



Future of track maintenance in harmonised EU legislation (INF TSI)

Iñigo Méndez, Project Officer at the European Union Agency for Railways, takes a look at the history and present situation regarding track maintenance requirements within EU law.

IN 1996 the first interoperability directive (96/48/EC) for the high-speed trans-European network laid down the essential requirements for the design, construction, maintenance and monitoring of subsystem infrastructure: safety, reliability and availability, health, environmental protection and technical compatibility. The directive and all subsequent releases (2001/16/EC, 2004/50/EC, 2008/57/EC, (EU) 2016/797) also introduced the obligation to define harmonised Technical Specifications for Interoperability (TSIs). The TSIs require that

maintenance activities are undertaken in order to ensure the interoperability of the rail system and to guarantee the performance required. The 'maintenance' is therefore considered as a 'functional subsystem' of the European rail system.

When the original interoperability directive came into force, the first set of TSIs relating to the infrastructure subsystem, HS INF TSI (for the TEN-T high-speed network, 2002 and 2008 revision), were produced. These were prepared by the European Association for Railway Interoperability (better known under the French name AEIF – Association ➤



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Européenne pour l'Interopérabilité Ferroviaire) and included track maintenance as an essential part of the harmonised legislation to support the creation of a single European railway area.

Since then, different versions of the TSIs have been developed by the European Railway Agency (now called the European Union Agency for Railways, hereafter 'the Agency'). These included CR INF TSI (for the TEN-T conventional rail network, 2011) and INF TSI (for both high-speed and conventional rail, TEN and off-TEN networks, 2014), which set out requirements for the target interoperable EU railway network track maintenance.

The basis for the current harmonised interoperability requirements is the obligation of the infrastructure manager to draw up maintenance rules. In accordance with the EU legislation in force, the maintenance rules must contain two

main elements: a maintenance file, which is necessary before the line is put into service, and a maintenance plan to ensure that the requirements of the TSI and national rules are maintained during the line's lifetime.

As part of the maintenance rules, the infrastructure manager must consider the values of the basic parameters prescribed in the INF TSI for track geometry defects:

- The immediate action limit for alignment
- The immediate action limit for longitudinal level
- The immediate action limit for track twist
- The immediate action limit of track gauge as isolated defect
- The immediate action limit for cant
- The immediate action limits for switches and crossings.

Immediate action limit refers to the value, which, if exceeded, requires the infrastructure manager to take measures to reduce the risk of derailment to an acceptable level. The rules shall describe the measures taken (for example, speed restriction and repair time) when prescribed limits are not met.

Some of the harmonised values could not be explicitly mentioned in the INF TSI: for example, the immediate action limits for isolated defects in alignment and longitudinal level for speeds of more than 300km/h; those are identified as open points until an agreement is reached to define a value in the TSI. This means that, until harmonised values are defined, Member States shall set out national rules to cover these parameters.

It must be noted that the INF TSI does not contain every element necessary to perform



comprehensive track maintenance, only those parameters that are essential to ensure interoperability. The frequency and means for inspections or the requirements for maintenance of key elements such as rails, fastening systems or sleepers are not part of the harmonised European legislation.

It is the responsibility of infrastructure managers in their maintenance rules – developed within the procedures described in their Safety Management System (a requirement of Article 9 of Directive (EU) 2016/798) – to ensure that the essential requirements of the directive are maintained throughout the lifespan of the infrastructure. The voluntary EN harmonised standards on track maintenance may support this process, providing presumption of conformity with the EU legislation when applied to defining maintenance rules.

This approach allows for a flexible maintenance strategy for each infrastructure manager while ensuring interoperability and safe running of trains. Importantly, it also links the risk to the type and frequency of maintenance needed. The benefit of further harmonisation in EU legislation regarding the field of track maintenance is questionable. Given the heterogeneity of the EU railway networks, the different organisation of the infrastructure managers and varying means and resources



available to them, as well as various operational risks of the network, they cannot be treated the same.

EU support for research and innovation in the field of track maintenance

It is worth mentioning the effort driven by Shift2Rail in the field of track maintenance. This crucial research and innovation programme is implemented by a joint undertaking established

“ The Fourth Railway Package and its technical pillar brings new inputs to the field of track maintenance ”

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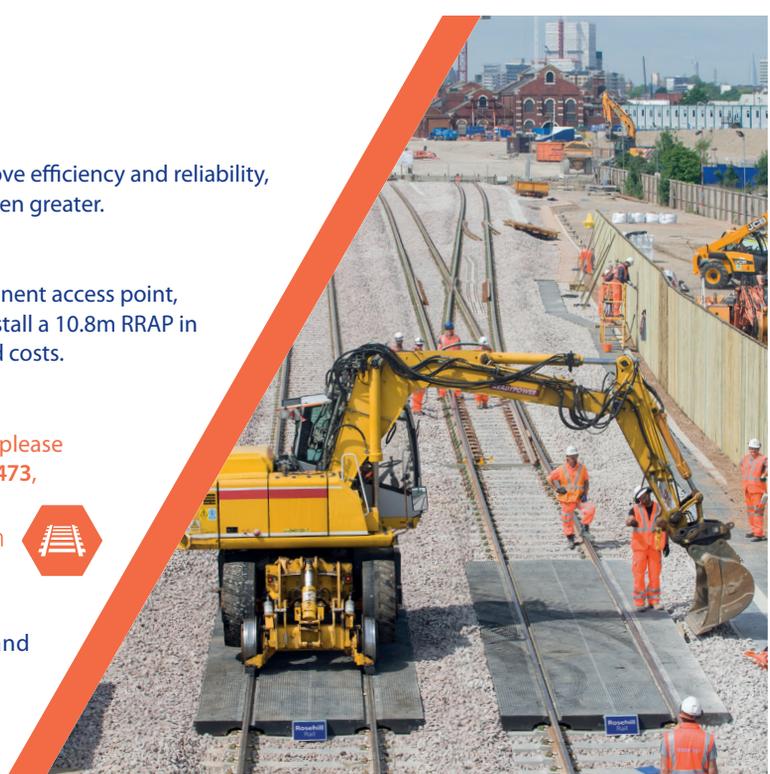
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in June 2014, grouping the European Commission and the rail sector. The aim is to double the capacity of the European rail system and increase its reliability and service quality by 50%, all while halving life-cycle costs.

Expectations are high for the outcomes of the integrated technology demonstrator dedicated to intelligent asset management. Three technology demonstrators will propose solutions beyond the state of the art for a Dynamic Railway Information Management System (DRIMS), a Railway Integrated Measuring and Monitoring System (RIMMS) and Intelligent Asset Management Strategies (IAMS). The Agency is supporting Shift2Rail activity, following-up projects and contributing with technical input.

Fourth Railway Package and the evolution of the INF TSI

The Fourth Railway Package and its technical pillar brings new inputs to the field of track maintenance. In accordance with Article 5 of Interoperability Directive (EU) 797/2016, the Commission is empowered to adopt 'delegated acts' in order to set out the specific objectives for the drafting, adoption and review of each TSI.

The new 'delegated act' will be the basis for future revisions of the INF TSI. The incorporation of new developments of the railway sector and related

research and innovation activities (in particular Shift2Rail), as well as the growing concern about reduction of infrastructure maintenance costs while ensuring continued interoperability, will be a key issue. In the future the Agency will analyse this information and consider what further revision of requirements is needed in the harmonised legislation in line with the legal basis.

After the publication and entry into force of the Commission 'delegated act', the infrastructure working party (INF WP), led by the Agency, will be initiated with the objective to issue an improved INF TSI. This is likely to be at the beginning of 2018. The INF WP will be composed of experts appointed by the European Representative Bodies of the Railway sector (e.g. CER, EIM, NB-RAIL and UNIFE), the Intergovernmental Organisation for International Carriage by Rail (OTIF), the National Safety Authorities (NSAs) and independent experts in a particular field, called by the Agency if necessary. The closure of the remaining open points and the evolution of the technical requirements for track maintenance with a view of possible further harmonisation, will be one of the key elements of analysis of the Agency and the INF WP. The outcomes of this activity will enhance the level of interoperability of rail infrastructure and contribute to development of a single European railway area – without frontiers and the guarantee of a high level of safety. 



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