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Route compatibility checks

Developing parameters, procedures and registers to check compatibility between train and infrastructure.

1. INTRODUCTION

At WG TECH 32 and on earlier occasions it was discussed whether a register of infrastructure would have to be set up under COTIF. This paper was initially prepared for WG TECH 33 and subsequently amended for WG TECH 34 and sets out the views of the OTIF Secretariat to support a discussion on the subject.

Initially this paper focussed only on the feasibility of the development of registers. Discussion on the basis of this paper at WG TECH 33 revealed that it may be better to focus on the aim of ensuring that railway undertakings can check compatibility between trains and the network. Registers may be a tool to this end, but other tools may be needed as well, such as harmonised procedures and the definition of parameters to be checked.

2. COTIF AS A NEUTRAL LEGAL REGIME

COTIF is neutral as to whether or not states grant access to (foreign) railway undertakings to operate trains on their railway lines, or whether international rail transport is performed by exchanging vehicles at border crossing stations. In this context, ATMF is suitable for application either by states which have a single integrated state railway, states which have an open-access network or states which have a mixture of these two systems. For this reason, it is necessary to develop provisions under ATMF which are proportionate and useful in the context of all these different railway markets.

ATMF provides a legal basis upon which vehicles can be mutually accepted by different states, but it does not provide a full legal basis upon which the safe operation of trains can rely. One of the aspects to be managed in order to ensure safe operation is that the vehicles and the infrastructure must be compatible. In order to ensure this compatibility, railway undertakings will need to be aware of all the parameters that are relevant in terms of this compatibility.

The safe operation of trains (in international traffic) is not (yet) covered by COTIF and is therefore subject to the provisions in force in each state. Each state is deemed to have established all the relevant rules and practices applicable to the railway undertaking(s) operating on their territory, including those relevant for ensuring compatibility between vehicles and infrastructure.

3. RESPONSIBILITIES UNDER ATMF

The scope of ATMF is limited to procedures for the admission to circulation or use of vehicles. It is important to bear in mind that there are many different kinds of vehicles, so that wagons and locomotives, as well as multiple units (i.e. trainsets) are considered as vehicles. A certificate of operation for a vehicle issued in accordance with ATMF as proof of admission to international traffic does not mean that the vehicle can be used on every line or route.

In accordance with Article 6 § 2 ATMF, it is the responsibility of railway undertakings to operate vehicles only on compatible infrastructure, according to the vehicle's specifications and other conditions of the vehicle's admission. In addition, it is the obligation of the infrastructure manager, in accordance with Article 15a § 4 ATMF, to make available to any rail transport undertaking operating on its network, as far as is necessary for operation, the elements relating to the infrastructure characteristics.

Even when a railway undertaking is operating vehicles which do not belong to its own fleet, which may particularly be the case in international traffic, it has a duty to ensure that all vehicles are compatible with the infrastructure. Each railway undertaking operating on a particular route must therefore have access to all relevant interface information concerning the vehicles and the route before it operates a train. It follows that in the event that a railway undertaking is not able to ascertain such compatibility, it should not operate the vehicle.

4. ROUTE COMPATIBILITY CHECKS

The traditional way of overcoming compatibility differences between infrastructures of different states was to use vehicles with a low number of interfaces and to harmonise these vehicles to a large extent. In practice, this was done under the RIC and RIV agreements concerning passenger coaches and freight wagons respectively. This has been successful, as evidenced e.g. by the many freight wagons that are used internationally. The positive effect is that railway undertakings receiving wagons from abroad will usually be familiar with the technology and be able to integrate such vehicles easily in their trains. The downside however has proven to be a lock-in of old technology with a detrimental effect on innovation. The result is that even today most newly produced freight wagons in the European Union (EU)/OTIF area are based on old, suboptimal technology.

In order to allow railways to make technological progress and increase efficiency, COTIF and EU law have been developed over the last decade to include open, functional specifications which allow innovation and modern solutions. The drawback to this is that there may be a bigger variety of vehicles and it becomes more complex to manage compatibility.

Traditionally, the compatibility between infrastructure and more complex vehicles such as locomotives and train sets is hardly harmonised at international level. This may be explained by the fact that most railway companies' traffic was, and still is, at domestic level. At the same time it is clear that if the railways as a mode of international transport are to become more efficient, true cross-border operations of complete trains, rather than exchanging vehicles, will be necessary. This also means that the complex compatibility issues need be addressed. Increasingly, resources are being dedicated to making railways interoperable. Notable examples are the creation of a single European railway area by the European Union and the creation of a network that is interoperable between the six states of the Gulf Cooperation Council, as well as developments at the level of OTIF.

The procedures for obtaining and comparing the relevant information from the vehicle and infrastructure are not regulated in COTIF and are therefore subject to the provisions in force in each state. There may be significant differences between states as to how these information exchanges are organised. If, for example, the railway system in a state is operated by a state monopoly which includes under one roof the functions of both infrastructure management and train operations, the information exchanges could be internal. As long as the only vehicles used internationally on the network of such a state are 'RIV-type' wagons and 'RIC-type' coaches there is probably no real need to make public all the details of the infrastructure. However, if in a state the railway network of one infrastructure manager is used by multiple railway undertakings, it may be necessary for the infrastructure manager to provide the relevant information to all railway undertakings using its infrastructure.

Some compatibility parameters can be checked by comparing the physical characteristics of the vehicle with those of the infrastructure. For such characteristics, such as, for example, the weight, gauge etc., registers or lists may be helpful. Other parameters such as, for example, electro-magnetic compatibility, elements related to the signalling system and running dynamics, are more difficult to compare on the basis of physical characteristics and tests may be required to establish whether a vehicle is compatible with a particular line. For these complex compatibility parameters the main challenge is establishing whether compatibility exists, not how to make the characteristics of the infrastructure accessible.

5. AIMS

The further development of interoperability creates a sort of paradox: in order for railways to become more efficient and competitive, complete trains should be able to be operated across borders; in order to achieve this, more complex types of railway operations, costly tests and procedures have to be established, with a potentially detrimental effect on efficiency. This illustrates that there may be no one-size-fits-all solution. Nevertheless, in order to promote, improve and facilitate in all respects, international traffic by rail, it seems justified to provide tools and provisions to those who pursue

interoperability on the largest scale. The alternative - harmonising only to the lowest common denominator - will be detrimental to rail transport and lead to a complete standstill in developments.

The provisions under COTIF should therefore:

- Facilitate the checking, by railway undertakings, of compatibility between the vehicles and the infrastructure on which they will run.
- Harmonise as far as possible the procedures to be applied by railway undertakings and the input to be provided by the infrastructure manager.
- Suit the needs of the states and the actors pursuing full interoperability.
- Take account of the operational, organisational and technical differences between states applying the provisions, in particular those not pursuing full interoperability.
- Not lead to undue costs for operational actors or Contracting States.

6. PRACTICAL NEED FOR REGISTERS

Registers for checking route compatibility will mainly be relevant in an open railway system, where railway undertakings run trains on several networks and have to coordinate their activities with several infrastructure managers and vice versa. Their registers are therefore, in particular, tools to support the operation of trains in international traffic.

Registers and in particular a register of infrastructure characteristics could also help manufacturers, railway undertakings, keepers, etc. to develop vehicles or services for certain routes or networks.

In its efforts to create a single European railway area, the European Union is implementing tools to support railway undertakings when operating trains on different networks. Among these tools are two registers; one is the register of infrastructure (RINF) and the other is the register of authorised types of vehicles (ERATV). The implementation of these registers has not yet reached a fully operational level.

7. WAY FORWARD

Parameters and procedures for checking the parameters should be harmonised as far as possible. Registers can be a tool – among others - to this end.

The registers would mainly be of relevance to states which have some form of open access on their network. Most of the states which have an open-access model apply EU law and as such are already connected to the development of RINF and ERATV. The EU registers are not yet fully operational and the EU will further develop its RINF and ERATV registers and gather experience in their application. It would be useful if the EU could keep the WG TECH and Committee of Technical Experts informed about the development of these registers and provide feedback on experience in applying them.

Even though the registers could be of use in the context of ATMF, the development seems more relevant in the context of the future Appendix H to COTIF concerning the safe operation of trains in international traffic. Therefore, unless there is a clear need expressed by states which do not apply EU law, the Secretariat suggests discussing the creation of these registers further after the new Appendix H is adopted.

8. PROPOSAL FOR DECISION

1. The Committee of Technical Experts takes note of the document.
2. The Committee of Technical Experts agrees with the aims set out in chapter 5.

3. The Committee of Technical Experts requests the WG TECH, in close partnership with the European Union Agency for Railways, to develop the parameters of the vehicles and infrastructure to be checked by railway undertakings and the procedures to be applied to check these parameters to ensure compatibility between vehicles and the routes on which they are to be operated. In terms of process these compatibility parameters should first be developed within the EU and, as a second step, checked by non-EU states to decide whether additional parameters are necessary in order to take into account specific situations on their networks.
4. The Committee of Technical Experts invites the EU to keep the Committee of Technical Experts and its WG TECH informed about the development and implementation of the registers for checking compatibility between vehicles and infrastructure in the EU.
5. The Committee of Technical Experts requests the WG TECH to follow closely the development of these EU solutions and, where relevant, other solutions and to make proposals to the Committee of Technical Experts for implementing provisions in accordance with the aims set out in chapter 5.
