Overview of EU Directives and TSIs

Cross Acceptance of Energy Metering Systems in EU

19 September 2024 | Eress forum (MS Teams)

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Photo: Adobe Stock / by_Tarasylo

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The EU railway System

A shared system, managed by many actors each responsible for their own part of the system - including safety - is intended to be operated as an open market for products and services:

A Single European Railway Area

This requires harmonised and transparent rules and processes – like roads and aviation – to define the optimal level of technical harmonisation and maintain/improve the overall safety levels.

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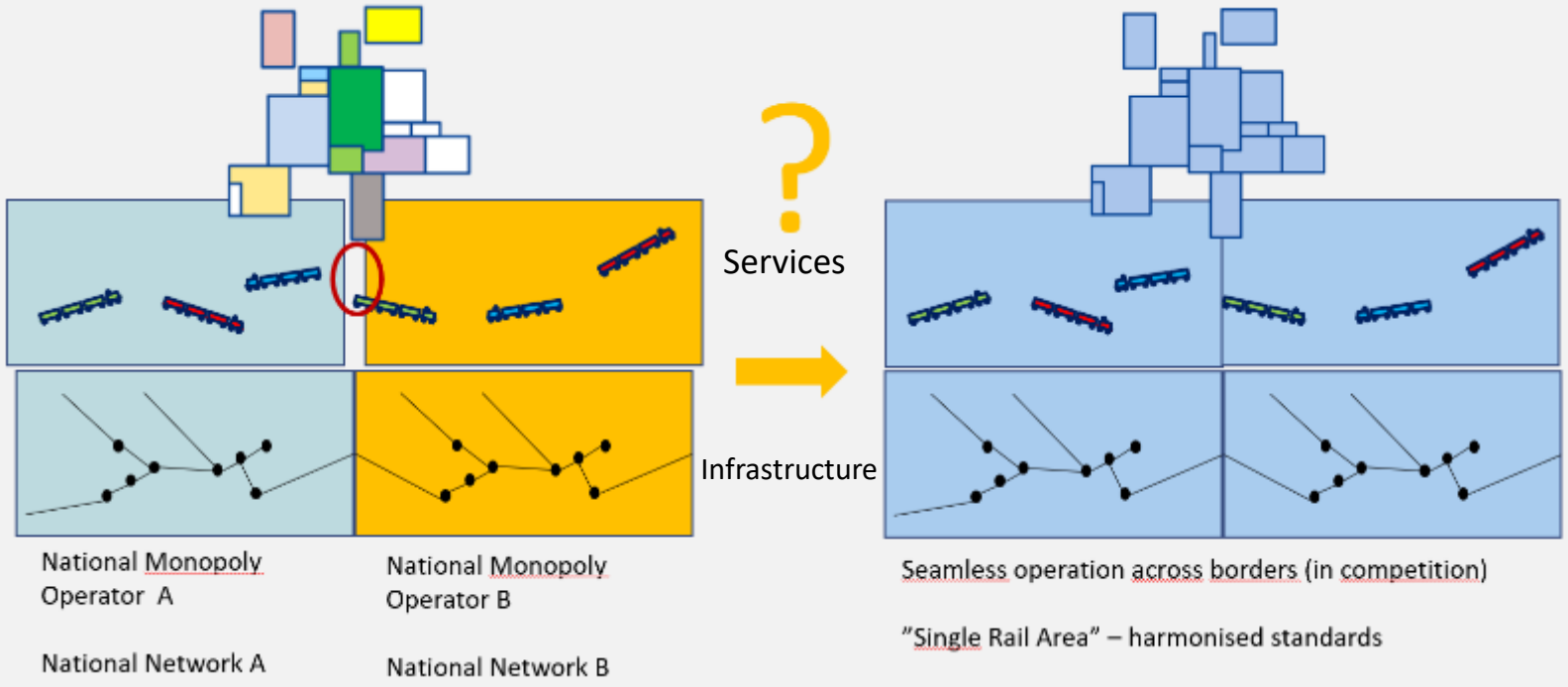
The Single European Railway Area (SERA)



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Role of EC (DG MOVE)

DG MOVE develops and carries out the Commission's policies on Mobility and Transport

Over the last 25 years, the Commission has been proactive in proposing changes to Europe's rail transport market to strengthen rail vis-à-vis other transport modes. Efforts have targeted three areas crucial for a strong and competitive rail industry:

- opening the rail transport market to competition;
- improving interoperability and safety;
- developing rail infrastructure.

Rail - European Commission (europa.eu)

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Role of ERA

Tasks

- Promote a harmonised approach to railway safety
- **Devise the technical and legal framework in order to enable removing technical barriers**, and acting as the system authority for ERTMS and telematics applications
- Improve accessibility and use of railway system information
- **Act as the European Authority under the 4th Railway Package issuing vehicle (type) authorisations** and single safety certificates, while improving the competitive position of the railway sector

ERA's Vision, Mission, Values and Tasks | European Union Agency for Railways (europa.eu)

ERA has received the EC request for the next revision of TSIs (see slide 24 to 29)

ERA working method on issuing TSIs recommendations (see slide 14)

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IOD: The Interoperability Directive (EU) 2016/797

Directive (EU) 2016/797 sets out the conditions to be met to achieve interoperability within the Union rail system. These conditions concern the design, construction, placing in service, upgrading, renewal, operation and maintenance of the parts of this system as well as the professional qualifications and health and safety conditions of the staff who contribute to its operation and maintenance.

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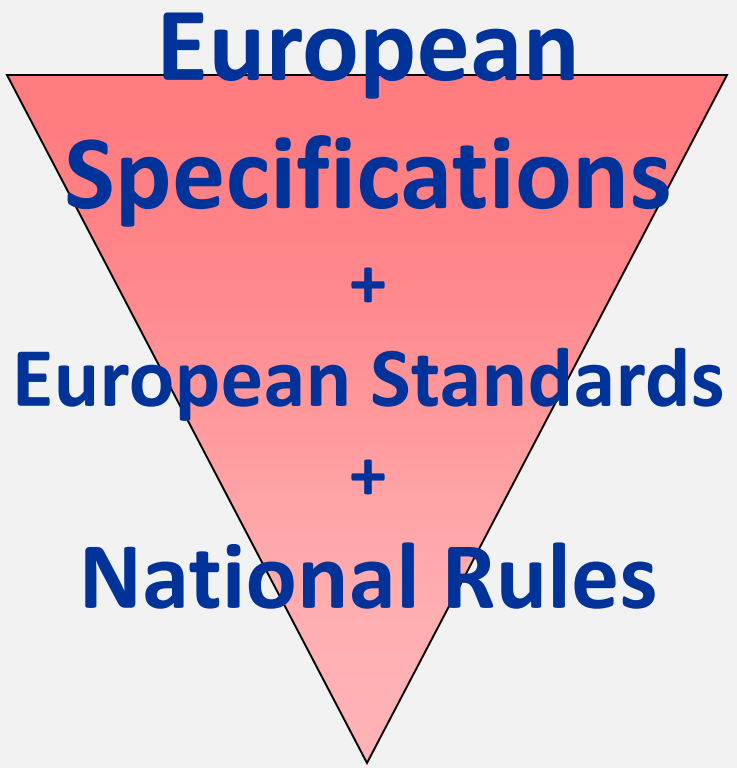
From national visions to European interoperability

YESTERDAY

TODAY



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European Specifications: what is a TSI? (IOD* Art. 2)

- Article 4 of IOD: Content of TSIs

1. Each of the subsystems defined in Annex II shall be covered by one TSI. Where necessary, a subsystem may be covered by several TSIs and one TSI may cover several subsystems.
2. Fixed subsystems and vehicles shall comply with the TSIs and national rules in force at the time of the request for authorization of placing in service

‘technical specification for interoperability’ (TSI)

- a specification adopted in accordance with this Directive by which each subsystem or part of a subsystem is covered in order to meet the essential requirements and ensure the interoperability of the rail system;

‘essential requirements’

- means all the conditions set out in Annex III which must be met by the rail system, the subsystems, and the interoperability constituents, including interfaces;
- 6 general essential requirements applicable for all TSIs = Safety, Reliability/Availability, Health, Environmental Protection, Technical Compatibility & Accessibility

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What parameters and requirements in a TSI?

- **Optimal level of technical harmonisation** (art. 1.1 IOD) not full harmonisation; the TSI should not try to standardise everything, only what is necessary to deliver the purpose of the Directive.
- **TSIs** aren't design guidelines but **are regulations**
- The TSIs should prescribe the **technical requirements necessary to**:

  a) **meet the essential requirements** to the extent that the parameter is not, or could not be, addressed elsewhere,

  b) **deliver interoperability**, and

  c) deliver **an optimum level of harmonisation**.

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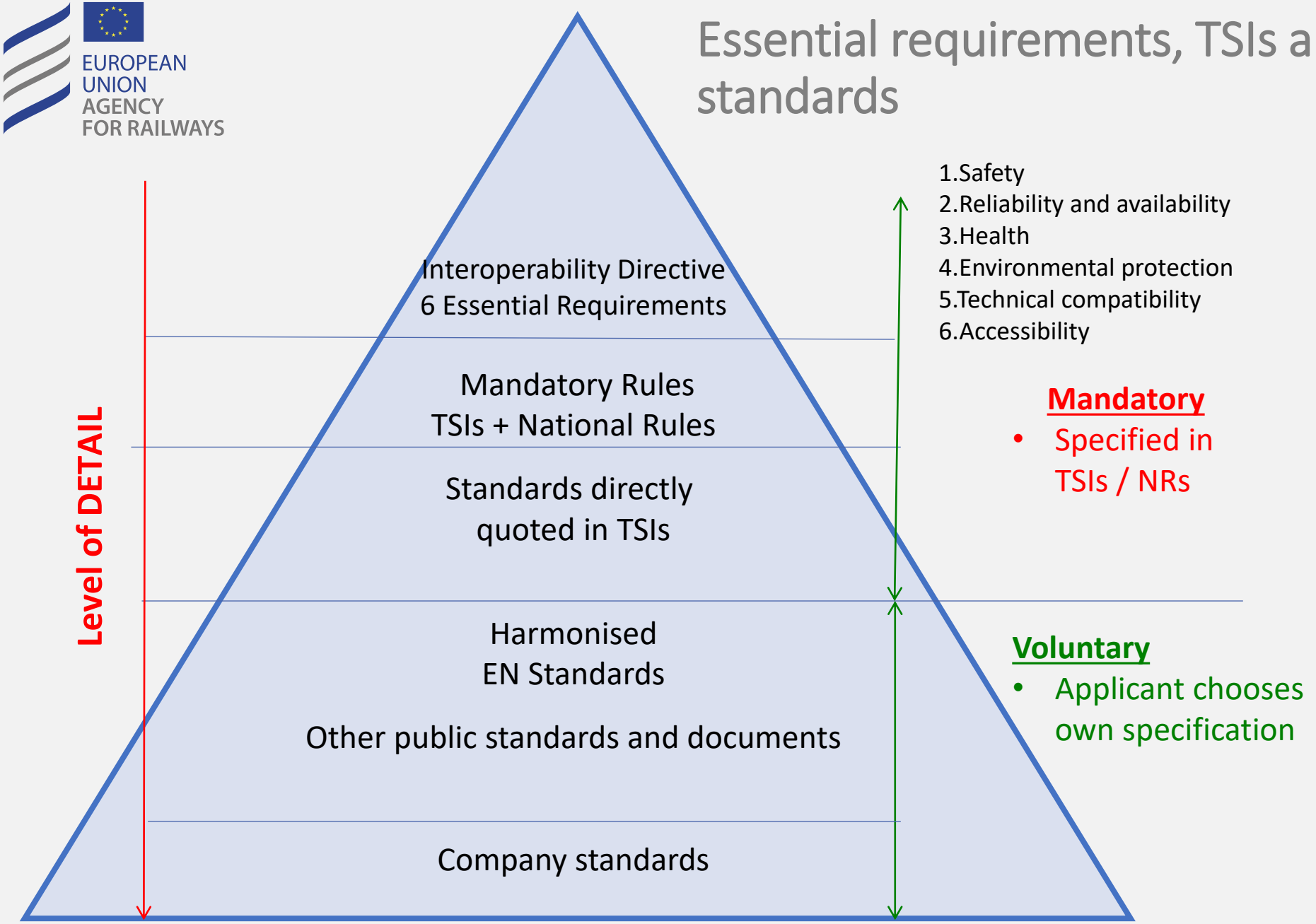
Essential requirements, TSIs and standards



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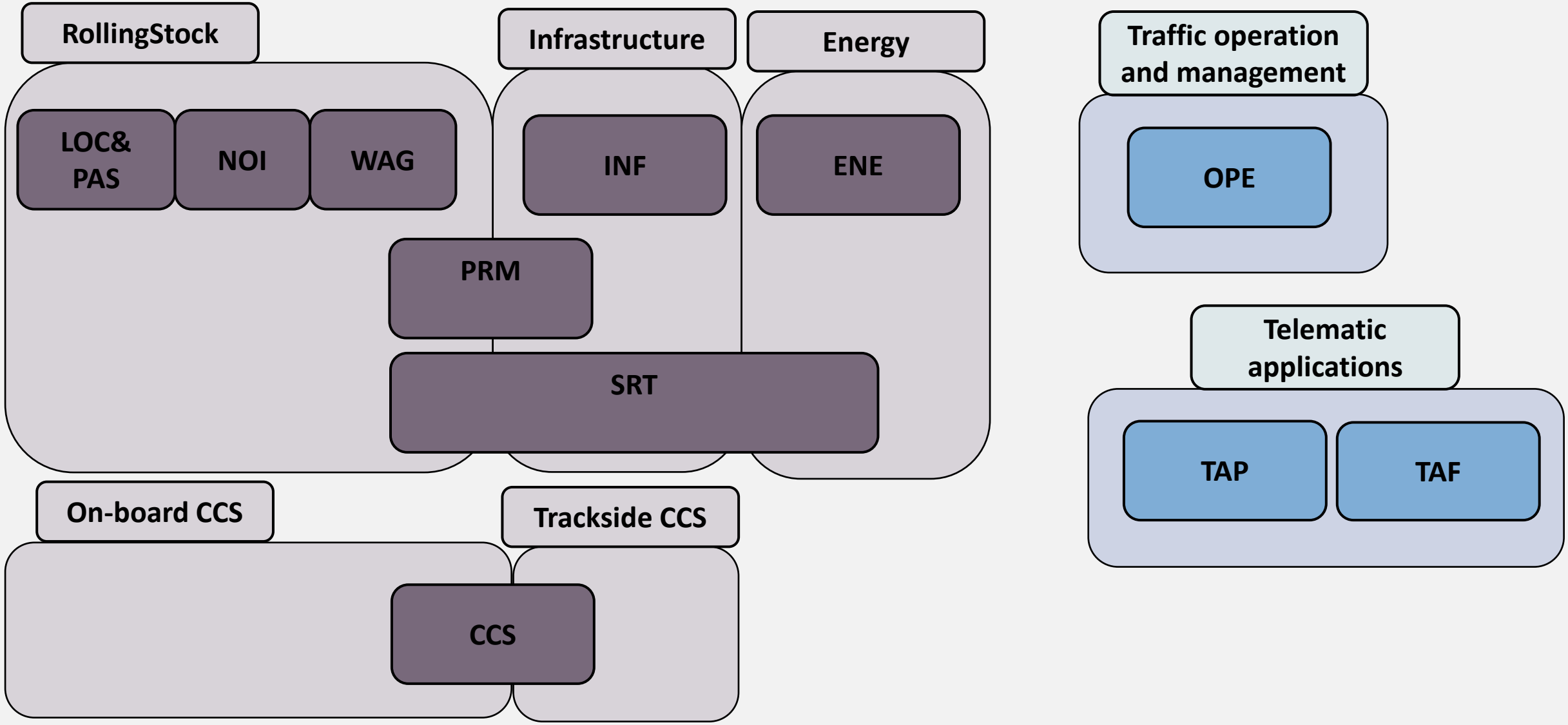
Which TSI applies to which subsystem?



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What are the subsystems covered by TSIs? (IOD Annex II)

Structural subsystems

- Infrastructure
- Energy
- Trackside control-command and signalling
- On-board control-command and signalling
- Rolling stock

Functional subsystems

- Traffic operation and management
- Maintenance
- Telematics applications for passenger and freight services

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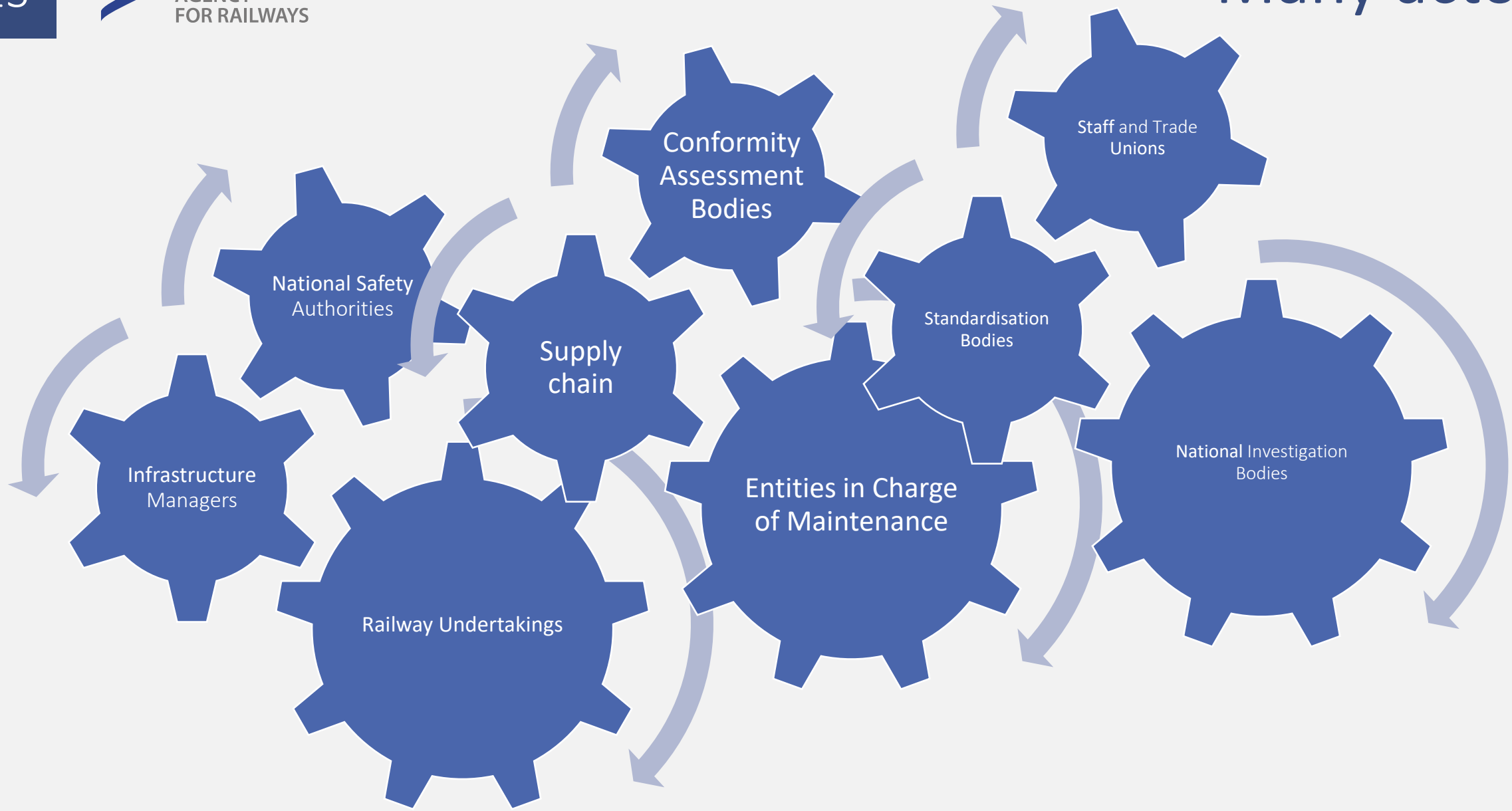
Many actors



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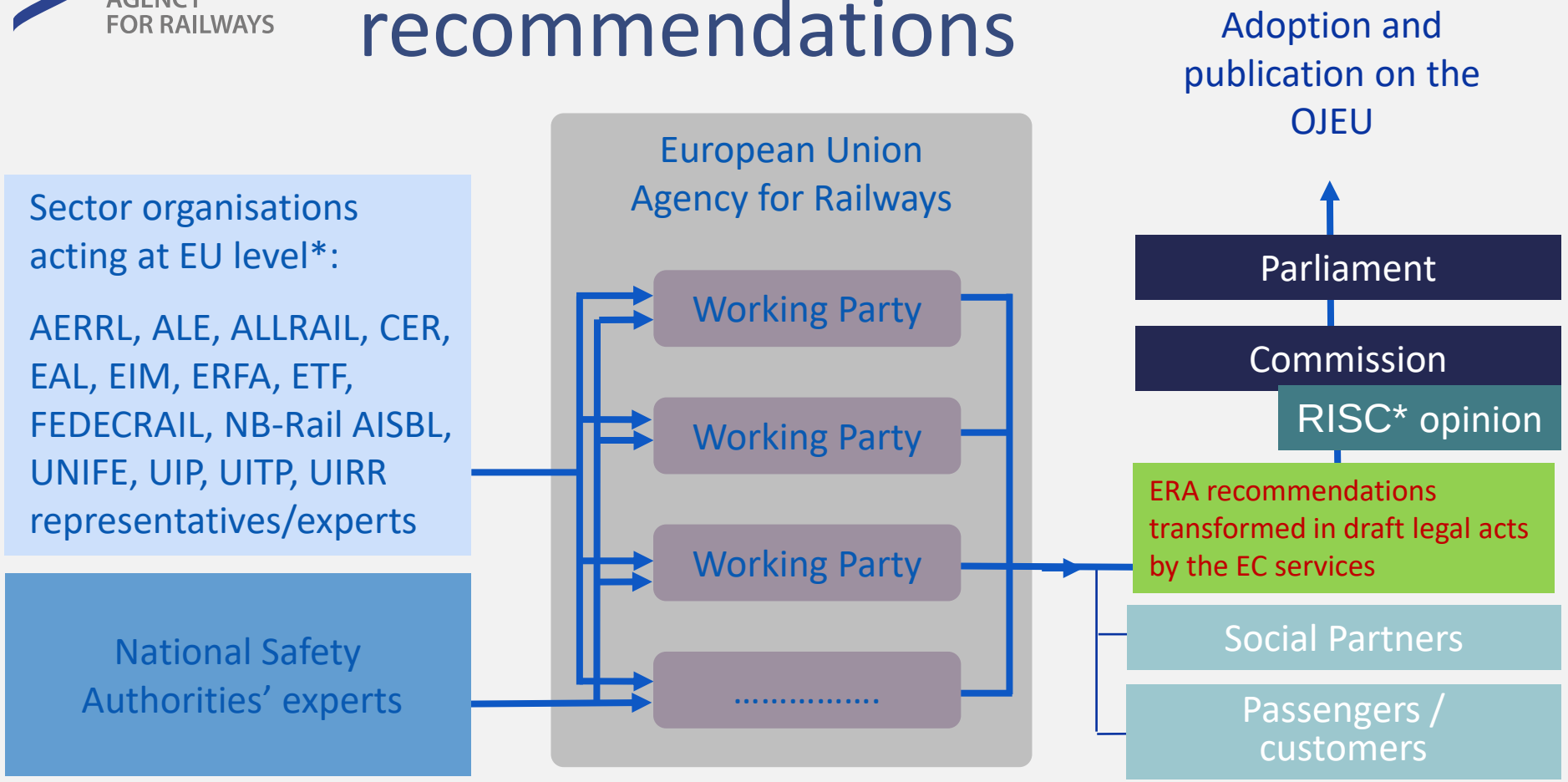
ERA working method to issue TSI recommendations



* The list of these representative bodies is established and amended by RISC Committee

* Railway Interoperability and Safety Committee (Member States)

Rules for the implementation of the TSI: Chapter 7

Content-Application (For example 2023 LOC & PAS TSI)

- Application to newly built rolling stock
- Application to ongoing projects
- Application to special vehicles
- Transitionnal measures
- Changes to rolling stock in operation or to an existing rolling stock type
- ...

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Key topic – Transition between TSI Rolling Stock

[TSI Revision Package 2023 Q&A #1: Rolling Stock & On-Board CCS | European Union Agency for Railways (europa.eu)]

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Key topic – Transition in TSI Rolling Stock

- 2 phases : **design phase** and **production phase** – no limit in time
- TSIs for certification at the **end of the design phase**
- **TSI changes** associated to **a transition regime**
- The **validity of type certificates** or design examination certificates **isn’t limited**
- A **new appendix** is created in all TSIs with the categorisation of the changes

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New rolling stock type projects

New rolling Stock type shall comply with the TSIs in force.
TSIs are applicable to all Rolling stock placed on the market after their date of application except ongoing projects

- TSI WAG 7.1:
  - This TSI is applicable to the subsystem ‘rolling stock — freight wagons’ within the scope set out in its points 1.1, 1.2 and 2.1, which are placed on the market after the date of application of this TSI, except where point 7.1.1 ‘Application to ongoing projects’ applies.

- TSI LOC&PAS 7.1.1.1:
  - This TSI is applicable to all units of rolling stock in its scope which are placed on the market after the date of application set out in Article 12, except where point 7.1.1.2 ‘Application to ongoing projects’ or point 7.1.1.3 ‘Application to special vehicles, such as on-track machines’ below apply.

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Ongoing rolling stock projects

For projects in phase A (or B) at the EIF of the **TSIs 2023**, it is possible to continue with the set of TSIs defined at the beginning of phase A, or to migrate to the new set of TSIs

- TSI WAG 7.1.1:
  - The application of this TSI applicable from 28 September 2023 **is not mandatory for projects that, on that date, are in phase A or phase B** as defined in points 7.2.3.1.1 and 7.2.3.1.2 of the 'previous TSI' (i.e. this Regulation, as amended by Commission Implementing Regulation (EU) 2020/387).

- TSI LOC&PAS 7.1.1.2:
  - The application of the version of this TSI applicable from 28 September 2023 **is not mandatory for projects that, on that date, are in phase A or phase B** as defined in point 7.1.3.1 of the 'previous TSI' (i.e. this Regulation, as amended by Commission Implementing Regulation (EU) 2020/387).

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Ongoing rolling stock projects

For projects in phase A (or B) that continue with the set of TSIs defined at the beginning of phase A, permissible to use the revised TSI either totally or for particular sections

- TSI WAG 7.1.1:
  - Without prejudice to Appendix A, Table A.2, the application of the requirements of Chapters 4, 5, 6 to projects referred in point (1) is possible on a voluntary basis.

- TSI LOC&PAS 7.1.1.2:
  - Without prejudice to Appendix L, Table L.2, the application of the requirements of Chapters 4, 5, and 6 to projects referred in point (1) is possible on a voluntary basis.

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Changes are listed and categorised in the TSIs

For changes not listed in the specific Appendix, compliance with the TSI in its version applicable before 28 September 2023 is deemed equivalent to compliance with the new TSI

- TSI WAG Appendix A:
  - For other TSI points than these listed in Table A.1 and Table A.2, compliance with the 'previous TSI' (i.e. this Regulation, as amended by Commission Implementing Regulation (EU) 2020/387 imply compliance with this TSI applicable from 28 September 2023.

- TSI LOC&PAS Appendix L:
  - For other TSI points than these listed in Table L.1 and Table L.2, compliance with the 'previous TSI' (i.e. this Regulation, as amended by Implementing Regulation (EU) 2020/387) imply compliance with this TSI applicable from 28 September 2023

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Changes are listed in the TSIs
Example: TSI LOC&PAS Appendix L

Changes of requirements and transition regimes

For other TSI points than these listed in Table L.1 and Table L.2, compliance with the 'previous TSI' (i.e. this Regulation, as amended by Implementing Regulation (EU) 2020/387) imply compliance with this TSI applicable from 28 September 2023.

Table L.1

Transition regime of 7 years

TSI point(s)	TSI point(s) in previous TSI	Explanation of the TSI change
4.2.2.5 (7)	4.2.2.5 (7)	Evolution of the specification referenced in Appendix J-1 index [3]
4.2.2.10 (1)	4.2.2.10 (1)	Additional requirements
4.2.3.2.1 (2)	4.2.3.2.1 (2)	Change of the requirement
4.2.3.7	4.2.3.7	Change of the requirements

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Changes are listed in the TSIs
Example: TSI LOC&PAS Appendix L

Changes of requirements and transition regimes

For other TSI points than these listed in Table L.1 and Table L.2, compliance with the 'previous TSI' (i.e. this Regulation, as amended by Implementing Regulation (EU) 2020/387) imply compliance with this TSI applicable from 28 September 2023.

Table L.2

Specific transition regime

TSI point(s)	TSI points(s) in previous version	Explanation on TSI change	Transition regime			
			Design phase not started	Design phase started	Production phase	units in operation
Points referring to the specification referenced in Appendix J-2, index [B]	4.2.4.4.1, 4.2.5.3.4, 4.2.5.5.6, 4.2.8.2.9.8, 4.2.10.4.2	Train interface functions specified between ETCS onboard and rolling stock are identified end to end including provisions on EC verification	For new train interface functions identified in index 7, transition regimes are defined in Appendix B, Table B.1 – ETCS system version of TSI CCS. For train interface functions not modified in index 7, transition regimes are defined in Appendix B, Table B1 – partial fulfilment of TSI CCS			

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European Commission

Commission follow-up of implementation of legal obligations on energy metering and billing

and

Agency update on related activities

ERESS Forum 2024

20 June 2024

Veronika Sárik, DG MOVE

Legal obligations and deadlines

<u>TSI LOC&PAS</u>*
On-board Energy Measurement Systems (EMS)
mandatory on
new, upgraded and renewed
rolling stock

July 2020

<u>TSI ENE</u>***
On-ground energy data collecting system (DCS)
capable to exchange
compiled energy billing data
with EMS is implemented

Follow-up

Nov 2014

<u>Amendment to TSI ENE and LOC&PAS</u>**
On-ground settlement system capable to receive data from a DCS and accept it for billing is implemented.
The on-ground settlement system shall be able to exchange compiled energy billing data (CEBD) with other settlement systems

Jan 2022

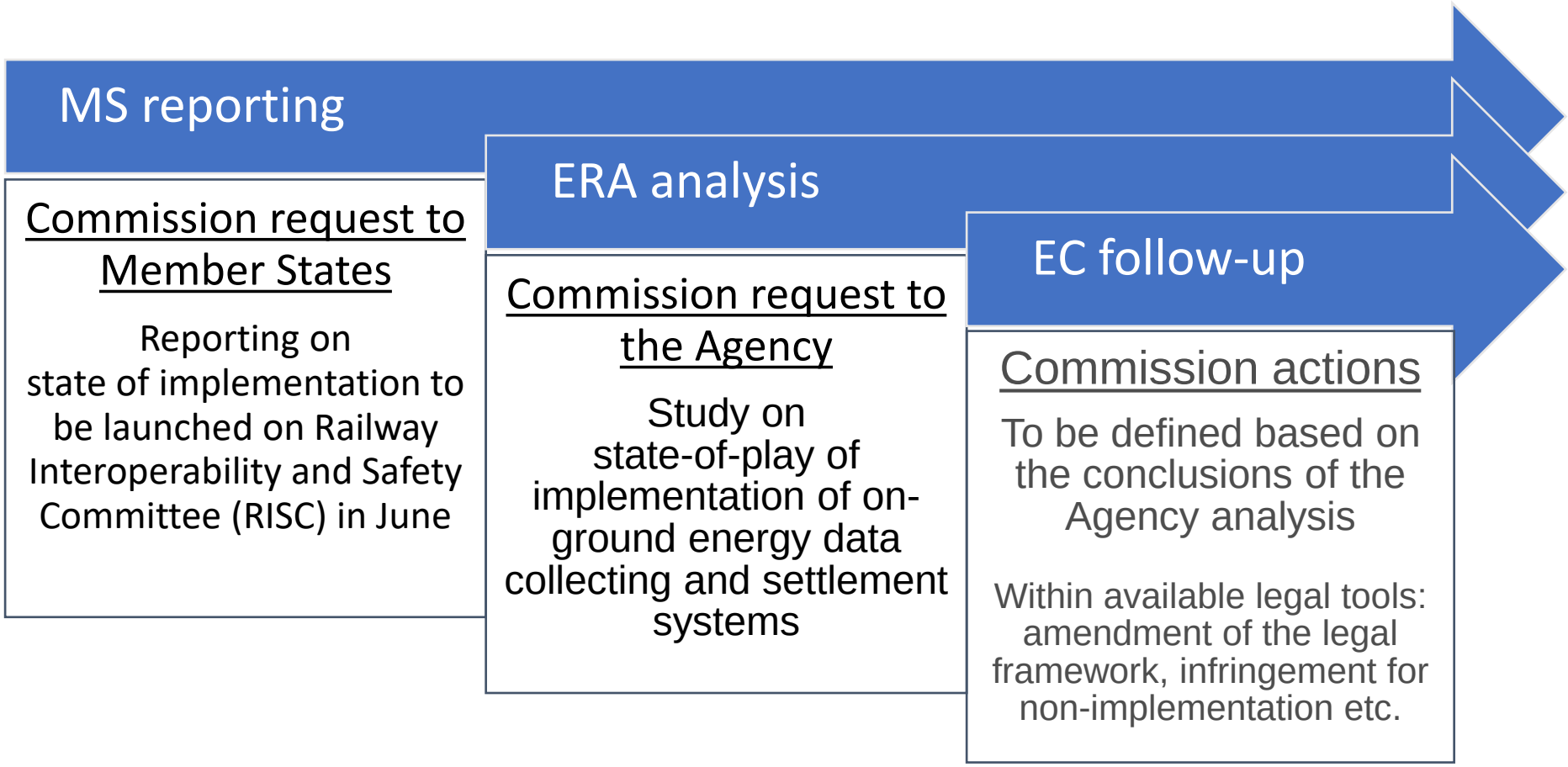
* Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the rolling stock – locomotives and passenger rolling stock subsystem of the rail system in the European Union
** Commission Implementing Regulation (EU) 2018/868 of 13 June 2018 amending Regulation (EU) No 1301/2014 and Regulation (EU) No 1302/2014 as regards provisions on energy measuring system and data collecting system
*** Commission Regulation (EU) No 1301/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'energy' subsystem of the rai system in the Union Text with EEA relevance

Stakeholder consultation feedback

Feeback from railway undertakings and locomotive leasing companies:

- Concerns raised related to erroneous billing by energy suppliers
- Financial consequences directly and unjustly impacting the users, due to non-compliance of the infrastructure to TSI ENE
- Other legal consequences, e.g. in the vehicle and fixed installation authorisation process
- Request to analyse:
  - Incentives to Member States to implement TSI ENE obligations on their infrastructure networks
  - Regulatory measures for compensation schemes

Action plan: Structured follow-up



European Commission

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Agency activities for EC request

- Preparing the resources/planning to fulfil the EC request tasks
- Revision of standards referred in TSIs:
  particular involvement in the revision of series EN 50463
  (Observer in CENELEC WG 37 Energy measurement)
- Output of revision of EN 50463 will be incorporated in related TSIs
  (ENE and LOC&PAS)
- Follow up of activities for Working group on IRS 90930

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Agency activities for EC request

Upon EC request to ERA: Study on state-of-play of implementation of on-ground energy data collecting and settlement systems

Conducting this study will be an outstanding possibility for the sector to provide feedback and inform the EC on the state of play:

- The study will be coordinated via ERA's Economic Steering Group.
- Sector will be contacted and involved in the study.
- The results of the study shall be handed over to the EC for further consideration.
- Eventual inputs for future revision of ENE and LOC&PAS TSIs

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Minimum for an EMS to be used across countries

EMS is part of Rolling stock subsystem (TSI LOC&PAS) or infrastructure subsystem (TSI ENE)

- Specific requirements in TSI LOC&PAS:
  - ✓section 4.2.8.2.8. On-board energy measurement system
  - ✓For existing vehicles and upgrades see section 4.2.8.2.8.2 (6) and section 6.2.3.19a
  - ✓Electromagnetic compatibility must be verified:

    Section 4.2.3.3. Rolling Stock parameters which influence ground based systems, and Appendix J-2, index [A]: document ERA/ERTMS/033281 - V 5.0 Interfaces between Control-Command and Signalling Trackside and other Subsystems

- National rules: as there are open points in document A/ERTMS/033281 - V 5.0

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Minimum for an EMS to be used across countries

EMS is part of Rolling stock subsystem (TSI LOC&PAS) or infrastructure subsystem (TSI ENE)

- Specific requirements in TSI ENE:
  - ✓Section 4.2.17. On-ground energy data collecting system
  - ✓In addition, electromagnetic compatibility must be verified:

    Section 4.3.4. Interface with Control — Command and Signalling subsystems:

    (4) Harmonic currents affecting control-command and signalling subsystems are set out in the CCS TSI.

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Vehicle authorization process

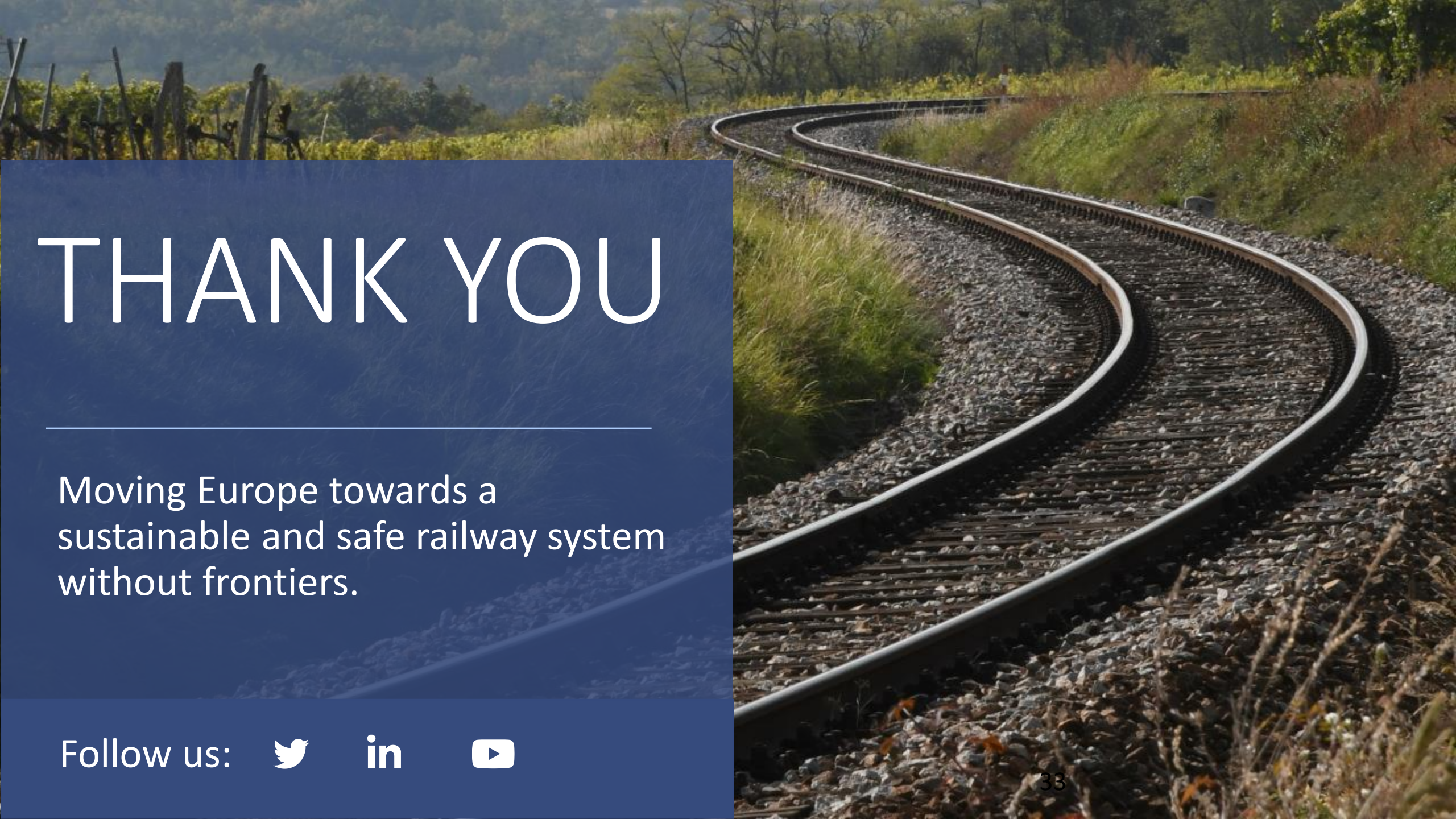
Compliance with TSIs is part of the authorisation process of vehicle and infrastructure.

Vehicle authorisations are delivered by ERA and NSAs

Infrastructure authorisations are issued by NSAs

After participation in ERESS forum in Lisbon last Jne 2024, issues were reported on cross-border acceptance of on-board EMS

See additional slides “17-09-2024 EU legal framework for VA”



THANK YOU

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

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