First TCT Rail Working Group meeting

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Developing rail interoperability – EU's experience

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The challenge

How to merge railway systems that have been evolving independently in different way for 200 years into a single European rail area?

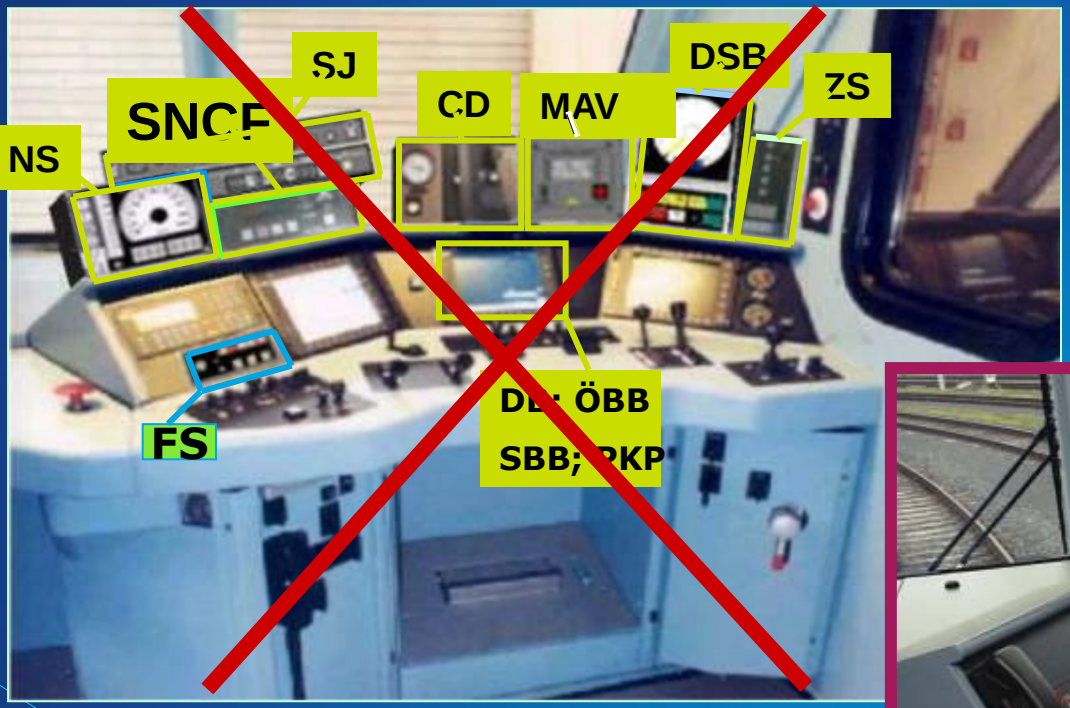
… Let's look into the interoperability and safety aspects.

What we want to achieve?

- opening of the rail transport market to competition

- **improving the interoperability and safety of:**
  - ***Networks/Infrastructure***
  - ***Vehicles***
  - ***Operational and safety rules***

- developing rail transport infrastructure



New development:

Central ETCS display
→ single interface for driver

Conventional approach:

Simply adding systems does not work!

A system approach

- ***Safety directive:***

  deals with systemic aspects

  - **Role and responsibilities of the actors, regulatory structure, safety levels and methods**

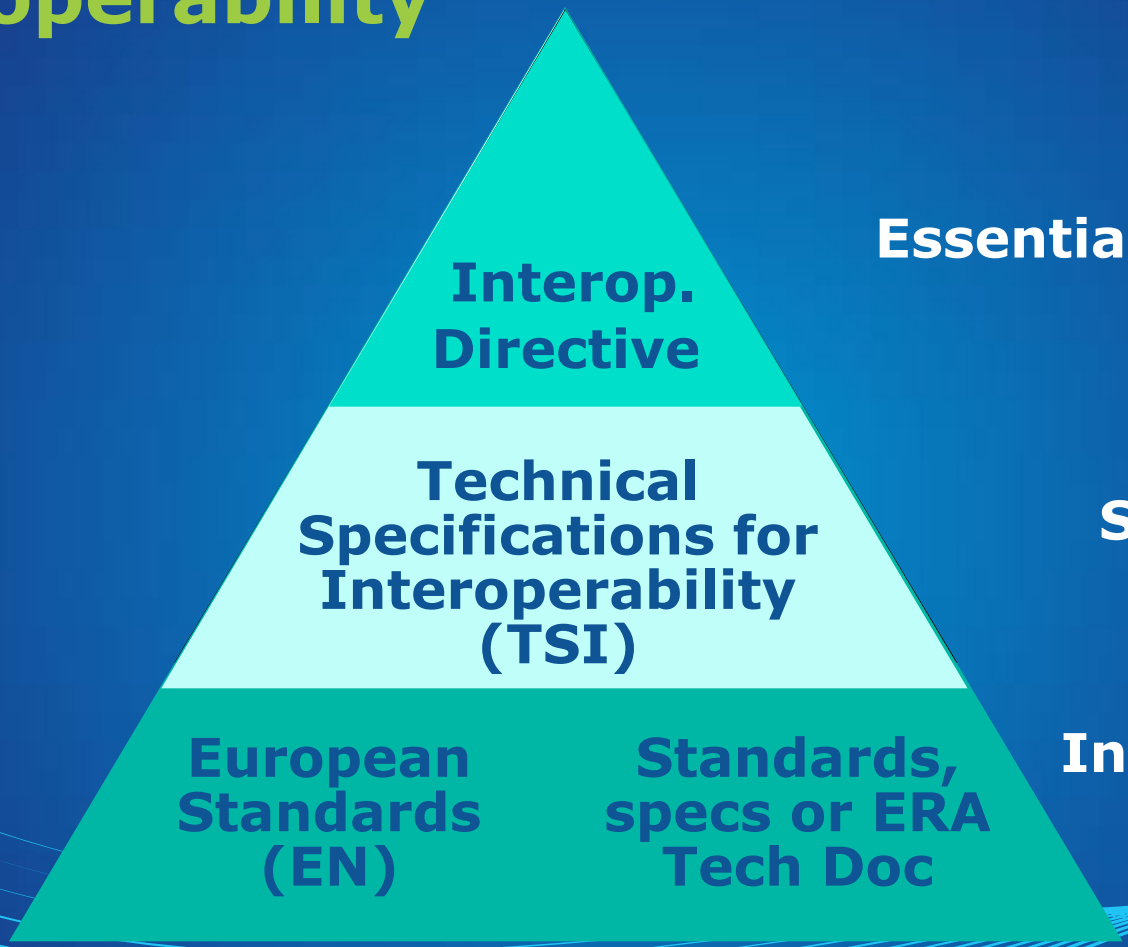
- ***Interoperability directive:***

  deals with technical and operational aspects

  - **Rolling stock, operational rules, staff requirements, signalling, infrastructure, etc.**

A common approach to interoperability

Interoperability



Why? — **Essential requirements**

What? — **Subsystems**

How? — **Interoperability Constituents**

What are the Essential Requirements?

<u>Conditions</u> which must be met by the Union rail system, the subsystems, and the interoperability constituents, including interfaces:

1. Safety
2. Reliability and availability
3. Health
4. Environmental protection
5. Technical compatibility
6. Accessibility

Defined in the interoperability directive at the general level and at the level of each subsystem.

What are Technical Specifications for Interoperability?

specifications by which each subsystem or part of a subsystem is covered in order **to meet the essential requirements and to ensure the interoperability** of the Union rail system:

Subsystems:

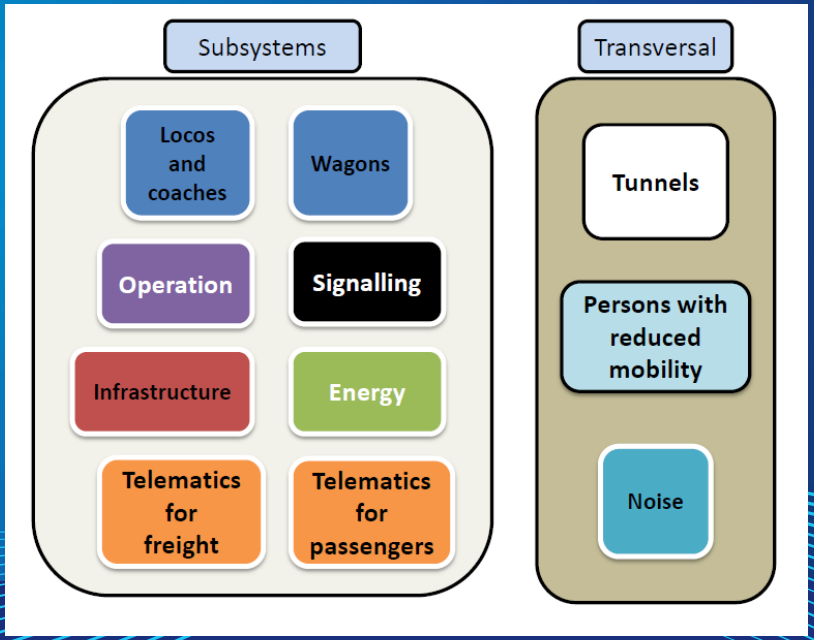
Structural areas:

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

Functional areas:

- Operation and traffic management
- Maintenance
- Telematics applications for passenger and freight services

TSIs:



What are Standards for?

Standardisation helps eliminate technical barriers to trade and increase market access for all operators
→ **improved competitiveness of the rail sector.**

European rail standards

TC	Published documents (TS, CWA and TR included)	Harmonised Standards (2008/57/EC)	In progress
CEN/TC 256	241	100	104
CLC/TC 9X	170	32	38
Total	411	132	142

What else is required to develop and manage interoperable networks and vehicles?

Modules:

- For conformity assessment (certification, by Notified Bodies = **NoBos**)

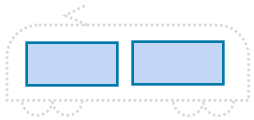
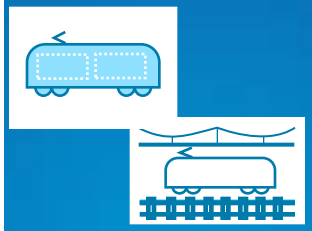
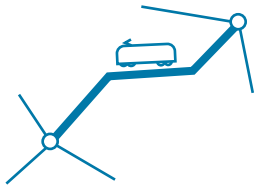
Registers:

- **RINF** = Register of Infrastructure
- **EVR** = European Vehicle Register
- **ERATV** = European Register of Authorised Types of Vehicles

Certification, Authorisation, Placing on the market, Placing in service, Supervision of VEHICLES…

European Commission

Who does what?

1	**PLACING ON THE MARKET of MOBILE SUBSYSTEMS**	**Essential Requirements** **TSIs** **Standards**		**Applicant** **+ 3rd party certification (NoBo)**
2	**VEHICLE AUTHORISATION for PLACING ON THE MARKET in AREA of USE**	1)Technical compatibility of the **subsystem** 2) Safe integration of the subsystems **within the vehicle** 3) technical compatibility with fixed installations **in the area of use**		**NSA** or **ERA as OSS*** **… 1 authorisation** for the whole Area of Use
3	**CHECK BEFORE the USE OF authorised VEHICLE**	**Route compatibility on the basis of RINF** ***(infrastructure register)***		**Railway Undertaking**
4	**SUPERVISION**	**Inter alia: in case of justified doubts, NSA could question the decision of placing in service made by the RU**		**NSA**

** OSS = One Stop Shop, from 1 June 2019*

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Barriers to interoperability?... and solutions.

<u>National rules</u>... duplicating or contradicting TSIs

- **For infrastructure and vehicles**
- **Operational/Safety rules**

→ Cross border issues!

→ ERA programme of cleaning-up of National Rules

<u>National systems:</u>

- Signalling: Class B systems vs ERTMS

→ ERA as system authority

Harmonised implementation of ERTMS

- ERA verifies ERTMS trackside technical solutions BEFORE any call for tender !
  - **Ensuring COMPATIBILITY**
  - **Harmonised trackside implementation**
  - And… discipline ☹

European Commission

A common approach to safety

The regulatory structure

- Establishing **authorities** for regulation and supervision of safety:
  - **ERA, NSAs, NIBs.**
- **Defining roles and responsibilities of the actors:**
  - **Infrastructure managers,**
  - **Railway undertakings,**
  - And also: **Entitites in Charge of Maintenance (ECM), manufacturers, keepers,…**

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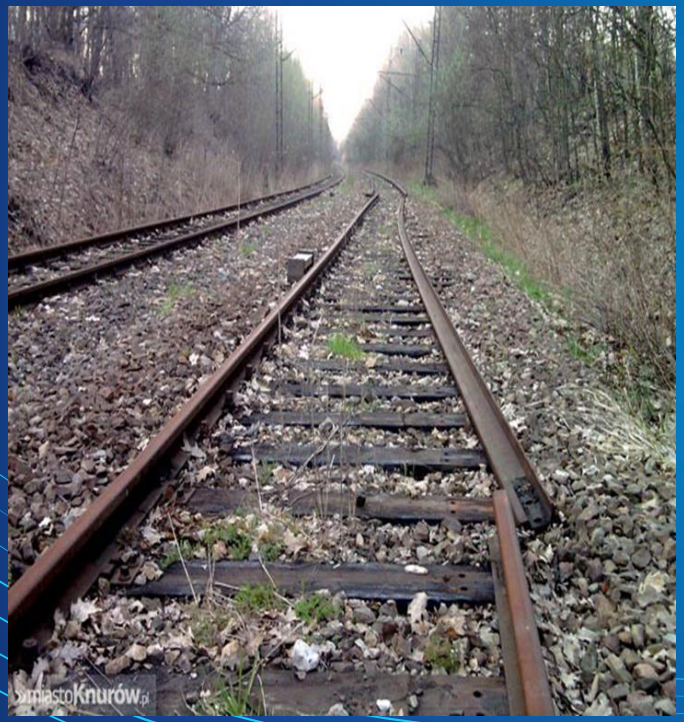
… using one essential "tool"

The Safety Management Systems (SMS): organisation and arrangements established by an infrastructure manager or a railway undertaking to ensure the safe management of its operations

Investigation on railway accidents



- National investigation bodies are charged with investigating serious accidents and – at their discretion – other accidents and incidents on the railway. They exchange views and experiences to develop common investigation methods and to adapt investigations to the latest technical and scientific progress.

Train Drivers Directive

- Lays down the conditions and procedures for the certification of train drivers operating locomotives and trains in the EU
- Specifies the tasks of competent authorities, train drivers, railway undertakings, infrastructure managers and training centres.

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