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Directorate-General for Internal Policies of the Union

NOTE

Policy Department Structural and Cohesion Policies

INTEROPERABILITY OF THE COMMUNITY RAILWAY SYSTEM

I

REVISION OF THE EC RULES, BETTER REGULATION
AND SIMPLIFICATION, IMPLICATIONS
TO THE EC SAFETY RULES AND ERA

TRANSPORT AND TOURISM

April 2007

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**REVISION OF THE EC RULES, BETTER REGULATION
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NOTE

Content:

- Revision of the EU regulatory framework under the objective of better regulation and simplification;
- Implications to the proposed directive on safety of the community's railways and regulation of the European Railway Agency.

IP/B/TRAN/FWC/2006-156/Lot2/C1-SC1

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List of abbreviations

TSIs	Technical Specifications of Interoperability
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
GSM-R	GSM-Railway
EMUs	Electrical multiple units
DMUs	Diesel multiple units
A.C.	Alternating current
D.C.	Direct current
ERA	European Railway Agency

Abstract

The present note discusses provisions related to railway interoperability; in particular, starting from the present dispersion of those provisions in different legislative acts, it is analysed the possibility and opportunity (qualitative advantages and costs) of merging all the provisions into the interoperability directive, under the rationale of better regulation and simplification of the regulatory environment.

The proposal for amending directive 2004/49/EC is discussed referring, in particular, to Article 14. The approach seems to be effective in reducing costs of railway interoperability (reduction in certification costs, increase in the overall competition level of the railway industry and positive effects on the second-hand rolling stock market); reduction in cost and time of rolling stock certification can have positive effects in terms of cost efficiency and can increase the (positive return in terms of) European Added Value. Implications of the new proposal on interoperability to the European Railway Agency are also analysed: the proposal seems to confirm the role of the agency as a player mainly aimed at advising and assessing processes.

As result of the analysis, complying with the aim of simplification of the regulatory environment, it is possible to recommend to merge Article 14 of the proposal into the new directive on railway interoperability, due to the strong linkages between safety and interoperability. In the medium run it seems to be recommendable the analysis of a new possible directive merging all the provisions related to safety, interoperability and the European Agency. Moreover, in the long run, a stronger role for the European Railway Agency is also proposed.

Short overview on interoperability

Following the Treaty (art. 154 and 155) one of the aim of European Union is the establishment and development of trans-European networks in the area of transport. The implementation of any measure that may prove necessary to ensure the interoperability of the networks, in particular in the field of technical harmonisation, is a contribution to achieve these objectives.

Railway interoperability and railway safety are strongly related items. The Directives which establish the legal framework date back to the year 1996 and are listed in Table 1, together with the Communications issued in the last year and containing the elements of the process for the creation of a new normative environment (Table 2). National transposition of the European normative is shown in Table 3.

Interoperability involves several sub-system of the railway transport mode (both for conventional and high speed lines), such as:

- infrastructure and energy (electrification system);
- control and command and signalling: the equipment necessary to ensure safety and to regulate movements of trains authorised to travel on the network;
- operation and traffic management (including telematic applications): procedures and related equipment enabling a coherent operation of the different structural subsystems and professional qualifications required for carrying out cross-border services;
- rolling stock: vehicle dynamics and superstructure, command and control system for all train equipment, current-collection devices, traction and energy conversion units, braking, coupling and running gear and suspension, doors, man/machine interfaces, passive or active safety devices and requisites for the health of passengers and on-board staff;
- maintenance: procedures, associated equipment, logistics centres for maintenance work.

Railway interoperability is developed through the introduction of Technical Specifications of Interoperability (TSIs) concerning the specific subsystems; TSIs are also related to security issues, even though security and interoperability are, at present, regulated by different normative initiatives. The European Railway Agency is directly involved in the interoperability process with the role of advising and assisting the process, adding a strong new momentum towards the shared vision of a truly integrated, competitive European railway area; moreover, the Agency is in charge for the development of some TSIs.

Consequently, railway interoperability is not only a matter of technical compatibility of rolling stock (either existing or new) with network (again existing or new): in other words, if a specific rolling stock can technically operate on a specific railway line. On the contrary, it is also a complex system of administrative procedures aimed at guaranteeing that interoperable rolling stock and railway lines present common or compatible characteristics (the TSIs). In the past years, efforts have been concentrated both on the technical side and on the administrative side, in order to build up a European reference normative framework.

Being railway interoperability a relatively new focus among European policies, few statistical data are available at the moment. Locomotives and traction units⁽¹⁾ interoperability represents one of the main aims of the whole interoperability process. As it is possible to note, less than 15% of the whole European fleet can “interoperate” (Figure 1, Figure 2, [1]). Also given to its geographical position, Austria is the country where the highest number of locomotives not originally registered there is allowed circulating. No specific and detailed statistical data are available for safety issues related to interoperability.

Rolling stock evolution and signalling evolution represents the most recent development in the railway sector. In particular, the introduction of the ERTMS/ETCS⁽²⁾ (European Rail Traffic Management System/European Train Control System) systems and standards for signalling and train control, replacing national signalling systems, represents a huge step in the direction of higher level of interoperability; at present, about 6.000km [2] of railway lines (on a total length of 94.500 km of the Trans European networks) [3] are equipped or being equipped in the next years with ERTMS/ETCS technologies. Costs of retrofitting existing lines with new ERTMS technologies are falling sharply and in the future satellite navigation (Galileo programme) will provide further opportunities also for railway interoperability.

⁽¹⁾ Diesel multiple units (DMUs) and electrical multiple units (EMUs).

⁽²⁾ ETCS is a subsystem of ERTMS.

Analysis of the proposal for amending directive 2004/49/EC on safety

Directive 2004/49/CE concerns safety of the Community's railways. COM(2006) 784 final provides a proposal of amending directive 2004/49/CE introducing elements of interoperability; in particular, it amends article 3, 4, 5, 6, 7, 10, 14 and article 26 and it introduces new articles 14a and 14tb and the new annex VI.

Article 14 of the proposal introduces the main changes to the existing directive. In fact, it introduces the principle of the mutual recognition: if an authority in a Member State has already issued an entry-into-service authorisation for existing rolling stock, the authority of a second Member State will not be able, in principle, to request additional duties.

The proposal introduces a new smart classification of the existing national rules that also seems to be helpful in reducing the possibility of an authority to seek additional powers. In fact, the proposal introduces (Article 14, detailed in Annex VI) a reference tool modelled on national rules, considering each specific parameter. Rules are classified in three groups:

- group A: international standards and national rules deemed to be equivalent in terms of railway safety to rules of other Member States;
- groups B: rules not classifiable in group A or C or not yet classified;
- group C: rules that are strictly necessary and that are associated with the technical characteristics of a specific network.

The approach seems to be effective in reducing the costs of railway interoperability and, consequently, of the whole railway industry, as well as in improving safety levels. In fact, on the cost side (strictly related to cost efficiency and the increase in the European added value), the process and the framework introduced by the proposal allows:

- reducing certification costs (as for aspect covered by rules in group A, a single certification process can be required by authorities);
- reducing certification time (once rolling stock has been certified in a Member State, certification process in other Member States will tackle only network-related issues);

These two factors can (positively) affect:

1. the overall competition level of the railway industry, both against other transport modes and among train operating companies (train operating companies can enter different markets at lower costs with their rolling stock);
2. the rolling stock second hand market, in particular in countries where strong ex-incumbents still dominate the railway market and where new entrants can experience problems in leasing or buying locomotives allowed circulating on those country networks (including national sectors of international routes);
3. the development of rolling stock companies, i.e. those companies whose business is to lease rolling stock to train operating companies, exactly as it happens in the air transport industry.

Rolling stock companies are an important player in the UK context, but their role is still marginal in the rest of the European Union. Nevertheless, the presence of several lessors and relevant share of rolling stock available for leasing is a relevant driver and factor of success in increasing the overall competition level of the railway industry.

In conclusion, reduction in cost and time of rolling stock certification can have positive effects in terms of cost efficiency and can increase the (positive return in terms of) European Added Value, as it can reduce the total cost of the railway transport, with positive effects on countries, such as new comers countries, where railway transport (in particular, freight railway transport) still has a strong role.

On the other side, in terms of safety, the COM(2006) 784 final proposal (in particular thanks to rules of group A) aims at making equal the outputs of safety certifications among Member States. Following, for example, further European normative initiatives, the proposal could lead to common records (in all Member States) for rolling stock's history of operations⁽³⁾, according to a process of simplification and standardisation of the whole procedures. As side effect, common procedures usually generates benefits in terms of reduction of accident rates, by reducing the spaces where human errors might occur, in particular if rolling stock maintenance is done by personnel in different Member States that is required to respect national specific rules.

It is important to note that not all the aspects related to safety are also related to railway interoperability, even though technical questions are often strictly linked. It is the case, for example, of rolling stock built or purchased to be operated only on one network (locomotives for regional services, for example). As this non-interoperable rolling stock operates on the same lines of interoperable rolling stock, it should satisfy the same requirements in terms of safety aspects. The introduction of two certification regimes (interoperable and non-interoperable) for safety aspects could lead to a reduction of the overall safety level (being procedure different). Analogously, the definition of differentiated technical standards for interoperable and non-interoperable rolling stock, further to generate operational problems, does not comply with the long term aim of a fully compatible and interoperable European rolling stock fleet.

⁽³⁾ Records are also introduced by Article 14.2.c of the COM(2006) 784 final proposal.

Implications of the new proposal on interoperability to the European Railway Agency

Implications of the new proposal on interoperability to the European Railway Agency have to be discussed both according to the existing regulation on the Agency (Regulation (EC) 881/2004 on the institution of the European Railway Agency) and also considering the proposal COM(2006) 785 final amending Regulation (EC) 881/2004, that provides new duties for the Agency relevant in terms of railway interoperability.

Proposal COM(2006) 784 amending the railway safety directive 2004/49/CE explicitly introduces the Agency and discusses its role mainly at Article 14.7: “whenever an item of rolling stock is due to be placed in service pursuant to this article, the Agency may be approached with a request for technical advice [...]”. Agency is also introduced in the proposal at Article 14a with the aim of facilitate the allocation of the national rules in order to permit the adoption of a reference document cross-referencing all the national rules applied from the Member States to put rolling stock into service (according to article 8a of the proposal COM(2006) 785 final).

The proposal seems to confirm the role of the Agency as a player mainly aimed at advising and assisting processes. This is consistent with the role of the Agency, as defined by regulation (EC) 881/2004 and by the new proposal on the Agency, and consolidates its function in the certification procedure and process. Moreover, the new duties for the Agency reflect the results of the impact assessment procedure (SEC(2006) 1641): it is possible to exclude, according to proposals, a new and wider role for the Agency.

Proposal on Agency complies with the results of the impact assessment, although the methodology to derive the final assessment is not clear. Some criticism can be underlined also referring to the results of the impact assessment concerning the role of the Agency and an extension of the impact assessment (SEC(2006) 1641) introducing quantitative elements seems to be recommendable, being the impact assessment merely qualitative. In fact, impact assessment, even though it introduces several options including the reference scenario, lacks of quantification of cost and benefits (even in a simplified fashion) and of a methodology aimed at weighting the different effects.

According to our opinion, the ongoing process of revision and consolidation of the Railway Interoperability and Safety Directives could have suggested the introduction in the long run of new duties for the European Agency.

In particular, replacing and substituting national authorities in the certification process, the Agency could be in charge of delivering authorisation for placing into service which are valid in several Member States, according to a one-stop-shop rationale⁽⁴⁾; this could have led to further reductions in time and cost of the certification process and in the administrative burden on firms, with positive impacts on train operating companies, on rolling stock companies and on the whole railway industry, laying in the framework of simplification of the regulatory environment. Compared to national authorities, such an Agency could guarantee an impartial process for non-national (same country of the national authority) operators and suppliers, even though there could be risk of strong pressure of lobbies impacting on Agency’s role and authority.

⁽⁴⁾ Also introduced by option C4 and, with some differences, option C4A of the impact assessment (SEC2006)1641).

Conclusions and policy indications

Conclusions and policy indications can be discussed with reference to short run (definition and first effect of the proposal) and long run scenarios (impacts on European Railway Agency).

1. According to the results of the analysis, it seems reasonable to merge safety elements into a directive on interoperability, which means to merge Article 14 COM(2006) 784 (amending the railway safety directive) in COM(2006) 783 (new directive on railway interoperability). This complies with the aim of simplification of the regulatory environment. In fact, interoperability concerns safety items: even though some questions related to interoperability are not related to safety, several technical aspects are strictly interrelated. Prescriptions and certifications for safety strongly affect interoperability levels and vice-versa, for example, for the following elements: maintenance, safety equipment (control and command, track-to-train communication system, tank and tank wagons, load securing, etc.).
2. Consequently, the possibility to move to the interoperability directive only safety aspects (in the form of a lighter version of Article 14 COM(2006) 784 in COM(2006) 783) directly related to interoperability questions should be rejected, as it could lead to more complicated and more expensive certification process; in other words, all the elements related to safety and safety certifications should be always kept together (either related or not related to railway interoperability) and not spread into two directives.
3. In the medium run, it seems to be recommendable the hypothesis of analysing a full merge in a new general directive of the present interoperability directive (and proposal of new directive) and safety directive (including new proposals), concerning also the operative role of the European Railway Agency (consequently, regulations on the Agency should only tackle administrative elements). This opportunity is supported by the fact that the impact assessment of the new proposal concerned at the same time the European Railway Agency, the safety directive and the interoperability directive.
4. In the long run, new duties of the European Railway Agency could be considered a possible intermediate step of a wider process aimed at transferring competencies from Member States to European Authorities; under this approach, the effect of the present proposal (COM(2006) 784 final) represents a sensible intermediate options in terms of cost and benefits (considering the budgetary implication of the proposal of new regulation for the Agency), still keeping alive further options in the future.

Bibliography

[1] SEC(2006) 1641

[2] DG Tren, *ERTMS in 10 questions*,

<http://ec.europa.eu/transport/rail/interoperability/doc/ertms-10-en.pdf>

[3] http://ec.europa.eu/ten/transport/priority_projects_minisite/facts_en.htm

Annex: Tables and graphs

Table 1. Legal framework for railway interoperability

Council Directive 96/48/EC of 23 July 1996	On the interoperability of the trans-European high-speed rail system
Directive 2001/16/EC of the European Parliament and of the Council of 19 March 2001	On the interoperability of the trans-European conventional rail system
Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004	On safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive)
Directive 2004/50/EC of the European Parliament and of the Council of 29 April 2004	Amending Council Directive 96/48/EC on the interoperability of the trans-European high-speed rail system and Directive 2001/16/EC of the European Parliament and of the Council on the interoperability of the trans-European conventional rail system
Regulation (EC) No 881/2004 of the European parliament and of the council of 29 April 2004	Establishing a European Railway Agency (Agency Regulation)

Source: TRT *Trasporti e Territorio*.

Table 2. Commission's documents on railway interoperability and safety

COM(2006) 782	Communication of the Commission to the Council and the European Parliament - "Facilitating the movement of locomotives across the European Union" {SEC(2006) 1640} {SEC(2006) 1641} {SEC(2006) 1642}
COM(2006) 783	Proposal for a Directive of the European Parliament and of the Council on the interoperability of the Community rail system
COM(2006) 784	Proposal for a Directive of the European Parliament and of the Council amending Directive 2004/49/EC on safety on the Community's railways
COM(2006) 785	Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 881/2004 establishing a European Railway Agency
COM(2006) 660	Report from the Commission to the Council and the European Parliament - Progress report 2000 to 2005 on the implementation of the Interoperability Directives (96/48/EC for high speed rail and 2001/16/EC for conventional rail) {SEC(2006) 1418}

Source: TRT *Trasporti e Territorio*.

Table 3. Overview of the transposition of the European Normative in the national normative (updated 28/08/2006)

	Directive 2004/49/EC	Directive 2004/50/EC	Art. 8	Art. 16(3)
BE	N	N	Y	N
CZ	Y	Y	Y	Y
DK	Y	Y	Y	N
DE	N	N	Y	N
EE	N	Y	Y	N
EL	N	N	Y	N
ES	N	Y	Y	N
FR	Y	Y	Y	N
IE	Y	Y	Y	N
IT	N	N	Y	N
CY	-	-	-	-
LV	Y	Y	Y	N
LT	Y	Y	Y	Y
LU	N	N	Y	Y
HU	Y	Y	Y	N
MT	-	-	-	-
NL	N	N	Y	Y
AT	N	N	Y	N
PL	Y	Y	Y	Y
PT	N	N	Y	N
SI	N	N	Y	N
SK	Y	Y	Y	N
FI	Y	Y	Y	Y
SE	N	N	Y	Y
UK	Y	Y	Y	Y
NO	N	N	Y	N

Source: SEC(2006) 1641.

Notes:

Art. 8 notification of national safety rules (Art 8.2 Directive 2004/49/EC).

Art 16(3) notification of national technical rules (Art. 16(3) Directive 2001/16/EC amended by Art. 2 of directive 2004/50/EC).

Figure 1. Estimated number of vehicles in EMUs/DMUs allowed to operate in each Member State and not initially registered there (source: [1])

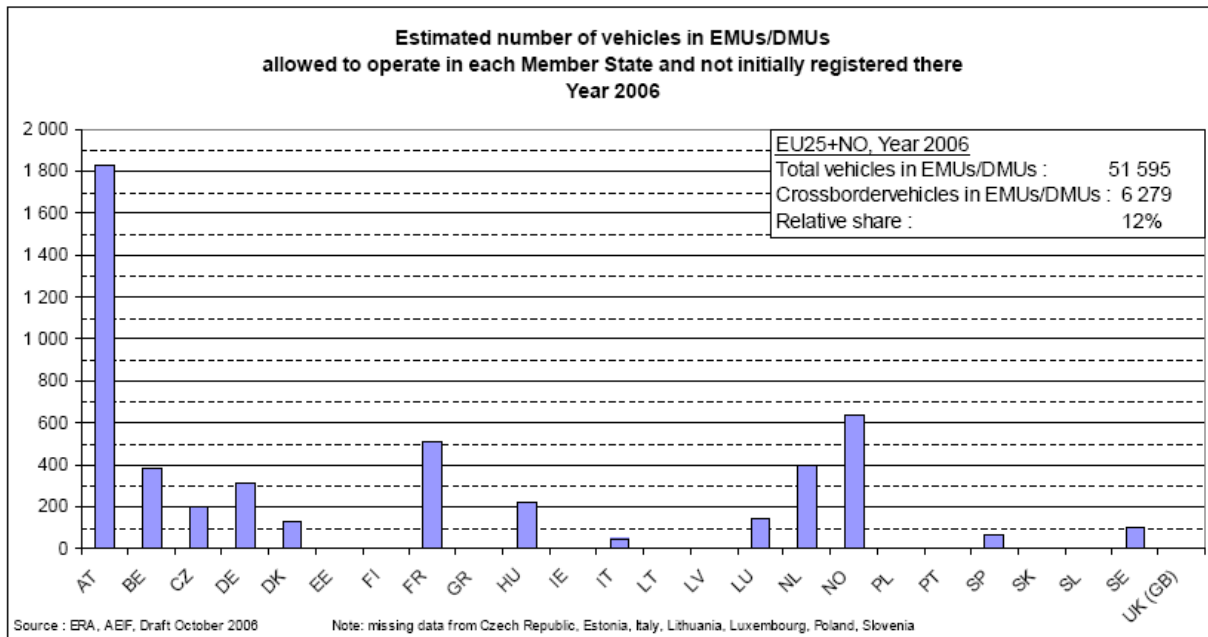


Figure 2. Estimated number of locomotives allowed to operate in each Member State and not initially registered there (source: [1])

