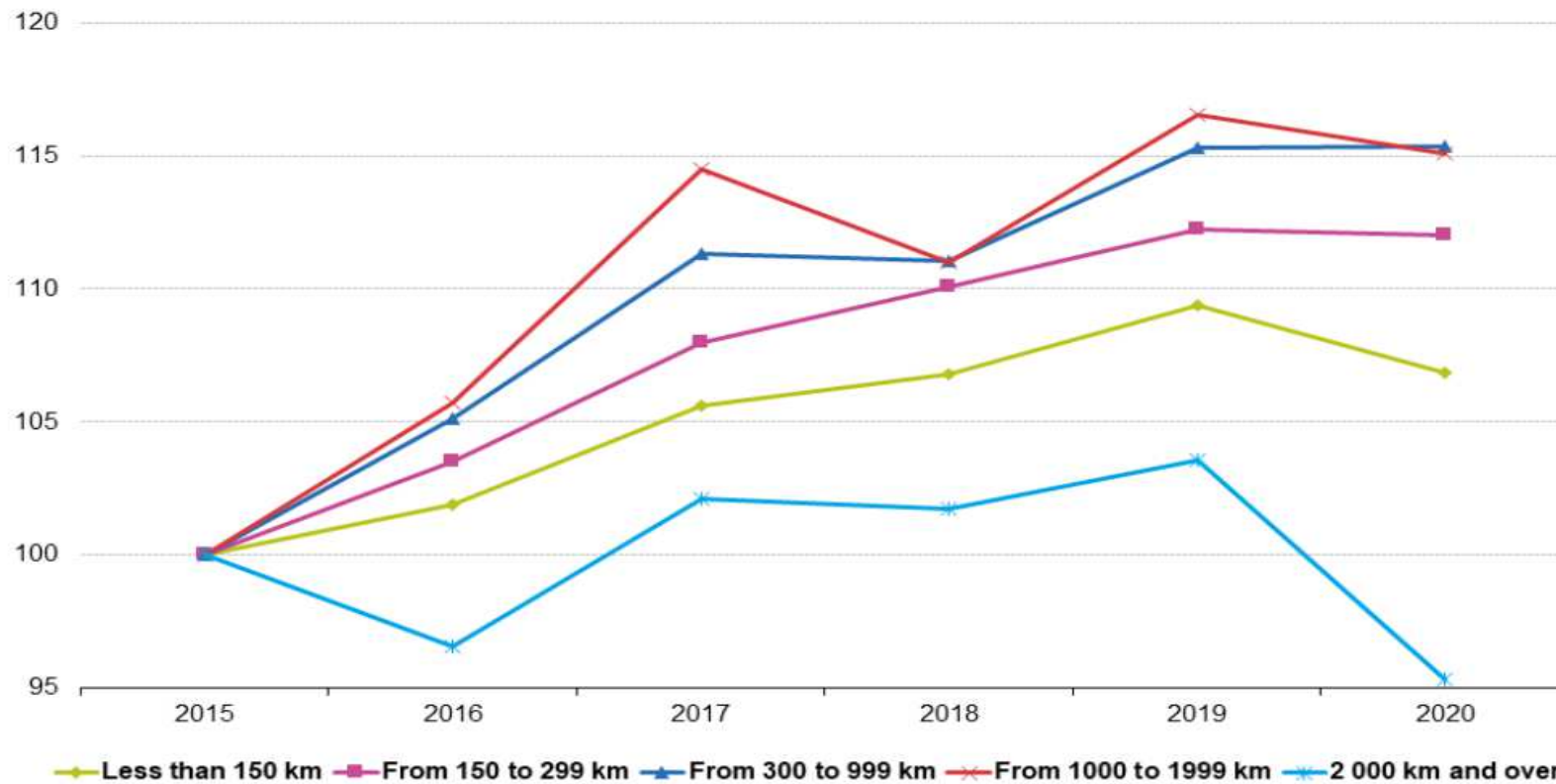
Containers transport by mode of transport, EU, 2010-2020 (% share of total freight transport, based on tonne-kilometres)



# Eurostat transport statistics

## Road freight transport by distance class, EU, 2015-2020

(index based on tonne-kilometres; 2015=100)



Note: Malta excluded (see chapter 'data sources')

Source: Eurostat (online data code: road\_go\_ta\_dctg)





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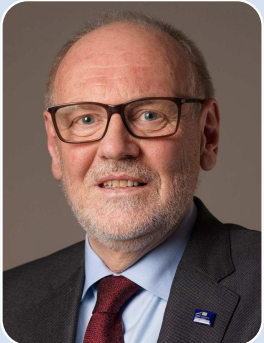
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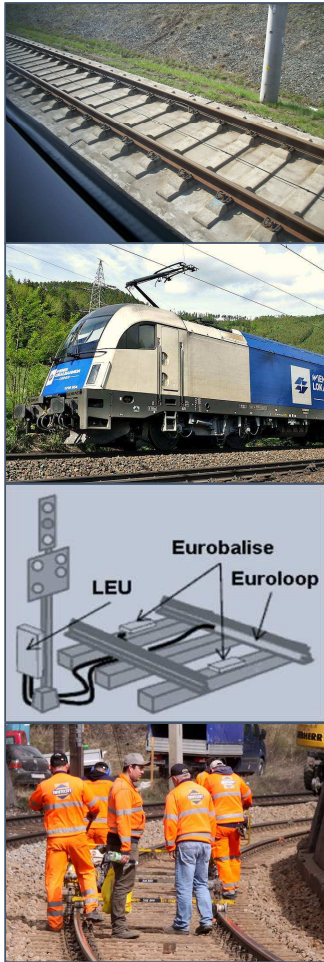
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Railway system (simplified)



Infrastructure & Energy

Rolling stock

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