Training in Budapest, Hungary
Day 2: ERTMS and infrastructure
Safe integration and operation

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JM Dechamps, Safety Unit

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Safe integration and technical compatibility

- **Technical compatibility**:

  The technical characteristics of the infrastructure and fixed installations must be compatible:

  - with each other; and
  - with those of the trains to be used on the rail system.

  At the network - vehicle interface

  Safe integration is a subset of **'technical compatibility'**. There could only be a safe integration between the vehicles and infrastructure if there is a technical compatibility

  e.g. Gauge, loading gauge, mass per axles, energy supply, electromagnetic emissions spectrum, ERTMS compatibility on-board-fixed installations.

- **Interoperability Directive 2016/797**

  Technical compatibility (thus safe integration) should be fixed in TSIs or in national rules when TSIs are not complete.

Safe integration and operation

- **Users**
  - **Who**: Railway undertakings and infrastructure managers
  - **What**: They have to use safely the infrastructure including the energy supply and Control Command and Signalling Systems
    - Must define their operations and internal control procedures and working instructions. It may includes to set-up pilot projects.
    - Must inform and train staff: Signalers, drivers, middle management
    - Must monitor the safety performance
  - **How**: They do it in the framework of their **Safety Management Systems** by assessing the risks that using a new or modified infrastructure is a **change**. Apply the **CSM on risk evaluation and assessment** 402/2013
  - **Which inputs:** Technical files provided with new or modified fixed installations and vehicles. In particular user manuals, maintenance documentation and technical compatibility.
  - Continual **collaboration is essential** between them and with applicants and NSAs **from the very early stages of the project**

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Presentations

- Safe integration of the ETCS in the context of a new infrastructure:
  - Presentation of the roles and responsibilities of the involved stakeholders **regarding risk management**
  - Interface with existing network and shared risks at the interfaces
  - Interface between the IM and the RUs
  - Operational rules, documentation, etc.

- Presentations of ETCS examples taken from experience:
  - **Mr. Jurg LÜTSCHER (Swiss national safety authority)**

    Safe integration of ERTMS/ETCS into the Gotthard tunnel and the existing infrastructure of the Infrastructure Manager
  - **Mr. Marc BRONCHART (Q3S – Assessment Body and CENELEC ISA)**

    Assurance provided by **a second pair eyes (RASBO)** of the correct Safe integration by the **proposer** of the ETCS into the infrastructure

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