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*
Conventional approach:
Simply adding systems does not work!

New development:
Central ETCS display ➔ single interface for driver
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?

Interop. Directive

Essential requirements

What?

Technical Specifications for Interoperability (TSI)

Subsystems

How?

European Standards (EN)

Standards, specs or ERA Tech Doc

Interoperability Constituents
What are the Essential Requirements?

**Conditions** 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:**

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- Locos and coaches
- Wagons
- Operation
- Signalling
- Infrastructure
- Energy
- Telematics for freight
- Telematics for passengers
- Tunnels
- Persons with reduced mobility
- Noise
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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

<table>
<thead>
<tr>
<th>TC</th>
<th>Published documents (TS, CWA and TR included)</th>
<th>Harmonised Standards (2008/57/EC)</th>
<th>In progress</th>
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<td>CEN/TC 256</td>
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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**...

Who does what?

1. **PLACING ON THE MARKET of MOBILE SUBSYSTEMS**
   - Essential Requirements
   - TSIs
   - Standards

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**

3. **CHECK BEFORE the USE of authorised VEHICLE**
   - Route compatibility on the basis of RINF (infrastructure register)

4. **SUPERVISION**
   - Inter alia: in case of justified doubts, NSA could question the decision of placing in service made by the RU

**Applicant**
- + 3rd party certification (NoBo)

**NSA or ERA as OSS***
- ... 1 authorisation for the whole Area of Use

**Railway Undertaking**

**NSA**

*OSS = One Stop Shop, from 1 June 2019

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*Interesting facts*

- Traditional certification processes can be time-consuming and complex.
- The One Stop Shop (OSS) approach aims to streamline the process.
- NSA or ERA can act as One Stop Shoppers for specific areas.
- Route compatibility is crucial for seamless operation.
- Justified doubts can lead to further scrutiny by NSA.

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*Additional resources*

- More information on the OSS initiative can be found on the EU website.
- Manuals and guides are available for authors and manufacturers.

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*Contact information*

@Transport_EU

Mobility and Transport
Barriers to interoperability?... and solutions.

**National rules... duplicating or contradicting TSIs**

- For infrastructure and vehicles
- Operational/Safety rules
  - Cross border issues!
  - ERA programme of cleaning-up of National Rules

**National systems:**

- Signalling: Class B systems vs ERTMS
  - ERA as system authority
DIRECTIVE (EU) 2016/797 ON INTEROPERABILITY

Harmonised implementation of ERTMS

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