

# 20 Years of ERA

Added value of the EU Agency  
for Railways to reach a sustainable  
and safe Single European  
Railway Area



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1

Executive  
**Summary**

# 1 Executive Summary

The mission of the EU Agency for Railways is 'Moving Europe towards a sustainable and safe railway system without frontiers'. With a focus on safety and interoperability, the Agency was founded 20 years ago and since its establishment it went through several changes. The most important is the entry into force in 2016 of the Fourth Railway Package, a key set of EU Regulations and Directives which strengthened the responsibilities of the Agency and expanded its mandate from monitoring and regulatory support into also authority tasks resulting in ERA becoming a central knowledge hub leveraging on its unique expertise and scale effect. Since 2019, ERA is the Union authority for vehicle authorisations and safety certificates. Since then, ERA has issued on the basis of fees paid by applicants about 350 complex vehicle authorisations, 5800 conformity to type authorisations, more than 200 single safety certificates and 14 ERTMS track-side approvals. All applications are managed digitally ensuring lower costs and easier cross-border rail operations. Looking ahead, ERA believes it will continue to play a key role in the future of railways, as central part of a multimodal transport system which is end-user focused, green, integrated and innovative. The Agency has identified the areas where its future role and interventions could be fostered: Strengthening rail safety through a Priority Countries Programme to address deficiencies in certain EU Member States, and an Information Sharing System to upgrade safety occurrence reporting and analysis like in the aviation sector; **Climate resilience and military mobility** to make railways resilient to the new environmental and security challenges; **Further process improvements for vehicle authorisations** to make ERA responsible for also registering and not only authorizing vehicles; **A central role in digital and telematics** solutions fostering the current role of ERA as System Authority through linked data and ontology of the ERA registers; **Optimizing rail infrastructure capacity** to support the European Commission on regulatory work and independent performance monitoring; **Facilitating multimodal cooperation** to further leverage on synergies among different transport modes.

This report provides an overview of the value added of ERA over the last two decades. ERA grew after an initial ramp up phase and its resources come mostly from the EU budget. The Agency has been spending with good and sound financial execution about 25-30 million EUR per year since 2011 to finance costs, mostly its now 200 staff members. Direct costs on the rail sector in 2024 are expected being about 10 million EUR in fees for authorisations while indirect costs in terms of expert advice through more than 250 meetings per year resulted in a consistently positive business case for more harmonization, contributing also to standardization and information sharing. Despite having responsibilities over of a very fragmented sector like the EU railways and despite the latest new authority tasks, ERA remains a small organisation. Other EU agencies such as EMSA in maritime and EASA in aviation have 100% to 400% more budget and staff than ERA.

During its 20 years of work ERA delivered important benefits for the rail sector's safety and interoperability as well as for society at large. The Agency supported the European Commission on technical matters to develop a common approach to safety in the Union and by enhancing interoperability of the rail system. Despite significant improvements, the cost of rail accidents is still estimated at 4 billion EUR per year while the cost of a non-interoperable rail system across countries is about 2 billion EUR annually.

On safety, the Agency performs regular audits of national safety authorities and monitors notified bodies and national investigation bodies. Following a first audit cycle of NSAs, 60% of the findings have been addressed and the network forum of NSAs improves coherence of national authorities and incentivises the sharing of best practices. The recent authority tasks of ERA are based on subsidiarity and allow NSAs to focus more on supervision activities. On the safety regulatory side, the Agency developed and is updating Common Safety Methods to harmonise rail safety standards. This has important links with the frameworks the Agency developed for the transport of dangerous goods, for entities in charge of maintenance of rail vehicles as well as for Single Safety Certificates which are critical to ensure interoperability in a safe environment. The Agency advises also on risk control measures through its Joint Network Secretariat and key soft measures such as human and organisational factors and safety culture for which training and conferences are organised regularly. During the last two decades, rail remained the safest land transport mode with yearly fatalities reducing from nearly 1500 in 2006 to about 800 in 2022 and significant accidents dropping from more than 4500 to less than 1600. Although improving, safety improvement is never enough and the situation in certain Member States remains a concern.

For interoperability, the Agency played a fundamental role to build a truly single European rail area without technical barriers and regulatory issues that hamper seamless rail transport throughout the EU. The lack of interoperability results in a low rail modal share resulting in low revenues and missed opportunities for reducing negative externalities of transport. ERA has been since the very beginning the key actor for developing together with the rail sector the Technical Specifications for Interoperability, in turn enshrined in EU laws. Starting from even earlier than 20 years ago, more than 30 EU regulations have been adopted by the European Commission and the EU Member States on the basis of recommendations by ERA. The TSIs, updated over the years to follow policy priorities as well as technological developments from the sector, allowed to build a clear and single legal framework for the whole EU railways. The Agency was then able to reduce national rules from 14000 to about 800 for vehicle authorisations as well as many other national rules for operations, safety and infrastructure which piled up in every Member States over a century. The Agency is the system authority for ERTMS and developed during the last two decades the relevant specifications and legislation to implement this single digital signalling system, a true enabler for interoperability. As system authority for telematics, ERA is managing 11 registers including those for vehicles, infrastructure, safety certificates and licences allowing easy access to users as well as making ERA the key pillar of a data-driven and competitive sector. High quality, interoperable and open rail data are essential in connecting the rail business across borders and with other modes of transport.

For society at large, the Agency provided important work to ease access to rail services of persons with disabilities and with reduced mobility and to reduce rail noise. Both issues have been regulated in TSIs allowing improved accessibility of passengers and quieter wagons through retrofitting of brakes. ERA also produced some studies on environmental topics and increased its dissemination activities on rail safety and interoperability through a number of conferences, events and training delivered by its Academy team. Eventually, ERA also contributed locally to its host city by bringing into Valenciennes its multilingual staff which participate in local activities as well as a number of international conferences, meetings and cooperation with the local education establishments.





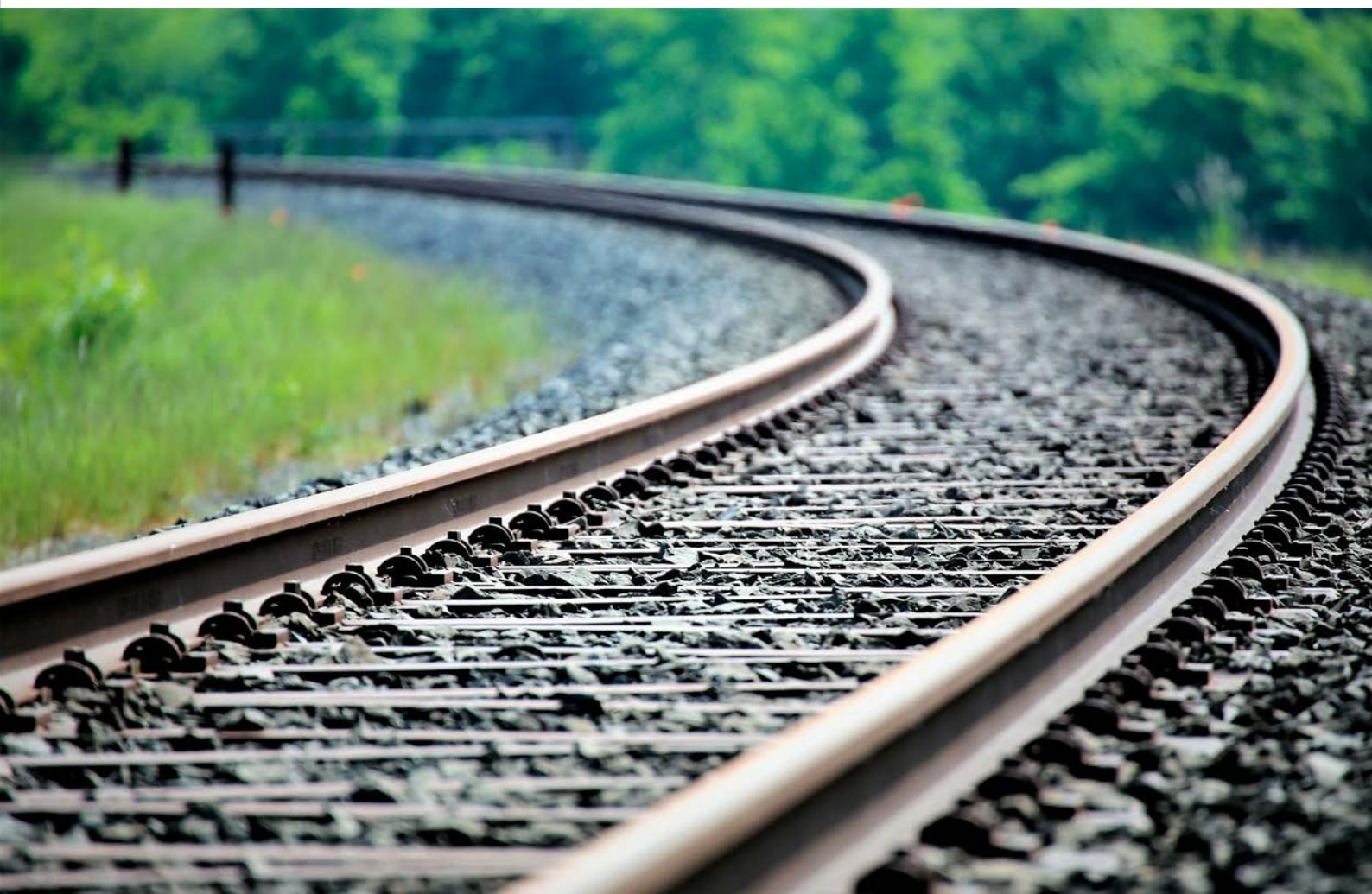
**2**

# **Introduction**

# 2 Introduction

This report aims to provide an overview of the overall benefits and value-added that ERA produced for Europe, for the rail sector, for all stakeholders and for society at large vs the costs that the Agency entailed over its 20 years of existence. This report is produced to provide arguments, background, quantitative elements also in support of dissemination initiatives around the 20<sup>th</sup> anniversary of the Agency.

The idea of this report follows a request from the TRAN Committee of the European Parliament delivered on 23 January 2024 during a hearing of the ERA Executive Director.



## 2.1. The evolution of the EU Agency for Railways

The European Commission adopted in the past 30 years a series of legislative measures aimed at liberalising and harmonising the European railway market. The initial trigger was the First Railway Package in 2001, which aimed at opening up the EU's rail freight market to competition.

It is with the Second Rail Package that the European Union Agency for Railways<sup>1</sup> was created, in 2004<sup>2</sup>. Since its inception, the Agency has had the objective of improving the interoperability and safety of the EU rail network. The Agency was already considered back then as a driving force in the policy for modernising the European railway sector through the gradual alignment of technical regulations and the establishment of methods and common safety objectives for the whole of Europe's railway network.



The Agency had no decision-making powers but supported the Commission to draw up proposals for decisions in the area of the European rail network and in setting common safety methods and targets.

1. Formerly known as European Railway Agency  
2. Regulation (EC) No 881/2004 of 29 April 2004

With the Third Railway Package the EU further opened up the international rail passenger transport market and aimed to regulate passenger rights and the certification of train drivers.

ERA's tasks and nature drastically changed with the Fourth Railway Package and the related new Agency Regulation<sup>3</sup>. This legislation, which are the basic acts currently in force since 2016, had the objective to contribute to the further development and effective functioning of a single European railway area, to guarantee a high level of railway safety and interoperability, and to improve the competitiveness of railways. The Agency is now the only authority with the power to issue vehicle authorisations (VA, for locomotives and wagons) used for cross-border operations and single safety certificates (SSC) for railway undertakings operating in several Member States. In addition, the Fourth Package also enhanced the role of the Agency, which became the system authority for ERTMS and Telematics. Since more than 15 years, the Agency is also monitoring the progress on the safety and interoperability of the EU rail system through biennial reports.

With the Fourth Railway Package entering fully into force in 2019, the Agency reinforced its initial tasks and expanded its scope. More specifically:



3. Regulation (EU) 2016/796 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004

- A renewed framework for railway safety aiming at promoting safety culture;
- A harmonised approach to safety certification where single safety certificates are granted to railway undertakings for the whole area of operation rather than having Part A and Part B certificates
- A new harmonised framework for vehicle authorisation
- A harmonised implementation of ERTMS in the Union with a prior check that the ERTMS trackside technical solutions envisaged are fully compliant with the relevant Technical Specifications for Interoperability (TSIs) and are therefore fully interoperable

An expanded scope for the Agency in the EU rail system:

- The Agency issues vehicle authorisations and safety certificates, and approve ERTMS trackside technical solutions
- The Agency is responsible for managing the 'one-stop shop' IT tool through which all application files for vehicle authorisations, safety certificates and ERTMS trackside approvals are submitted
- The Agency monitors the performance and decision-making of national safety authorities through audit and inspections, including their capacity to execute tasks relating to railway safety and interoperability as well as the effectiveness of the monitoring by national safety authorities of safety management systems of actors<sup>4</sup>
- The Agency supports the European Commission in monitoring the notified conformity assessment bodies through the provision of assistance to accreditation bodies and to the relevant national authorities, and through audits and inspections
- The Agency manages all registers and databases related to the interoperability directive<sup>5</sup> and the safety directive<sup>6</sup>

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4. See Directive (EU) 2016/798

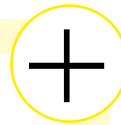
5. EU 2016/797



New approach for checking the technical compatibility of the vehicle with the route

Clearer safety responsibilities for the different actors of the railway system

More transparent identification of national rules.



A unique added value of the new tasks of the Agency brought by the fourth railway package is that the experts working on authority tasks (Vehicle Authorization (VA), Single Safety Certificates (SSC), ERTMS TA) can provide insights in the related policy areas. Indeed, leveraging the insights gained from the return of experience on real applications can serve as valuable input for the development of TSIs, especially with regards to the Control Command and Signalling (CCS). Furthermore, staff engaged in Vehicle Authorization (VA) and SSC can contribute significantly to enhancing the legal framework, associated processes and the competences of staff and organisations. This approach ensures a comprehensive understanding of the challenges faced by the sector in implementing regulatory frameworks by providing practical, real-world cases that offer tangible benefits. Ultimately, it promotes a more informed and effective approach to addressing the complexities of railway operations.

Through safety certification, an assessment of the need for dissemination on specific topic can be carried out and inform other workstreams, which can develop the material and deliver the training.

## 2.2. Outlook of ERA's future tasks

The EU Agency for Railways believes it will continue to play a key role in the future of railways. Transport should not be seen as an end in itself but as the means of delivering major policy objectives such as decarbonisation, economic growth, and social inclusion. To achieve these objectives, reflection must be done on how railways can play a major role in the future transport system as improving the railway sector is essential for the vitality of the Single Market<sup>7</sup>.

The urgency to fight climate change in the transport sector calls primarily for transport avoidance, modal shift to more sustainable modes, and improvement of the efficiency and resilience of the multimodal transport system. This requires a structural transformation of the transport system by integrating the various modes to achieve the optimal end-to-end transport solution.

The future multimodal transport system should be end-user focused, environmentally friendly, socially just, and integrated taking a top-down approach.

Innovation will cover all parts of the multimodal transport system: service, operation, vehicle, infrastructure, maintenance, ITC and marketing. In particular, good infrastructure is needed to deliver good services. This means a good physical network with good digital connectivity.

The implementation of the new solutions would require cooperation between the different stakeholders according to their defined roles.

The System Pillar (SP) of Europe's Rail Joint Undertaking (Europe's Rail) is tasked to develop a unified operational concept and a safe and secure system architecture. Such system architecture framework shall support the concepts of Interoperability in space and time, and economies of scale.



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7. [Much more than a market – Speed, Security, Solidarity Empowering the Single Market to deliver a sustainable future and prosperity for all EU Citizens, April 2024](#)

In this context, the Agency has identified key areas for which its future role and interventions could be fostered:

## 1 Strengthening Rail Safety

Rail is one of the safest modes of transport in the EU and European railways are among the safest in the world. However, safety progress has been uneven across the EU Member States, with a significant variation in safety levels. In addition, railways still have not implemented a systematic and comprehensive EU-wide safety occurrence reporting scheme, which would enable the authorities and the sector to learn effectively not only from major accidents, but also from incidents without victims.

**To address these two points, the Agency proposes to:**

### A PRIORITY COUNTRIES PROGRAMME

Develop a **Priority Countries Programme (PCP)** at EU level, which would consist of comprehensive audits with a structured and systematic approach, including the possibility to follow-up on action plans. **The scope should include:**

- Member State
- NSA/NIB
- RUs and IMs
- Other operational stakeholders e.g.: ECM, wagon keepers
- Checking bodies such as AsBO, NoBo, Notifying Authorities, National Accreditation Bodies, etc.

Such audits should collect factual evidence and learning lessons for the future improvement of safety.

### INFORMATION SHARING SYSTEM

Develop a centralised, pro-active, performing and technology-proof **Information Sharing System (ISS)** for railways to support the implementation of the CSM ASLP. ERA has received the mandate to draft common safety methods for assessing the safety levels and the safety performance of railway operators at national and EU levels. The common safety methods for assessing safety level and safety performance introduce two new important elements: (1) the obligation to report on the occurrence scenarios, to better understand the underlying mechanisms that (could) lead to accidents; and (2) the concept of safety performance, that is the level of maturity of a railway operator to manage the risk control measures put in place to control the risks of its operations. When implemented, this would provide an additional angle to assess how safety is managed. Similarly to aviation, a common IT reporting platform should be set up to support the collection and analysis of these new safety data. Such Information Sharing System would offer a capacity of automating the data collection and analysis based on pre-defined algorithms. This allows the system to detect outliers in the reported data and flag them for targeted/deeper analysis by domain experts in order to draw meaningful conclusions. This digitalised approach would represent a major progress compared with the approach of having tens of experts expected to read, analyse and synthesize hundreds of pages of documents or thousands of data entries. The ISS would ultimately improve the reaction to incidents and accidents, as well as the safety culture implementation across Europe.



## 2 Climate resilience of rail and military mobility

Railways play a crucial role in both climate change mitigation, and adaptation, as well as military mobility due to their inherent characteristics and capabilities. Railways offer a sustainable mode of transportation with relatively lower carbon emissions compared to other forms of transportation such as road or air travel. Of course, the impact of climate change is increasingly apparent and visible. Every summer in Europe, wildfires are devastating European forests. Similarly, increasing floodings are taking place in Europe and damage the surrounding infrastructure, including railways. Among the challenges defined within the 2013 EU Adaptation Strategy Package, adapting rail transport infrastructure to climate change was foreseen for both existing infrastructure (with the goal to make them more climate-resilient by retrofitting and/or ensuring that maintenance regimes promote resilience to the impacts of climate change over an asset's lifetime), and new infrastructure. Recently, the European Commission has updated its strategy on adaptation to climate change on 24 February 2021 with the goal of becoming climate resilient by 2050.

In addition, railways are vital for military mobility due to their capacity for large-scale transportation of troops, equipment, and supplies. During the current times of crisis, railways provide a strategic mean of rapid deployment and logistical support, enabling military forces to mobilize quickly and effectively across large distances. The year 2022 saw the Russian invasion of Ukraine, which has been condemned by European leaders and communities. Following its "Solidarity Lanes" Communication, which identified several major transport infrastructure challenges that the EU and its neighbouring countries needed to resolve to support Ukraine's economy and recovery, the European Commission amended its TEN-T revision proposal to extend four corridors to Ukraine and the Republic of Moldova and to accelerate a change towards the European standard railway gauge. The Agency has provided (and will keep providing) continuous support to the European Commission when it comes to issues relating to the connectivity with Ukraine, and the enhancement of the contacts with the Ukrainian rail authorities (as described in a webinar dedicated to ERA international activities in 2022).

## 3 Further process improvements for vehicle authorisations

The Agency proved since 2019 to be an effective authority for the authorisation of vehicles and a reliable manager of relevant registers. However, vehicles need to be registered once authorised and this process is still fully handled at national level even for vehicles receiving an EU-wide authorisation for international operations. Through the legal revision of the EVR, the Agency aims to become itself a registration entity in order to offer applicants the full service and the harmonised and certain conditions that applicants can expect from ERA.

## 4 Central role in digital and telematics

The Agency aims to further develop its role as System Authority for Telematics. New tasks and responsibilities are being discussed with the Commission and the Member States during the on-going revision of the TAF/TAP TSI. Moreover, the Agency is striving to upgrade its registers and leverage on becoming a data centre at the service of the rail community fully based on linked data and ontology in a secure data environment. Data quality is paramount for achieving this.

## 5 Optimising rail infrastructure capacity

The use of the existing rail infrastructure can be optimised to ensure a higher utilisation by rail services and by deploying digital solutions to improve the cross-border traffic. The European Commission proposed in 2022 a Regulation to enhance rail infrastructure capacity planning and the Agency stands ready to take on new tasks in this area. In particular, ERA would be well placed to ensure through its long experience with TSI that secondary legislation in rail infrastructure capacity and operations is effective and that the performance of rail infrastructure manager is independently monitored.

## 6 Facilitating multimodal cooperation

The experience of ERA in safety, interoperability, and stakeholders management can be beneficial for cross-fertilization of knowledge in other transport modes while positioning railways as the backbone of an automated and integrated multimodal transport system.





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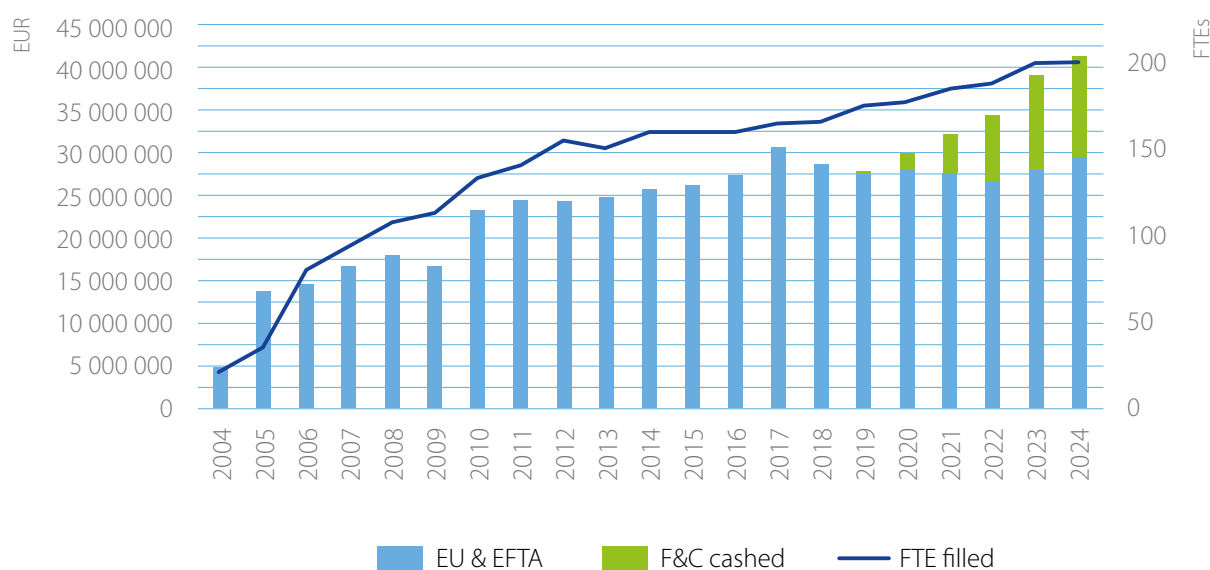
# The costs of ERA

# 3 The costs of ERA

Over the past 20 years, the budget of the Agency was, after an initial ramp up, largely stable and based on a contribution from the EU budget. Overall, the revenues of the Agency oscillated between 25 and 30 million EUR per year since 2011. The Agency however faced a decrease in its EU contribution between 2017 and 2022 which occurred at a time when the responsibilities of the Agency enlarged. The latter years of the decrease also coincided with exceptionally high indexation rates, which added an incredible pressure on the Agency to make ends meet. In fact, the salaries of staff are to be adjusted to inflation while the EU subsidy is not. As of 2023 the EU contribution then increased but still does not match the level of 2017.

Since 2019 with the entry into force of the Fourth Railway Package, the Agency is also relying on invoicing Fees and Charges (F&C) for certain services. The large majority of revenues from F&C stems from vehicle authorisations, single safety certificates and ERTMS track side approvals requested and paid by rolling stock manufacturers, railway undertakings and infrastructure managers. The overall revenues from F&C have quite evolved and currently represent more than 10 million EUR, about 28% of the 2024 budget.

### ERA Resources in EUR and FTE



The Agency’s personnel steadily grew over the past 20 years while the budget has been relatively stable over the same period of time. As a consequence, the share of expenses related to the personnel has increased while its operational budget gradually reduced.

When planning and preparing for the Fourth Railway Package, in 2012 the European Commission procured an impact assessment to understand how much additional personnel should the Agency be granted to perform its new tasks and carry out its new responsibilities. The impact assessment foresaw an increase of **55 additional staff** to implement new tasks:

**Technical experts (45 persons)**, to deal **predominantly with issuing of authorisations** for placing on the market of vehicles and vehicle types, authorisations for placing in service of trackside control-command and signalling sub-systems, and safety certificates.

**Linked administrative staff (10)**, to deal with management of a planned system of external fees and charges, and billing with national authorities.

	$\Delta$ Authorisation work	$\Sigma$ Total Staff
<b>IA 2013</b>	+55	216 (estimated)
<b>Authorised resources in 2020 compared with 2013</b>	+27	188

Therefore, compared to the impact assessment, the staffing levels of the Agency remained below forecast for several years. Since 2019 the Agency has implemented a matrix organisation whereby staff from across all Units is part-time dedicated to authorisation tasks in order to cope with the workload peaks. Moreover, thanks to the Strengthening Plan and its related Action Plan, the Agency achieved its authorised resources increasing to 206 for the period 2023-2027. However, starting 2028, the Agency will need to bring its personnel back to 200, which is 16 posts less than the ones foreseen by the impact assessment.

### 3.1. The cost of ERA compared to other EU transport agencies

When comparing the structure of the ERA, EASA & EMSA budget<sup>8</sup> it is clear that the ERA budget is by far the smallest. Moreover, the relative share of the operational expenditure in the total budget is by far the lowest for ERA. The margin of manoeuvre to adapt to unpredictable events and surge of costs is therefore limited for the Agency. Indeed, the operational expenditures of ERA represents only 16.4% of its budget (around 4.8 million<sup>9</sup>) while it is 24% of EASA's budget (approx. 47 million<sup>10</sup>), and 57.8% of EMSA's budget (approx. 53,8 million<sup>11</sup>).

In the case of EASA, for instance, there is a significant volume of Right instead Fees & Charges (F&C) levied (order of 10 compared to ERA), which can allow for a much more significant margin of manoeuvre.

This disparity in resources between the EU transport agencies is unfortunately not new. Looking at the past 5 years, we notice that ERA is constantly the agency with the lowest budget and lowest number of FTEs despite the important work still to be done to achieve a safe and fully interoperable single European railway area. EMSA has in 2024 almost 100 staff members more than ERA. EASA has the quadruple number of staff that ERA has.

FTE authorised per EU agency



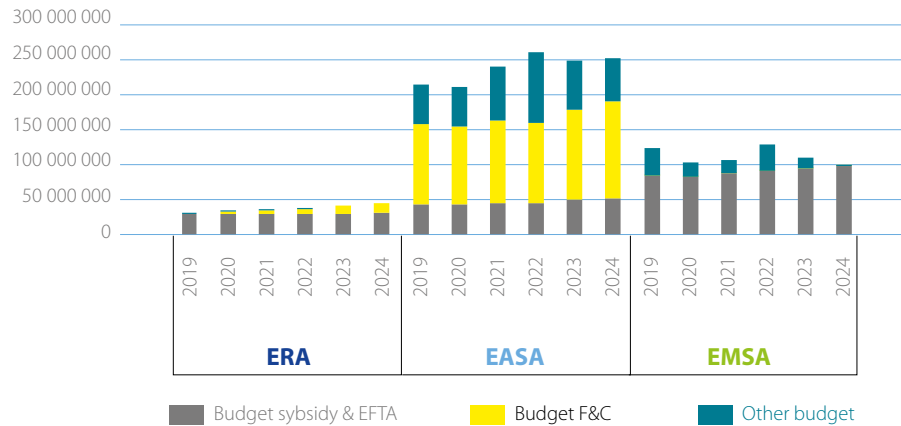
8 Tables from adopted SPD 2024-2026 of the 3 agencies, expenditure side therefore inclusive of surplus + EFTA contrib.

9 Data for 2024. Source: SPD 2024-2026

10 Ibid.

11 Ibid.

## Revenues of EU Transport Agencies 2019-2024 in EUR



Looking specifically at the revenue of the three transport agencies of the EU, the discrepancy is also visible.

## 3.2. The regular EU budget execution

### 3.2.1. OVERVIEW OF EP DISCHARGE REPORTS AND ECA AUDITS OVER 20 YEARS

The European Parliament (EP) discharge reports and the European Court of Auditors (ECA) reports on the Agency play a crucial role in ensuring transparency, accountability, and effective financial management. The EP ultimately holds the Agency accountable for the use of public money while ECA audits provides assurance to the EU taxpayers (via the EP) regarding the reliability of the financial information and effectiveness of the controls in the Agency. In this respect, ECA is providing a critical input to the EP for the discharge reports.

The discharge reports cover various aspects of financial management, including budget execution, procurement procedures, use of resources, and compliance with relevant rules and regulations. They also assess the performance of the Agency in achieving its objectives and delivering results. The discharge procedure involves reviewing the annual accounts of the Agency and granting them approval (or discharge) for the implementation of the budget. The EP has granted systematically discharge to the Agency

in respect to the implementation of its budget. On its side, the Agency has followed-up closely the valuable insights and recommendations provided by the EP to enhance efficiency and effectiveness of its activities, achieve better outcomes ultimately enhancing the value of EU money.

The ECA conducts audits to assess the legality and regularity of Agency’s expenditure and revenues. ECA examines the financial statements, internal control and compliance with EU regulations and the sound financial management of operations. ECA issues annual reports highlighting findings and recommendations for improvement. While issuing some recommendations for strengthening the financial management practices and internal control, the ECA has always positively assessed the reliability of the accounts as well as the legality and regularity of Agency’s operations.

### 3.2.2. CONSIDERATIONS ON SOUND FINANCIAL MANAGEMENT OF THE EU BUDGET BY ERA

Sound financial management is a fundamental financial principle that is guiding the Agency in implementing the budget. Over the past 2 decades, the Agency has demonstrated a steadfast commitment to optimizing the utilization of its budget. Through meticulous planning, strategic allocation of resources, and proactive management, the Agency has consistently strived to maximize its impact with its allocated budget.

For instance, please find below some relevant data on budget execution:





Furthermore, the Agency has fostered a culture of accountability and performance-driven outcomes throughout its organization. By setting clear objectives, establishing key performance indicators, and regularly monitoring progress, the Agency has ensured that budgetary allocations are aligned with strategic priorities and deliver tangible results. This results-oriented approach does not only enhance the Agency's effectiveness but also facilitates evidence-based decision-making and continuous improvement.

In addition to effective planning and transparency, the Agency has embraced innovation and efficiency-enhancing measures to stretch its budget further. Through its Strengthening Action Plan, the Agency is leveraging technological advancements, streamlining processes, and exploring cost-saving initiatives to achieve greater results within its limited resources.

### 3.3. **The indirect costs for the rail sector**

The work of the Agency on policy areas requires the essential contributions from the national authorities and the rail sector: the Agency Regulation requires that experts nominated by the Representative Bodies of the sector and of the NSAs are invited to the working groups to develop Recommendations and Opinions issued by the Agency. The plenary Networks of NSAs and of the RBs are also regularly consulted during the development process.

The big effort to revise the complete package of TSIs, concluded in 2023 after two years of work, required the direct or indirect contribution of more than 500 experts from the sector and from NSAs from all over Europe.



As a rough measure, ERA internal data indicate that in 2023 the Agency organised 241 meetings, hence specifically dedicated to the development of EU legislative proposals for safety and interoperability and related guidance. Assuming average participation of 12 experts from the sector for each meeting, RSYS mobilised last year nearly 1400 person-days of direct contribution to ERA activities. Moreover, considering the preparatory work done by the sector in mirror groups meetings etc, those figures can be increased by one order of magnitude to estimate the effort delivered by the sector to accompany and support ERA's regulatory work. The year before the 2019 pandemic, the Agency organised 336 meetings from across all of its units – the difference with 2023 numbers could also be explained because a certain number of discussions are now organised informally via remote attendance with subgroups hence, they are not recorded as formal meetings in internal systems. This valuable commitment from the rail sector to cooperate with ERA, resulted in a positive business case to reduce costs through more harmonisation, more standardisation, better information sharing and cooperation.

The COVID-19 pandemic introduced a different way for the Agency of organising discussions with external experts – nowadays most meetings are organised with full or partial remote attendance. This is beneficial for the sector in terms of reducing the overhead of time spent travelling, reducing the travel and accommodation expenses borne out by the external participants to meetings and avoid penalising the participation of experts from countries geographically more distant from Valenciennes.

The indirect costs the Agency materialises for the rail sector through participation in meetings is not a new overhead. In the early 2000, the railways and the railway sector were already investing time and effort in various initiatives and groups aiming at a certain level of harmonisation and standardization at supranational level: notably the working groups and networks under the UIC umbrella or the AEIF. In fact, the founding Regulation of the Agency considered that *“(15) In order to ensure continuity, the working parties to be set up by the Agency should rely as appropriate on the composition of the AEIF, supplemented by additional members”* under the aegis of the European Commission for interoperability. With the expected widespread introduction of digitalisation, automation and communication in the rail sector, the practices that were “safe” in the past due to accumulated decades of experience, familiarity with the (old) technologies and slow pace of innovation, will be fundamentally disrupted, and safety can rapidly deteriorate if we do not introduce a performant, “real time” system to collect, analyse and learn from inconveniences, before they snowball into tragic accidents.



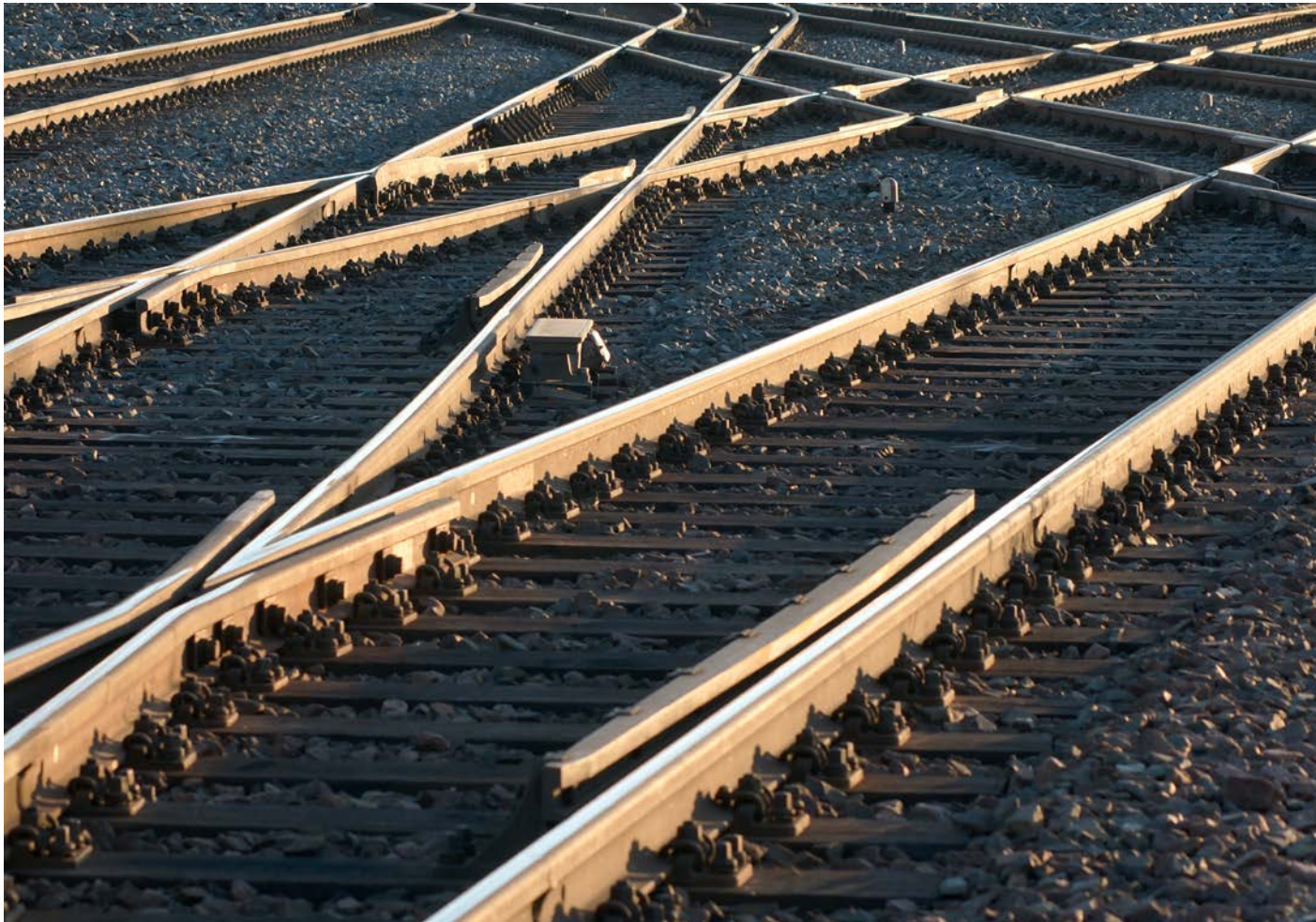
4

# The benefits of ERA

# 4 The benefits of ERA

## 4.1. Economic and quantitative insights on the benefits and added value of ERA activities

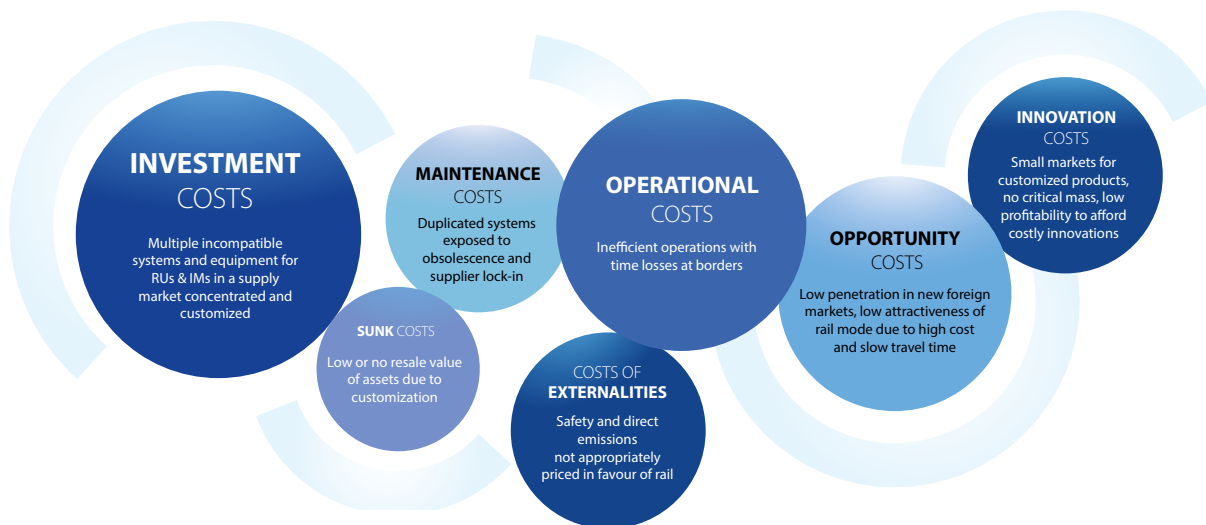
The assessment of the benefits and added value produced by ERA activities in the last 20 years (versus the associated costs), is not a straightforward task since ERA tasks span in a number of domains while its costs are primarily expert staff. While the following sections/parts of this report describe the main benefits in more general and qualitative terms, this section tries to provide some economic or quantitative insights (from previous studies and different sources) summarised in the table below and better detailed in the accompanying text.



INDICATOR/ESTIMATE	VALUE	SOURCE
<b>COST OF NON-INTEROPERABILITY</b>		
Direct costs of rail non-interoperability in EU	At least 2 billion EUR per year	Agency briefing note on the Costs of Non-Interoperability
Presence of national rules hampering cross-border rail freight	About 500 million EUR per year	Interoperability Issues Logbook (DG MOVE)
Presence of barriers and inefficiencies in the single market for rail transport	About 1 billion EUR per year	European Parliament study 'Mapping the Cost of Non-Europe', 2014-19
Annual net-benefits by addressing interoperability barriers	1.4 billion EUR per year for rail freight and 1.3 billion EUR per year for passenger rail	The EU project MINIMISE
<b>ECONOMIC IMPACTS OF SAFETY</b>		
Gains from more efficient safety regulation (15 EU MSs, year 2000)	10 million EUR per year	Study 'Safety Regulations and Standards for European Railways'
Decrease in significant accidents and related casualties and costs of those accidents	Cost of significant accidents about 3-4 billion EUR per year (EU-27), with significant decrease of the number of those accidents (& casualties) in the last 2 decades	ERA Biennial Reports on Safety and Interoperability (and CE Delft 2019 study on external costs)
<b>ESTIMATED BENEFITS OF THE AGENCY'S ACTIVITIES</b>		
Net-benefits expected for all ERA activities/SPD objectives, including benefits for society	Net Present Value of more than 100 billion EUR over 20 years (for the whole society)	ERA Fast-Track Benefit-Cost analysis
Benefits of the new role of the Agency	About 500 million EUR over a 10-years period	4 <sup>th</sup> Railway Package Impact Assessment

## 4.1.1. COST OF NON-INTEROPERABILITY AND ECONOMIC IMPACTS OF SAFETY

The lack of interoperability is hampering the development and the competitiveness of the EU rail system. Undue costs are present on a number of aspects and the Agency has a key focus on addressing all those barriers that create a non-interoperable single European railway area.



A recent study<sup>12</sup> carried out by ERA estimated that the *direct costs of rail non-interoperability in EU amount to at least 2 bln EUR per annum* (or more than 26 bln EUR in Present Value over a 20-year period). This is likely a very conservative estimate considering that a number of elements have not been possible to quantify. However, the estimate is aligned with earlier indications about the potential gains to be achieved through further progress of rail interoperability. Any quantification in this area is complex and challenging and the given estimates should be considered as order of magnitude figures. It should be noted that the potential gains achievable through improved interoperability are not only possible through investments to address the lack of technical harmonisation. For some interoperability barriers like national rules the costs are mostly administrative and therefore negligible.

<sup>12</sup> See the Agency briefing note on the [Costs of Non-Interoperability](#)

As a whole, the efficiency gains as well as the reduced opportunity costs are expected to outweigh significantly any costs incurred from addressing the technical barriers. For example, concrete estimation of the substantial time savings for passenger and freight cross-border rail, by removing technical and operational barriers, are illustrated in a recent report<sup>12</sup> by ERA through case studies. It identifies *strong potential for time savings for rail freight, from 50 minutes up to 6 hours, when solving the technical and operational issues at cross-borders* identified for the analysed corridors. It is also relevant to make reference to the Commission's Issues Logbook work (phase 1)<sup>13</sup> where estimates of the *benefits of removal of different issues mostly due to national rules affecting cross-border rail freight* are provided. *Benefits are estimated to be of an order of magnitude of +500 mln EUR per annum.*

The European Parliament study 'Mapping the Cost of Non-Europe, 2014-19'<sup>14</sup>, estimated the potential benefits of removing barriers and inefficiencies in the single market for rail transport at between 20 and 55 billion euro over 20-year time-horizon, equivalent to, on average, 1 billion euro per year (including not only the revision of the institutional framework of ERA with the Fourth Railway Package, but also further market opening, greater open tendering for public services and continued unbundling of infrastructure). These figures reflect direct efficiency gains for the economy and represent a small proportion of the potential overall benefits in case full integration would be fully achieved in rail. Broader indirect benefits such as environmental sustainability, better passenger information and other initiatives could raise the total benefits even more.

The EU project *MINIMISE*<sup>15</sup> (concluded in 1999), covered all main modes of transport including rail, and estimated an annual net-benefits for rail freight of 1.4 bln EUR and 1.3 bln EUR for passenger rail by addressing interoperability barriers. These annual figures would imply an NPV for a 20-year time horizon and 4% discount rate of 37 bln EUR.

A report<sup>16</sup> for DG Energy and Transport of the European Commission by National Economic Research Associates in the year 2000 emphasized the cost of diversity regarding railways in Europe (in 2000 for 15 MSs) due to differences between national railway safety regulation regimes, which result in obstacles to the development of the European railways. The study involved an assessment of the extent to which railway safety regulations in the EU (Member States) had an impact on railway competitiveness. Cost of diversity was linked to: (1) loss of economies of scale in production; (2) redundancy of approval processes; and (3) scope for exploiting diversity as a weapon for protectionism. In addition, there was a risk that diversity may translate into reduced safety. The study was undertaken for the Commission, feeding into the work on the Second Railway Package. *The study (in year 2000 and focusing on the 15 EU MSs) estimated that the gains from more efficient safety regulation, apart from some net gain in safety, could have run to ten of millions of euro per year.* An unsafe railway system has direct and indirect

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12 See the Agency [Report on Cross-border Rail Transport Potential](#)

13 Available [here](#)

14 Available [here](#)

15 see '[MINIMISE \(Managing Interoperability by Improvements in Transport System Organisation in Europe\)](#)'

impacts on society. Economic theory allows the expression of those impacts in monetary terms. This may give an idea of the costs of unsafe railway operation to both industry and society. In the application of the railway safety directive (RSD) (Directive EU 2016/798), the economic impact of accidents is measured by the economic impact of fatalities and serious injuries, the costs of delays, the costs of material damage to rolling stock or infrastructure and the costs to the environment. The total cost of *'significant' railway accidents in recent years is estimated at about 3-4 billion EUR per year (in the EU-27)*. Fatalities account for the majority of total costs. The costs reported and estimated for individual Member States reflect the accident outcomes, as per unit cost estimates for casualties<sup>17</sup>. The significant decrease in the number of significant accidents and related casualties (fatalities and serious injuries) in the last 2 decades (see next section with railway safety statistics) provides an indication of the reduction of associated costs for both industry and society that is linked to the EU initiatives on promoting and introducing a harmonised approach to safety (e.g. through the Common Safety Methods, CSMs, promoting of safety culture, etc.).

Acknowledging that the Agency is not the only trigger/factor for the positive results in terms of Safety and interoperability in the last 20 years across EU, it has surely had a significant role as facilitator for the sector to reach important improvements in those areas.

The ex-post evaluation of the Common Safety Method for assessment of Achievement of Safety Targets<sup>18</sup>, for example, indicated that while the CSM CST rarely leads directly to safety improvement actions, the indirect effects on safety need to be acknowledged. Many countries reported that the CSM CST is used as one of many inputs to shape safety improvement plans and actions. Respondents pointed at the difficulty to isolate the effect of the CSM CST from other inputs, while acknowledging its contribution. So while there are pieces of evidence that the CSM CST is used to steer safety improvement actions, it is assumed that the CSM CST contributed mostly indirectly to better safety performance across Europe.



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16 See [Safety Regulations and Standards for European Railways](#)

17 based on [CE Delft 2019 study on external costs](#)

18 Available [here](#)



# 1 ERA Fast-Track Benefit-Cost analysis

In a recent Agency analysis (Fast-Track B/C), ERA covered all main workstreams in terms of estimating key benefits and costs for Single Programming Document (SPD) outputs and/or clusters – e.g. 4<sup>th</sup> Railway Package, closure of TSI open points, cleaning NTRs, OPE, registers, noise, PRM etc.

## The B/C provided estimates for:



**Initial and recurring costs for rail** – assumptions on drivers, quantity, unit values



**Benefits for rail and society** – assumptions on drivers, quantity, unit values

This analysis was initially undertaken in 2017-18 and shared with the Agency's Management Board as well as the Economic Steering Group (ESG). A minor update was done in 2020. It should be noted that the FastTrack B/C analysis takes a relative high-level perspective with benefits / costs indications reflecting orders of magnitude. All values were expressed in Net Present Value (NPV) terms over a 20-year time-horizon.

In particular, the Fast-Track B/C analysis indicated that there could be substantial net-benefits from further technical harmonisation. The indicative estimates were aligned with findings from specific Agency impact assessments along with the 2014 synthesis as well as the impact assessment work undertaken for the technical pillar of the 4<sup>th</sup> Railway Package.

## Main findings:

**Significant net-benefits expected for all ERA activities/SPD objectives**, including benefits for society; high benefit-cost ratios and Net Present Value of more than 100 billion EUR over 20 years (for the whole society)

## 2 4th Railway Package Technical Pillar Impact Assessment

The MOVE impact assessment work accompanying the 4th Railway Package (Technical Pillar) that was building on the Steer Davies Gleave study<sup>19</sup> is also of relevance. Several policy options with regards to the new tasks for ERA were put forward and provided quantitative estimates of benefits:

SUMMARY OF POLICY OPTIONS				
OPTION 1	OPTION 2: Further ERA "coordination" over NSAs	OPTION 3: ERA as One-Stop-Shop, with NSAs retaining their powers	OPTION 4: ERA and NSAs share competencies	OPTION 5: ERA takes over activities of NSAs regarding authorisation & certification
1.0.0 Baseline	2.1.2: Enhanced "coordination" and supervision role of ERA with respect to NSAs regarding granting of vehicle authorisations & safety certificated including ensuring their mutual recognition by national authorities	2.2.B: ERA shares the competences with the NSAs regarding granting of safety certificates to the railway undertakings and vehicle authorisations ("one stop shop" concept): the decision is taken by NSA; ERA performs "entry and exit" checks of application	2.2.Z: ERA shares the competences with the NSAs regarding granting of safety certificates & vehicle authorisations: a "one stop shop" concept with the NSAs (acting as regional offices of ERA) contributing but the final decision rests with ERA	2.2.C: ERA takes over the competences of the NSAs regarding granting of certificates to the railways undertakings and vehicle authorisations.
		2.3: ERA as appeal body for some decisions of NSAs	2.1.1b + 4.9b: Migration to a single (common) safety certificate and single vehicle authorisation (setting up European "passeport" for vehicles): ERA issues single safety certificates & single vehicle authorisations (Appeals to ERA decisions are sent to a separate appeal body)	
		2.1.1a + 4.9a: Migration to a single (common) safety certificate and single vehicle authorisation (setting up European "passeport" for vehicles): national authorities issue single safety certificates & single vehicle authorisations (mutually recognised by definition)		
		2.1.6: Control by ERA over the functioning of NSAs (e.g. developing guidelines & auditing adherence to them)		
		2.1.1B: Enhanced "coordination" and supervision role of ERA with respect to notified Bodies regarding: type approval; rail vehicles certification; ERTMS certification and accreditation of NoBos		
<b>OPTION 6:</b> Horizontal measures (independent of the level of interaction ERA/national authorities)	3.1: Strengthened action by the Commission outside infringement procedure, notably on non-discrimination in the railway market			
	3.3: Amendment of the directives to enable the adoption of implementing measures setting out common principles & practices for national authorities			
	4.1.1: Enhanced role of ERA in monitoring and control of implementation of national safety and interoperability legislation			
	4.1.2: Migrating from national technical & safety rules to as system of EU rules through clear requirement of national rules need to be removed by national authorities tasked with the role of removing them on limiting their possibility of adopting new rules			
	4.2: Enhanced role of ERA in dissemination of railway-related information and training			
	4.3: Enhanced role of ERA in providing advice & support for Member states & other stakeholders in implementing legislation on safety & interoperability			
	4.6: Communication from the Commission regarding guidelines on the interpretation of specific Eu Laws & decisions (including TSIs)			
	4.7: Enhanced role of ERA in identifying potential spare parts to be standardised and coordination of industry activities in this area			

<sup>19</sup> [Impact assessment support study on the revision of the institutional framework of the EU railway system, with a special consideration to the role of the European Railway Agency](#)

Benefits were indicated principally from savings in authorisation and certification timescales and costs. Combining the authorisation, certification and opportunity cost savings demonstrated substantial benefits over the evaluation period with benefits of over €0.5bn for options 3-5 even in discounted terms. For these calculations, the central case numbers for the opportunity cost savings for reduced volumes of delayed rolling stock were used. The quantified benefits calculated in the impact assessment analysis are summarised in table below:

DISCOUNTED TOTAL QUANTIFIED BENEFITS 2015-2025 (€M NPV)							
OPTION	IMPACT ASSESMENT CACULATOR			ADMIN COSTS CALCULATOR	ERA/NSA AUTHORISATION FEE REVENUE LOSS*	TOTAL NET BENEFITS	ADDITIONAL FUNDS NECESSARY FROM EU BUDGET TO COVER ERA COSTS (€ MIL.)
	AUTHORISATION	SAFETY CERTIFICATION	OPPORTUNITY COSTS	COST SAVINGS (INCREASE)			
<b>OPTION 2:</b> Further ERA "coordination"	201	2	237	9	(28)	<b>420</b>	28
<b>OPTION 3:</b> ERA as One-Stop-Shop	217	2	255	25	(28)	<b>471</b>	29
<b>OPTION 4:</b> ERA & NSAs share competencies	235	2	265	33	(28)	<b>508</b>	a: 0
							b: 0
							c: 18
<b>OPTION 5:</b> ERA takes over activities of NSAs regarding authorisation & certification	276	3	295	(69)	(28)	<b>477</b>	155
<b>OPTION 6:</b> Horizontal measures	156	1	174	11	N/A	<b>331</b>	N/A

NOTE : Option 2 to 5 represent the results for the combined options with Option 6 incorporated within each of these options. We have also included 'shared in grey' the impact of Option 6 on its own. The individual values for Options 2 to 5 cannot be obtained simply by subtracting the value for Option 6 due to the overlap of a number of single measures that make up the various Options.

Practically, the total benefits of the final chosen option adopted by the co-legislators for the new role of the Agency (mix of option 4 and 5) were estimated at about 500 million EUR over a 10-year period.

## 4.2. **The benefits of ERA for rail safety**

European railways are among the safest in the world, with major accidents (with five or more fatalities) becoming rare and significant accidents decreasing significantly in the last 2 decades. In a multimodal comparison, rail appears the safest mode of land transport in the EU, with the fatality rate for passengers similar to that for aircraft passengers. However, progress has been very uneven across the EU Member States, with a significant variation in safety levels. The railway community must continue to work relentlessly and tirelessly to improve railway safety.

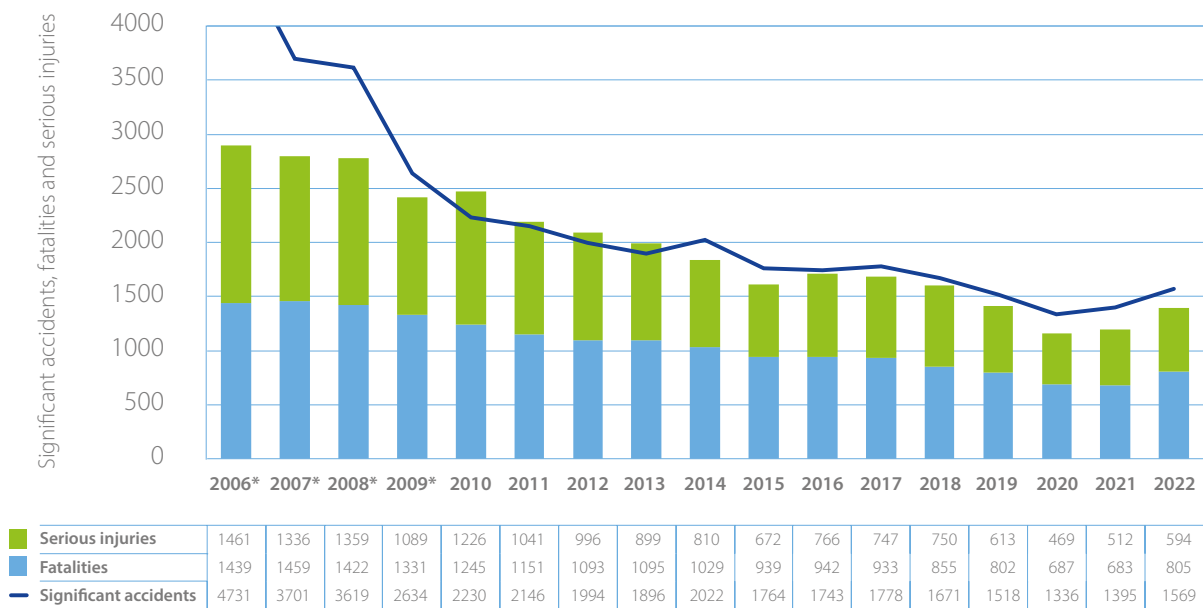
Unlike the European aviation and maritime industries, railways have not yet implemented a systematic and comprehensive EU-wide safety occurrence reporting scheme, which would enable us to learn effectively not only from major accidents, but also from incidents without victims. Several areas in which safety has been stagnating recently would particularly benefit from wider reporting and information sharing across countries. However, we should not only count accidents and incidents. ERA has received the mandate to draft common safety methods for assessing the safety levels and the safety performance of railway operators at national and EU levels. When implemented, this should provide an additional angle to assess how safety is managed.



In the last two decades ERA has been strongly committed to enhancing railway safety by promoting a robust safety management system and by fostering a common positive European railway safety culture. Safety is not only about regulations, rules and procedures. Safety is about a continuous and collective commitment. By developing useful instruments to support the sector, ERA is demonstrating its engagement in developing a positive safety culture. However, a commitment of all players to achieve sustainable and safe performance across the Single European Railway Area is needed. Below last aggregated statistics on rail safety in the EU.

### Main safety outcomes (EU-27, 2006-2022)

Significant accidents, fatalities and serious injuries



NOTE : Data for the first period (e.g. 2006, 2007) for some indicators and some countries may be influenced by the initial application/reporting of the CSI data; (\*) Not all EU-27 Member States reported during the 2006-2009 period

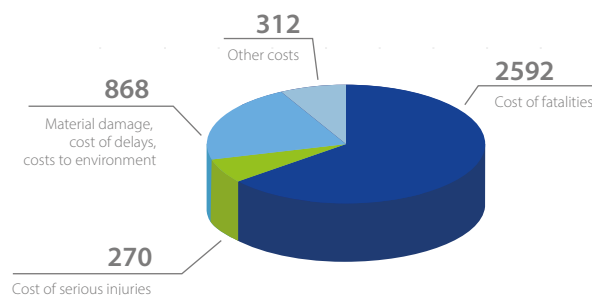
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency

Both the number of significant rail accidents and the number of resulting casualties, for which harmonised data are available across the EU, declined steadily over the last 2 decades; despite the overall positive progress, in 2021 and 2022 an increase in significant accidents and related casualties have been recorded, going back to pre-COVID levels. In total, 1 569 significant accidents, 805 fatalities and 594 serious injuries were reported in the EU-27 countries in 2022.

### Estimated costs of railway accidents, million EUR (EU-27, 2022)

NOTE : Other costs are those associated with the modal shift, air pollution, administration, rerouting, reputational damage and productivity losses, and are estimated from unit costs developed by consultant for ERA

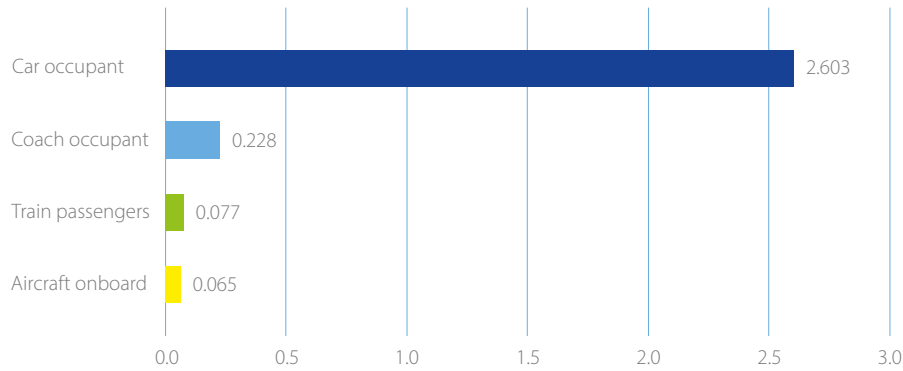
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency



Despite the positive trend in the last 2 decades, the overall cost of railway accidents remains high. The total cost of significant railway accidents in 2022 is estimated at about 4 billion EUR (in the EU-27). Fatalities account for around 65 % of total costs

**Passenger and driver fatality rates for different transport modes (EU-27, 2012-2021)**

Onboard fatalities per billion passenger kilometers



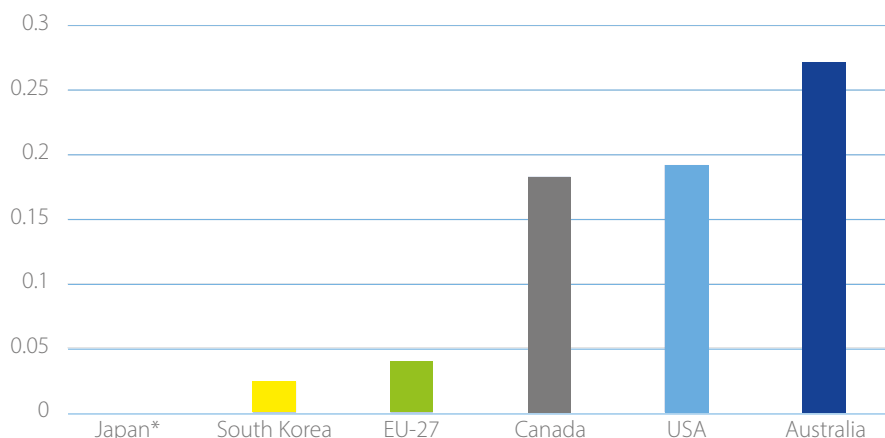
NOTE : Fatalities are for all people occupying the vehicle, except for rail (includes passengers only). Passenger-kms for air include only domestic and intra-EU-27 transport

Source: CARE (DG MOVE), EASA, 2023 Statistical Pocketbook (DG MOVE), CSIs reported to ERA

The fatality risk for a train passenger (calculated over a 10-year period) is around one third of the risk for a bus/coach passenger, and almost similar to for the fatality risk for a commercial aircraft passenger. The use of individual means of transport, such as a passenger car, carries a substantially higher fatality risk: car occupants have a 30 times higher likelihood of dying than a train passenger travelling over the same distance. The fatality risk for an average train passenger (calculated over 10 years) is now about 0.077 fatalities per billion passenger-km, making it comparatively the safest mode of land transport in the EU

**Passenger fatality rates for different countries worldwide (2018-2022)**

Railway passenger fatalities (excluding suicides) per billion passenger kilometers



NOTE : Data (referring to high-speed rail and conventional lines) for South Korea were provided by Korean Transport Safety Authority's railway safety division. \*Data for Japan refer to the period 2017-2021.

Source: Statutory reports produced by national administrations of the jurisdictions concerned

Based on railway fatality and passenger fatality rates estimated in six jurisdictions (where reliable and comparable data are available), the EU railway system is the among the safest.

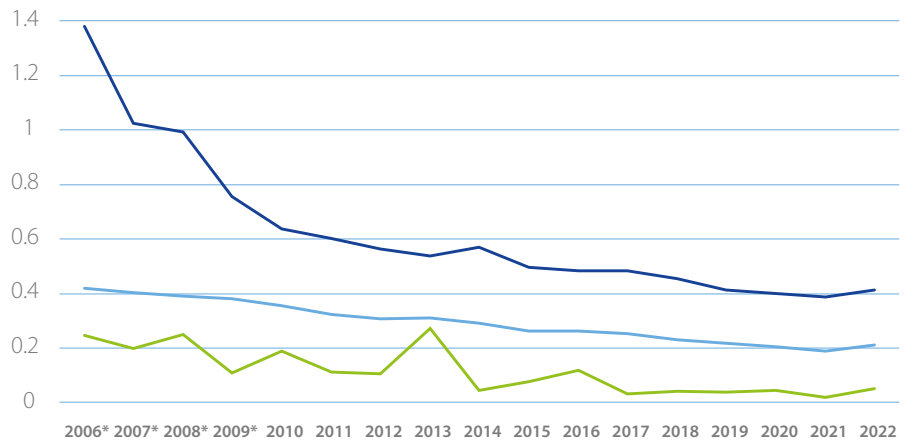
### Trends in accident and fatality rates (EU-27, 2006-2022)

Significant accidents and fatalities per million train-km. Passenger fatalities per billion passenger kilometers

NOTE : Data for the first period (e.g. 2006, 2007) for some indicators and some Countries may be influenced by the initial application/reporting of the CSI data;

(\*) Not all EU-27 Member States reported during the 2006-2009 period

Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency



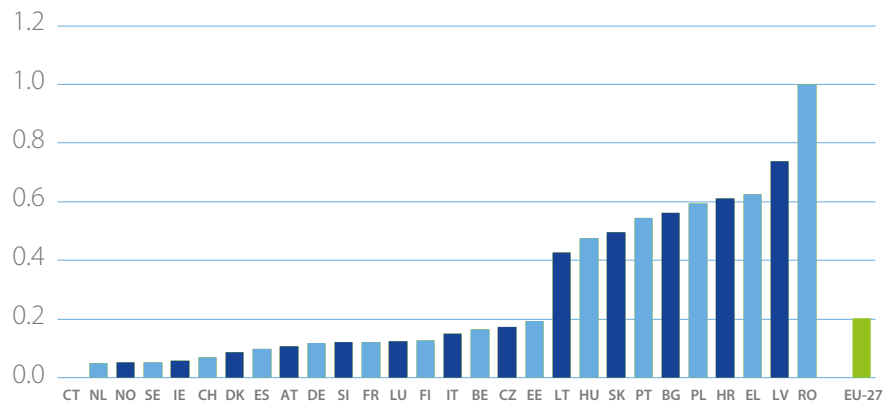
The significant accident rate, the fatality rate and the passenger fatality rate have decreased substantially in the last 2 decades with the lowest value registered in 2021 (even if in 2022 they went back to the pre-covid levels).

The overall fatality rate in 2022 was around 0.21 fatalities per million km (one fatality for every 5 million train-km on average), whereas the overall passenger fatality rate was 0.051 passenger fatalities per billion passenger-km (around one fatality for every 20 billion passenger-km).

### Railway fatality rates (EU-27, 2020-2022)

All fatalities per million train kilometers (average over 2020-2022)

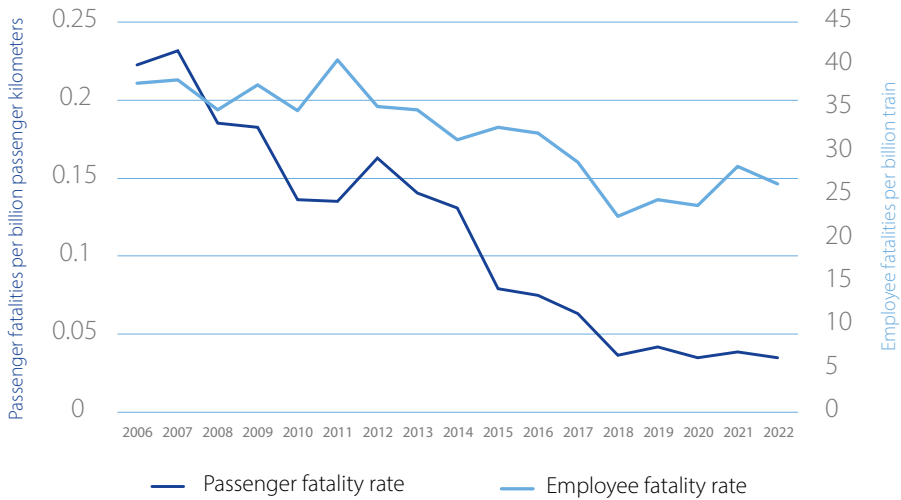
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency



Despite the positive trend in the last 2 decades, progress has been very uneven across the EU Member States, with a significant variation in safety levels. Large differences in casualty rates exist between Member States, highlighting the extent of existing disparities in safety levels (although the variance of the number of safety accidents and related casualties has declined in the last decade). The figures of fatality rates and passenger fatality rates for individual Member States still show at least a ten-fold difference for countries with the lowest and highest values.

**Railway passenger and employee fatality rates (EU-27, 2006-2022)**

Passenger fatalities per billion passenger kilometers, Employee fatalities per billion train kilometers, 3-years moving average



Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency

A century ago, the majority of victims of railway accidents were railway employees. However, as a result of a continuous focus on staff safety, railway operators have succeeded in significantly reducing staff casualties. After a significant decrease since 2006, both the railway employee and passenger fatality rates appear more stagnating (or even slightly increasing) in recent years.



## 4.2.1. THE MONITORING TASKS OF ERA AND THEIR IMPACTS

The concept of monitoring railway safety has always been among the priorities of the Agency since its establishment in 2004, but we can clearly make a distinction between what was done before and after the entering into force of the 4<sup>th</sup> Railway Package, that introduced a major change in the approach to monitoring by the Agency, as highlighted below.

Before the 4RP, the applicable EU legislation on monitoring focused mainly on accident and certain incident outcomes enabling it to provide high-level feedback on the effectiveness of the regulatory framework. Relying on the outcome indicators, such as the number of accidents and resulting casualties meant that there was limited ability to proactively manage current and emerging hazards. Therefore, the Agency put in place several other activities intended to provide monitoring of safety performance of different actors at the level of Members States.

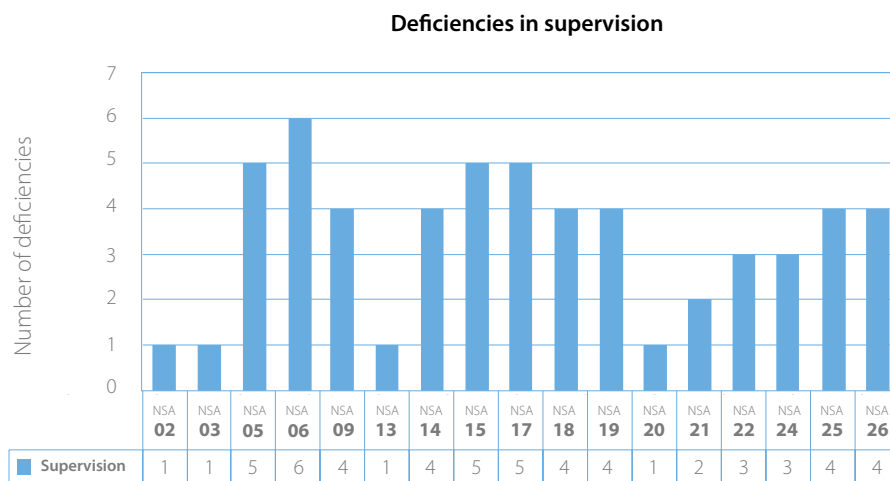
The NSAs agreed, supported by the Agency, to a programme of voluntary audits, the commonly known “NSA cross audits”, to evaluate the overall performance and the delivering of some of their main activities required by the Safety and Interoperability Directives such as safety certification and safety authorisation, supervision and authorisation for placing in service of vehicles, and to share best practices. The programme started in 2013, after a two years pilot, and ended before the entering into force of the 4RP. Similarly to NSAs, the Agency also launched in 2013 a programme of voluntary assessment of National Investigation Bodies, with the objective of identifying strengths and weaknesses in their organisational core processes and deliverables. This with the ultimate goal to improve their performance in preventing future accidents and incidents in the national and European railway system. The assessments further allowed the sharing of identified good practices with other NIBs in order to allow quicker learning. The Agency also launched two other assessment workstreams: the Matrix, intended to get an overview on how safety was managed at the Member States level, by and among various railway actors and to evaluate the maturity of processes underpinning the regulatory regime, and the Priority Country programme, that built on an request from the European Commission for advice regarding safety performance of Member States with a relatively lower level of safety.

Building on the experience of what was done before and further to the evaluation and impact assessment that was carried out, the entering into force of the 4RP brought about an enhanced role for the Agency in the monitoring of national organizations having a part in the implementation of the interoperability and safety directives.

#### 4.2.1.1 — MONITORING OF NATIONAL SAFETY AUTHORITIES

The 4RP applicable legislation entrusted the Agency with the power to audit, on behalf of the Commission, the capacity of NSAs to execute their tasks in relation to railway safety and interoperability and to audit how effective is the supervision by the NSAs of the railway actors operating in their respective Member States.

After having developed and agreed with the Management Board the working methods and criteria against which to audit NSAs, the Agency carried out, between 2019 and 2021, a first cycle of audits that included all EU NSAs plus 1 volunteer non-EU NSA, applying the agreed criteria to the processes of supervision and competence management, with particular focus on the management of competence of NSA staff involved in safety certification, vehicle authorization and supervision. The results of the 1st audit cycle showed a diversity in the maturity of the audited NSA in implementing the EU legal framework on railways, with some NSAs having established a good level of control and implementation of their audited processes while others still lagging behind in implementing an acceptable level of decision making and risk approach.



Deficiencies in supervision for each NSA during the 1st audit cycle (NSA 01,04,07,08 10, 11, 12, 16, 23 did not have deficiencies in supervision). The naming of Member States is not disclosed.

In 2022, the Agency started a 2<sup>nd</sup> cycle of audits, currently ongoing and due to finish end early 2025, where all NSA tasks related to railway safety and interoperability are under assessment and to which all EU NSAs plus 2 volunteer non-EU NSA take part. The preliminary results indicate that approximately 60% of the findings raised during the 1st cycle have been addressed, suggesting a commitment of the national authorities towards a better understanding and implementation of the EU requirements relating to management of competences and supervision activities. The Agency communicates to the Commission the results of each audit and follows up the implementation of the actions that NSA put in place to address Agency's finding.

The monitoring of NSAs by the Agency based on open dialogue has proven to be an effective tool in increasing the trust between NSAs and the Agency by offering the possibility of mature discussions based on clear, fair and transparent information on the ability of NSAs to perform their activities. In addition, a subgroup has been established among NSAs to tackle the subject of supervision which proved to be one of the weak points emerged during the 1st audit cycle, showing good commitment of NSAs to further improve. In some cases and to increase the awareness of the issues identified, the Agency triggered the intervention of the Commission to foster the intervention of the Member State where the NSA is established.

#### **4.2.1.2 — MONITORING OF NOTIFIED BODIES**

Monitoring of notified bodies is one of the new tasks of the Agency introduced by the 4RP. Before that, there was no overview by the Agency of how NoBos functioned and performed, there wasn't a harmonized framework and NoBos' supervision was ensured by the respective national notifying authority or bodies delegated for this task.

The Agency is tasked to monitor conformity assessment bodies (CABs) notified for the railway interoperability directive, through the provision of assistance to national accreditation bodies (NABs) and notifying authorities (NAs), by means of audits and inspections. In that respect, the Agency developed in 2017, and recently revised in 2022, a sectoral scheme (ERA AS) providing the NABs/NAs with a set of harmonised requirements specific for railways to be fulfilled by conformity assessment bodies seeking notification according to Directive (EU) 2016/797. Since then, this scheme forms the basis for the accreditation/recognition of railway CABs and their notification and ensures a harmonised framework for all conformity assessment bodies involved in the railway business.

The development by the Agency of a harmonised sectoral scheme has been a fundamental step in ensuring a level playing field among the different railway NoBos, which must prove compliance with this scheme in order to be notified.

The Agency has developed and agreed with the Management board the working method and criteria to assess notified bodies and is undertaking since 2019 a set of audits/inspections of NoBos, in cooperation with their respective NAB/NA. The focus of the Agency's audits/inspections is to assess how NoBos comply with the requirements of the ERA AS and how those requirements apply to real certification cases.

To date, the Agency has visited approximately 60% of the NoBos established in EU MSs and for each has delivered a report to the NoBo itself, to the NAB/NA and to the European Commission, highlighting those aspects needing more attention because not fully aligned with the above requirements. For the most serious cases, the Agency has issued a recommendation to the NAB/NA and NoBo to promptly put in place actions to address the identified issues.

The follow up of findings is usually ensured by the respective NAB/NA that carry out the periodic surveillance of the NoBos established in their MSs, with the Agency involved only in the follow-up for the most serious cases.



### 4.2.1.3 — COOPERATION WITH NATIONAL INVESTIGATION BODIES

There is considerable diversity in the effectiveness of the NIB organisations (e.g. in terms of financial and human resources and expertise) as well as in the investigations and recommendations made across Europe. Monitoring the effectiveness and independence of NIBs could improve these important areas. However, differently from NSAs and although participating to their peer review system as observer, ERA has no legal basis to monitor and evaluate the quality and effectiveness of the NIBs. The Agency provides a secretariat for a peer review programme.

The objectives of the peer review process, established by Directive (EU) 2016/798, Article 22(7), are to improve railway safety by monitoring the effectiveness and independence of the NIBs that decide to participate in the peer reviews on a voluntary basis. An additional objective is for investigating bodies to engage in an active exchange of views and experience.

Since 2016, the Agency actively supported the NIB network and a dedicated task force, to set up a peer review programme, by contributing to the content of a programme and giving advice on a range of topics such as the value of independent auditing vs. peer reviews, the importance of clear criteria for the peer review programme, the importance of a training for the NIB peer reviewers, the importance of confidentiality and transparency of the NIB peer review system in the public domain etc.

The Peer Review (PR) programme, together with the PR criteria, were fully established in 2019 and since then the Agency actively participates to each peer review together with the members of the panel, composed by other NIB members, by giving advice and opinion and, upon request, support in implementing action to address peer review findings. The Agency is also providing financial support to the NIB panel members to execute the peer review process.

Up to now, 14 NIBs have been peer reviewed and 6 more will be peer reviewed by the end of 2024 and in 2025. However, 8 NIBs have not yet shown willingness to be peer reviewed.

The Agency, together with the NIB task force, is currently developing the criteria for the 2nd cycle of the peer review that should start in 2026 with a different scope and focus more on the quality of the investigation reports.

While the consequences of the independent rail accident and/or incident investigation process, including its recommendations, can have a substantial impact (negative or positive) on the European rail sector, participation in the NIB peer review programme is an important means for the Agency to gather the information needed to monitor the overall safety performance of the Union's rail system, as required by Article 35(2) of the Agency Regulation.

## 4.2.2. COOPERATION BETWEEN ERA AND NSAs

The Network of National Safety Authorities (NSA Network) is the generally recognised group for exchanging, developing and providing technical and practical views and positions in order to improve safety and interoperability of the railway system. It promotes cooperation between NSAs and between the NSAs and the Agency.

The objectives of the NSA Network are stated in article 38 of the Regulation (EU) 2016/796 and in article 18 of the Safety Directive (EU) 2016/798:

Exchange of information, views and experience, especially relating to railway safety and interoperability, such as:

- Safety performance and identifying potential safety issues
  - Reporting the status by ERA WPs/WGs and TFs and feedback from NSA Network to these
  - Involvement in the development of the Agency Annual Work Program and mirroring with NSA Annual Work Programs
- 
- Promote good practices and disseminate relevant knowledge
  - Exchange of views and experience in order to harmonise the NSAs and Agency decision-making criteria
  - Comment on draft opinions and recommendations that will be issued by the Agency

The NSA Network has further developed during the last 5 years into a Network in which items are being discussed in partnership between NSA's amongst each other, between NSA's and ERA, with the European Commission (DG MOVE) as active participant. The NSA Network has strengthened its activities by also organising meetings at NSAs combined with technical visits to also improve informal exchange as well as subgroups to exchange information on specific topics such as Supervision, Cross-border Agreements and Communication (including crisis communication).

### 4.2.3. COOPERATION BETWEEN ERA AND OTHER AGENCIES

Since long time, ad-hoc cooperation has taken place between ERA and several other EU Agencies. These include EASA, EMSA, ENISA, CINEA and ESA. Because of the many similarities in the safety chain in Aviation and the Railways, the cooperation with EASA has been formalised and structured via the signing of a Memorandum of Cooperation (MoC) in 2022. The purpose of this MoC is to promote inter-Agency cooperation and to further develop exchange of know-know between the Parties in the specific areas identified in this MoC, while ad-hoc exchange between experts of the two Agencies is also being facilitated. This also includes the consultation of one another on matters of common interest to coordinate activities and to avoid duplication of efforts, as appropriate. A similar concept has been initiated with EMSA early 2024.

### 4.2.4. COMMON SAFETY METHODS

In the two decades since its inception, the EU Agency for Railways (ERA) has played an essential role in establishing Common Safety Methods (CSMs) to ensure a high and uniform level of safety across the EU's rail network. These methods are a set of regulations and guidelines aimed at standardizing safety practices across member states. They include:



The current set of CSMs covers various aspects of railway operations, including safety management systems, risk evaluation and assessment, supervision by national safety authorities, etc. Each CSM focuses on a critical area of railway safety, ensuring a holistic approach to managing risks and enhancing the overall safety of the European rail system.

The primary aim of the CSMs is to harmonize safety standards across the EU, facilitating seamless cross-border rail operations and ensuring that trains operate under the same high safety standards, regardless of the member state. This harmonization has significantly contributed to reducing the risk of accidents and incidents on the EU railways, making rail freight and passenger transport safer.

One major achievement of the CSMs is the creation of a framework allowing for the implementation of the Single Safety Certificates (SSC) process. The SSC process marks a significant milestone in enhancing rail safety across the European Union. The associated certification process is designed to standardize safety qualifications for railway undertakings, ensuring that all operators meet the high safety standards required to operate across the EU's rail network. The SSC concept simplifies the certification process, allowing for a more streamlined approach to safety across member states. This initiative not only promotes a higher level of safety within the rail sector but also facilitates easier access for railway companies looking to operate in different EU countries, reinforcing the seamless operation of cross-border rail services.

Another important outcome of implementing the CSMs is a better insight into the evolution of safety levels across the EU rail network. This has been achieved through the harmonized collection and analysis of safety data, allowing for a more informed approach to safety management and policy-making.

Furthermore, harmonized supervision has fostered improved coordination and collaboration between National Safety Authorities (NSAs). This enhanced cooperation is crucial for a more integrated European rail safety landscape, reducing barriers for cross-border operations and fostering a culture of safety across the sector.

Looking to the future, the ERA plans significant developments in the CSM framework. The anticipated introduction of the Common Safety Method on Assessment of Safety Levels and Performance (CSM ASLP) aims to refine safety level and performance evaluations further. It also provides tools for harmonised reporting (amongst others it introduces a single taxonomy for harmonised reporting of events, risk control measures and contributing and systemic factors).





Additionally, the EU Agency for Railways is proactively laying the groundwork for the potential review of CSMs. The Agency is engaging in preliminary activities to collect information. These initial steps are geared towards identifying and addressing the gaps within the current framework, with the intention of clarifying, and where necessary simplifying and expanding the scope of CSMs. This forward-looking preparation aims to ensure the CSMs' alignment with the contemporary needs of railway operations, thereby maintaining their efficacy and relevance for future developments in the sector.

These future initiatives reflect ERA's commitment to continuous improvement and adaptation in railway safety standards, ensuring that the CSMs remain responsive to the evolving needs of the European railway sector and contribute to the ongoing development of a safer, more efficient, and interoperable European rail system.

## **4.2.5. ENTITIES IN CHARGE OF MAINTENANCE**

The maintenance of vehicles is an important part of the safety system as a whole. In the past the lack of a system for certification of Entities in Charge of Maintenance (ECM) has led to increased costs for the sector, unclear responsibilities of actors involved and journeys without loads.

The first step on certification of ECM was the Regulation 445/2011 imposing a certificate to all ECMs maintaining freight wagons.

After 7 years of implementation of this Regulation, the majority of the railway stakeholders requested an extension of the certification to all ECMs thus covering all rail vehicles. This resulted in the adoption of Regulation (EU) 2019/779 based on an ERA recommendation to the European Commission.

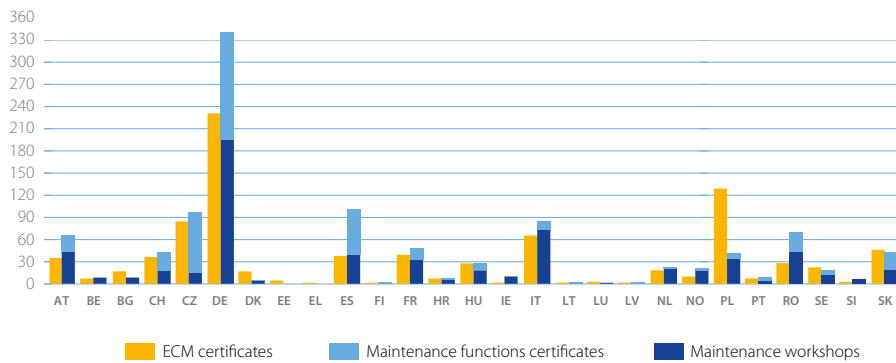
All ECMs have the duty to be in conformity with Annex II of the new Regulation by 16 June 2020 according to the art 3 §1 of this new regulation. This annex II groups requirements for organising and delivering the maintenance activity. Those requirements are recognised by stakeholders as the good practices of the maintenance business.

Since 2011, the Agency continues to manage the cooperation of ECM certification bodies through annual meetings and to publish the schemes of accreditation and certification and guidance associated with ECM. The ERA register ERADIS is the single repository of all ECM certificates and it is updated regularly with the new and the renewed certificates.

The Agency is currently evaluating the ECM framework and will submit in June 2024 a first report to the European Commission on the implementation of Regulation 2019/779.

### Number of ECM certificates active at the end of 2023, per country of the certified entity

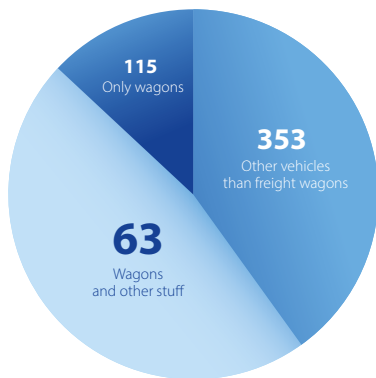
Certificates valid on 31 December 2023, EU-27+CH+NO



Source: ERADIS

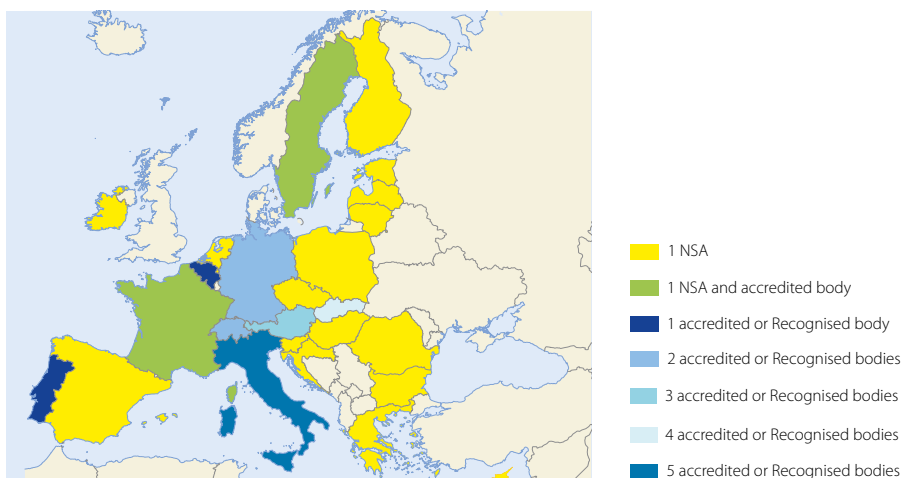
### Number of ECM certificates for wagons and/or other vehicles, end 2023

ECM certificates for only wagons, wagons and other vehicles, or other vehicles than freight wagons



### Number of ECM certification bodies across EU

Number of ECM certification bodies by type and country, EU27+CH



Source: ERADIS

## 4.2.6. TRANSPORT OF DANGEROUS GOODS

The Transport of Dangerous Goods (TDG) activities of the EU Agency for Railways have had influences in many aspects of the railways system specifications and on the methodological approach to manage TDG risks. These activities have been developed in a multimodal environment where international regulation is derived from UN recommendations globally applicable to every mode of transports.

Within the framework of UNECE and OTIF international land transport working parties and committees' meetings, the Agency assisted technically the European Commission to achieve important technical adaptation of the UN recommendations and methodological developments that are applicable to international transport in UNECE and COTIF regions, in addition to the European Union and its legislation. This resulted in a clearer legal framework, easier to implement by rail operations and competent authorities.

Two main achievements should be emphasised which have long-lasting positive impacts on the improvement of safety and efficiency of the TDG railway services.

### 4.2.6.1 — COORDINATED DECISION-MAKING PROCESS AND HARMONISATION OF TECHNICAL SPECIFICATIONS OF WAGONS FOR TDG

The question improving TDG carriage safety with technical measures started to be extremely complex when TDG regulators aimed at defining wagon design requirements while the competence of wagon design specifications was attributed to the Agency at its setting.

While it was necessary to preserve the possibility for TDG regulators to use wagon design as an instrument to protect the dangerous goods substance while being carried, the Agency advocated for a better organisation of the decision-making on railway vehicle-new-potential specifications, the possibility to reconcile the objectives of TDG regulation development and general railway legislation development.

This coordination would offer better flexibility when choosing the most efficient way to protect dangerous goods substance during transport while also preserving the possibility to integrate dangerous good transport within one unique railway system, not specialised uniquely for TDG but integrating several types of railway service.

While negotiations for better coordination started after the Viareggio catastrophe in 2009, a first achievement was reached with TDG experts in 2018, when a consensus roadmap for the introduction of specifications for interoperable usage of derailment detection, as prevention or mitigation measure, was agreed.

The added value of a coordinated approach was also that such specifications would not only be applicable to TDG carriage, but also on voluntary basis to normal freight wagons, maximising the potential to reduce freight wagon derailments, as foreseen in the analysis of the most efficient safety measures reported in the conclusions of the ERA 2012 freight train derailment study.

In 2022, the full achievement of the agreed roadmap resulted in the specifications for preventive and mitigating measures related to the usage of various types of derailment detection and mitigation functions which were adopted in the TSI revision package 2023.

In parallel to the coordination of specification of derailment prevention and mitigation functions, the Agency's TDG activities had a significant influence on the setting of a systematic approach to decision-making concerning topics in which TDG-related legal requirements and General railway legislation had to be coordinated. The Agency, in collaboration with OTIF, initiated the terms of reference of the Joint Coordinating Group of Experts (JCGE) with the so-called RID-ATMF working group.

The JCGE is nowadays implemented on a regular and official basis as a standing advisory group co-chaired by DG MOVE and OTIF. From 2017 onwards, the JCGE resolved a number of issues relating to many topics where a coordination between TDG and railway legislations was needed.

Thanks to the JCGE support and a remarkable collaboration between RID and Railway experts chaired by the Agency, one outstanding achievement was reached end 2023 with a combined revision recommendation for TSI wagon, UTP wagon and RID 2027 where any wagon design requirements relating to TDG wagon safety requirements currently in RID would be transferred to the TSIs and UTPs, resulting in a fully coordinated, harmonised and assessable specifications of wagons within the EU and COTIF regions.

More generally, those achievements lead to important administrative simplifications and safety improvements when placing TDG wagons on the market as their construction will be more easily and accurately assessable by competent certification and inspection bodies, resulting in safer and fully interoperable TDG wagons.



#### **4.2.6.2 — THE MULTIMODAL TDG RISK MANAGEMENT FRAMEWORK**

It is well-known that safety is requiring a constant effort to be maintained and further improved. This is notably the objective of TDG regulations to offer requirements enabling international carriage whose risk is set at a very low level.

However, further reduction of risks is possible when applying further optimisation taking into account risk analyses results at operator, national or international levels, in particular when it is possible to choose a mode of transport that is inherently safer due to its property of guided transport system.

Based on the above consideration the Agency initiated the TDG roadmap in 2011 with the collaboration of TDG experts at international level for discussing and setting a harmonised and multimodal approach to TDG risk management.

The major outcomes of this programme were:

- 1.** The publication in 2018 of the Inland TDG risk management framework, an international reference for assisting operators and regulators with recognised risk-based decision-making methods for rail, road and inland waterways.
- 2.** The establishment of a standing Expert Users and Development Group (EUDG) which is tasked to maintain the framework and to further develop it with reference examples and material.
- 3.** The future development of a Risk Management Platform which should be offered, as a new Agency service, to any users willing to deploy the risk management framework to railway, road and inland waterways aimed at the minimisation of risks posed by TDG operations.

The Inland TDG risk management framework was also adopted in 2023 within the RID / ADR and ADN regulations thus extending this EU framework as an international reference method to be considered in the UNECE and COTIF regions.

In the future, further improvements of incident and accident data reporting are currently under discussion with TDG regulators to enable better information collection supporting the design of ever safer evolutions of TDG carriage.

## 4.2.7. THE JOINT NETWORK SECRETARIAT

Within the concept of the Joint Network Secretariat (JNS) the Agency organises and leads task forces of European experts to solve safety and interoperability issues in the EU. Immediate measures after accidents and incidents, which railway undertakings (RUs), infrastructure managers (IMs) or national safety authorities (NSAs) implement in accordance with their responsibilities, are often very restrictive. The JNS provides a forum to discuss effective measures without inconsistent decisions at national level which would increase costs and diminish interoperability affecting rail competitiveness. JNS is based on procedures usually notified after accidents and incidents. In some cases, JNS can also address other problems like the shortcoming of hopper wagons for the transport of Ukrainian grain in 2022, where also Canadian, U.S. American and Ukrainian experts joined the JNS task force.

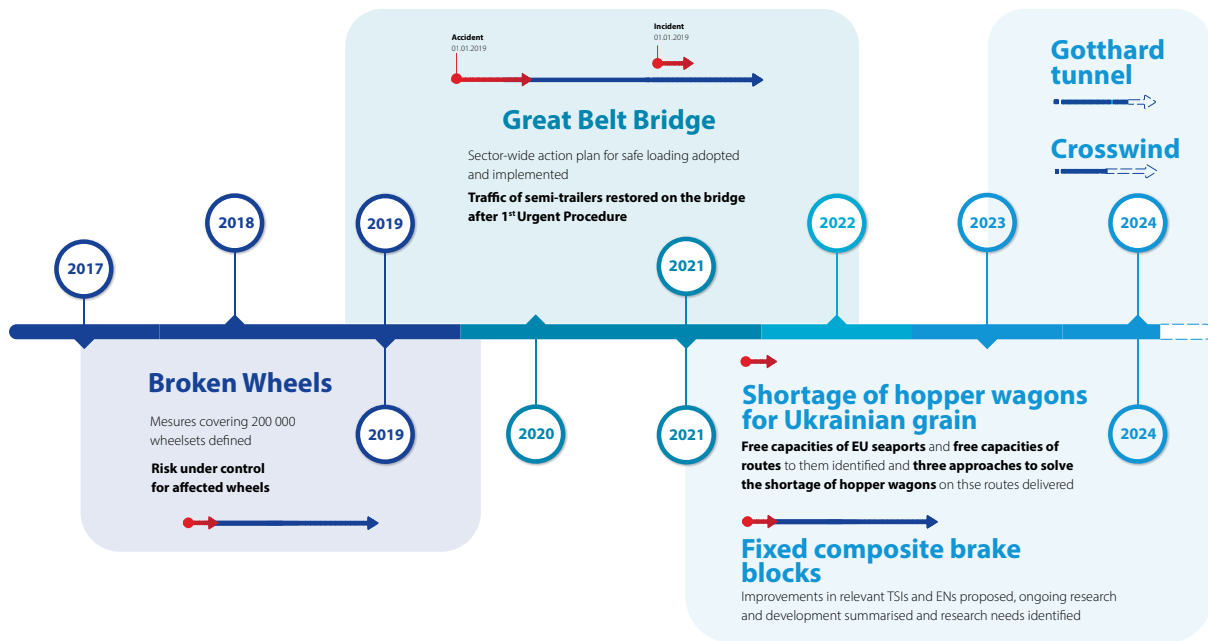
In the JNS urgent procedures the task forces strive to develop short-term risk control measures (RCMs) with the smallest possible negative impact on the European railways. The task forces usually conclude an urgent procedure within two months.

In the JNS normal procedures the task forces aim at developing long-term risk control measures which sustainably increase safety and interoperability, increasing competitiveness of railways. In addition, possible improvements in legalisation and standardisation are recommended and research needs addressed. The task forces of the JNS normal procedures usually conclude their work after up to two years.

The results are published on the Agency's web site. The identified risk control measures have the nature of strong recommendations and define the reference for the required safety level. NSAs shall refer to them within their surveillance activities.

The outcomes of the JNS procedures increases the resilience of the green transport mode "railways" through overcoming quickly crisis situations after accidents and incidents, decreasing proactively the number of accidents and incidents, preparing the EU railways for the future challenges of the uninterruptedly increasing consequences of the climate change.

## Key JNS activities



### 4.2.8. DISSEMINATION ACTIVITIES ON SAFETY

In all high-risk industries, considering human capacities and limitations into all phases of design, operations, and maintenance, has been recognised as a critical factor for safety performance. Indeed, analyses of tragic industrial and transportation accidents systematically reveal failures and contributors related to human and organisational characteristics.

The concepts of Human and Organisational Factors and Safety Culture have been extensively introduced in the European Union legislation in the railway sector in 2016 and in 2018, as part of the Fourth Railway Package and the Common Safety Methods on Safety Management Systems requirements.

Consequently, the Agency launched ambitious programmes supporting the activities on how railway stakeholders may foster the development of a safety culture within their organisation and better integrate Human and Organisational Factors into their business. This helps rail organisations to build up their capabilities to operate in a safe manner.

The following initiatives have significantly contributed to raise safety awareness among the European community of rail stakeholders:

01

### **THE EUROPEAN RAIL SAFETY DAYS**

organised in 2021 in Porto

focused on the applications of the European Railway Safety Culture Model, which is the ERA framework that supports end users in assessing and improving the safety culture of their organisations. During the event, the results of the European Rail Safety Climate Survey, a questionnaire deployed during the European Year of Rail and to which 46500 individuals responded, were revealed. This response level was recognised as an outstanding achievement by the nuclear and aviation safety experts participating in the conference in Porto.

02

### **THE EUROPEAN RAIL SAFETY DAYS**

organised in 2023 in Tallinn

put “Learning” at the top of the agenda and introduced the Agency safety training portfolio. In particular, the safety leadership training and its dissemination modes were presented. As of today, 20 European railway undertakings and infrastructure managers selected the training to improve safety leadership capabilities throughout their organisations.

03

### **THE EUROPEAN RAIL SAFETY SUMMIT**

organised in 2018 in Dubrovnik

coincided with the launch of the European Railway Safety Culture Declaration. Since the summit, more than 350 rail leaders have signed the pledge, as a demonstration of their commitment to safety.

04

### **THE AGENCY’S HUMAN AND ORGANISATIONAL FACTORS NETWORK MEMBERS**

have met every year since 2017

#### **AND A HUMAN AND ORGANISATIONAL FACTORS CONFERENCE**

has been organised every two years in a hybrid mode, gathering a high number of participants (800+ in 2020). These events are opportunities to share experience and disseminate solutions. As such, the “HOF essentials in practice” and the “HOF in Change Management toolkit” were published on the Agency’s website. In addition, the RailHOF digital platform on HOF and Safety Culture in railways, created and maintained by ERA and UIC, was launched in 2022.



## 4.2.9. SINGLE SAFETY CERTIFICATES

Within the European railway system, Directive 2004/49/EC introduced the concept of a safety management system as one of the corner stones of the safety regulatory framework that should ensure a high level of railway safety. All those operating the railway system (infrastructure managers and railway undertakings) should bear the full responsibility for the safety of the system, each for their own part, and the establishment of a safety management system is identified as the appropriate way to fulfil this responsibility.

In the past, a safety certificate issued by the national safety authority of a Member State gave evidence that the railway undertaking had established its safety management system and was able to comply with the relevant safety standards and rules. Directive 2004/49/EC recognised the clear distinction a Member State should make between, on the one hand the immediate responsibility for safe operation, and on the other hand the safety authorities' task of providing a national regulatory framework and of supervising the performance of the operators. For international transport services it was then sufficient to approve the safety management system in one Member State and give the approval a European-wide validity.



Although this framework was mandatory in all EU Member States since 2006, after a decade, findings showed an unwillingness to accept these different roles and responsibilities, and a poor understanding of even the basic concepts of a safety management system. This was largely because of the continued reliance of rail operations on national rules, many dating from old times and differing from Member State to Member State rather than following a more modern, harmonised and flexible risk-based approach. Within this context, and a reluctance to change what was seen as an accepted approach, there was clearly a need for a more thorough understanding of the safety regulatory framework and the important role of safety management systems within it. Moreover, it was perceived that essential steps were still required to accelerate the harmonisation of approaches to safety certification and to implement the single certificate as part of a well-controlled safety management system-based certification regime at European level. Finally, the need to strengthen and to formalise cooperation between national safety authorities in the fields of safety certification and supervision and the need to progressively clean up national safety rules in areas where the risk-based approach should play a key role, were also recognised.

With the technical pillar of the 4th Railway package, and the recast Directive (EU) 2016/787, building on its experience with the application of Common Safety Methods (CSMs), ERA has set up an ambitious programme to develop standard safety certification processes (including both the assessment before issuing the certification and the post-award supervision activities) to move out of the standstill with national safety authorities on harmonising their approach.

It is generally recognised that, in an increasingly complex, global and dynamically changing business environment with rapid technological development, risk is the driver of organisational activity. Risk management is therefore a key organisational process for running the railway business in a safe way whilst at the same time allowing businesses to innovate and develop. The concept of a safety management system as introduced by Directive 2004/49/EC already offered all elements to continuously improve and optimise the level of safety performance of railway undertakings and infrastructure managers. Safety certification is not a guarantee that accidents will not occur but it is the most effective way to assess the ability of organisation to manage risks.

As part of its work programme, considering the state-of-the-art developments of international standards, safety culture and human and organisational factors, ERA has fostered a more holistic and process-based approach to managing safety risk (along other business risks) and by doing so, proposed a common reference for all railway undertakings, infrastructure managers and national safety authorities in developing and in assessing a risk-based safety management system respectively.



In order to provide support to stakeholders in the harmonised application of this new safety certification framework, ERA has developed new guidance addressed to railway undertakings and national safety authorities and has made these available in all EU languages on its website. In addition, ERA has also worked to improve this guidance on a regular basis and has encouraged regular contacts with all the actors within the system.

Following the entry into force of the Fourth Railway Package, ERA became responsible for issuing single safety certificates to RUs. As a result of the work undertaken, many applicants have chosen to come to ERA for the safety certification even though there was no legal obligation to do so, and many positive messages acknowledged the professionalism and the quality of work ERA has delivered.

Based on experience, several areas of concern were also identified. ERA has worked constructively together with the national safety authorities to find solutions to current or long-term problems such as operations to border stations, traffic to third countries or the extraordinary measures taken to manage assessments during the COVID-19 pandemic.

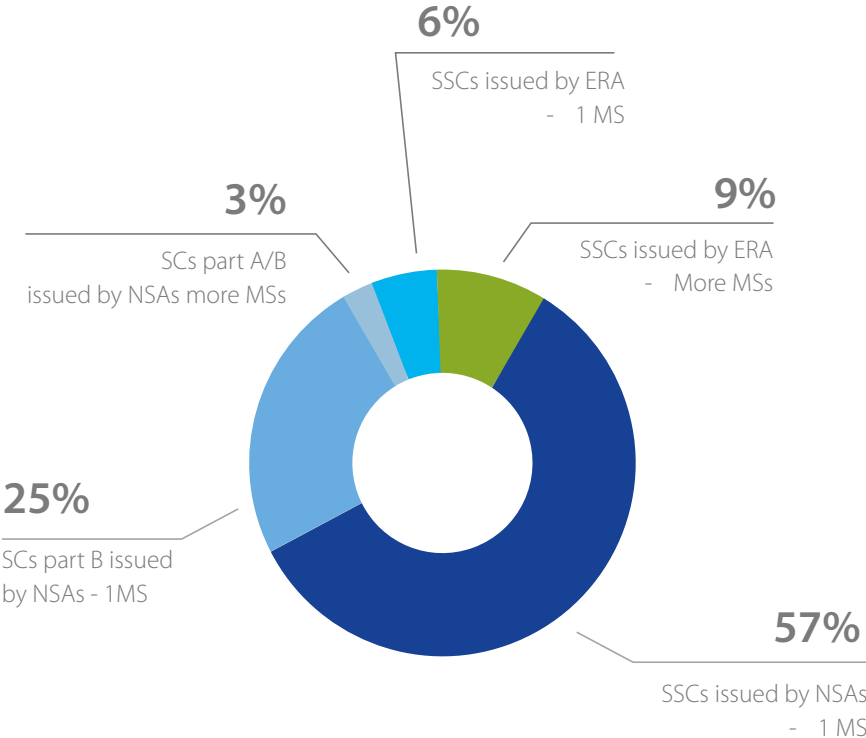
By the end of 2023, two-thirds of all certificates issued were single safety certificates issued under the new legal framework and 15% of them were delivered by ERA. Approximately 12% of all valid certificates (both single safety certificates and the old Part A/B certificates) are those issued to international railway undertakings operating in more than one Member State.

Now, after almost 5 years in its new role of safety certification body, ERA still plays a central role, in close collaboration and cooperation with national safety authorities, in harmonising safety certification practices, including the decision-making criteria, all over the EU. On the one hand, this new role of the Agency provides better insight into the content of railway undertakings' safety management system and hence ensures that corrective and other improvement measures are taken by RUs to comply with the safety regulatory framework. On the other hand, the interaction with national safety authorities is being reinforced through the links between safety assessment and supervision, which forms a virtuous circle. The former cannot work efficiently without the latter and vice versa. Specifically, the upcoming renewal of single safety certificates will need to base its work on possible findings from supervision activities performed by NSAs. Finally, ERA continues with its partners to provide solutions to problems which occur within the safety certification process and to support applicants and national safety authorities wherever it can.

All in all, this demonstrates that the evolution of the safety regulatory framework started with the first Safety Directive positively contributes to achieve the overall objective that safety is maintained and where reasonably practical, continuously improved within the Single European Rail Area and that ERA has had and continues to play a central role in the development and maintenance of the framework over the 20 years of its existence both in direct involvement in the safety certification process and the advice it gives to national safety authorities and applicants alike.

**SCs and SSCs issued by NSAs and ERA per area of operation**

Percentage of SCs and SSCs (on the total), valid at the end of 2023



NOTE : SCs part B and part SCs part B and part A for the same RU (operating in more MSs) are counted only once

Source: ERADIS and ERA internal data

## 4.3. The benefits of ERA for rail interoperability

According to the Interoperability Directive (Directive (EU) 2016/797), 'interoperability' means the ability of a rail system to allow the safe and uninterrupted movement of trains which accomplish the required levels of performance. The Interoperability Directive sets the following objectives behind promoting interoperability for the EU rail system (Article 1.1):

- ▶ to make it possible to facilitate, improve and develop rail transport services within the Union and with third countries
- ▶ to contribute to the completion of the single European railway area and the progressive achievement of the internal market.

Since the establishment of the Agency, Technical Specifications for Interoperability (TSIs) have been the key output to ensure a legal framework that allows harmonisation of the EU rail system. Interoperability through the implementation of TSIs has played a pivotal role in opening the railway market, allowing expanded areas of use and reduced costs thanks to higher standardisation, higher resale value of assets and economies of scale. While challenges remain, the progress made so far provides a solid foundation for the creation of a single European railway area, where trains can operate seamlessly across borders, thereby enhancing the efficiency and competitiveness of the railway sector.

Our records indeed confirm that we have already come far in terms of improving the interoperability of railways in Europe. However, there is still a long way from reaching even more ambitious targets in many areas; despite several positive developments, rail in Europe is not yet achieving its full potential.

Although sound progress can be seen in aligning operational frameworks in terms of rules and procedures, more modest improvements are visible in making the railway assets interoperable, partly owing to their long-life nature. The total number of national rules for vehicle authorisation (in addition to the latest TSIs in force) has decreased significantly since 2016, while progress in the widespread adoption of technical standards supporting information availability and data exchange has also been slow/delayed across the EU.

High-quality interoperable and open railway data are essential in connecting the rail business across borders and with other modes of transport. Synergies enabled by connected data and underlying IT systems can improve rail competitiveness.

### 4.3.1. THE RECOMMENDATIONS PRODUCED FOR TSIS

In the late 20th century, the high-speed rail development, putting London less than 3 hours away from Paris, led to the statement that railway networks, developed over nearly 200 years as a patchwork of national systems, each with its own technical solutions, needed to be outclassed by a new reference developed at the level of the European Union.

At the same time, other rail sectors such as freight and regional passenger traffic were in a difficult situation, leading to the EU decision to pursue market opening. However, such a policy could not be implemented in practice without arrangements and legislation that tackled the technical and regulatory barriers affecting cross-border rail traffic.

The technical solution to develop shared specifications for ensuring a safe and uninterrupted movement of trains on several networks has a name: it is called 'interoperability', a key factor in enhancing the competitiveness of railway transport. Interoperability is crucial for the opening of the railway market as it allows railway undertakings in one Member State to operate seamlessly in another.

Through a series of four Railway Packages, including three Interoperability Directives, the EU developed and extended the concept of Interoperability, enhanced by a key tool: the Technical Specifications for Interoperability. Indeed, since interoperability depends inter alia on the harmonisation of technical parameters of vehicles, fixed installations, telematics and operations, the development of relevant specifications was necessary.

The first Technical Specifications for Interoperability (TSIs) were addressing only the high-speed rail networks and rolling stock. They were developed as early as 2002 by the European Association for Rail Interoperability (AEIF). ERA took over the role regarding TSI development following its establishment in 2004.

There were several steps in the development of TSIs, each one marking an extension of the scope or corresponding to a significant step in the technical harmonisation.



#### 4.3.1.1 — COVERING ALL SUBSYSTEMS (2002 – 2008)

The first step has been the creation of the first TSIs for all subsystems. In 2005, TSIs existed for high-speed rolling stock and high-speed lines.

The first step was therefore to complement these early TSIs with:

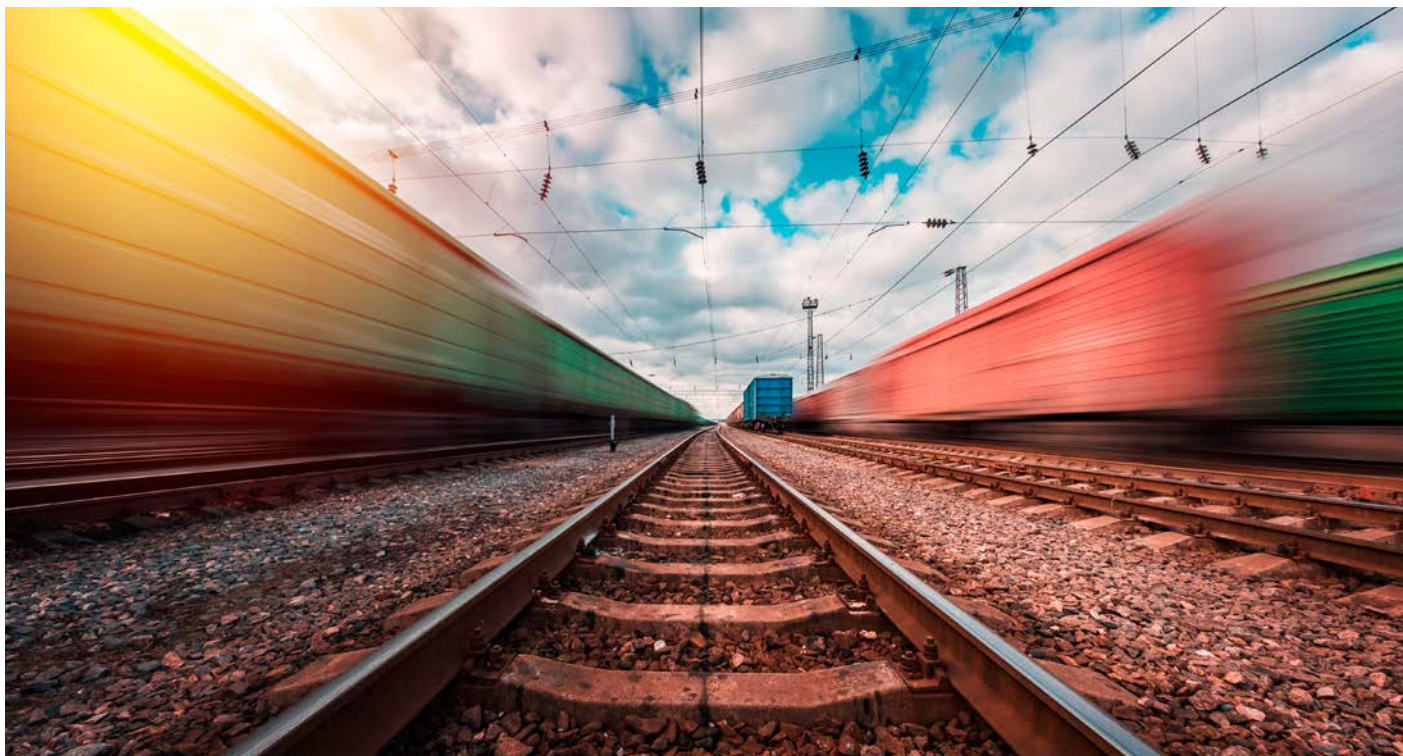
- TSI for freight wagons (WAG TSI - 2006) since wagons need to be **interoperable**
- TSI on noise (NOI TSI – 2006), to ensure **harmonisation** on the limit values and measurement methods
- TSI for safety in railway tunnels (SRT TSI - 2008), to have a common **European approach** on this topic for both the high-speed and conventional rail networks
- TSI on **accessibility** for persons with reduced mobility (PRM TSI - 2008), the first sectoral text on accessibility applicable at EU level, also covering the high-speed and conventional rail networks
- New **revised set of TSIs** for the high-speed network (ENE, INF, HS RST TSIs - 2008)
- **New TSI on operations** for high-speed rail (HS OPE TSI) and for conventional rail (CR OPE TSI)
- For the Freight Telematics subsystem the created TAF TSI (2006) was mostly focusing, for obvious reasons, on the conventional rail networks. This TSI had the aim to **standardise the electronic rail freight message exchange for capacity management**, train preparation and train/wagon operation between RUs, IMs and Wagon Keepers

#### 4.3.1.2 — FIRST EXTENSION: THE CONVENTIONAL TEN NETWORK (2008 – 2011)

The second step was the creation of another set of TSIs applicable to the conventional rail networks of the Trans-European railway Network (TEN).

This activity led to the publication of:

- TSI on locomotives (freight and passengers) and passenger units (LOC&PAS TSI – 2011)
- TSIs of fixed installations, both energy and infrastructure subsystems (CR ENE TSI, CR INF TSI 2011)
- Second NOI TSI – 2011
- Second HS OPE TSI and second CR OPE TSI
- For the Passenger Telematics subsystem the created TAP TSI (2011) was focusing both on the high-speed and conventional rail networks. This TSI had the aim to standardise the electronic rail passenger message exchange for accessing the rail products, ticketing / booking and train operation between RUs, IMs, Station Managers and Ticket Vendors





### 4.3.1.3 — MERGING AND EXTENSION TO THE COMPLETE EU NETWORK (2011 – 2015)

In 2010 the Agency received a mandate from the Commission extending the scope of TSIs to the whole EU rail network. The mandate also provided for a possible merge of the high speed and conventional rail TSIs into one common TSI for each subsystem. By the end of 2014 a new set of TSIs was published, with their scope extended to the entire European railway system. Where appropriate, the new TSIs merged provisions for the conventional and high-speed systems: actually, the notion of ‘high-speed’ and ‘conventional’ rail disappeared, the specific requirements depending, where necessary, directly on the speed.

These TSIs cover the complete EU network and are still in force today (although with some amendments):

- Regulation 321/2013 2nd WAG TSI
- Regulation 1299/2014 INF TSI with extended scope
- Regulation 1300/2014 2nd PRM TSI
- Regulation 1301/2014 ENE TSI with extended scope
- Regulation 1302/2014 LOC&PAS TSI with extended scope
- Regulation 1303/2014 2nd SRT TSI
- Regulation 1304/2014 3rd NOI TSI
- Regulation 1305/2014 2nd TAF TSI
- Regulation 1273/2013 2nd TAP TSI
- Commission Decision 757/2012 first merged OPE TSI and Regulation 995/2015 TSI OPE



#### 4.3.1.4 — ADAPTATION TO THE FOURTH RAILWAY PACKAGE (2015 – 2020)

With the publication of the Fourth Railway Package in 2016, it became necessary to adapt the TSIs, in particular those that apply to rolling stock. New concepts such as types and variants, basic design characteristics or route compatibility significantly impact vehicles as soon as during their design phase, whether they are new or modified. Moreover, the Agency worked on further harmonisation of operational rules.

The Agency therefore worked on the implementation of these concepts into the TSIs, leading to significant amendments:

- Regulation 2019/776 amending the TSIs INF, ENE, SRT, LOC&PAS, WAG and CCS to implement the consequences of the fourth Railway Package
- Regulation 2021/541 amending the TAF TSI as to ensure that first and last mile logistical actors (such as intermodal terminals) are included into the electronic rail freight message exchange
- Regulation 2019/773 second OPE TSI



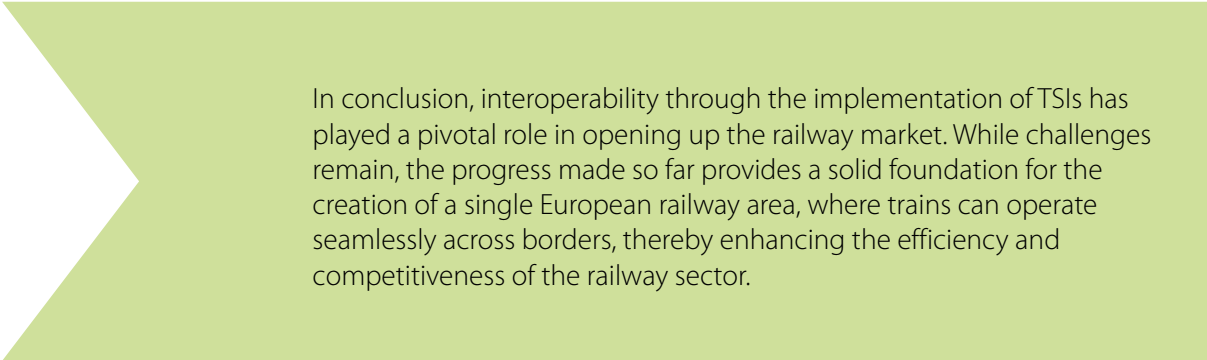
#### **4.3.1.5 — MAINTENANCE OF TSIS, SIMPLIFICATION AND NEW TOPICS** (2020 – ...)

The TSI package 2023 is the first for which there was no scope extension nor specific adaptation needed. For the Agency, it also marked a new way of working for revising TSIs. Considered as stable documents, the TSIs should only be modified where necessary to implement new topics (for example as a result of technological progress such as with the Digital Automatic Coupler for freight), correct mistakes or simplify the requirements of the way they are assessed. This was the case with the amendments from 2023, introducing the derailment detection for freight wagons, the codification of subsystems involved in combined transport, or a new transition regime aiming at providing more visibility and stability for the design and production of vehicles.

The implementation of TSIs has contributed significantly to the opening of the railway market. By harmonizing the technical rules, it has made it easier for new entrants to access new markets. They no longer have to adapt rolling stock to different national rules and this reduction of technical barriers allows to reduce costs of operating internationally. Moreover, TSIs enable competition in the railway market, leading to more choices and better services for passengers. It has also facilitated the development of a single European railway area, which is a key EU policy objective.

Despite these achievements, there are still challenges to be addressed. These include the slow pace of TSI implementation in some countries, the high cost of retrofitting existing trains and infrastructures, and the need for further harmonization of operational rules and procedures.

Looking ahead, it is important to continue updating and refining the TSIs to reflect technological advancements and changes in market needs. There is also a permanent need for greater cooperation and coordination among the stakeholders.



In conclusion, interoperability through the implementation of TSIs has played a pivotal role in opening up the railway market. While challenges remain, the progress made so far provides a solid foundation for the creation of a single European railway area, where trains can operate seamlessly across borders, thereby enhancing the efficiency and competitiveness of the railway sector.

## 4.3.2. THE REDUCTION OF NATIONAL RULES

For the management of the shared railway system that forms the Single European Railway Area, rules in the form of Technical Specification for Interoperability (TSIs) are essential for the safe and cost-effective management of the railway system. National rules (NRs) are also essential for management of shared national legacy systems (e.g. the CCS class B systems): the presence and enforcement of national rules preserves the benefits of national interoperability and prevents further national system diversity beyond the minimum needed during the transition to the target system. Other types of NRs refer to the safety of rail operations and fixed installations.

However, the absence or non-transparency of applicable national rules lead to unnecessary uncertainty, costs, and safety risks. In addition, a situation with too many, and contradictory or unjustified national rules led to unjustified barriers, delay, and increased costs for operating rail services across the EU.

**Removing technical barriers resulting from national rules has been a priority and, a step-by-step approach started under Directive 2008/57/CE:**



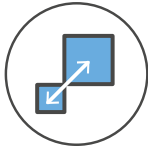
**Making the national rules for vehicle authorisation available and transparent:** A unique “List of parameters” for notification of national rules set up by decision 2009/965/EC and amended by decision 2015/2299.

- NOTIF IT: IT tool for notification of national rules
- Reference Document Database created: IT tool for notification and classification of national rules for vehicles authorisation



**Facilitating cross acceptance of national rules for vehicle authorisation:** The Agency with Member States classified national rules for vehicles authorisation with a view of:

- establishing equivalence between the national rules to facilitate cross acceptance of non-TSI compliant vehicles and reducing and replacing them by EU rules



**TSIs scope extension** (with effect on 1st January 2015):  
The TSIs scope extension to the whole EU railway network and beyond the TEN-T network allowed to have TSIs that:

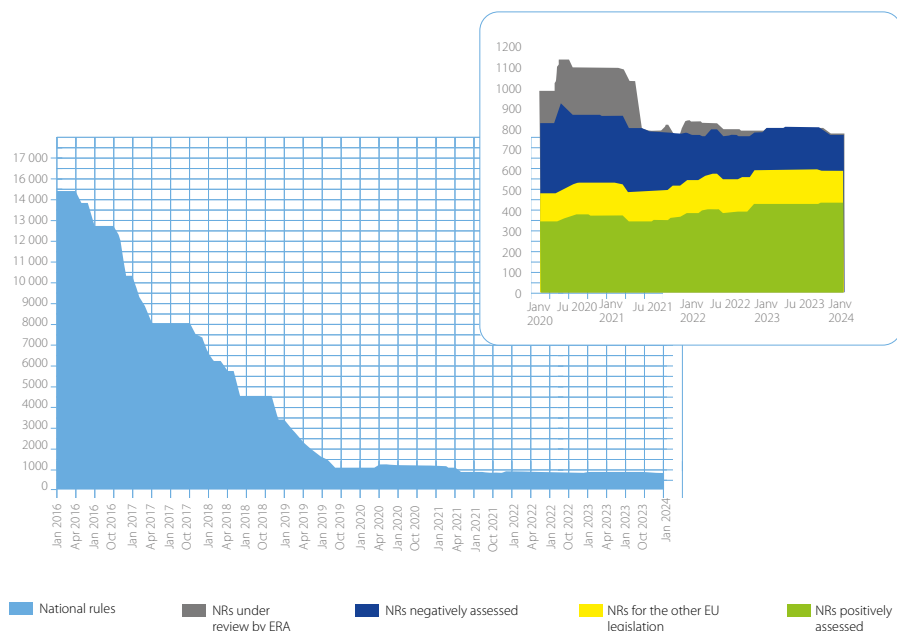
- define the technical harmonisation that must be met to ensure the interoperability of the railway system within the European Union
- cover essential requirements related to safety, reliability, availability, health, environmental protection, technical compatibility, and accessibility



**Definition of area where national rules can exist:** The articles 13 and 14 of Directive (EU) 2016/797 provided clear criteria's where national rules (existing, new) can be notified that should relates to:

- Open points in TSIs for aspects where technical specifications are not yet available
- Specific cases identified but not described in the TSIs
- Technical compatibility between vehicle and existing networks
- Cleaning up of national rules for vehicle authorisation: Since 2016, the Agency and Member States started the activity on identification and evaluation of national rules in addition to TSIs. The joint work performed led to a massive reduction of the number of national rules by 95% , from 14300 rules in 2016 to ca. 800 in January 2024

The following graph presents the evolution of reduction of national rules from 2016 to 2024:



Cleaning up of national rules for authorisation of fixed installation subsystems: In September 2019, ERA organised a “Workshop on notification of national rules for fixed installations” where the base for the activity of assessment and cleaning of rules for authorisation of fixed installation subsystems was established. In January 2022, the Single Rules Database became operational for national rules for authorisation of fixed installation subsystems.



### **At the end of 2023, the status for national rules for fixed installation subsystems is:**

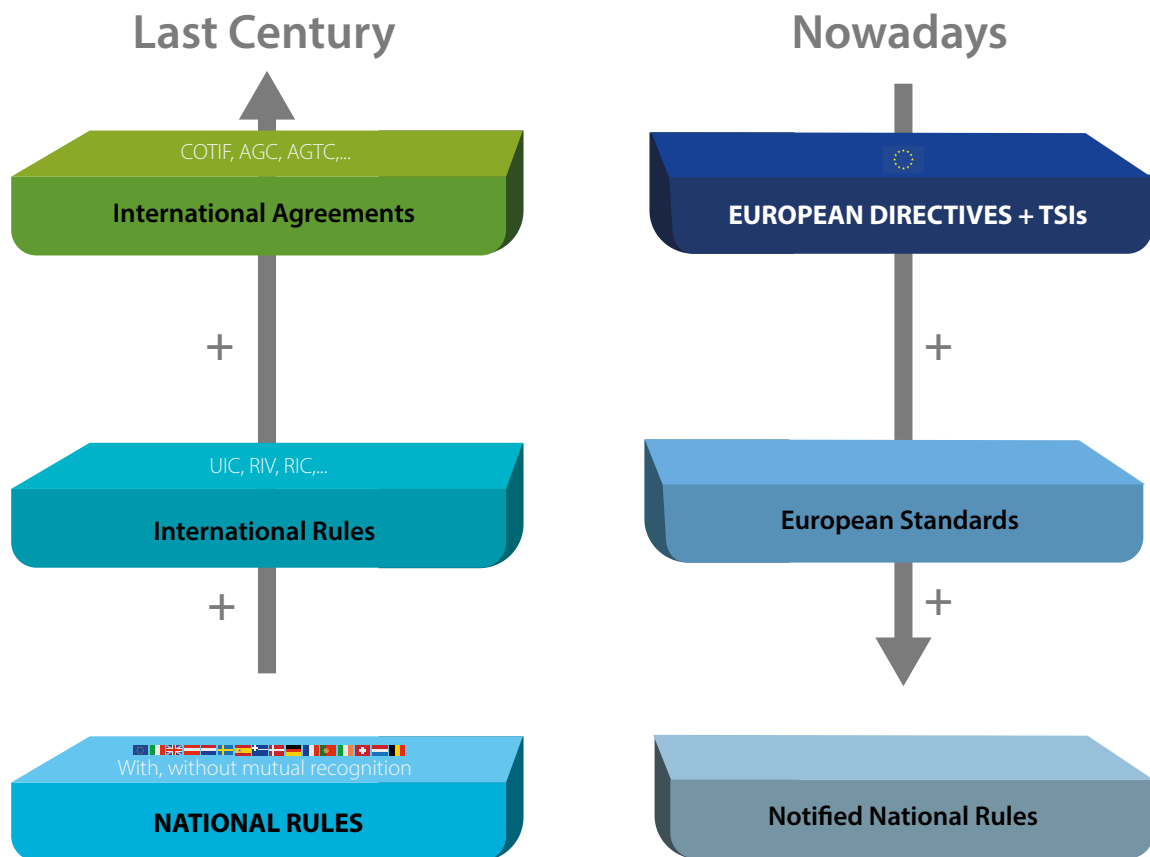
- 4 Member States completed assessment and notification in SRD: Croatia, Finland, Germany, Lithuania, Spain
- Other 5 MSs confirmed that there are no rules for FI subsystems: Austria, Bulgaria, Denmark, Luxembourg, Sweden
- For the rest of the MSs, the assessment of national rules is in various stages of progress

To be noted that, in the process of assessment and discussions with MSs, until now, there was no need to issue Technical Opinions for negatively assessed rules because the MSs agreed with the assessment of ERA and modified/repealed accordingly their national rules for authorisation of fixed installation subsystems.



### **Further clean-up of national rules:**

- TSIs revisions (i.e 2019, 2020, 2023) introduced further harmonisation in TSIs including closure of open points which should allow further reduction of national rules with removal of redundant rules
- Change requests in next TSIs revision to cover national rules positively assessed will result in further harmonisation (e.g closure of remaining open points) or Specific cases in TSIs and further reduction of national rules
- In a nutshell, the Agency work together with EU Member States allow to switch from national visions to European interoperability with important consequence on transparency of the national rules, removing unnecessary technical barriers, reduction of authorisation cost and delay



### NATIONAL RULES FOR SAFETY OF OPERATIONS:

In 2012, the position of national safety rules in the Notif-IT system was defined, which included the national rules falling under Article 8 of the Safety Directive, taking into account the European regulatory framework of the time. With the Fourth Railway Package, it was decided to establish a single register for all national rules, the SRD - Single Rule Database managed by the Agency. Between 2012 and 2016, the OPE TSI also evolved and the CSM on SMS requirements was published, resulting in the need for Member States to update their national regulatory framework.

Consequently, the transition process from Notif-IT to SRD was set up by the Agency in 2020. Member States were asked to take an updated picture of their national regulatory framework with specific reference to the rules applicable to the process of issuing SSCs to railway undertakings. ERA then set itself the objective of analysing these updated frameworks and providing the MS with an assessment report on compliance of the relevant national rules with the EU legal framework. The transition process to SRD is to-date still on-going and the Agency has the task of assessing positively or negatively the national rules by issuing Opinions to the European Commission. The same duty is entrusted to the Agency also for new draft national rules that with the 4RP need to be notified from MS to ERA, for assessment prior to adoption.

### 4.3.3. ERA'S KEY ROLE ON ERTMS

In the Regulation 881/2004 establishing the Agency, ERTMS as such was not yet mentioned, but since 2005 the Agency started to manage the evolution of the ERTMS specifications in cooperation with the Sector: the signature of the first ERTMS Memorandum of Understanding in 2005 and the nomination of the European Coordinator marked the importance of this European endeavour.

On 07.10.2005 the first ERTMS Control Group Meeting was held, gathering all stakeholders (UNIFE, ERTMS User Group, CER, EIM, ERFA) involved in the evolution, deployment or use of the ERTMS system. The principles of the Change Control Management were defined, clarifying who can introduce change requests, reasoning why a change request is introduced, defining the different steps incl. when and how to request an economic evaluation. Right from the beginning, the need to establish a disciplined version management was considered very important and was supported by the sector. In fact, the complete ERTMS Specifications are defined by thousands of requirements organised in more than 80 detailed technical documents.

Beginning of 2006 the version 2.2.2 based on the previous work by the Sector was released with the publication of the CCS TSI (2006/679/EU). The projects using this version (or previous non officially published versions) needed intensive testing (train – track integration) to check all possible interoperability issues.

The first ERTMS Conference organised by the Agency took place on the 7<sup>th</sup> June 2007 in Lille – since then the event grew to the very successful series of conferences that gather every two years the key players from the sector.

Intensive work to incorporate feedback of various projects and integrate error corrections resulted in the publication in 2008 the so-called baseline 2 (version 2.3.0d) via an update of CCS TSI (2008/386/EU). This version marked an important milestone in the evolution of the ERTMS system specifications, serving in the future as the reference to perform the backward compatibility analysis. In the same update of the CCS TSI a first version of test specifications was published, covering the needs to be able to do more product testing before starting integration testing with the trains on the tracks.



The key role of the Agency as ERTMS System Authority is to find the balance between stability of the specifications and introducing innovations (enhancements) while integrating the necessary error corrections.

As specifications were stabilising, more focus could be given to implementation of ERTMS in the EU with the aim of realising the SERA step by step. In CCS TSI 2012 (2012/88/EU) the European deployment Plan was part of legislation. On the 6 Rail Freight Corridors, dates for deployment of parts of these corridors (2015/2020) were identified. Also, for the rolling stock a mandatory fitment with ETCS on-board was introduced for new vehicles. The CCS TSI also imposed that the functionality and specifications of existing Class B systems should be frozen (except in exceptional cases of a safety flaw) in order to avoid investments in upgrading legacy systems and incentivise the migration towards ETCS.

Backward compatibility assessment is very important when the evolution of specifications is to be managed in a controlled way. The first full BCA report covering Baseline 2- Baseline 3 Maintenance Release 1 was published by the Agency on 22.05.2014, an important work instrument for the sector (suppliers, implementers) when realising the projects (on-board and trackside).

The Baseline 3 maintenance release 1 and baseline 3 release 2 specifications integrated new functionalities (enhancements like limited supervision, harmonised braking curves, GPRS and online key management) together with a list of substantial error corrections in the specifications. This version of the specifications was seen by the whole sector as a very mature version. In the recommendation for CCS TSI 2016 (2016/919), ERA proposed to phase out B2 for on-board projects as from 2018 for first authorisation of vehicles.

The article 28 of Regulation 2016/796 confirmed the Agency's role of ERTMS System Authority and defined in Article 22 the new role of checking that the technical solutions for the ERTMS trackside are fully compliant with the relevant TSIs. This led to an additional authority task whereby ERA is issuing approvals of trackside installations prior to entry into service of lines fitted with ETCS based on authorisations issued by NSAs. As of end 2023, 14 ERTMS trackside approvals had been issued by ERA (2 in 2021, 2 in 2022 and 10 in 2023), while 100 applications are on-going in line with the relevant planning and tendering schedule of IMs.

An important milestone was the signature of a Memorandum of Understanding in 2016 between the European Commission, ERA and the European rail sector associations concerning the cooperation for the deployment of the ERTMS. In this MoU it is recognised that achieving and maintaining compatibility, protecting investments made in CCS TSI compliant systems and products are key objectives. As ERTMS is a software-based product, errors will always be detected and will need to be corrected. To ease this process, contracts including future updates linked to this error correction should be made available. The introduction of the so called gamechangers should be done carefully taking backward compatibility into account.

Compatibility of ETCS on-board with ETCS trackside should be de facto proven by using CCS TSI certified products on CCS TSI certified lines, however in the past years this has shown not to be the case. A series of tests still need to be performed and national procedures used for the authorisation of the vehicles were not always transparently known. To make this process more transparent the concept of ESC/RSC tests was introduced in 2019. ERA played an important role to collect all the ESC/RSC tests from the infrastructure managers and publish the valid tests on its website. National procedures are no longer there, the full list of ESC/RSC tests are available.

The CCS TSI 2023/1695 introduces the necessary functionalities for a 'Digital and Green Rail' including ATO Baseline 1 Release 1 which provides the Automated Train Operation specifications for ETCS up to grade of automation 2 and which introduces the ETCS Baseline 4 Release 1 which provides the ETCS functionality for integration of ATO GoA2, and the future FRMCS and DAC integration. These two new technologies are enablers for further digitalisation by providing also train integrity and consistent train length information to the ETCS system without train drivers' input. These solutions will enable digital rail without lateral shunting signals and without train detection systems, while providing more capacity and safety performance.

The CCS TSI 2023/1695 also introduces a transition framework with a predictable realistic timeframe balancing the different IM and RU economic interests both for implementing innovations as well as for software maintenance procedures linked to error corrections.

## 4.4. ERA's authority task for vehicle authorisation

Prior to ERA's new role as authorising entity (AE) on vehicle authorization (VA), the process of authorizing railway vehicles was often fragmented and varied across different European countries.

### Key issues were:

- National authorities had their own procedures, **technical requirements, and safety standards**
- Lack of harmonization led to **long processes and increased costs for applicants**
- **Complex landscape** with multiple authorization pathways and divergent practices.



## 4.4.1. VALUE-ADDED OF ERA WORK IN SUPPORT OF MARKET OPENING AND CROSS-BORDER RAIL TRAFFIC

The 4th Railway Package has been a significant step toward creating the Single European Railway Area. Starting from June 2019, the European Union Agency for Railways gained the exclusive authority to issue vehicle authorizations that are valid for operations across all EU Member States. Moreover, applicants for domestic operations have also the option to apply to ERA for a vehicle authorisation. This process has consistently demonstrated its positive impact on cross-border rail traffic, due to key factors such as:

### HARMONIZATION AND SIMPLIFICATION

The simplified process for vehicle authorisation enhances transparency within the European rail system. When ERA is playing the role of authorising entity for multi-country vehicles, these authorizations are valid across all EU member states. This simplifies the process for railway companies operating in multiple countries, eliminating the need to obtain separate authorizations for each country, promoting cross-border traffic and market opening.

### THE ONE-STOP SHOP IT TOOL (OSS)

The introduction of OSS revolutionized the authorization process. Instead of multiple applications, applicants now submit a single application for vehicle authorizations in one single IT platform.

Today, to authorise a vehicle type and its variant(s), only one VA OSS application needs to be submitted, even when several Member States are included in the area of use of the authorisation. This streamlines the process, reducing administrative burden and costs for the rail industry.

## 4.4.2. BENEFITS OF ERA INVOLVEMENT IN VA AND OSS

### INTERFACE BETWEEN APPLICANT AND NSAs:

When ERA plays the role of authorising entity, this role covers different key aspects such as performing project management, facilitating the communication between different actors (applicant and NSAs), managing the time schedule, financial aspects (clear view on fees and charges applicable, possibility to request an estimate to the VA application) and registers update (e.g. ERATV, ERADIS).

ERA spends many resources and time to organise periodical (weekly or monthly) meetings with applicants (mainly those that represent the 70-80 % of number of VA applications) and with a large number of NSAs, to discuss about on-going projects, future projects, issues and blocking points, forecast of future projects, business aspects, etc. This shadow work has shown being relevant to improve the alignment of the work with NSAs, the quality of VA applications, and supporting applicants to properly implement 4RP VA aspects.

### TECHNICAL LEADERSHIP

A new aspect that the 4RP has also introduced being of huge beneficial impact on VA applications is the fact that the Agency is involved in key discussions between applicant and NSA (s) of the area of use, providing technical and legal expertise to both actors.

Experience shows that applicants are switching to ERA as authorising entity, even for projects where the vehicle type only covers 1 Member State, due to added value ERA brings to the process.

ERA staff is organised based on tasks and projects, meaning that some technical staff are involved both in TSIs drafting and standardisation activities, but also on VA applications when assigned according to the technical expertise required.

This aspect opens the possibility to assign ERA staff on VA applications, that can bring sound technical and legal background to the assessment work, and at the same time, triggers the identification of gaps coming from real applications. This is valuable feedback on what needs to be tackled in TSIs revisions, guidelines, and other documents<sup>20</sup>.

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<sup>20</sup> ERA has put in place a set of Clarification Notes (CN). CNs are a tool to provide to applicant(s) clear information on what ERA is expecting as authority for aspects which seem not to be clear or well understood. CNs provide clarity, transparency and reactivity to the correct application of the legal framework as they target issues detected on real applications, nevertheless they are not legally binding.

The return of experience as an input for new TSIs amendments is an aspect particularly relevant for VA applications where ETCS is involved. In fact, as ERA is the system authority for ERTMS, the Agency can bring added value from its technical expertise. In fact, NSAs have usually less technical expertise and are not directly involved in the ETCS technical specifications drafting.

### NSAs Audits, NoBos Audits

ERA also ensures that obligations and responsibilities are met by other entities involved in vehicle design, manufacturing, verification, and validation.

### TRAINING ACTIVITIES

ERA is providing training on VA activities, to periodically improve and harmonise the way of working with NSAs and the applicant's knowledge in preparing VA applications and use of OSS (Applicants training on VA, NSAs training, OSS training for NSAs/ applicants).

The return of experience as an input for new TSIs amendments is an aspect particularly relevant for VA applications where ETCS is involved. In fact, as ERA is the system authority for ERTMS, the Agency can bring added value from its technical expertise. In fact, NSAs have usually less technical expertise and are not directly involved in the ETCS technical specifications drafting.



### 4.4.3. LATEST STATISTICS ON VEHICLE AUTHORISATIONS

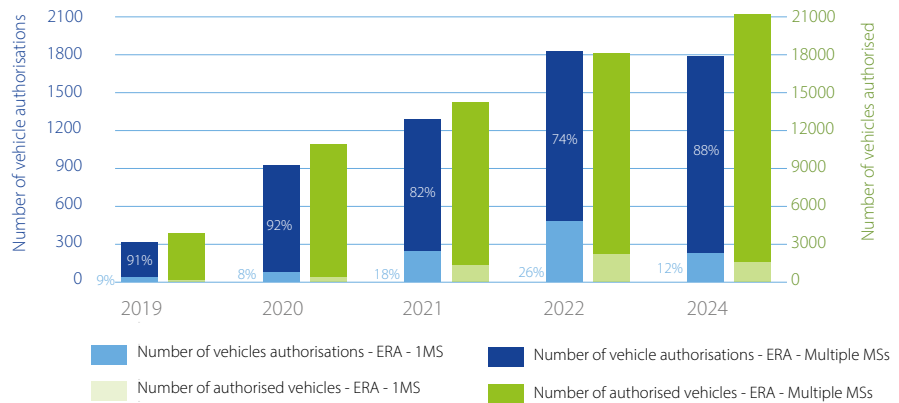
ERA has issued 349 complex VA applications -First authorisation, First authorisation + conformity to type authorisation, New authorisation, New + extended area of use authorisation, Extended area of use authorisation, Renewal authorisation- (we exclude here CTT and PEB applications) from June 2019 to December 2023.

Regarding applications on conformity to type, ERA has issued in this period about 5800 authorisations.

The graphs below show all vehicle authorisations, and authorisation of vehicles, when ERA has played the role of authorising entity, categorised by 1MS/Multiple MSs and category of vehicle (wagon, locomotive, trainset, coaches, OTM/special vehicle)

#### Number of vehicle authorisations and vehicles authorised by ERA per area of use

Area of use in 1 MS or multiple countries, 2019-2023

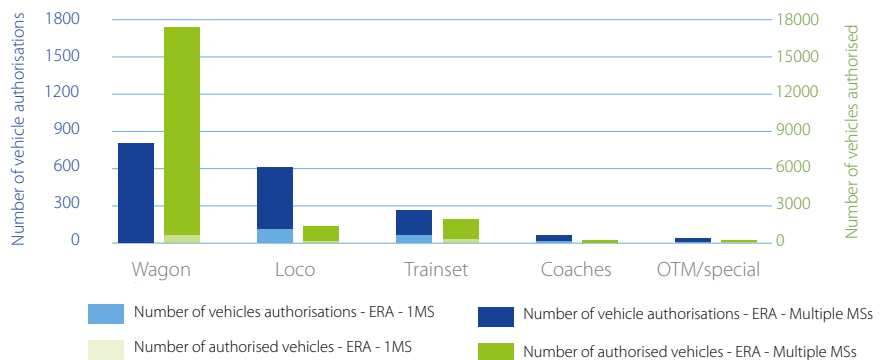


NOTE : Data for 2019 since July. In 2019 and 2020 there was not full transposition in all MSs

Source: One-Stop Shop (OSS)

#### ERA per area of use and category of vehicle

Area of use in 1 MS or multiple countries, 2023



NOTE : Each trainset is counted as single unit/vehicle

Source: One-Stop Shop (OSS)

## 4.5. ERA's role on registers and rail data

According to Art. 37 of the current Agency Regulation, the Agency shall act as the system authority for all registers and databases referred to in Directive (EU) 2016/797, Directive (EU) 2016/798 and Directive 2007/59/EC. Its actions in that capacity shall include, in particular:

- (a) developing and maintaining specifications of the registers;
- (b) coordinating developments in the Member States in relation to the registers;
- (c) providing guidance on the registers to relevant stakeholders
- (d) addressing recommendations to the Commission regarding improvements to the specifications of existing registers, where necessary including simplification and deletion of redundant information, and any need to set up new ones, subject to a cost-benefit analysis

In this context, during the past 20 years, the Agency has collaborated with experts from the European Representative Bodies of the Railway sector (RBs), the Intergovernmental Organisation for International Carriage by Rail (OTIF), the National Safety Authorities (NSAs), the National Registration Entities (REs) and numerous stakeholders to define the business specifications and to develop IT tools, registers, and databases.

With the technical pillar of the Fourth Railway Package, the registers have an operational role as well as serving a regulatory and administrative purpose. This is because the Agency's role has changed; it is not only in charge of providing accessible means for exchanging and publishing information about railway interoperability and safety processes and other relevant railway documents, but its core activities now also include delivering certificates, authorisations, and approvals. The Agency has also developed new operational use cases such as the Route Compatibility Check application and service for RUs based on the ERA Knowledge Graphs.

The registers enable the smooth delivery of vehicle authorisations as well as single safety certificates and contribute to the creation of the Single European Railway Area (SERA).

Currently, the Agency manages the following registers and tools which have been created under different circumstances and requirements over several years.



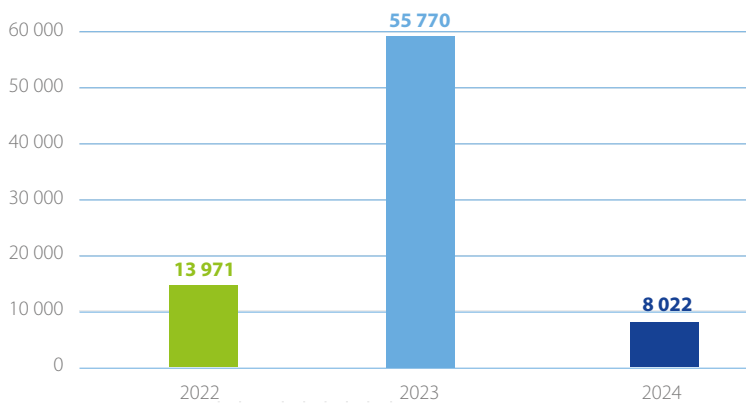
## ECVVR

It is the Register that allows the search and view of details on vehicle registration data for vehicles registered in national vehicle registers of Member States (and by some OTIF Contracting State). This register is a predecessor of EVR (European Vehicle Register) and it will be decommissioned once all Member States are migrated to EVR.

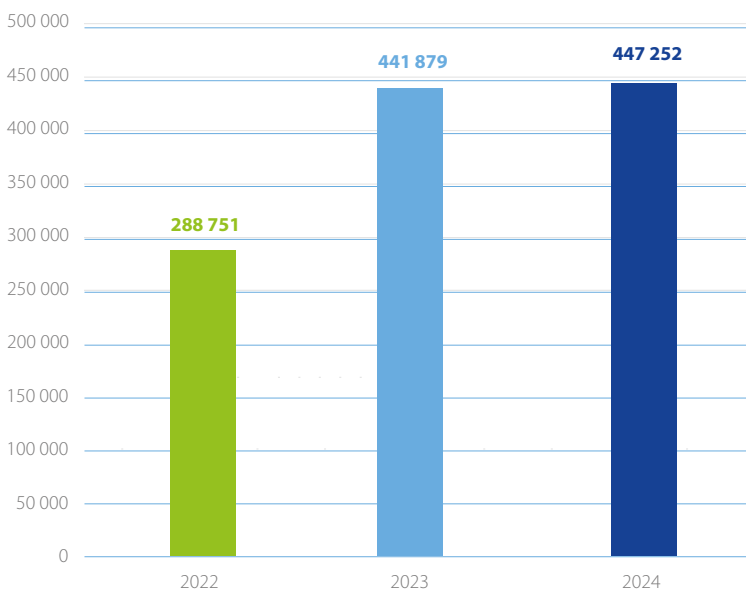
## EVR

The European Vehicle Register is a central register that enable Keepers to apply for the registration of vehicles and the Registration Entities the approval of these applications before these vehicles can be operated in the European Railway Network. The Register has been operational and in use since 2021.

### Number of vehicles registered or updated in EVR



### Total number of vehicles in EVR



## RINF

The European Register of Infrastructure (RINF) was launched in 2014 as part of the EU's broader efforts to create a Single European Railway Area. It provides up-to-date information that supports cross-border railway operations, planning and development projects. RINF data includes various aspects of the railway infrastructure such as track parameters, signalling systems, speeds, load capacities, station facilities and interoperability characteristics. This information is essential for planning European cross-border railway services as well as for ensuring compatibility of rolling stock across different European countries' railway networks. By harmonizing and sharing infrastructure data, RINF helps to reduce barriers to cross border railway operations and contributes to the development of a more integrated and efficient European railway system. Nowadays, the register describes more than 270K track segments, 50K stations and more than 50K geo referenced objects from 27 countries.

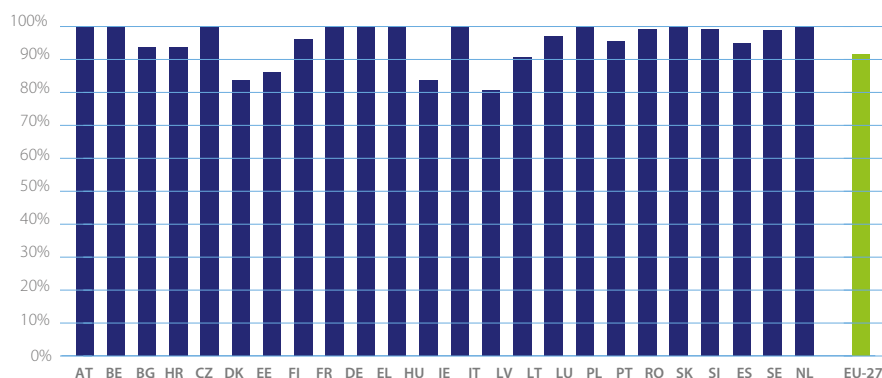
In 2023, the revised common specifications for the register of railway infrastructure (RINF) establish the RINF as the common source of rail infrastructure data based on Knowledge Graphs. It is based on the ERA ontology which defines machine-readable and structured data elements of the rail system.

### Visualization of the EU rail network in RINF



### RNIF network description completeness (EU-27, beginning of January 2024)

Estimated share of railway line described in RINF



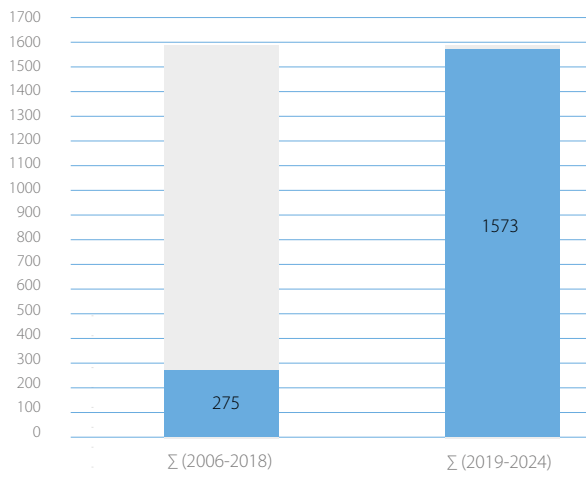
NOTE : Physical description of the track of the lines and not attributes counts

Source: RINF and Eurostat, retrieved on 10 January 2024 ERADIS

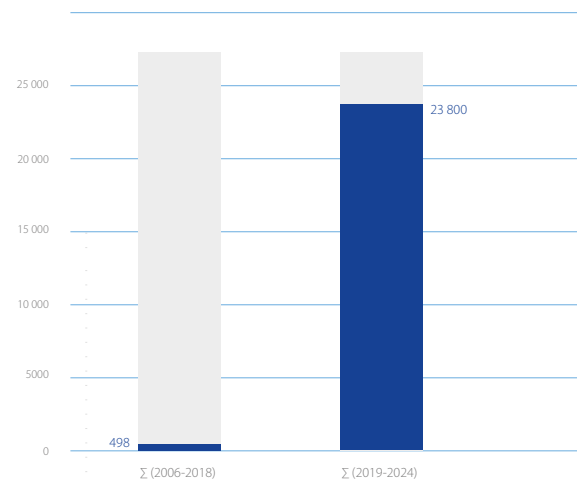
## ERADIS

ERADIS is the first public database of the Agency as it dates back to 2006. Since the launching of the One Stop Shop (OSS), ERADIS makes publicly available the Single Safety Certificates (SSCs). It also contains a wide range of safety and interoperability documents and information which is accessible and transparent to all interested parties and stakeholders in the railway domain. ERADIS is critical for the SSC and the Vehicle Authorisation (VA) processes, and it supports safety-related decision making by the Agency and the NSAs. It contains important documents including the safety certificates & licences of railway undertakings, the Entities in Charge of Maintenance (ECM) certificates, the EC Declarations, the Notified Bodies (NoBo) EC Certificates and annual reports.

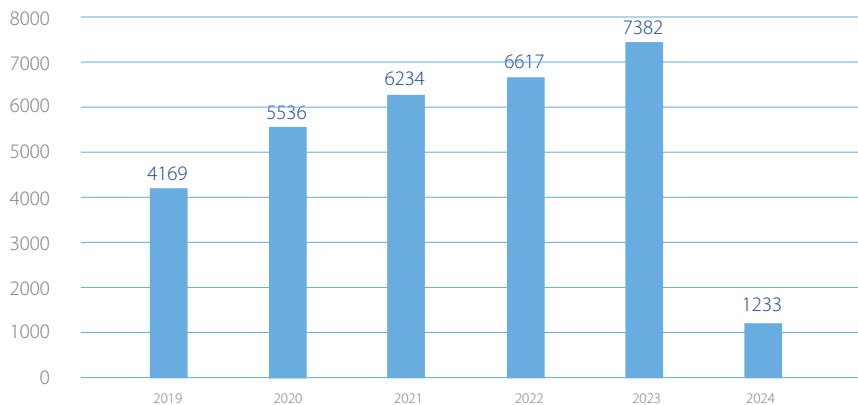
**Totale number of active ERADIS user accounts**



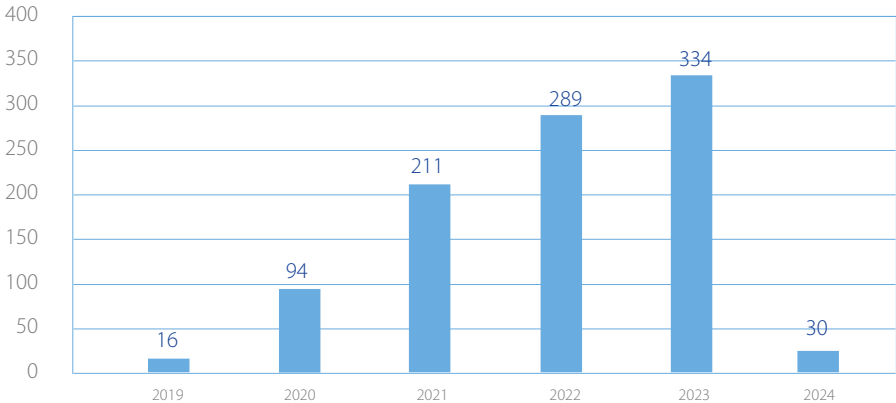
**Number of published EC Declarations**



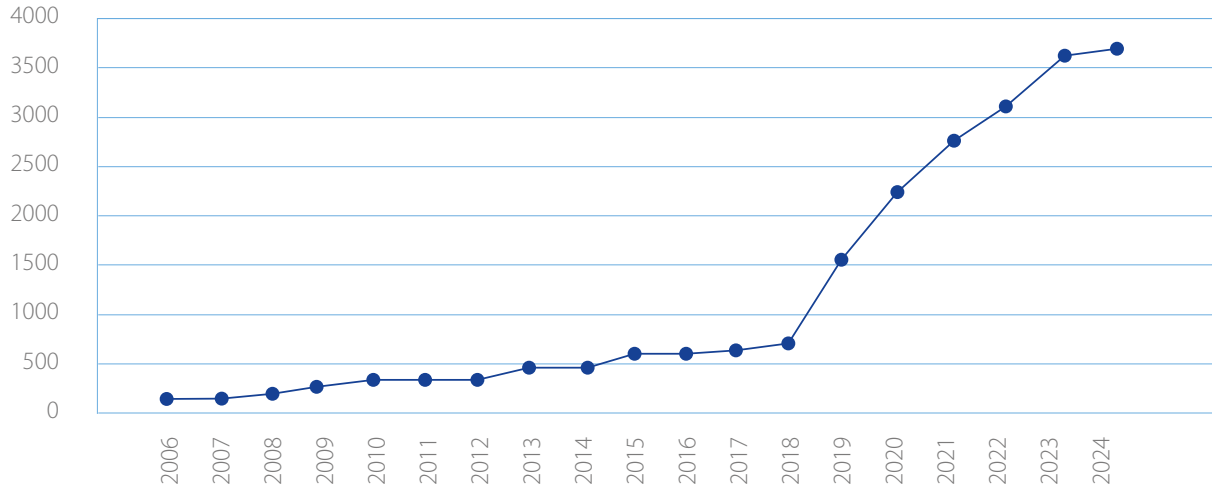
**N° of published EC certificates**



**SSC evolution**



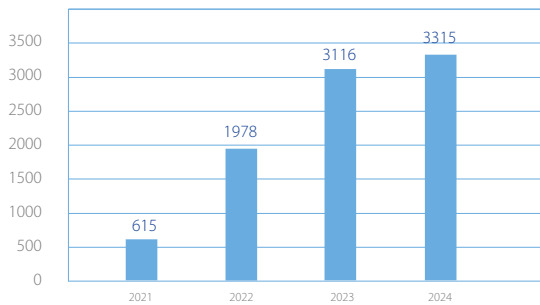
**Number of Applicant's organisations**



**ERATV**

ERATV is the register of authorized vehicle types, containing their technical characteristics. ERATV is public and electronically accessible without credentials for the consultation of validated data. ERATV is critical for the Vehicle Authorisation process.

### Total number of Organisation Codes



### OCR

The Organisation Code Register was created to facilitate the allocation of organisation codes by the Agency to all interested parties, operating in the European Railway system.

### RDD

The European Union Agency for Railways makes available the Reference Document Database (RDD) in order to facilitate the access to the rules applied in conjunction with the authorisation of railway vehicles in the Member States of the European Union plus Norway and Switzerland.

RDD is publicly accessible.

### SRD

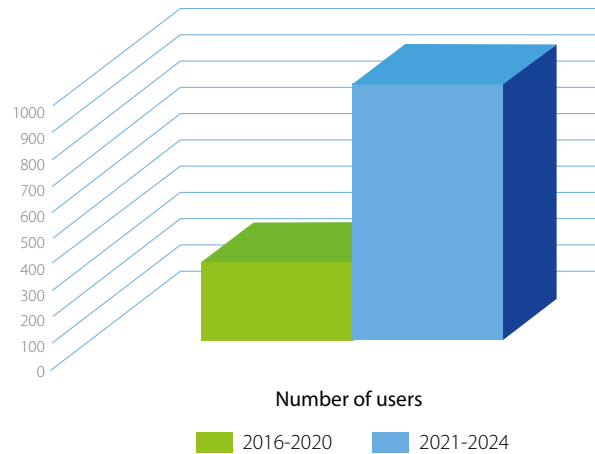
The Single Rules Database (SRD) is the database where national safety authorities and other authorities notify railway-related safety and fixed installation national rules. SRD is also the database, where the Agency and the Commission/EFTA record the assessment as well the validation of the notified rules.

The database has been operational since 2020 and it is publicly accessible.

## SAIT

SAIT is a tool which facilitates the exchange of information among the relevant railway actors on safety risks relating to defects and construction non-conformities or malfunctions of technical equipment, including those of structural subsystems. The reporting in SAIT is mandatory for the Entities in Charge of Maintenance (ECMs). Currently, more than 900 users coming from different areas of the railway sector are registered in the tool and they can timely share information on safety risks. Therefore, the tool promotes the timely sharing of safety alerts, the interaction among the users and the transparency in the safety reporting.

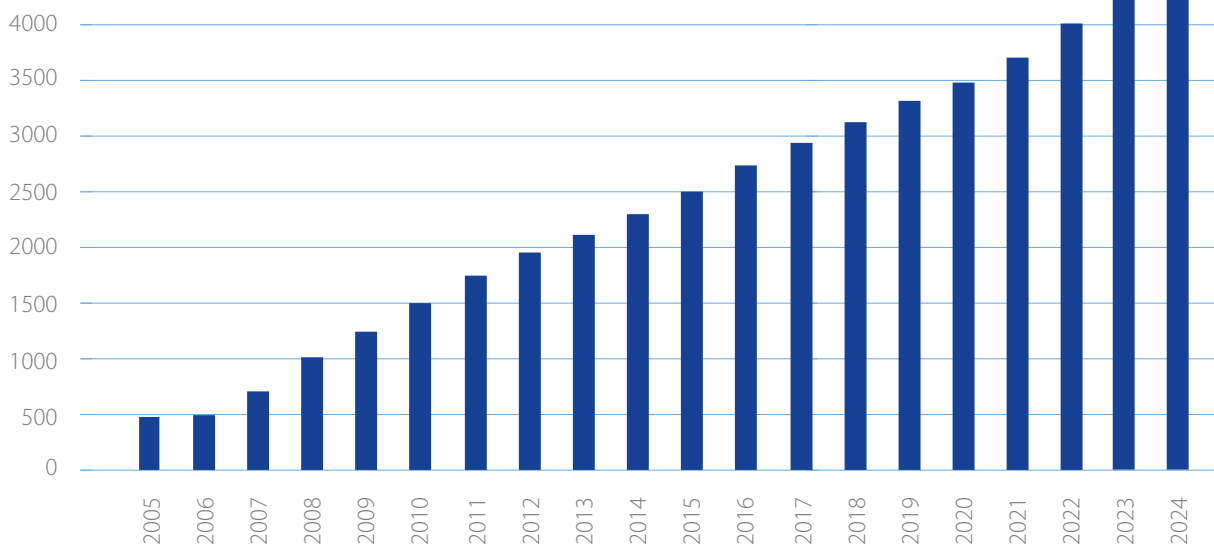
Safety Alerts IT tool (SAIT) users VKM



## VKM

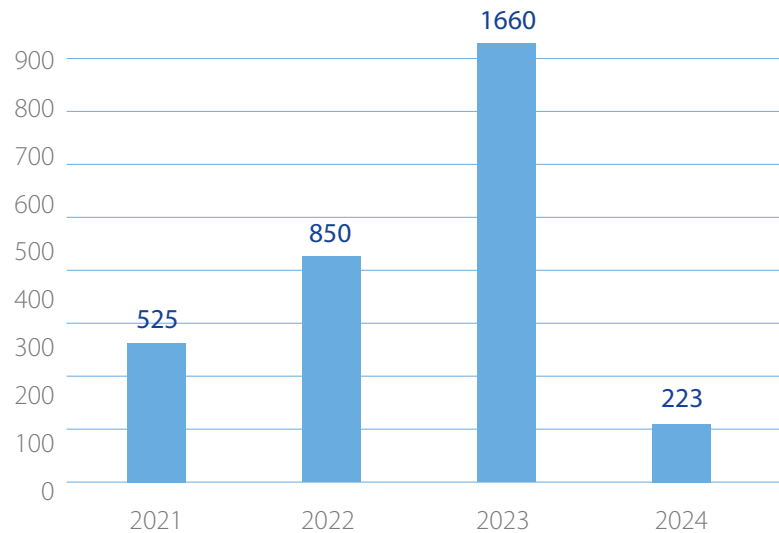
The Vehicle Keeper Marking Register (VKM Register) provides the unique VKM and name of all keepers (EU/OTIF). It is updated on a monthly basis.

Number of valid VKMs

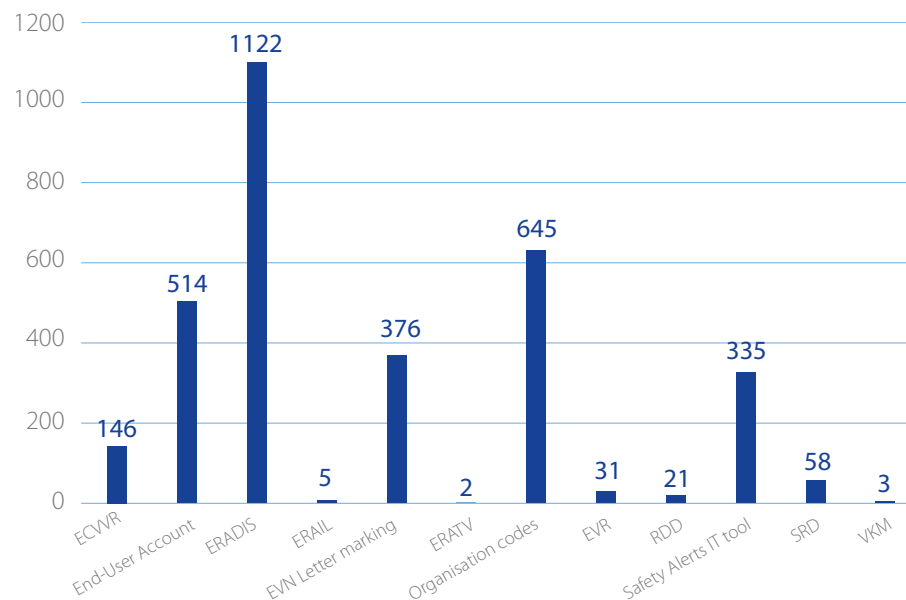


In parallel to the development and maintenance of the registers and tools mentioned above, the Registers team of the Agency has provided user support to all stakeholders in a consistent and efficient manner. Via various communication channels the users have been provided with technical support, clarifications on the specific railway regulatory framework and technical advice for improving their processes. The evolution in the number of users and organisations using the registers and tools in their daily business is remarkable throughout the years.

**Number of closed Service Desk Requests**



**Number of closed Service Desk Requests/ Register**



In order to raise awareness, the Agency has offered many training courses and workshops to the stakeholders including the NSAs and the users' groups. Targeted presentations have been delivered in the NSA/NRB Networks, RISC and OTIF. The Registers team has coordinated many working parties' meetings resulting in the delivery of important technical recommendations (e.g. ERATV, EVR).

## 4.5.1. DATA INTEROPERABILITY AND THE DATA CENTRIC CULTURE IN ERA

Since 2019, RINF, along its associated semantic artifacts (ERA ontology, data transformation pipeline, data governance and data culture shift) have evolved to becoming a foundational component of the European Mobility Data Spaces initiative. This evolution has been the foundational element to trigger and advance the data centric strategy internally in the Agency and with a higher impact in the rail sector.



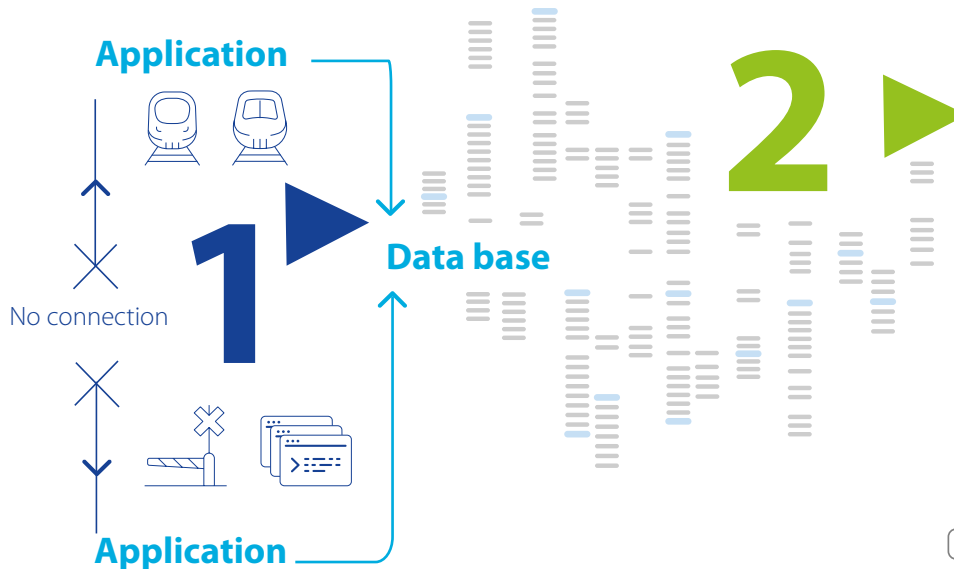
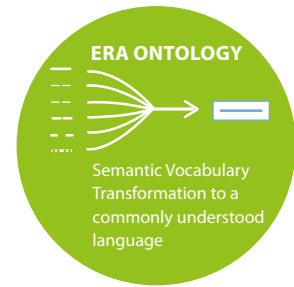
Gradually, the ERA Knowledge graph becomes a unique data store currently hosting the RINF data, OCR data and technical characteristics of the ERATV vehicle types and to be gradually expanded to cover the rest of the ERA operational data.

This high impact in the rail sector comes from the Agency's role as system authority in the regulatory data exchange, neutral agent and as a data intermediary in the EU data transport policy. This data centric strategy becomes the necessary reference to enable rail data interoperability in the Single European Railway Area. More than 1000 use cases in the rail and transport domain request today railway infrastructure data to support their activity. Nowadays, the ERA ontology is part of the Publication Office European Vocabularies and numerous dissemination activities and collaborations with relevant EU transport related actors with regards the Agency interoperable data activity and aligned with the EU data policy have taken place.



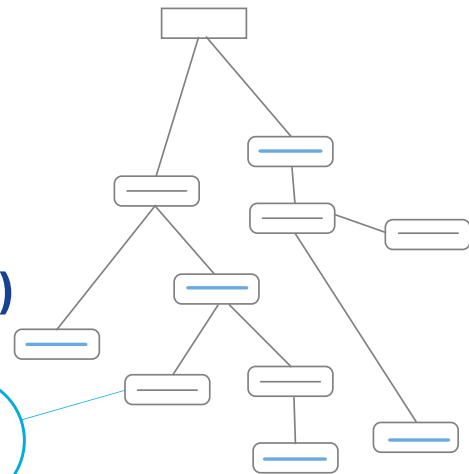
# European Register of Authorised types of vehicles (ERATV)

The types of railway vehicles authorised by ERA or the Member States



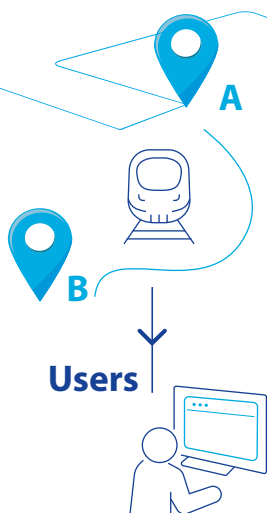
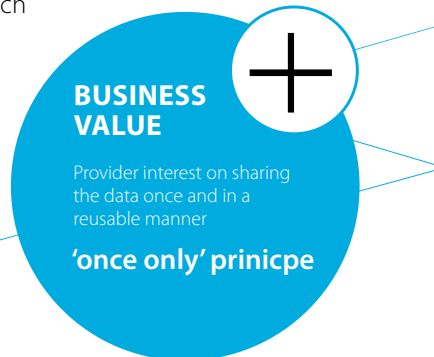
## ERA knowledge graph

First step to extract operational value from ERA base registers



# Register of Infrastructure (RINF)

Register of infrastructure stating the value of the network parameters of each subsystem or part subsy



Find and analyse the information for the network topology and the vehicles to automatically display all the potential routes where a type of vehicle is technically compatible and able to run



## Route compatibility check

The tool provides support for planning activity within the operational railway cycle via a web app, a simple user interface displaying the data of a knowledge graph

## 4.6. The benefits of ERA for R&I and for EU external relations

### 4.6.1. R&I IN ERA

<b>ERA is involved in research for the following reasons:</b>	<ul style="list-style-type: none"><li>• to influence research so that it supports the policies and framework of a Single European Railway Area</li><li>• to provide the European Commission and the Shift2Rail JU/Europe's Rail JU with independent specialist railway knowledge</li></ul>
<b>Since 2009 ERA contributed to:</b>	<ul style="list-style-type: none"><li>• the elaboration of the legal framework establishing Shift2Rail JU and ERA's role in R&amp;I</li><li>• the evaluation of Shift2Rail and Europe's Rail calls by giving technical advice</li><li>• the monitoring of more than 160 EU R&amp;I projects of interest for its activities</li><li>• the activities of Shift2Rail / Europe's Rail bodies and groups</li></ul>
<b>ERA delivered to the European Commission its input to both Shift2Rail and Europe's Rail JU Master Plans as well as their Annual Work Programmes considering research needs relating to:</b>	<ul style="list-style-type: none"><li>• horizontal topics such as human and organisational factors and impact assessment;</li><li>• operations and safety topics</li><li>• rolling stock, energy, infrastructure and telematics topics</li></ul>

The continuous collaboration with Shift2Rail since its creation and the resulting good relationship enabled the swift establishment of interfaces at expert level between the ERA Working Groups and the corresponding JU's project teams (e.g. Digital Automatic Coupler, Virtual testing).

Since 2021 ERA is actively involved in the activities of Europe's Rail JU's System Pillar. The outputs of those activities are expected to help define the EU target railway system in the TSIs.

ERA, in its remit as technical regulator and system authority (ERTMS and Telematics), assisted the European Commission and the JUs in steering R&I in railways towards a consistent and evolutionary approach in view of keeping and attracting rail system users.

**In particular, aiming that:**

- The R&I respects and fosters EU regulation and processes to ensure harmonisation and fight fragmentation,
- EU regulatory processes are open to incorporate the outcomes of R&I projects, which prove efficient and effective in supporting response to customers' needs.

**The role of the Agency includes:**

- monitoring, influencing and prioritising
- providing a positive regulatory environment to accommodate innovative solutions (e.g. TSIs, Digital Automatic Coupler, FRMCS), without creating new fragmentation
- closing "open points" in the European Legal Framework and standardising, where needed
- collaborating with other agencies and research organisations from within or outside the EU

## 4.6.2. ERA'S EXTERNAL RELATIONS

The Agency has been active on the international stage by facilitating the process of enlargement of the European Union and by following the specific forums relating to rail links with third countries. This is one of the objectives in the Agency's Regulation since its establishment. For example, the Agency has been active within international organisations such as UNECE, OSJD, OTIF as well as with the candidate countries to the EU and other international partners worldwide, considering EU policies and technical support requests by the Commission.

As stated in Article 44 of Regulation 2016/796, the Agency may strengthen coordination with international organisations on the basis of concluded agreements and develop contacts and enter into administrative arrangements with supervisory authorities, international organisations and the administrations of third countries competent in matters covered by Agency activities in order to keep up with scientific and technical developments and to ensure promotion of the Union railways legislation and standards. The Agency is open also to participation by third countries, in particular by those within the scope of the European Neighbourhood Policy, the Enlargement policy as well as the EFTA countries which have concluded agreements with the Union.



In concrete terms, the Agency has implemented several Grants set out by the European Commission in order to support the Western Balkans and Türkiye in their process of adaptation to the EU legal framework. Other cooperation activities included Eumedrail programme. The Commission funding has been spent for technical assistance, workshops, seminars, conferences, traineeships at ERA headquarters in the areas of rail safety and interoperability. Presently, a new Grant is being implemented (2024 - 2026) in order to continue the cooperation with authorities, railway undertakings and infrastructure managers of the region. The Agency's staff is very proud to follow a historic process of neighbouring countries and territories of the Western Balkans starting to talk to each other again, after military conflicts causing the dissolution of Yugoslavia until 2001. In 2017 the Transport Community has been founded, which consists of the European Union Member States represented by the European Commission and the six Western Balkans countries. ERA supports the Transport Community and its Permanent Secretariat with rail-expertise since its beginning. In 2020, the European Commission announced a 9 billion EUR investment plan for the Western Balkans to help develop transport and energy infrastructure and spur economic growth and employment. ERA is advising on technical matters related to railway infrastructure projects. In 2021 the railway infrastructure managers of the West Balkans signed a Memorandum of Understanding to create a forum which enables a truly regional planning and coordination of cross-border railway projects. ERA is regularly participating in this important network and supports it actively. ERA strives for all six States and territories of the region to soon being fully integrated into the Single European Railway Area. There is no alternative to this process of re-establishing cross-border rail links, in order to transport people and goods safely and environmentally friendly through the region and beyond.

Türkiye is another important player of the region, at cross-roads between Europe, Central Asia and the Arab world. With the help of the IPA grants the Agency has established a high level of trust and cooperation with Türkiye. ERA is supporting the Turkish authorities with advice, trainings, technical assistance and traineeships in order to apply the TSIs and successfully integrate into the Single European Railway Area.

In recent time, following the European Commission's "Solidarity Lanes" Communication, which identified several major transport infrastructure challenges that the EU and its neighbouring countries needed to resolve to support Ukraine's economy and recovery, the amended TEN-T Regulation will extend four corridors to Ukraine and the Republic of Moldova to accelerate integration into the Single European Railway Area and broader development of the European standard railway gauge. The Agency will continue to support the Commission on issues relating to the connectivity with the Ukraine and the bilateral relations with the country authorities.

## 4.7. Benefits for the EU society at large

### 4.7.1. BENEFITS FOR PERSONS WITH DISABILITIES AND WITH REDUCED MOBILITY

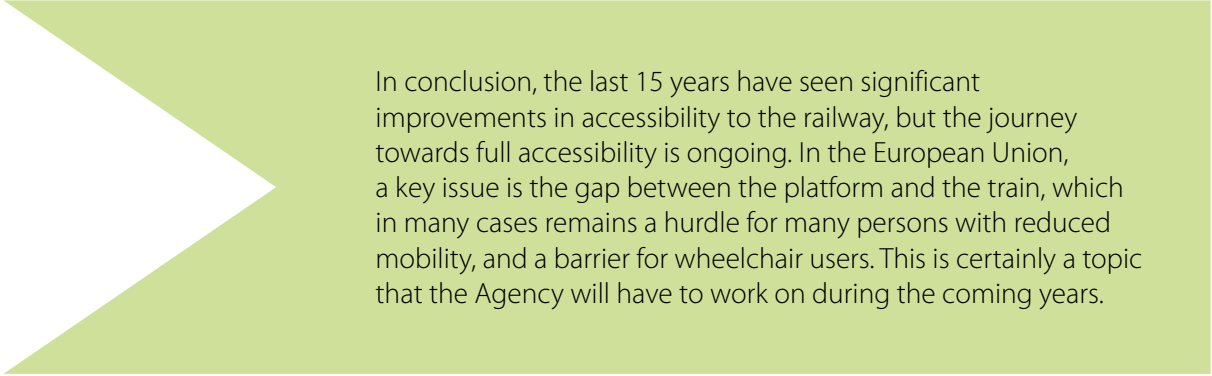
The Technical Specification for Interoperability (TSI) relating to accessibility for persons with reduced mobility (PRM) is the first sectoral document on accessibility applicable on an EU-wide basis. Its first version entered into force in 2008, shortly after the signature by the European Union of the United Nations Convention on The Rights of Persons with Disabilities, a major milestone in the recognition of the rights for persons with all types of disabilities to enjoy all human rights and fundamental freedoms, such as the freedom to travel. With the publication of the PRM TSI, the railway sector was pioneering in the domain of improved accessibility. Indeed, the European Accessibility Act (EAA), aiming to enhance the way products and services are rendered across the EU by synchronizing accessibility rules for all member states, was adopted more than 10 years later, in 2019.

The PRM TSI sets standards for new stations or for stations where major work takes place, as well as for new and upgraded rolling stock. It mandates features that make it easier to use trains such as tactile guiding, step-free routes, priority seats, spaces and amenities for wheelchair users, handholds, passenger information, etc. The TSI ensures that the same or comparable accessibility standards are applied across all member states of the European Union, ensuring a consistent level of accessibility.

The PRM TSI also requires all Member States to set up a national implementation plan, describing how the TSI will be implemented in the existing rolling stock and stations in their country. These national plans were notified to the European Commission and need to be regularly updated.

Finally, the PRM TSI requires that the characteristics of accessibility for all EU railway stations are collected and shared between stakeholders, enabling everyone to decide for her/himself if a station is accessible or not. The Agency is currently working on the application, including the format for exchange of data, that will permit to provide this information to the public.

The progressive implementation of the PRM TSI is mostly visible at rolling stock level. Thanks to the PRM TSI being in force since 2008, all rolling stock delivered since then is provided with the accessibility features described above. Benefits take longer to be visible in stations: new stations are rare, and improvement in existing ones can't always be fully compliant due to the many technical constraints such as the absence of tunnel or footbridge. However, the benefits collectively enhance the travel experience for persons with reduced mobility, making rail transport more accessible and user-friendly for all.



In conclusion, the last 15 years have seen significant improvements in accessibility to the railway, but the journey towards full accessibility is ongoing. In the European Union, a key issue is the gap between the platform and the train, which in many cases remains a hurdle for many persons with reduced mobility, and a barrier for wheelchair users. This is certainly a topic that the Agency will have to work on during the coming years.

## 4.7.2. REDUCING RAIL NOISE

According to the UN environmental noise guidelines for the European region, 'noise is one of the most important environmental risks to health and continues to be a growing concern among policy-makers and the public alike. Exposure to noise can lead to auditory and nonauditory effects on health. Through direct injury to the auditory system, noise leads to auditory effects such as hearing loss and tinnitus. Noise is also a nonspecific stressor that has been shown to have an adverse effect on human health, especially following long-term exposure.

The EU has addressed this with the Directive 2002/49/EC, which mandates the publication of noise maps from transport (road, rail and air) and enables each member state to set out noise limit values for the noise perceived by people (exposure noise).

In accordance with the principle of limiting the pollution at source, the TSI Noise aims to limit the noise emitted from the rolling stock by setting out limit values for several types of noise emitted. The main source of railway noise is the rolling noise emitted by freight wagons when braking.

Since the first TSI Noise of 2006, several revisions of the TSI Noise have gradually reduced these limit values. However, as TSIs apply generally to new rolling stock and the renewal rate of the freight wagons is very low, the benefits of this legislation were materialising too slowly for the improvement of the EU population's lives. This issue was addressed in the 'quieter routes' amendment to the TSI Noise 2019. This amendment mandated that from 8 October 2024, only freight wagons which respect the TSI Noise can circulate in the parts of the network with high freight traffic circulation during night.

This new legislation forced the sector to a massive retrofitting effort of wagons. The preferred way to retrofit the freight wagons is to replace their cast iron brake blocks with composite brake blocks.

The targeted wagons for retrofitting by 2017 were 349642 (56% of the total EU fleet). The EU also provided some financial support to the sector covering between 5% and 10% of the retrofitting costs through CEF (Connecting Europe Facility).

The number of freight wagons retrofitted using CEF is 212475, which is 60,8% of the targeted fleet. This also means that the number of Noise TSI compliant freight wagons is 370858, over a total of 629213 wagons, 59% of the fleet. This percentage is likely higher as new freight wagons have entered into service since 2017, replacing non-TSI compliant freight wagons. The retrofitting process has triggered a cleaning up of the wagon fleet, so many freight wagons not used have been decommissioned and many freight wagons have been retrofitted without using CEF.

### **4.7.3. ERA'S GREEN AGENDA**

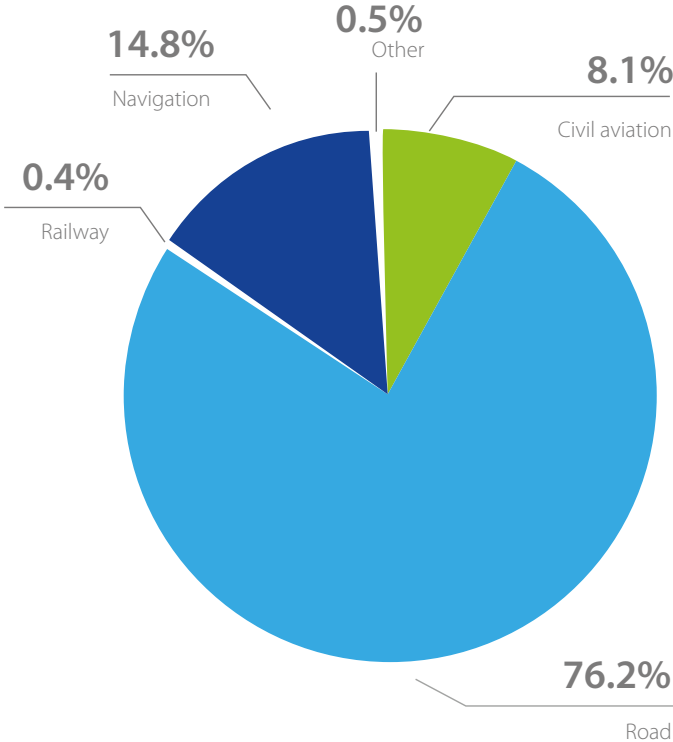
The impact of transport on environment and society is very high as it represents approximately 25% of total EU GHG emissions and this share is increasing since it was 19,7% in 2011. The freight sector represents 30% of total transport sector emissions, while passenger traffic - mainly private cars - accounts for the remaining 70%. GHG and air pollutants emissions from the transport and other sectors have serious consequences on the health of Europeans. Indeed, more than 300.000 Europeans suffered a premature death in 2020 due to bad air quality . Transport's environmental impact is far from being limited to air pollution. Transport is also an important source of noise and the important use of land for its infrastructure has long-term effect on biodiversity. Finally, externalities such as congestion and accidents are additional negative consequences of the European transport system.

One of the greatest challenges ahead of European policies is to reconcile different priorities: economic development, environmental issues, liberalisation of the transport sector, a fair mobility offer to all EU citizens and an efficient network for the transport of goods and passengers. The links between environmental and transport policies have never been as strong as they are today. To achieve climate neutrality and a 90% reduction in transport emissions by 2050 as foreseen in the Green Deal, all transport modes will all have to contribute to the reduction and rail has and will have an important role to reach this ambitious political goal.



After several decades losing market shares, predominantly at the benefit of the road sector, the situation of the railway sector stabilised in the beginning of the 21st century to then increase slightly. The European Commission has been constant in its observations that road ultra-dominance of the transport market needed to be balanced and advocated for a greater use of rail. This is because rail has an inherent green competitive advantage over the other modes of mass transport. Indeed, rail is the mode of transport with the lowest greenhouse gas emission and external costs, the highest degree of energy independence (especially if the energy comes from EU renewable sources), the highest land use transport efficiency and with the most durable assets.

**GHG emissions per mode of transport in percentage of total transport emissions EU-27 in 2021**



Source: ERA based on Eurostat and 2023 Statistical Pocketbook (DG MOVE)

Through its work on fostering interoperability, reinforcing rail safety and enhancing the use of ERTMS and, more generally, its action on integrating the European railway system, ERA is supporting the process to ensure that railway will become the backbone of a sustainable multimodal transport system.



To increase awareness on the positive environmental impact of rail in achieving EU decarbonisation targets, since 2020, ERA is publishing yearly papers on rail environmental topics:



In 2020, ERA analysed the key success factors for a modal shift to rail for passengers



In 2021, ERA analysed the key success factors for a modal shift rail for freight



In 2022, ERA analysed the conditions necessary to increase the rail position for the transport of goods from and to ports

In addition, ERA is currently preparing the first rail environmental report which will be released in June 2024.

#### 4.7.4. ERA'S ROLE FOR RAIL-RELATED KNOWLEDGE AND EU VALUES

ERA staff originate from all over Europe, and they bring their national culture and specific knowledge of the various railway systems. Apart from the benefit to overall master all European languages to be able to communicate to a certain level in all EU languages, the knowledge of national railway systems supports the partnership between ERA and NSAs in their roles as Railway Authorities: there is an inherent two-way link between the functions of European- and National level Authorising/Certifying Authority and National level Supervisory Authority and various related tasks.

**(Recital 31, AR) Proper and uniform understanding of legislation on railway safety and interoperability, implementation guides and recommendations of the Agency are preconditions for effective implementation of the railway acquis and the functioning of the railway market. (+ Art 39 and 43 that give a clear mandate).**

The Communications-team of the Agency has been coordinating communication and dissemination activities since its creation. Starting with two persons it has now become the Stakeholder Relations, Academy, Communications, and International Coordination Activities (SAC)-team with 11 staff members.



## SOME HIGHLIGHTS AND ACHIEVEMENTS OF THE PAST YEARS:

In the first years, the Agency promoted its reports, often by organising an event or presenting it in major sector events.

Very soon the Agency started its tradition of organising **biennial international conferences** around its key topics, as such creating a tradition of bringing the sector together, creating awareness, and sharing knowledge.

### **Safety Conferences**

Safety is strongly linked with successful rail business in Europe and the Agency has been active over the years in promoting common safety standards and a European railway safety culture model that is built on a harmonised Safety Management System (SMS). ERA's earliest 'Safety Days Conferences' generated interest of hundreds of participants worldwide.

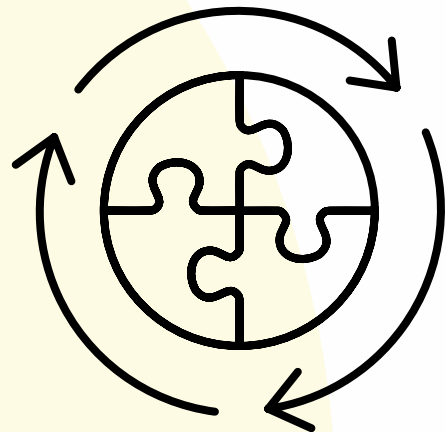
With this clear mandate, the Agency continues to promote a positive safety culture for rail in Europe.

### **ERTMS Conferences**

(former CCRCC Conferences): Being the system authority for ERTMS, the Agency has gathered the ERTMS community to discuss the way forward concerning the implementation of this important European technology. Held in alternation with the European Rail Safety Days, the ERTMS conference usually features keynote presentations and workshop elements across a period of two/ three days and gathers 400-500 participants.

### **The Human and Organisational Factors**

(HOF) Biennial Conference has become a reference for the railway safety culture communities in Europe. Addressing topics such as HOF and railway automation, or managing workload and fatigue, one reaches an important catalyst for discussions and reflection on key topics which brings together the railway community to promote a positive safety culture in the EU and beyond.



In addition, the Agency organises yearly events, such as:

Since 2019: the European Union Agency for Cybersecurity, ENISA, and ERA have joined forces to organise a conference on **Rail Cybersecurity** and have continued to deliver it annually due to high interest in the topic. This conference brings together experts to discuss the latest cybersecurity developments and challenges that the sector is facing. The aim is to foster the dialogue between railway organisations, policymakers, industry, researchers, and standardisation & certification organisations.

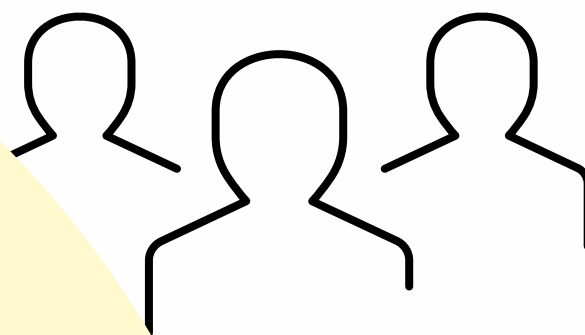
Wherever financially feasible, the Agency seeks to address topics of strategic importance with the respective Presidency of the Council of the European Union in its called, **Presidency events**. Recent examples include the "Satellite4Rail" conference organised in collaboration with the Spanish EU Presidency in 2023, Multimodal Freight Conference in Le Havre in collaboration with the French EU Presidency in 2022 and the European Rail Safety Days in Porto in collaboration with the Portuguese EU Presidency in 2021.

In 2017, the Agency gathered key stakeholders in its six **regional SERA Conferences** explaining the purpose, changes and expected benefits of the 4th Railway Package, leading to the successful adoption of the implementation guidance for authority tasks.

The Agency also **contributes or participates since many years** to:

**IRSC, International Railway Safety Council**

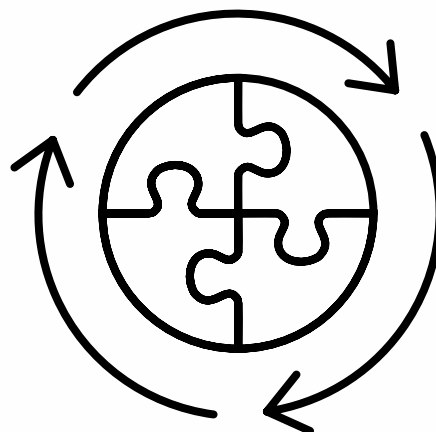
where a strong contribution by ERA is given to enhance awareness and improve knowledge of EU Safety regulations and practices at a global level. This annual meeting is a forum that brings together rail safety professionals from around the globe to exchange information and provide experiences and lessons for improving rail safety. This forum is exclusively devoted to rail safety issues. ERA is actively supporting this event to take advantage of its international dimension and promote the European regime of positive rail safety culture in that context.



**TRAKO** important biennial railway fair in Poland

**Ten-T Days** (now Connecting Europe Days): organised by the European Commission and CINEA

**The InnoTrans fair** is the largest rail and transport technology fair worldwide, with more than 137,000 attendants from 3,000 companies and 56 countries (numbers from 2022 edition). This fair presents a great opportunity to inform about EU policy messages to the rail sector and promote EU activities. Since 2008, ERA has been prominently present at InnoTrans, which is held every two years in Berlin. It was used as platform to present ERA's key activities that impact the rail sector in its new role as the European railway authority with one-to-one meetings being held between ERA staff and members of the railway sector.



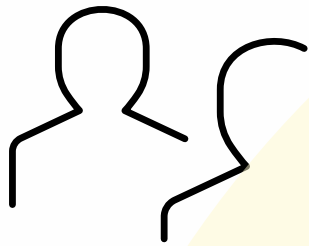
**In 2009** the Agency staff and 400 high level guests celebrated the inauguration of the new building in Valenciennes. In June 2014 its 10<sup>th</sup> anniversary.

**In June 2016** the revised Agency Regulation, Safety Directive and Interoperability Directive were issued, giving the Agency a mandate for authority tasks. **A new corporate design** was created, further reflecting the fact that it is an agency of the European Union and in-line with EU Institutional design.

Adapting to a new situation during the **Covid-19 pandemic**, ERA launched a series of webinars and online meetings and supported the COVID Task Force in publishing related bulletins and informing on the ERA webpage, e.g., about data-based research showing that travelling by train is still safer than travelling by car.



**Since 2021 the ERA Academy is coordinating the Agency's knowledge sharing activities, striving to improve the quality of dissemination and training by working closely with the railway sector.**



The Agency acknowledges that regulations may not always be known and clearly understood by all stakeholders and/or applicants especially when designing systems that must meet legal requirements. With that in mind the ERA Academy started from 2021 to coordinate the Agency's events, dissemination, and training activities to reach a higher number of stakeholders and members of the EU railway sector more efficiently.

Dissemination and training are the levers to enhance understanding of the EU rail legislation, improve employability (by promoting qualifications for teachers/workers) reducing the expected skills shortage in the sector, mitigate the risks for ERA's authority tasks by improving the level of quality of both applicants and assessors.

In 2023 the ERA Academy launched its **e-Learning platform**, starting with railway safety trainings: accessible free of charge by anyone anytime. The central coordination by the ERA Academy creates synergies amongst internal units enabling our experts to fully deploy their knowledge and experience to the benefit of stakeholders.

Through its dissemination activities, the ERA Academy team wants to **attract youngsters and skilled people to railways** and provides them opportunities to acquire knowledge. In 2023, more than 50 international NSA staff were welcomed at ERA premises for an intensive introduction to the European railway regulatory landscape and ERA's mandate and activities. Every year, the Agency welcomes groups of university students, explains the European framework, and answers their questions. On Schuman Day, agency staff visit on a voluntary basis their old schools, or local Valenciennes schools to talk about the Agency in the context of the European Project.

The Academy is member of the Advisory Board of the STAFFER initiative (Skill Training Alliance For the Future European Rail system, railstaffer.eu) and regularly exchanges with other EU Agencies on best practices.

The ERA Academy plays a pivotal role in the Agency's mission to explain and promote the EU Rail Regulatory Framework aiming at improving safety, interoperability, and efficiency across the European rail sector.

The Academy-team is continuously adapting to evolving sector trends, needs and regulatory changes, optimally reconciling stakeholder needs with internal resources. Some latest examples: events are now becoming more interactive: lessons learned, exchange of best practices; many events are hybrid, enabling more persons to participate; generic informative webinars are recorded and available on YouTube; TSI dissemination in 2023 via dedicated short workshops and Q&A webinars; TSI Open Days 2024: Regional expert workshops in EU Member States; training for NSA and internal staff aiming to form part of the Pool of Experts (4th Railway Package); training on ERA Registers.

## 4.8. ERA's benefits for Valenciennes and its region

The presence of the Agency in the Valenciennes metropolitan area contributes to highlight the local industrial and academic entities active in the railway fields. Also, the Agency staff living in Valenciennes and surroundings with their families are actively contributing to the local leisure clubs, cultural activities, schooling, etc., bringing added value in terms of multilingualism and multiculturalism. This way, local schools have additional reasons to keep and further develop international classes with extra linguistic options (notably English, German, Spanish, Italian), also to the benefit of local students. Furthermore, regular exchanges and visits are organised by the Agency with local primary and secondary schools on the themes of railways, of the European Union and gender balance in technical and managerial careers. Since several years, dedicated lectures on the Agency activities in the EU context are provided for IMT Nord Europe and the « Mastère spécialisé systèmes de transports ferroviaires et urbaines ». Agency events held in Valenciennes (notably those related with NSA networks, specific training sessions, the ERTMS and HOF conferences, and the Agency Management Board meetings) contribute to promote the image of the region and to attract foreign visitors that have a positive impact on the local tourist operators (hotels, restaurant, catering, etc.).

The Agency Communication team works hand-in-hand with the local Tourist Office not only in occasion of events, but also for the "open doors" events ("Made in Valenciennes"), when the Agency welcomes citizens not only to explain its activities but also to inform them about the "raison d'être" of the European Union.

The trusted partnerships with Valenciennes Métropole, the Chambre de Commerce et d'Industrie du Grand Hainaut, and Mairie de Valenciennes witness the level of cooperation with the local instances and how well the Agency is considered.

The local service providers that support the Agency's activities in key areas (e.g., the provision of services about reception, security, building maintenance, cleaning, catering) complete the level of the Agency's inclusion in the context of the Region Nord-Pas-de Calais.





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