Railway System Report

Pilot Phase Findings

EUROPEAN UNION AGENCY FOR RAILWAYS

* Following the entry into force of the technical pillar of the 4th EU Railway Package (Reg. 2016/796), the European Union Agency for Railways replaces and succeeds the European Railway Agency. The change of name requires also a new corporate design. The "Agency" refers as from now to the European Union Agency for Railways. However depending on the context, some parts of this brochure still refer to the former European Railway Agency.

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List of abbreviations

APM	authorisation for placing in the market
APS	authorisation for placing into service
CCS TSI	Control Command and Signalling Technical Specification for Interoperability
CSI	common safety indicators
CST	common safety target
CUI	common user interface
DC	direct current
DCS	data collecting system
DMI	driver machine interface
ECVVR	European Centralised Virtual Vehicle Register
EDP	European deployment plan
EMS	energy measurement system
ENE TSI	Energy Technical Specification for Interoperability
Eradis	European Railway Agency Database of Interoperability and Safety
ERATV	European Register of Authorised Types of Vehicles
ERTMS	European Rail Traffic Management System
ESG	Economic Survey Group
ETCS	European train control system
EU	European Union
GPRS	general packet radio service
GSM-R	Global System for Mobile Communications — Railway
IM	infrastructure manager
INF TSI	Infrastructure Technical Specification for Interoperability
IoA	inventory of assets
LOC & PAS TSI	Locomotive and Passenger Rolling Stock Technical Specification for Interoperability
MoU	memorandum of understanding
NIB	national investigation body
NOI TSI	Noise Technical Specification for Interoperability
NSA	national safety authority
NVR	national vehicle register
OPE TSI	Operation and Traffic Management Technical Specification for Interoperability
PRIME	Platform of Rail Infrastructure Managers of Europe
PRM TSI	Persons with Reduced Mobility Technical Specification for Interoperability
RDD	reference document database
RINF	register of infrastructure
RISC	Railway Interoperability and Safety Committee
RMMS	rail market monitoring scheme
RSRD	rolling stock reference database
RU	railway undertaking
RVRR	rationalisation of vehicle-related registers
SERA	single European railway area
SRT TSI	Safety in Railway Tunnels Technical Specification for Interoperability
TAF TSI	Telematics Applications for Freight Services Technical Specification for Interoperability
TAP	telematics applications for passenger services
TAP TSI	Telematics Applications for Passenger Services Technical Specification for Interoperability
TEN-T	trans-European transport network
TSI	technical specification for interoperability
UIP	International Union of Wagon Keepers
VKM	vehicle keeper marking
VKMR	vehicle keeper marking register
WAG TSI	Wagon Technical Specification for Interoperability
WIMO	wagon and intermodal unit operational database

Foreword

Foreword

Josef Doppelbauer
Executive Director

Dear reader,

We are looking back on more than a decade of railway secondary legislation, proposed by the European Union Agency for Railways, based on European directives and increasingly implemented in the field in all areas, with the final aim of 'making the railway system work better for society'.

One of the roles of the European Union Agency for Railways (as we are now called, following the entry into force of the technical pillar of the fourth railway package in June 2016), besides its task of shaping the improved regulatory framework for the railway system, consists in verifying if the measures taken show their intended effect in the real world. This will be relevant, in particular, for evaluating the impact of the fourth railway package. It is therefore high time to start a thorough monitoring of the outcome of our activities, as these findings will tell us if the measures show their intended effects, what is going well and what needs to be improved further to achieve the intended goals. This aspect is in line with the Agency's strategic objective of 'objectivity': we need fact-based information on what happens on the ground to see how our measures work and to decide on potential corrective measures where needed.

We are pleased to present our first pilot-based picture of the outcomes of all the Agency's operational activities, complementing our reports that already exist on progress with safety and interoperability in the European Union. The railway indicators presented are – according to us — the key indicators on the performance of the EU regulatory regime, stipulated by the outputs of the Agency's four operational activities: 'A harmonised approach to safety', 'Removing technical barriers', 'A single EU train control and communication system' and 'A simplified access for customers'. You will notice that there is progress, and you will see that sometimes there is still some way to go before we achieve our common goal. However, this information is necessary for the European Commission and for the Agency to decide on the next steps to take.

The indicators presented are based wherever possible on data from electronic sources such as the Agency's registers and databases, to minimise the reporting burden on the railway sector. At the same time, they avoid any overlap with existing monitoring systems, such as the Commission's railway market monitoring scheme (RMMS) or the key performance indicator work stream of the Platform of European Railway Infrastructure Managers (PRIME),

and are intended to provide the missing elements for a complete view of the EU's regulatory impact on the railway system. Where data is currently not available we intend to present these data when it becomes available later on.

The scheme presented may evolve in the future, but we think it is a first important step to provide more clarity on the benefits generated by our work, in full alignment with the European Commission's 'better regulation' objective.

I want to take the opportunity to thank all the members of the Agency's Economic Survey Group, consisting of national safety authorities and of all the sector's representative bodies and their members, who have helped us to tackle meaningful issues and to fine-tune these indicators. We are happy that this approach has the full backing of the railway system's representatives — the stakeholders that are mainly keen on the better functioning and the beneficial effects of our work. We will use this monitoring to work constantly to make a better EU railway system happen — together.

Background

This report represents the outcomes of the pilot phase of the monitoring of the single European railway area (SERA) through the means of the newly developed railway indicators. Their development was initiated in order to address the need for better monitoring of different processes supporting the effective functioning of the SERA. They represent the result of the concerted effort undertaken by the Agency and its key stakeholders, in particular the network of national safety authorities (NSAs) and economic experts in the Economic Survey Group (ESG).

The series of railway indicators presented in this report were defined to enable regular monitoring of the progress towards achieving policy objectives, to provide for a comprehensive policy evaluation of the Agency's four operational activities, and for identification of areas of the railway system in which the policy objectives are not fully achieved or could be achieved more effectively.

The indicators complement the existing rail monitoring schemes such as the rail market monitoring scheme (RMMS) and key performance indicators of the Platform of Rail Infrastructure Managers of Europe (PRIME). They are meant to support the Agency's work in providing benchmarks linked to different activities and contribute to evidence-based decision-making. While some of them focus on the final outcomes, others pertain to different outputs related to the work of the Agency.

The railway indicators are reviewed regularly in the context of the network of NSAs and of the Rail Interoperability and Safety Committee (RISC) and every care is taken to ensure that the underlying data is coherent. The data collected for the preparation of the indicator values comes from a number of different sources ranging from Agency registers and databases to ad hoc stakeholder surveys. Following the completion of the pilot phase, this report should be produced regularly with enhanced and improved data.

This first edition of the railway systems report is partly based on data collected from different sources such as EU Member States, Agency Databases and the different stakeholders.

Although the Agency underwent extensive consultation on the draft values presented in this report, due consideration should be taken when interpreting the values of the railway indicators.

In order to improve the quality of future reports, you are kindly invited to report any incorrect data or rectification of data to indicators@era.europa.eu.

The full list of indicators from the pilot phase is currently as follows.

Operational activity	Railway indicator
Harmonised safety framework	RI 1.1 — Licenced railway undertakings holding a safety certificate
	RI 1.2 — Improvement of safety maturity level in Member State authorities
	RI 1.3 — Improvement of safety maturity level in the railway sector
	RI 1.4 — Improvement of railway safety performance
	RI 1.5 — Proportion of railway undertakings applying for Part B safety certificate in other Member States and reporting problems
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	RI 1.7 — Infrastructure managers with safety authorisation
Removing technical barriers	RI 2.1 — Evolution of the applicable national technical rules for vehicles
	RI 2.2 — Evolution of Member State processes for the authorisation of railway vehicles
	RI 2.3 — Time required from contract signing to commercial use per vehicle type
	RI 2.4 — Trackside infrastructure conforming to TSIs (INF, ENE, SRT)
	RI 2.5 — Technical barriers for vehicles resulting from derogations to infrastructure-related TSIs
	RI 2.6 — Progress towards interoperability of vehicles
Single EU train control and communication system	RI 3.1 — ETCS trackside costs and cost drivers
	RI 3.2 — ETCS on-board costs and cost drivers
	RI 3.3 — Maturity of ETCS specifications
	RI 3.4 — Proportion of vehicles equipped with the ETCS and with the ETCS only
	RI 3.5 — Core network equipped with the ETCS and the GSM-R
Simplified access for customers	RI 4.1 — Proportion of use cases served by the registers
	RI 4.2 — Impacts of TAF TSI functions
	RI 4.3 — Easiness-of-use (usability) of the Agency registers' IT tools
	RI 4.4 — Degree of satisfaction of the various end-users
	RI 4.5 — Proportion of stations included in the PRM TSI inventory of assets out of the total number of stations
	RI 4.6 — Proportion of TAF TSI functions implemented compared to the master plan

Railway indicators

Operational activity 1: Harmonised safety framework

RI 1.1 — Licenced railway undertakings holding a safety certificate

Why do we need the indicator?

Each railway undertaking (RU) (passenger and freight) should in principle have a valid licence (railway access directive ([1])) as well as a valid Part A safety certificate and at least one Part B safety certificate (railway safety directive ([2])) to be allowed to operate on the European rail network. Notwithstanding the provisions for exemptions available in the legislation, varying degrees between Member States as to the extent to which licenced RUs are in fact holding valid safety certificates (Part A and Part B) would be an indication that the implementation of the legislative framework is not fully harmonised across Europe.

What are we measuring?

The indicator measures the proportion of licenced RUs that also hold safety certificates in accordance with the railway safety directive. The indicator consists of two sub-indicators: (a) proportion of licenced RUs with a Part A safety certificate and (b) proportion of licenced RUs with a Part B safety certificate.

What is the desired target value?

In the case of (a) proportion of licenced RUs with a Part A safety certificate and (b) proportion of licenced RUs with a Part B safety certificate, a 100 % value is expected. This value would imply that all licenced RUs are holding Part A and B safety certificates.

How reliable is the data?

Information on licences and certificates is reported by NSAs to the Agency and stored in the European Railway Agency Database of Interoperability and Safety (Eradis) ([3]) database. Its quality and completeness thus depends on the quality of inputs by NSAs.

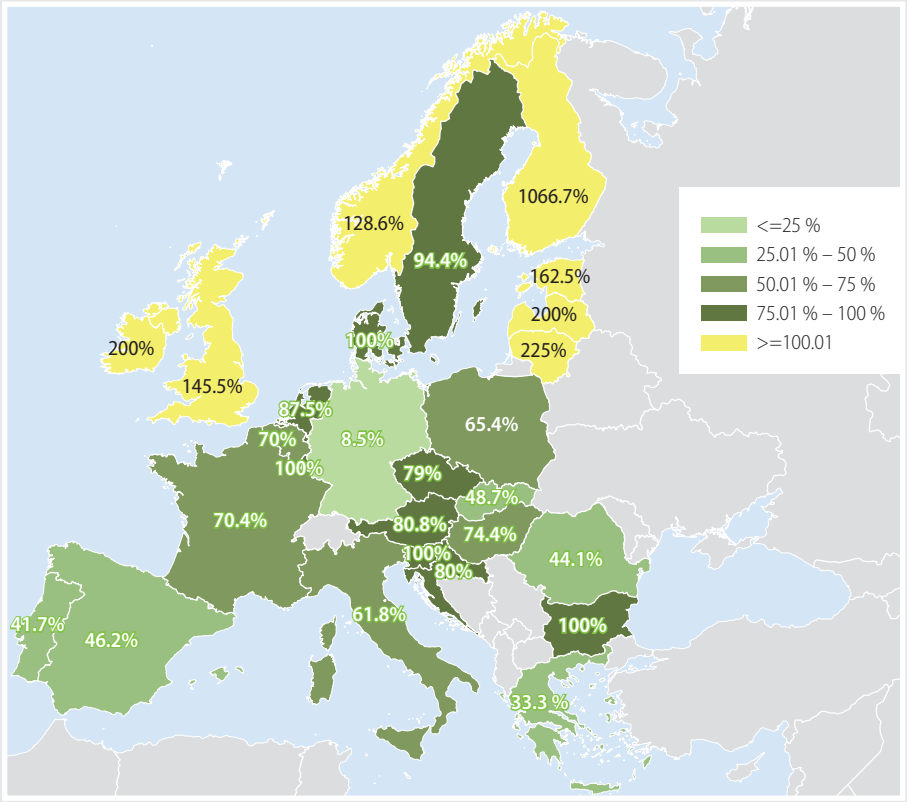
There are nowadays anomalies for a number of countries when it comes to (a) the proportion of licenced RUs with a Part A safety certificate, and (b) the proportion of licenced RUs with a Part B safety certificate as one can find a number of extreme values. These cases would need further analysis in order to identify the main causes and address them through the relevant measures as required.

What can we learn from the reported data?

The measurements show substantial variation in values between Member States from very close to 0 % to above 100 %. At this point it is too early to determine all the causes behind these results, but the quality of records in the Eradis database plays a role. The reported data contributes to enhanced transparency as to the extent to which the legislative framework regarding safety certification has been implemented in a harmonised way between Member States and it will be important to monitor the trends in the coming period.

([1]) Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area.
([2]) Directive 2008/110/EC of the European Parliament and of the Council of 16 December 2008 amending Directive 2004/49/EC on safety on the Community's railways.
([3]) http://eradis.era.europa.eu/

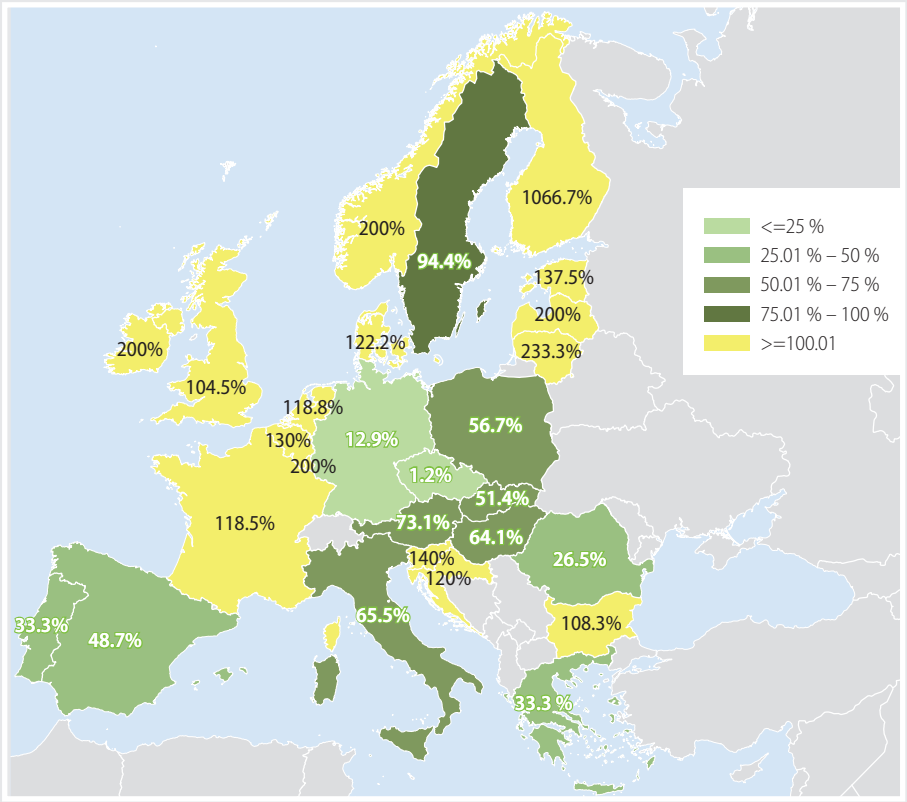
Figure 1: Proportion of licenced railway undertakings with Part A safety certificates



Timeframe of data: 2015

Source of data: ERADIS

Figure 2: Proportion of licenced railway undertakings with Part B safety certificates



Timeframe of data: 2015

Source of data: ERADIS

RI 1.2 — Improvement of safety maturity level in Member State authorities

Why do we need the indicator?

This indicator will enable the Agency to track how Member States are managing railway safety at a national level by assembling information on how their systems have been established and how they are functioning in practice. Although the responsibility for delivering safe transport rests on the infrastructure managers (IMs) and RUs, the national authorities (notably ministries, NSAs and national investigation bodies (NIBs)) provide the fundamentals of the framework within which the RUs and IMs provide their services. If there is poor performance in providing a clear legal framework, in assessing and supervising the capability of the RUs and IMs and in learning from accidents, then there are poor conditions for an overall high safety performance.

What are we measuring?

The maturity of processes put in place by relevant rail safety authorities is assessed with a matrix method (organisational maturity model) developed by the Agency. It looks at the regulatory framework that Member States put in place to manage railway safety and provides a high-level insight into how the regulatory authorities (transport ministries, NSA and NIB) carry out their duties, including their respective interfaces. A maturity level is assigned to 26 processes (sub-elements) grouped under five process groups: steering, organising, staffing, performing and evaluating. A score of 1 to 5 is assigned to each process group with 1 being the lowest level and 5 being the highest level of maturity. The total score is then calculated as the sum of these sub-scores, implying that the maximum value of the total score for each Member State would be 25 and the minimum value would be 5. The value of 25 would represent excellence in terms of safety maturity while 5 would represent an ad hoc approach. On the basis of the information, it would be possible to track trends in the overall average score across Member States (improvement) and the variation between Member States (convergence). The data displayed refers to results from six Member States participating in the 2014 matrix pilot exercise.

What is the desired target value?

At the moment, there is no explicit target established bound to a timeline. In principle, an aspirational common target would result in a reduction in variation in safety maturity between Member States together and an increase in the overall maturity level. This would imply that the safety maturity level for authorities across Europe is converging and also improving.

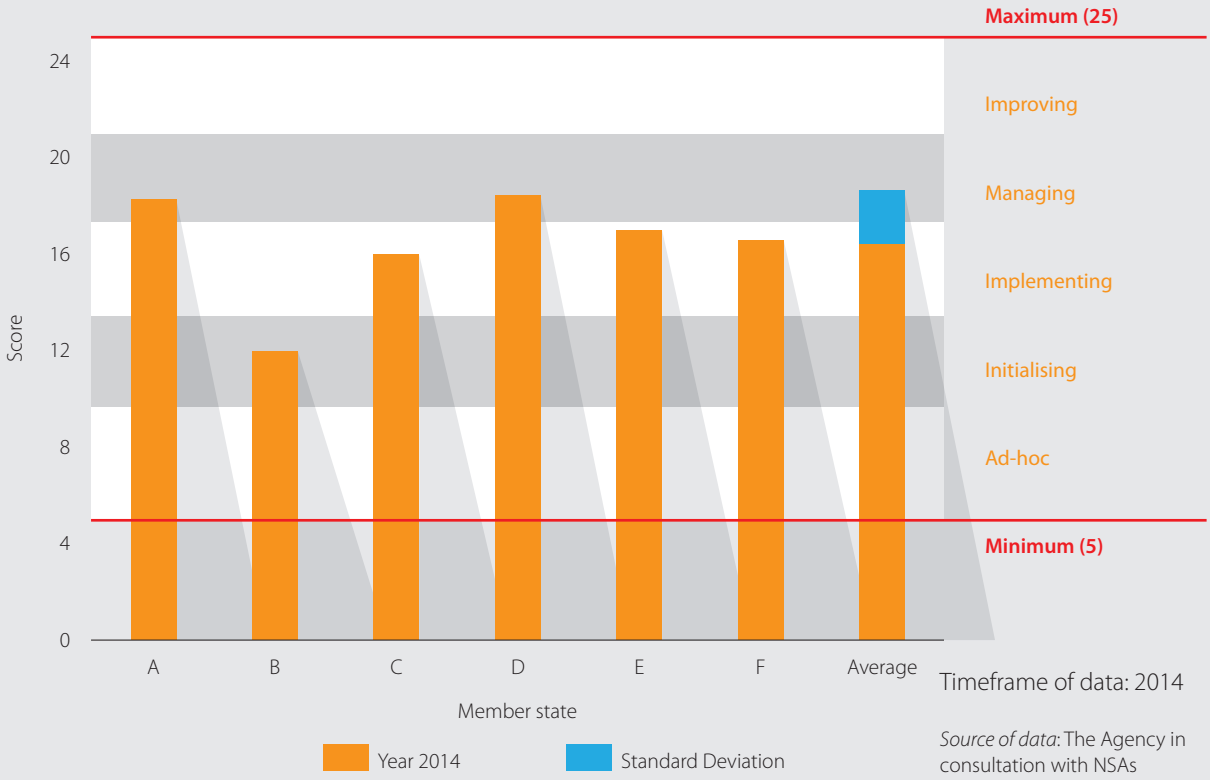
How reliable is the data?

The score is established as part of the qualitative assessment that follows the methodology developed by the Agency (matrix). As the scores are based on the Agency's expert judgements and evaluations there would be an element of subjectivity.

What can we learn from the reported data?

The maturity level scores established during the pilot assessment have confirmed the importance of giving consideration to the safety maturity level of Member States at a national level given the significant variation found. Regular monitoring could help to ascertain whether safety maturity levels are improving as well as converging between Member States.

Figure 3: Maturity level scores in Member State authorities



Timeframe of data: 2014

Source of data: The Agency in consultation with NSAs

RI 1.3 — Improvement of safety maturity level in the railway sector

Why do we need the indicator?

A key requirement for the SERA to work as intended is a high level of safety maturity for the stakeholders concerned. In particular, the railway safety directive determines that each IM and RU shall be made responsible for its part of the system and safe operation. The safety maturity level of RUs and IMs can be demonstrated through their understanding and implementation of safety management systems. This indicator will promote transparency regarding the trends in safety maturity at sector level across Europe.

What are we measuring?

The indicator will ultimately provide for measurement of the maturity level of IMs and RUs as evidenced in the supervision phase by NSAs. It will be based on an organisational maturity model approach similar to the one developed for measuring safety maturity at authority level (refer to RI 1.2). The information underpinning the indicator will give an overall picture of how mature the railway sector is in each Member State in terms of its understanding and implementation of safety management systems. At this point the work on this indicator is in the design phase in cooperation with the NSAs.

What is the desired target value?

There is no explicit target in either legislation or in policy documents. In principle, an aspirational common target would result in a reduction in variation in safety maturity at sector level together with an increase in the overall maturity level. This would imply that the safety maturity level for the sector across Europe is improving and also converging.

How reliable is the data?

The score will be established as part of the qualitative assessment that follows the methodology developed by the Agency (matrix). As the scores will be based on the NSAs' expert judgements and evaluations, there will be an element of subjectivity.

What can we learn from the reported data?

The maturity levels determined will confirm the importance of giving consideration to the safety maturity level of the railway sector. Regular monitoring could contribute to ascertaining whether the safety maturity levels are improving overall as well converging between countries.

Graphical representation to be presented when the data becomes available.

RI 1.4 — Improvement of railway safety performance

Why do we need the indicator?

According to the railway safety directive ([4]), railway safety should be maintained and where reasonably practicable improved. As part of this, a drive towards the convergence of railway safety performance between Member States is a core dimension, especially in the context of establishing the SERA. Indeed, reducing variations in safety performance across Europe would lower barriers to entry in different Member States. Monitoring trends in safety performance will track whether there is improvement and convergence across the EU.

What are we measuring?

The starting point for this indicator is for each Member State to calculate the ratio of total number of fatalities and/or the number of serious injuries (excluding suici
des) per number of train kilometres. From these ratios it is possible to calculate both the EU average and an aggregated measure of the extent of variation (standard deviation) between Member States. Measuring the EU average and the extent of variation over time will determine whether there is an overall improvement resulting in lower EU fatality and serious injury rates and whether there is convergence between Member States.

What is the desired target value?

There are explicit safety targets established under the common safety targets (CST) methodology, which uses similar metrics. However, for the metrics used for this indicator, there is no explicit target established. It is worth underlining here that the railway safety directive mentions that the safety level should be maintained and, where reasonably practicable, improved. Furthermore, there are implicit requirements for a reduction in variation in safety performance between the EU Member States.

How reliable is the data?

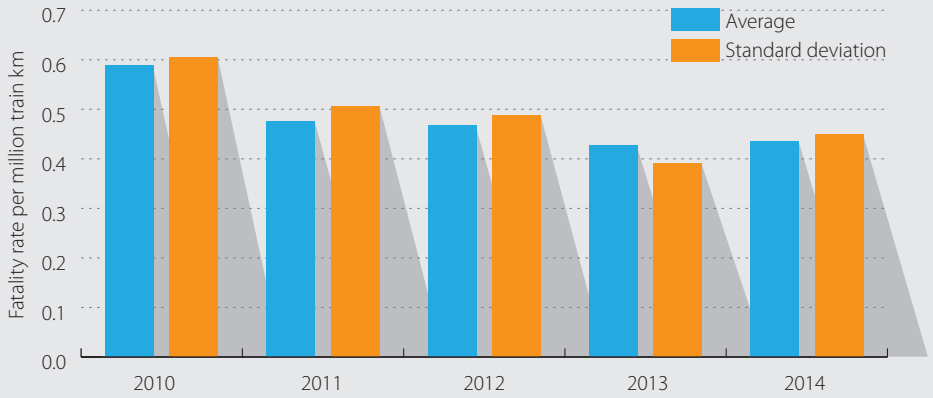
All underlying indicator data is reported under the mandatory reporting regime established in the railway safety directive. The common safety indicators (CSI) data is supplied by the RUs and IMs to the NSAs, which in turn deliver the national aggregated values to the Agency on an annual basis. Statistics on the total number of fatalities have a high level of reliability, while the statistics on seriously injured persons may be less comparable between Member States.

What can we learn from the reported data?

Three key lessons can be drawn from the reported data. Firstly, the trends in average fatality rate and average serious injury rate have mainly decreased so that the values were lower in 2014 when compared to 2010. However, the values for 2014 were somewhat higher than the ones for 2013. Secondly, the variation in fatality and serious injury rates between Member States (measured through the standard deviation) has reduced over the period, although higher values were recorded for 2014 compared to 2013. Thirdly, despite the convergence in recent years, significant variation in the fatality and serious injury rate remains between Member States, as shown in the map for 2014.

([4]) Directive 2008/110/EC of the European Parliament and of the Council of 16 December 2008 amending Directive 2004/49/EC on safety on the Community's railways.

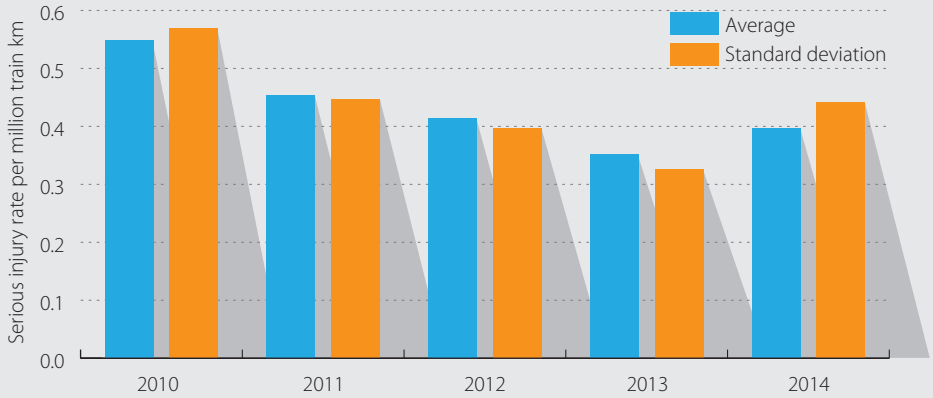
Figure 4: Fatality rate per million train km (EU average and standard deviation)



Timeframe of data: 2010-2014

Source of data: ERAIL Common Safety Indicators (CSI)

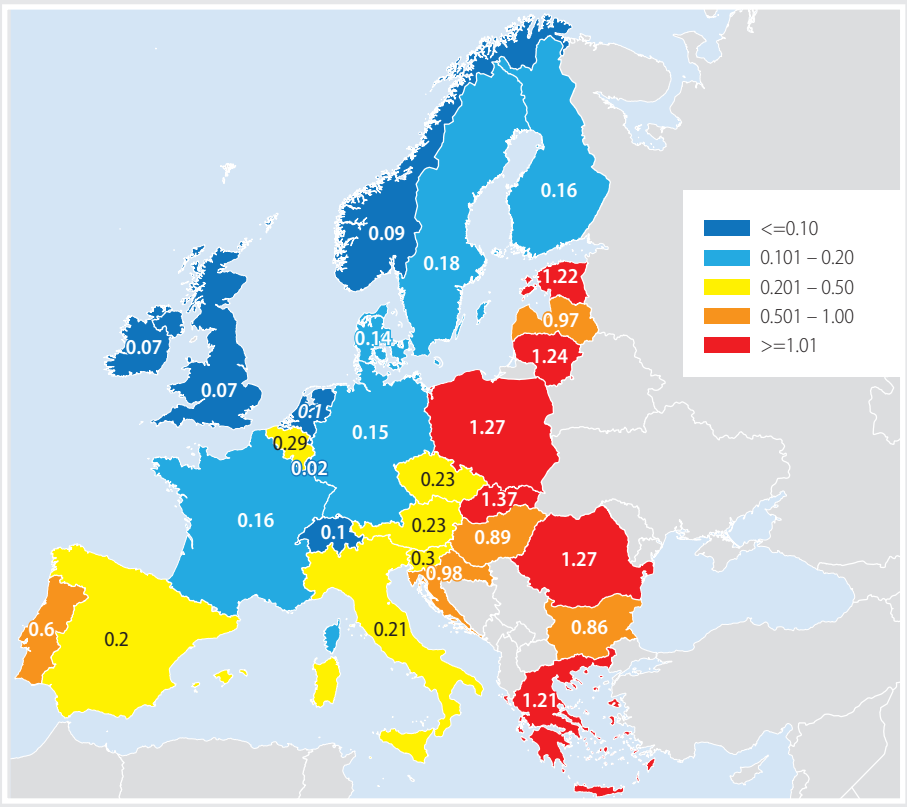
Figure 5: Serious injury rate per million train km (EU average and standard deviation)



Timeframe of data: 2010-2014

Source of data: ERAIL Common Safety Indicators (CSI)

Figure 6: Fatalities and weighted serious injuries per million train km



Timeframe of data: 2010-2014

Source of data: ERAIL Common Safety Indicators (CSI)

RI 1.5 — Proportion of railway undertakings applying for Part B safety certificate in other Member States and reporting problems

Why do we need the indicator?

The proportion of licenced RUs with two or more Part B safety certificates indicates the preparedness of the RUs to rely on the EU framework when they intend to operate in more than one Member State.

In line with the overall framework for the SERA safety certification for railway undertakings, the applications for Part B certificates should then be perceived to be identical irrespective of whether they are handled by the domestic NSA or by a non-domestic NSA. Information about this part of the regulatory framework would demonstrate whether entry into railway markets in other countries is perceived to be difficult by the RUs.

What are we measuring?

The indicator is measured in two steps:

(a) the proportion of RUs with a Part A safety certificate having two or more Part B safety certificates (for which data exists);

(b) for each Member State, the proportion of non-domestic RUs applying for a Part B certificate and reporting problems. The measurement will take into account the number of issues raised along with their severity (for which data collection is ongoing).

What is the desired target value?

For (a), there is no explicit target although high values would indicate a high level of preparedness of the RU to rely on the EU framework when it intends to operate in more than one Member State.

For (b) the target value aspired to is 0 % (no problems reported).

How reliable is the data?

For (a) information on safety certificates is reported by NSAs to the Agency. It is stored in the Eradis ([5]) database. Its quality and completeness thus depend on the quality of inputs by NSAs.

For (b) the indicator will be based on questionnaire responses from RUs operating across the EU which by default will be subjective. Attempts will be made to confirm the expressed views.

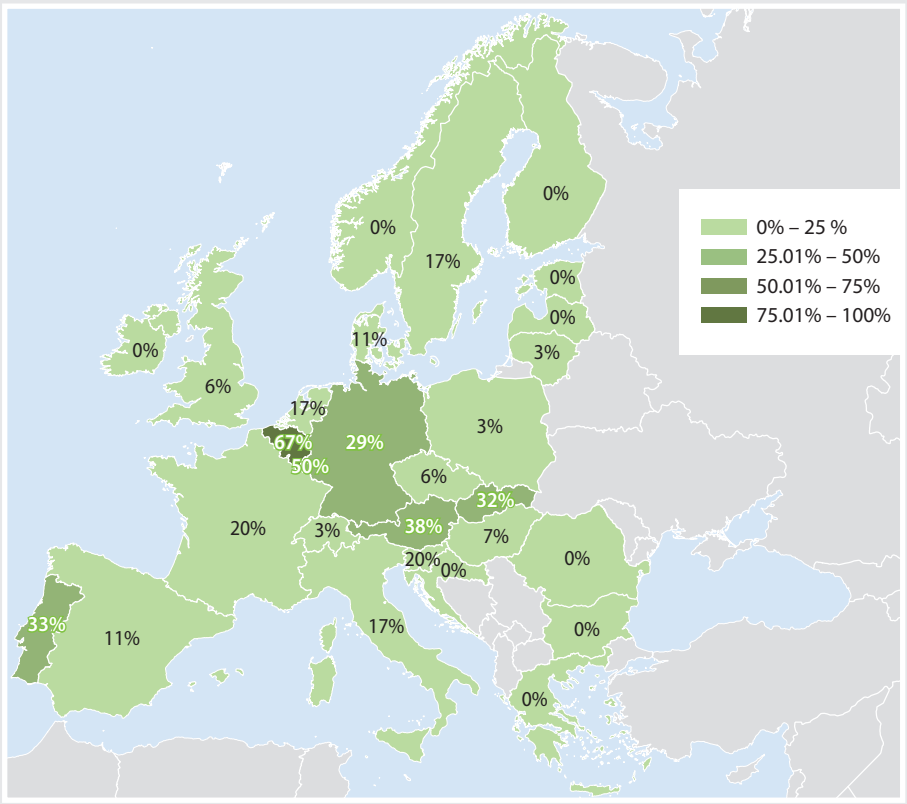
What can we learn from the reported data?

For (a) the available information indicates that the EU framework is not used to its full extent for operations in other Member States, the reason for which needs further analysis (refer to (b)).

For (b) it is expected that the indicator will determine the extent to which RUs applying for a Part B safety certificate in another country are experiencing problems as well as identifying whether there are significant country differences.

([5]) http://eradis.era.europa.eu/

Figure 7: Proportion of railway untertakings with Part A safety certificate having two or more Part B safety certificates



Timeframe of data: 2015

Source of data: ERADIS

RI 1.6 — Train drivers with a European licence in accordance with the train drivers directive

Why do we need the indicator?

All train drivers in Europe must, by October 2018, hold a licence in conformity with the train drivers directive ([6]) to facilitate labour mobility and cross-border train operations. This licence will be valid in all EU Member States. Monitoring this indicator would determine whether the implementation of this requirement in Member States is progressing in line with the target date and the extent to which there are significant national differences.

What are we measuring?

The indicator measures the proportion of train drivers in Member States that hold a valid European licence issued in accordance with the train drivers directive. With the information available, it is possible to calculate the proportion for individual Member States as well as for the EU as a whole.

What is the desired target value?

According to the target set by the train drivers directive, there should be 100 % conformity by October 2018.

How reliable is the data?

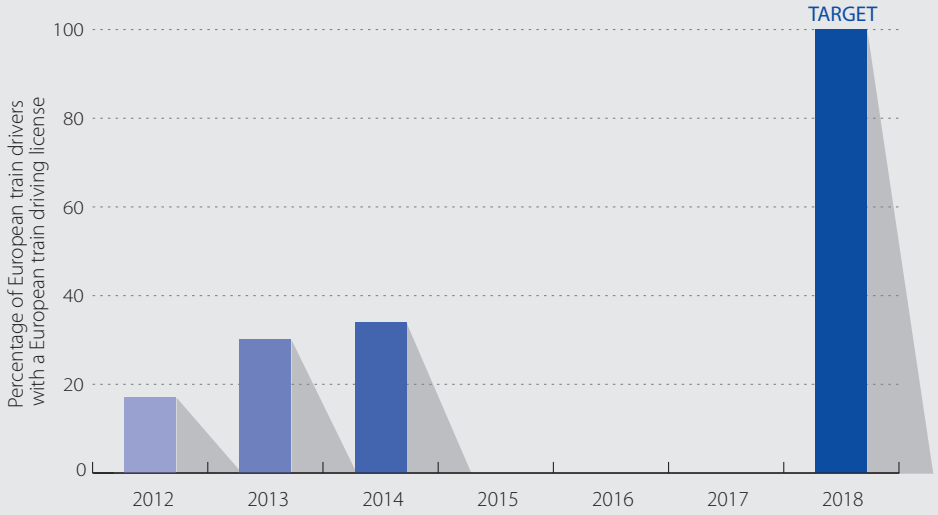
Statistics on the total number of train drivers and total number of train drivers licenced according to the train drivers directive are provided by the NSAs in each Member State. The statistics are submitted to the Agency as part of the NSA's completion of the questionnaire for the Agency's interoperability report and hence their reliability and completeness depend on this input.

What can we learn from the reported data?

The reported data shows that for the EU as a whole the proportion of train drivers holding a licence in conformity with the train drivers directive has increased over the period from 2012 to 2014 and has now reached a level of about 35 %. Furthermore, it is clear that the extent of implementation varies between countries, with some having already achieved 100 %, others at intermediate levels and some yet to start (0 %).

([6]) Directive 2007/59/EC of the European Parliament and of the Council of 23 October 2007 on the certification of train drivers operating locomotives and trains on the railway system in the Community

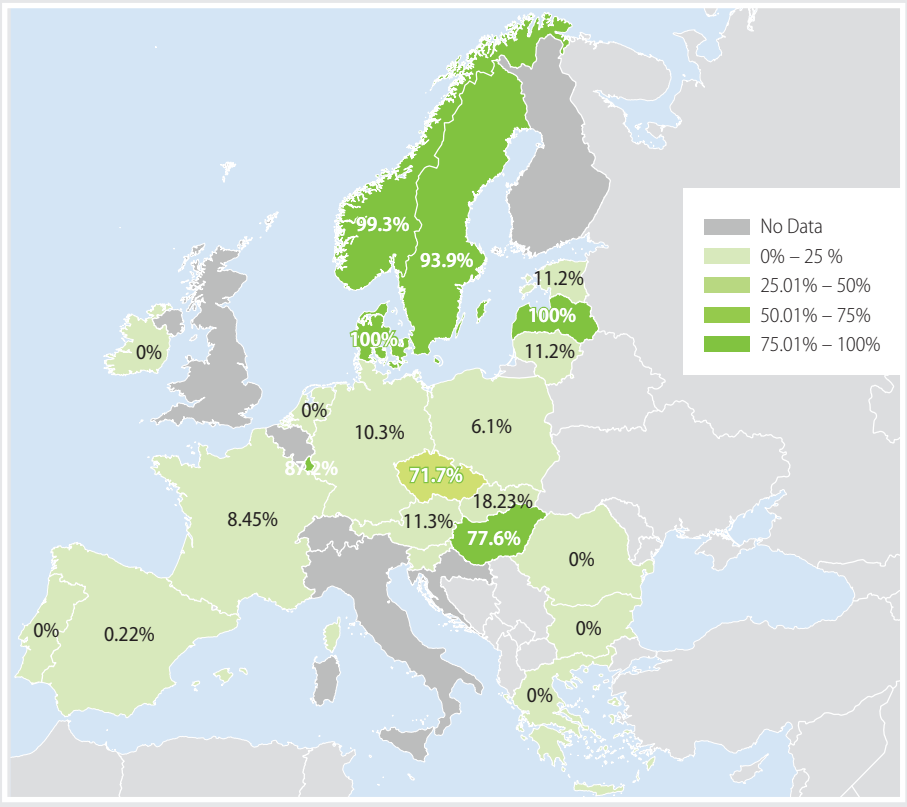
Figure 8: Average reported percentage of European train driver licences



Timeframe of data: 2012-2014

Source of data: NSAs - Questionnaire information for the Agency's Interoperability Report

Figure 9: Proportion of train drivers with valid European train driver licences by 2014 per Member State



Timeframe of data: 2014

Source of data: NSAs - Questionnaire information for the Agency's Interoperability Report

RI 1.7 — Infrastructure managers with safety authorisation

Why do we need the indicator?

According to the railway safety directive ([7]), an IM must obtain a safety authorisation from the safety authority in the Member State where the IM is established in order to be allowed to manage and operate a rail infrastructure. Monitoring this indicator would determine whether this requirement has been implemented across the Member States.

What are we measuring?

The indicator measures the proportion of IMs with a valid safety authorisation (in accordance with the provisions in the railway safety directive) out of the total number of IMs.

What is the desired target value?

The expected target value would be 100 % at EU level and for each Member State, taking into account the provisions in the safety directive concerning the scope for which an IM has to have a safety authorisation.

How reliable is the data?

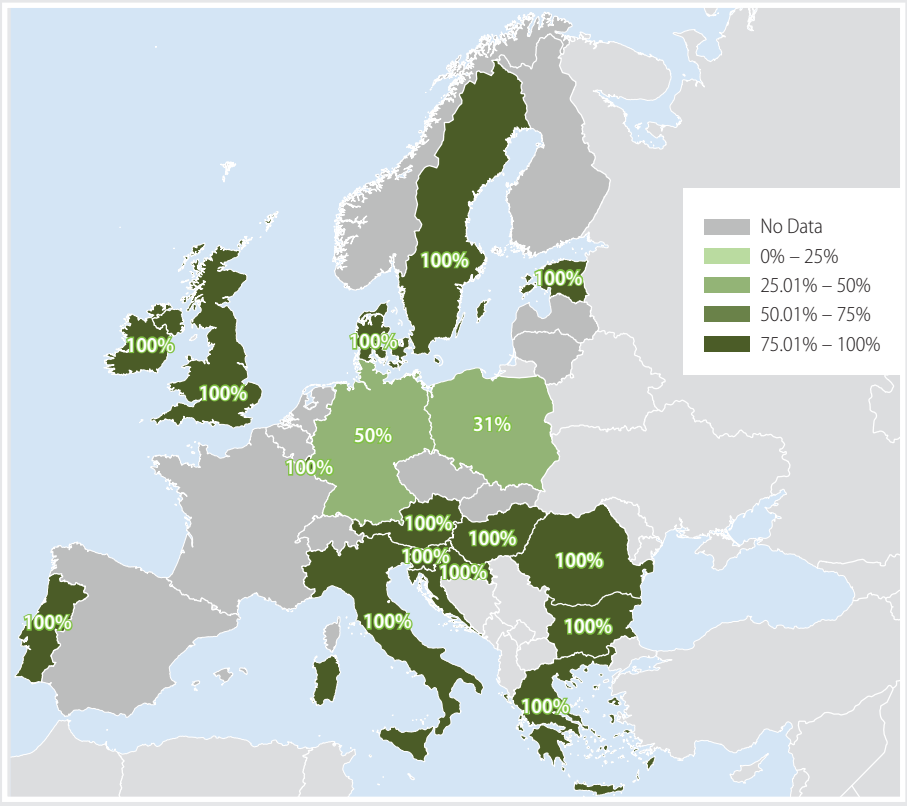
The number of IMs established in each Member States and the information about the safety authorisations granted were provided by the NSAs through a survey. Its quality and completeness thus depends on the quality of inputs by NSAs.

What can we learn from the reported data?

On the basis of the reported data, most Member States have reached the 100 % target value for the indicator. It is recommended that further analysis is be carried out in order to confirm whether the safety authorisations that have been issued fulfil all the requirements in the railway safety directive and related legislation.

([7]) Directive 2008/110/EC of the European Parliament and of the Council of 16 December 2008 amending Directive 2004/49/EC on safety on the Community's railways.

Figure 10: Infrastructure managers with safety authorisation



Timeframe of data: 2015

Source of data: NSAs

Railway indicators

Operational activity 2: Removing technical barriers

RI 2.1 — Evolution of the applicable national technical rules for vehicles

Why do we need the indicator?

National technical rules represent technical barriers in the vehicle authorisation process because vehicles have to be compliant with these rules (usually in addition to harmonised technical specification for interoperability (TSI) basic parameters). Member States have to publish (notify to the European Commission) these national rules. Before they are notified, a 'cleaning up' of rules is necessary. The remaining notified national technical rules may only cover open points, specific cases and Class B signalling systems in TSIs. The cleaning up process ensures that only these relevant rules are notified.

What are we measuring?

This indicator shows the progress of the process of cleaning up of national technical rules described above.

What is the desired target value?

Ideally, only cleaned up national rules will be notified by the end of 2016.

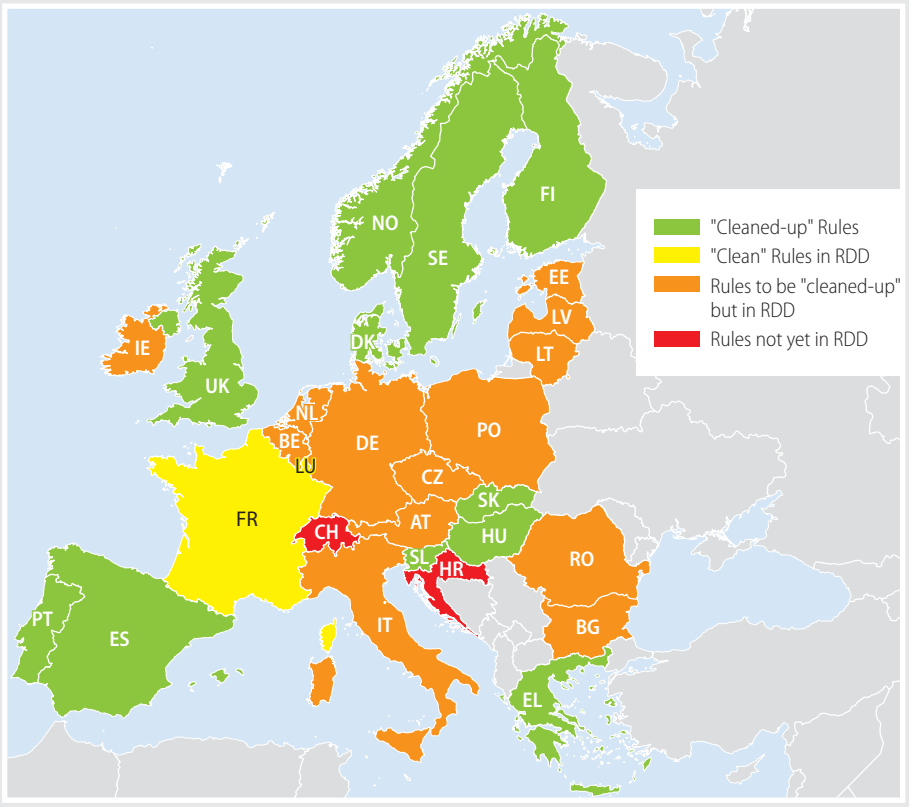
How reliable is the data?

As the data is retrieved directly from the Agency's reference document database (RDD) after being inputted by the Member States, the reliability of the data depends on the extent to which it is up to date and complete in the different Member States.

What can we learn from the reported data?

We can observe substantial progress in the cleaning up of the national rules within the last reporting year. Once the process of cleaning up national rules has been finalised, this indicator will focus on progress in the reduction of the remaining notified national rules, which will mainly depend on the progress of closing open points in TSIs and on the migration towards an interoperable infrastructure.

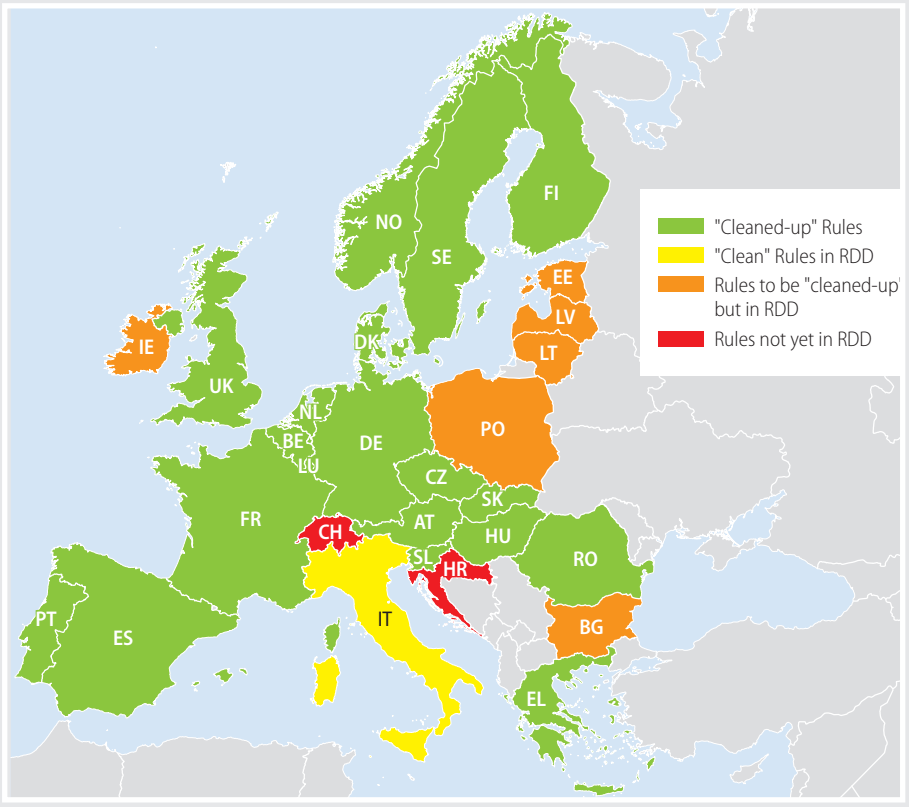
Figure 11: Status of publication of national technical rules in RDD Q1 2015



Timeframe of data:
Quarter 1 2015

Source of data: The Agency

Figure 12: Status of publication of national technical rules in RDD Q1 2016



Timeframe of data:
Quarter 1 2016

Source of data: The Agency

RI 2.2 — Evolution of Member State processes for the authorisation of railway vehicles

Why do we need the indicator?

The non-harmonised authorisation processes in the Member States represent a further barrier to vehicle authorisation that can lead to additional work for the applicant and to delays. Member States must in a first step make their processes clear and transparent by publishing their national legal framework for vehicle authorisation according to the generic legal framework specified in Part 1 of the reference document (envisaged by Article 27 of the railway interoperability directive 2008/57/EC). The next step towards a harmonised vehicle authorisation process is for the Member States to 'clean up' their processes to conform to the European legal framework. This process of cleaning up the national legal frameworks can start when the national legal frameworks have been published in the RDD. This is a transitional railway indicator until the legal acts on vehicle authorisation under the fourth railway package take effect in 2019.

What are we measuring?

This indicator measures the Member States' progress in the publication of their national legal framework in the RDD.

What is the desired target value?

The desired target value would be that each Member State would have published its authorisation process.

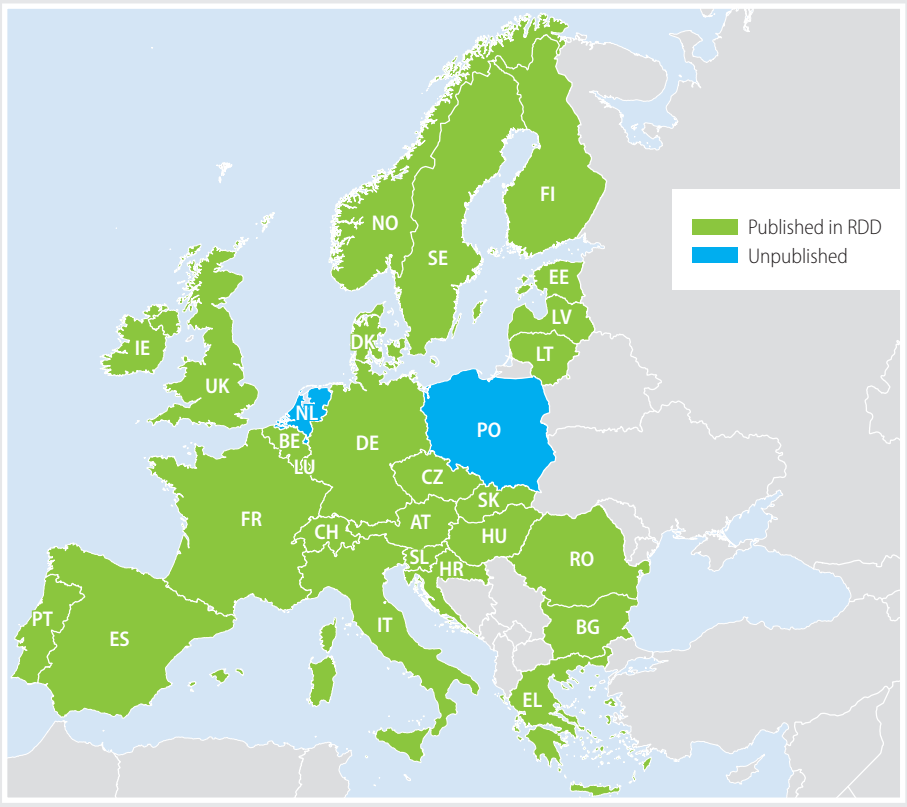
How reliable is the data?

The information on the availability of the authorisation process description is retrieved directly from the RDD, after being inputted by the Member States. Its quality and completeness thus depends on the quality of inputs by Member States.

What can we learn from the reported data?

The process for authorisation of railway vehicles is made transparent in all Member States and it makes it possible to compare the differences between Member States' processes and that of the European legal framework.

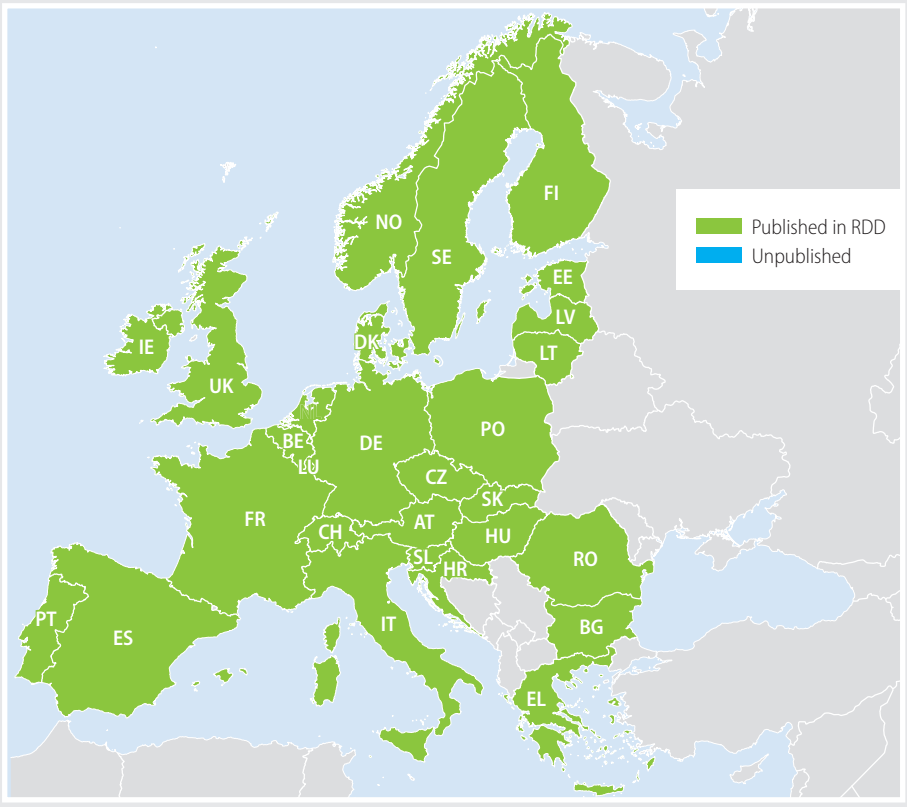
Figure 13: Status of publication of national legal framework in RDD Q1 2015



Timeframe of data:
Quarter 1 2015

Source of data: The Agency

Figure 14: Status of publication of national legal framework in RDD Q1 2016



Timeframe of data:
Quarter 1 2016

Source of data: The Agency

RI 2.3 — Time required from contract signing to commercial use per vehicle type

Why do we need the indicator?

The time from contract signing to commercial use of a vehicle is an indicator which indirectly monitors the costs of authorisation of vehicles mainly due to high capital and opportunity costs in vehicle type authorisation projects. The fourth railway package and the legal acts for vehicle authorisation arising from it are expected to reduce authorisation time. This indicator is meant to establish the baseline and to allow for future monitoring.

What are we measuring?

This indicator measures the time required from contract signing to commercial use including the phases from contract signing to the first vehicle, authorisation for placing into service (APS), testing and APS to commercial use. The phases have to be adapted according to the phases defined in the fourth railway package legal acts (e.g. vehicle authorisation for placing on the market (APM)).

What is the desired target value?

The fourth railway package envisages a reduction of 25 % for vehicle authorisation time.

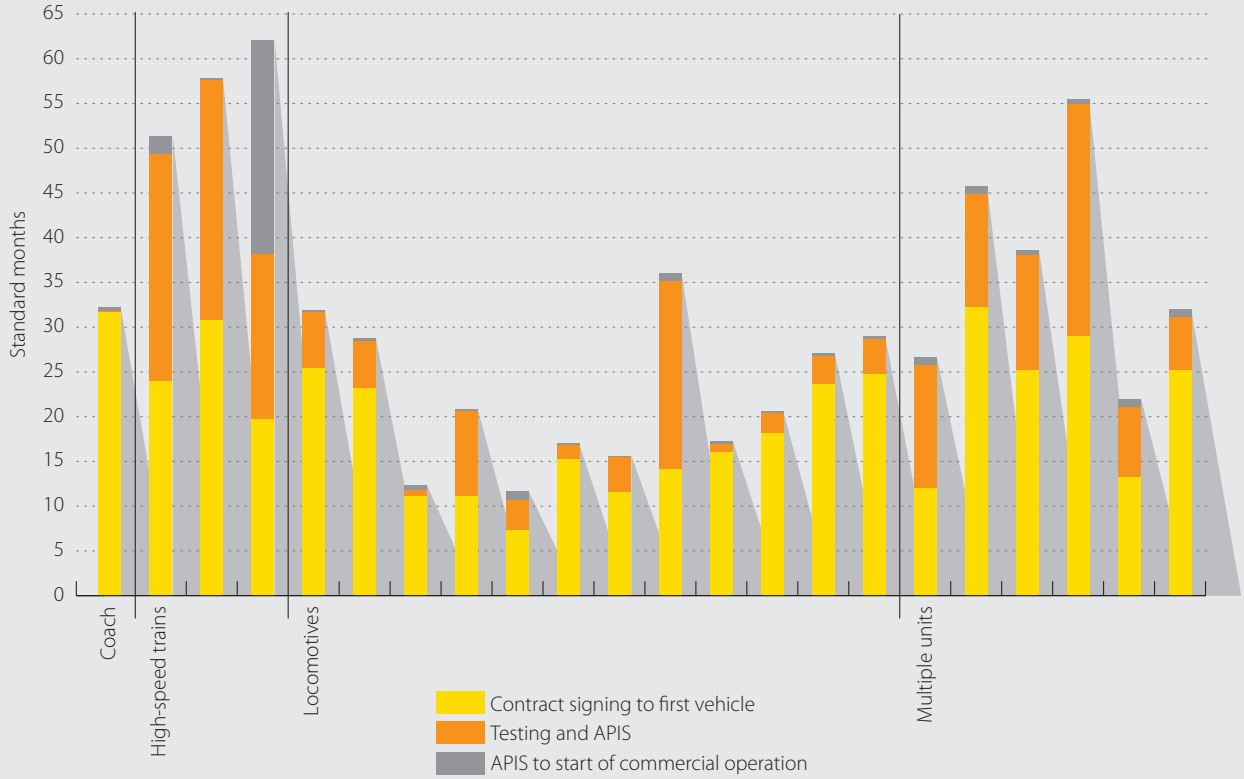
How reliable is the data?

The data is retrieved from a number of case studies. In the future it is foreseen that time measurements will be retrieved directly from an IT tool (One Stop Shop — OSS). Until the OSS is operational, data will be collected throughout the shadow running phase.

What can we learn from the reported data?

Since this indicator requires a tracked evolution of authorisation times over years, trends can only be after the first projects have been completed under the new legal framework.

Figure 15: Time required (months) from contract signing to first commercial use per vehicle category



Timeframe of data**:**
2008-2014

Source of data: The Agency

RI 2.4 — Trackside infrastructure conforming to TSIs (INF, ENE, SRT)

Why do we need the indicator?

This indicator gives a general indication of where a vehicle conforming to a technical specification for interoperability (TSI) can operate. Once the migration of the existing infrastructure systems towards a target system as specified in the TSIs has been finalised, vehicles only need to be compliant with the TSIs, including permanent specific cases and open points where required. Technical barriers resulting from remaining national technical rules such as Class B signalling systems or temporary specific cases should no longer exist. The deployment of the TSIs should represent the status of migration.

What are we measuring?

In this indicator, the percentage of the network (either core or non-core) conforming to TSIs will be measured.

What is the desired target value?

The desired target value is 100 % which would mean that the complete network conforms to the TSIs. This can be expected in a timeframe of between 50 and 100 years from now.

How reliable is the data?

This indicator can only be set up once the register of infrastructure (RINF) is operational and all Member States have provided data for their networks.

What can we learn from the reported data?

RINF data should be available from 2017 onwards (RINF decision ([1])), but Member States have already started reporting that they have difficulties with assigning European Commission declarations of verifications to specific line segments. In addition no IM is currently applying the voluntary procedure to assess the conformity of existing network with the TSIs.

Graphical representation to be presented when the data becomes available.

([1]) Commission Implementing Decision of 26 November 2014 on the common specifications of the register of railway infrastructure and repealing Implementing Decision 2011/633/EU

RI 2.5 — Technical barriers for vehicles resulting from derogations from infrastructure-related TSIs

Why do we need the indicator?

Derogations (non-applications) indicate deviations from the TSIs in the networks of the Member States. These derogations refer to infrastructure projects in general and concern either a single railway line or an area of a network, depending on the geographical scope of the derogation. These derogations represent technical barriers for vehicles because vehicles have to be compliant with them (additional national technical rules) in addition to TSI requirements. The higher the number of derogations, the lower the real interoperability of the network. A high number of derogations could be an indicator that the technical specifications for the infrastructure TSIs are not sufficiently mature.

What are we measuring?

This indicator measures the number of derogations in each Member State.

What is the desired target value?

The lower the number of derogations, the higher the level of interoperability in Europe.

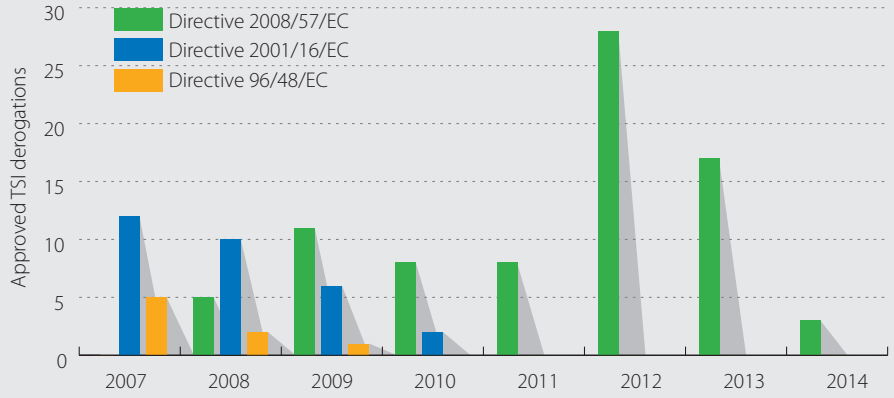
How reliable is the data?

The data is directly retrieved from the database of the European Commission, where all submitted derogations are recorded.

What can we learn from the reported data?

The number of derogations has been decreasing significantly in recent years and currently stands at a very low level. This could be an indication of a stable technical specification, assuming that the number of infrastructure- related projects per year did not decrease over the years.

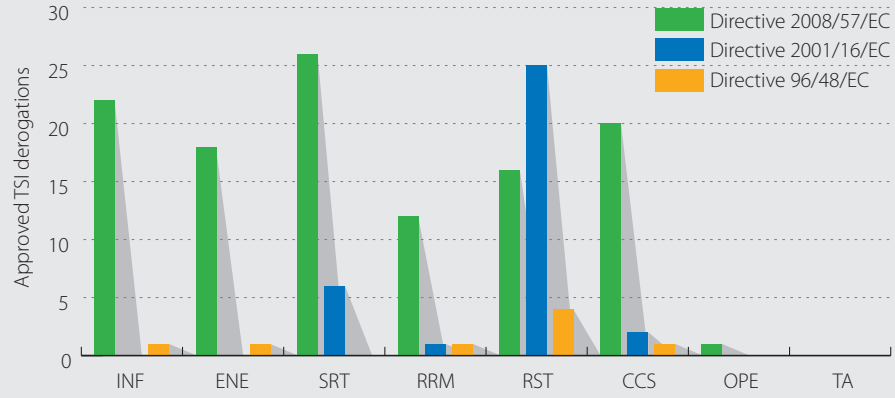
Figure 16: Approved TSI derogations by year and directive reference



Timeframe of data: 2007-2014

Source of data: European Commission Database

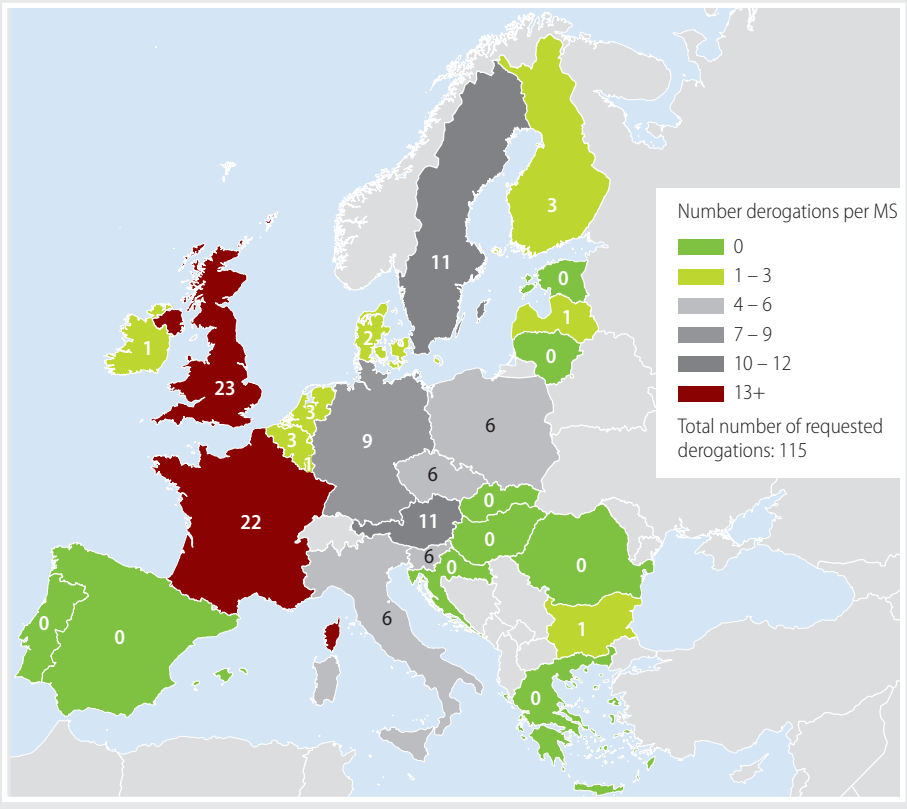
Figure 17: Number of TSI derogations by category and directive reference



Timeframe of data: 2007-2014

Source of data: European Commission Database

Figure 18: Number of TSI derogations per Member State



Timeframe of data: 2007-2014

Source of data: European Commission Database

RI 2.6 — Progress towards interoperability of vehicles

Why do we need the indicator?

The number of authorised TSI-compliant vehicles per year is an indicator of the deployment of the vehicle-related TSIs. In addition, this indicator is useful to estimate future workloads in the framework of vehicle authorisation.

What are we measuring?

This indicator measures the number of authorised TSI-compliant vehicles per vehicle type (wagons, locomotives, fixed formation vehicles, coaches) and per year.

What is the desired target value?

There is no specific target value for this indicator as it will mainly depend on the economic situation of the railway sector.

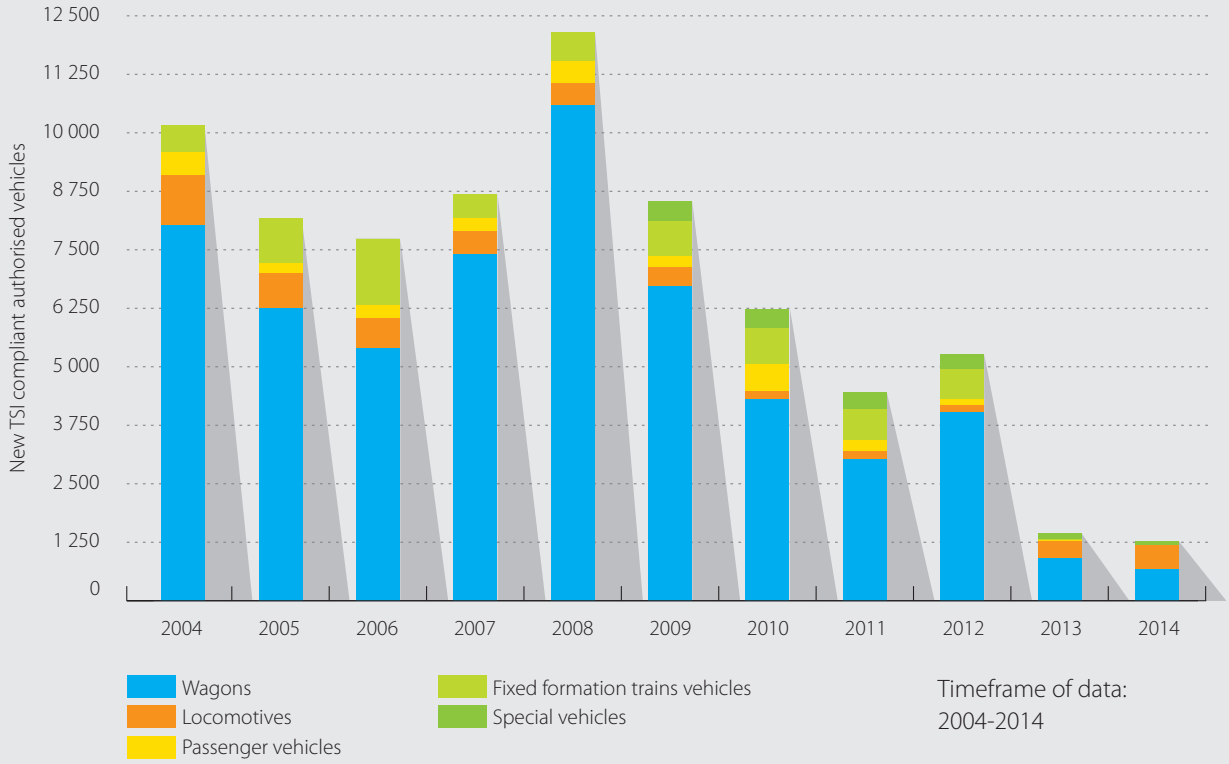
How reliable is the data?

The data is retrieved from the Agency's managed databases (ECVVR, Eradis, ERATV). Its quality and completeness thus depend on the quality of inputs mainly by NSAs.

What can we learn from the reported data?

The number of authorised vehicles per year went significantly down in recent years which might represent a change in the economic situation of the railway sector, thus impacting investments. To get the full picture on the progress of interoperability at vehicle side, the total number of TSI-compliant vehicles has to be correlated with the total number of vehicles (to be done in a next step).

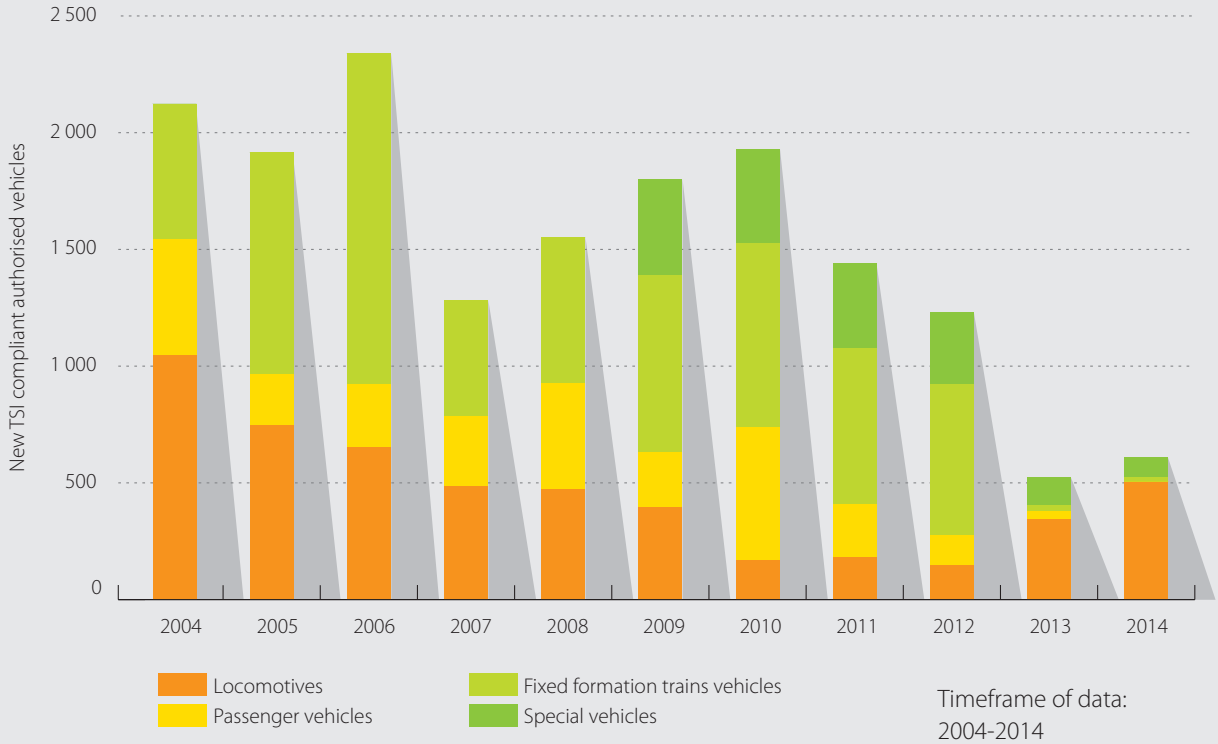
Figure 19: Number of new TSI-compliant authorised vehicles



Timeframe of data: 2004-2014

Source of data: The Agency

Figure 20: Total number of new TSI-compliant authorised vehicles excluding freight wagons



Timeframe of data: 2004-2014

Source of data: The Agency

Railway indicators

Operational activity 3: Single EU train control and communication system

RI 3.1 — ETCS trackside costs and cost drivers

Why do we need the indicator?

The indicator measures the effect of an open market for the ETCS with multiple suppliers on the costs of trackside deployment and its evolution over time as well as the present cost drivers in ETCS trackside projects. The information will help with understanding the main problems/issues in current projects.

What are we measuring?

The indicator measures the investment costs for ETCS trackside deployment (including additional costs for the interlocking part or radio communication part if linked to the ETCS programme). As for the ETCS trackside cost drivers, the relative influence of 14 predefined cost drivers on the total project costs was also assessed based on a scale of 1 (lowest impact) to 5 (highest impact).

What is the desired target value?

There is no applicable target value for this indicator, although a downwards trend is expected.

How reliable is the data?

The current data for the ETCS trackside costs is based on press releases. The press release data estimates the ETCS costs (including the interlocking and radio communication part if linked to the ETCS installation). The quality of the data, in particular that related to the cost breakdown structure, will be greatly increased when the data from the trans-European transport network (TEN-T)-funded projects is used.

The data for the ETCS trackside cost drivers is based on answers from four signalling companies.

What can we learn from the reported data?

The reported data for the ETCS trackside costs demonstrates the great difference between ETCS limited supervision compared to ETCS full supervision. Future measurements should demonstrate the evolution of costs over time.

The data for the ETCS trackside cost drivers shows that cost drivers resulting from the legal framework (third party assessment/ authorisation) are currently assessed as minor cost drivers (see also on-board indicators). There is also a high variance mainly due to Member State-specific issues. Further investigation is necessary to monitor the evolution of cost drivers over time to draw specific conclusions.

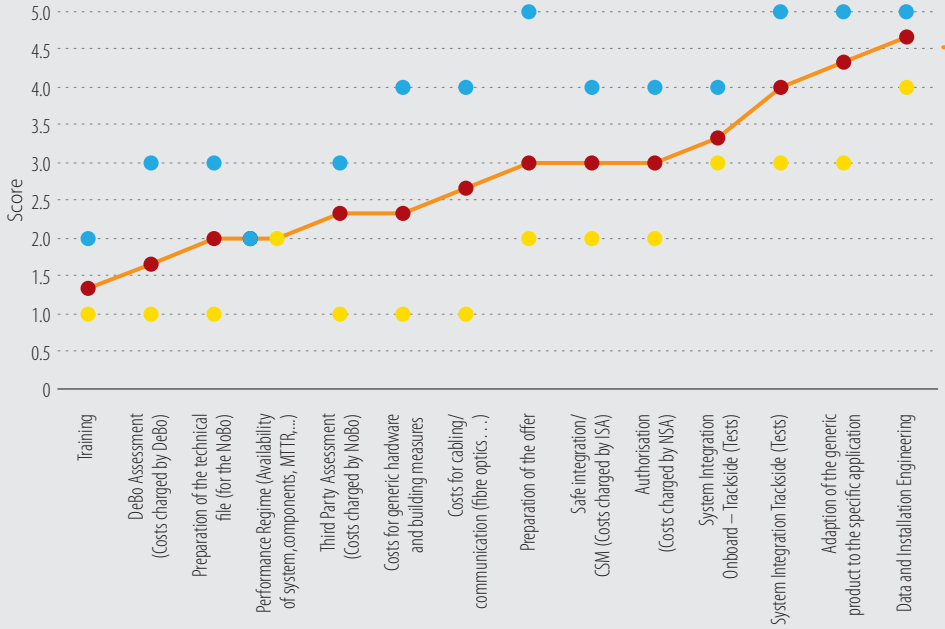
Figure 20: CAPEX in thousands of euro per ETCS-equipped line (km)

Projects contracted between 2012 and 2014

Timeframe of data: 2004-2014

Source of data: Press Releases

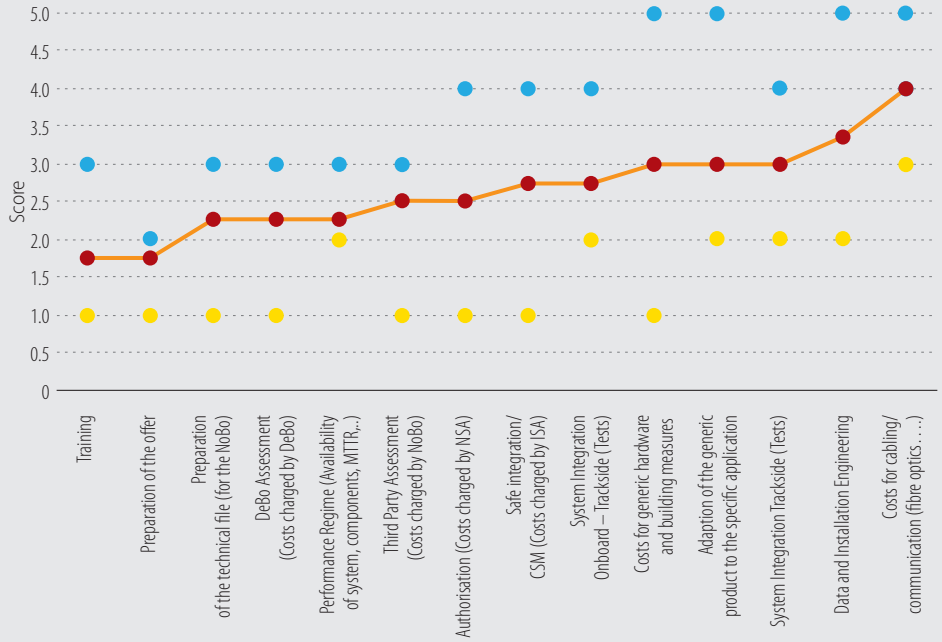
Figure 21: Cost drivers of ETCS L2 installations on existing lines



Timeframe of data: 2016

Source: Suppliers' Survey

Figure 22: Cost drivers of L1/L1LS installations



Timeframe of data: 2016

Source: Suppliers' Survey

RI 3.2 — ETCS on-board costs and cost drivers

Why do we need the indicator?

The indicator measures the effect of an open market for the ETCS with multiple suppliers on the costs of on-board deployment and its evolution over time as well as the present cost drivers in ETCS on-board projects. The information will help with understanding the main problems/issues in current projects.

What are we measuring?

The indicator measures the investment costs for ETCS on-board deployment. As for the ETCS trackside cost drivers, the relative influence of 15 predefined on-board cost drivers on the total project costs was also assessed based on a scale of 1 (lowest impact) to 5 (highest impact).

What is the desired target value?

The intermediate target value for the ETCS single on-board cost for RUs is 85 (thousands of euro/on-board unit).

How reliable is the data?

The current data is based on press releases and data from TEN-T-funded projects. The data quality is estimated to be high for the data received from TEN-T projects and low for the data received from press releases. In general, the reported data for ETCS on-board systems is more readily available than for trackside projects.

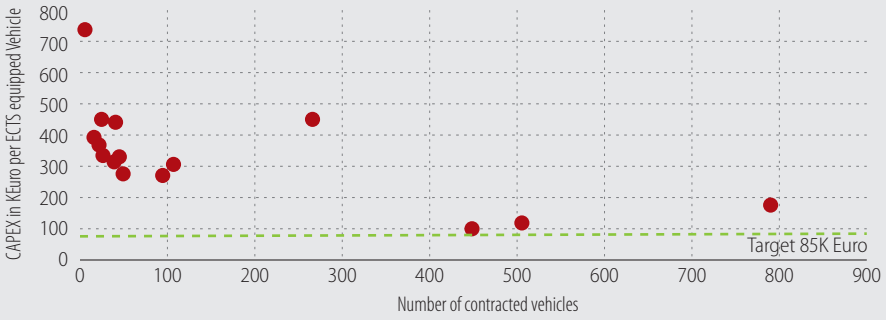
The data for the ETCS on-board cost drivers is based on answers from four signalling companies.

What can we learn from the reported data?

The reported data for the ETCS on-board costs demonstrates the high impact of fixed costs for the integration of the ETCS into the first vehicle due to system integration with other Class B systems or due to multiple authorisations in different Member States. Specific actions such as those linked to the fourth railway package are expected to reduce the fixed costs. The future deployment of 'ETCS only' vehicles compared to vehicles with ETCS and other Class B systems simultaneously on board is also expected to reduce the ETCS on-board products.

The data for the ETCS on-board cost drivers shows that those resulting from the legal framework (third party assessment/authorisation) are currently assessed as minor cost drivers. For specific cost drivers, such as STM interfacing, there is still a high variance, mainly due to Member State-specific issues. A further and deeper investigation is necessary to monitor the evolution of cost drivers over time to draw specific conclusions.

Figure 24: CAPEX in thousands of euro per ETCS-equipped vehicle

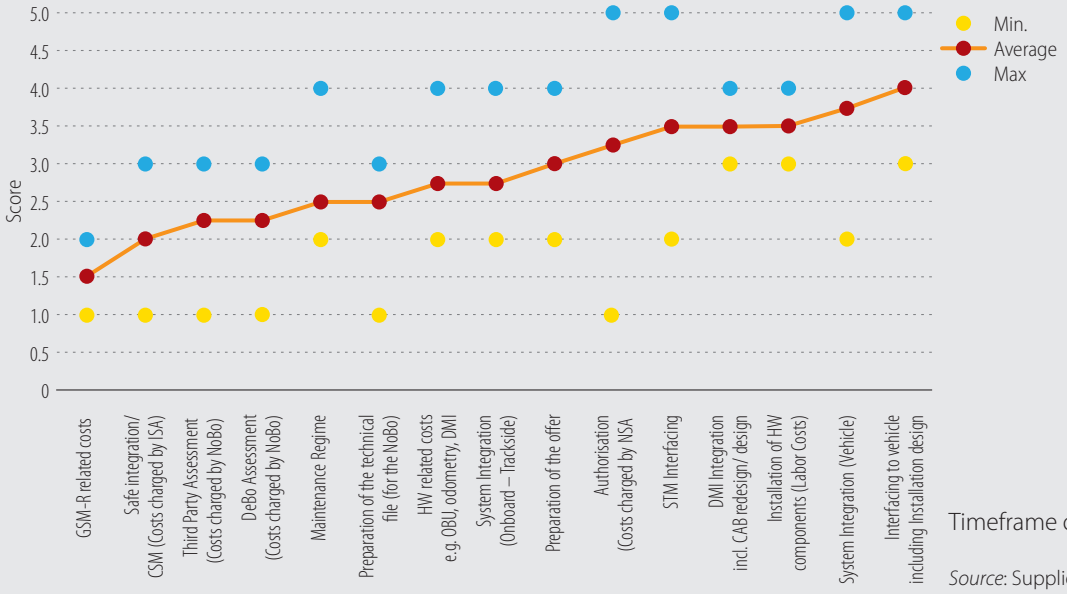


Projects contracted between 2011 and 2014

Timeframe of data: 2011-2014

Source of data: INEA + Press releases

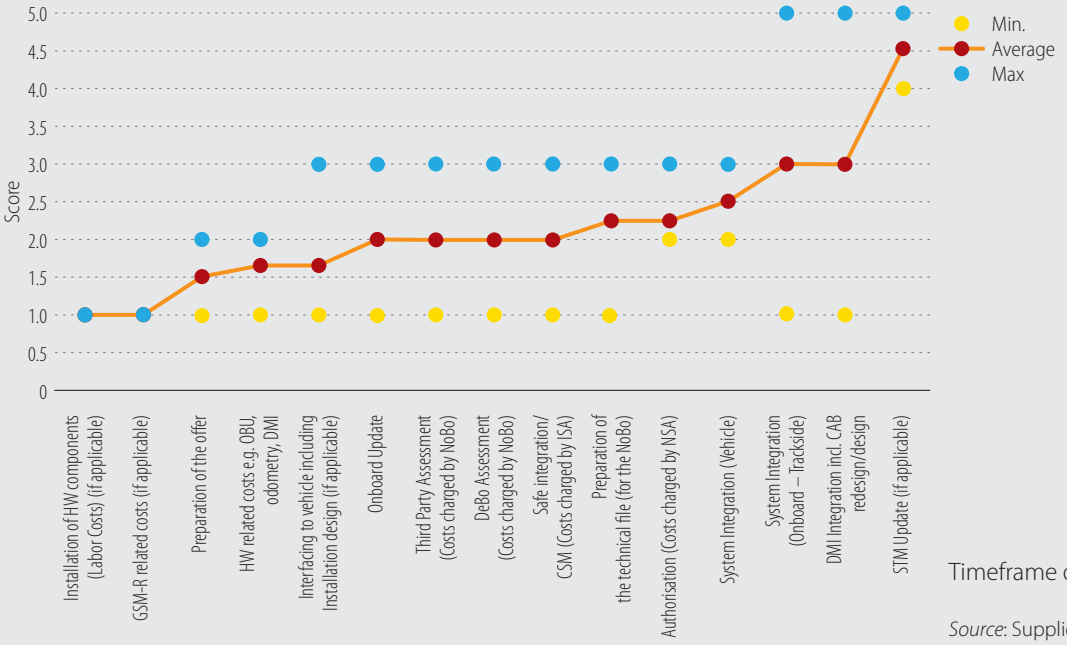
Figure 25: Cost drivers related to new ETCS on-board installations



Timeframe of data: 2016

Source: Suppliers' Survey

Figure 26: Cost drivers of an ETCS upgrade



Timeframe of data: 2016

Source: Suppliers' Survey

RI 3.3 — Maturity of ETCS specifications

Why do we need the indicator?

The indicator is needed to show the progress towards interoperable and stable European Rail Traffic Management System (ERTMS) specifications.

What are we measuring?

This indicator measures the evolution of the number of remaining non-safety critical errors and the remaining requested enhancements (new functions) in the ERTMS specifications over time.

What is the desired target value?

The target value for the remaining errors in this indicator is zero for stability reasons, while the number of remaining requested enhancements should be kept as low as possible for backwards compatibility reasons.

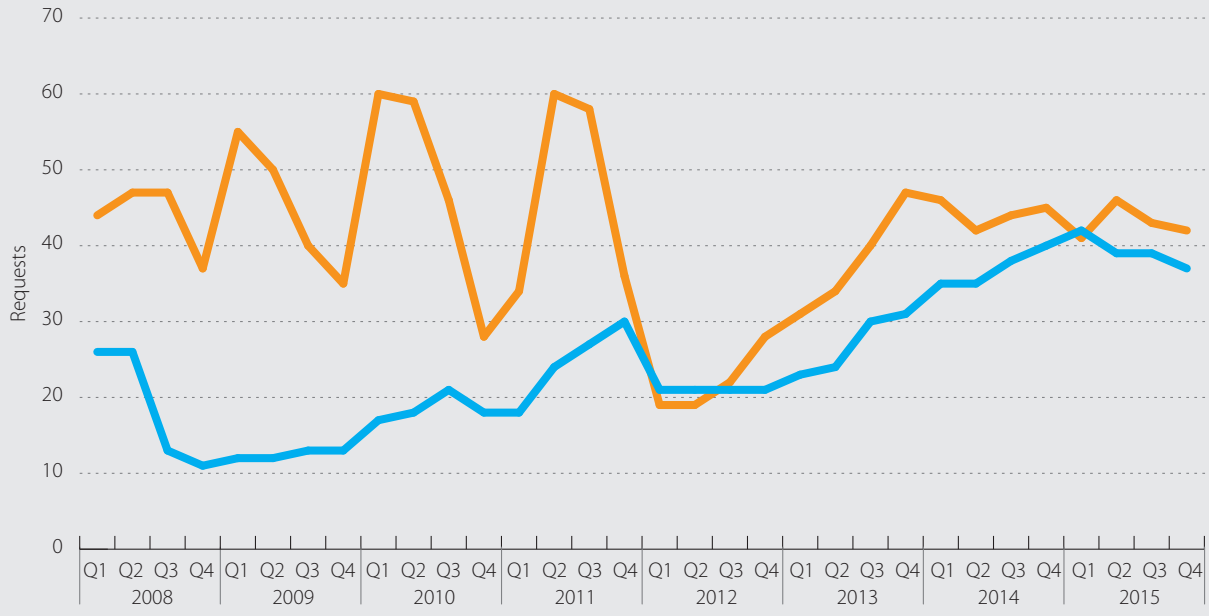
How reliable is the data?

The data source is the Agency's ERTMS change control management database, and for this reason the data can be considered to be highly reliable.

What can we learn from the reported data?

In the past, the number of enhancements showed an increasing trend whereas the number of remaining errors remained constant. Specific actions have been taken to prioritise the remaining enhancements and to reduce the number of errors in the specifications.

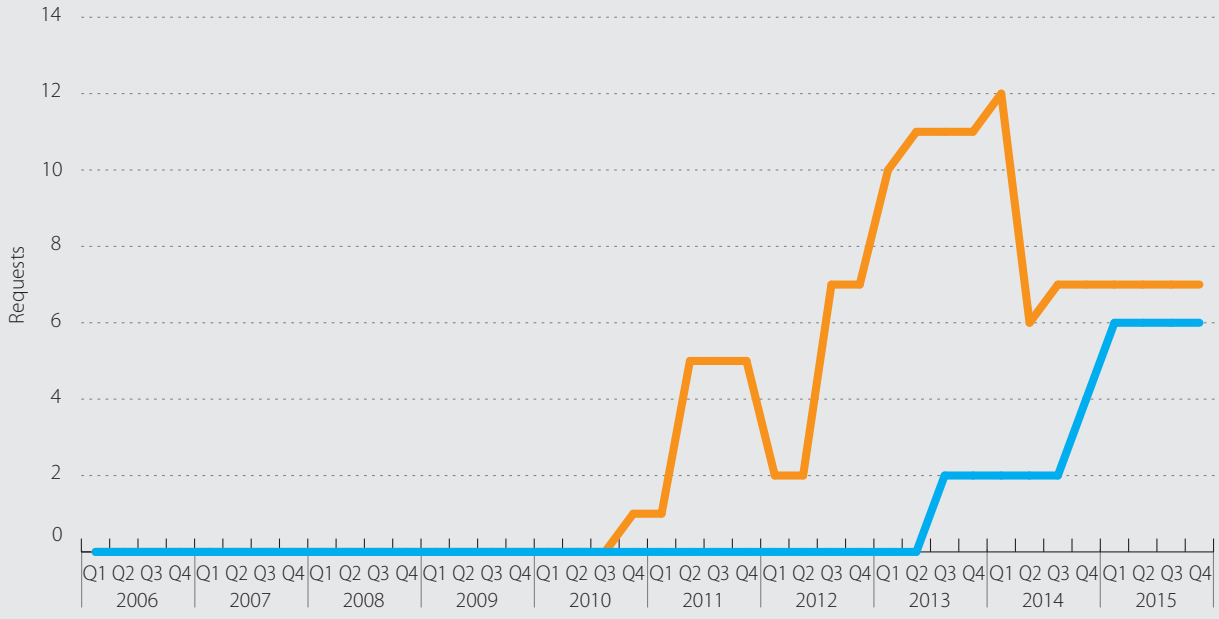
Figure 27: Evolution of ETCS specification requests



Timeframe of data:
2008-2015

Source of data: The Agency - CCM Database

Figure 28: Evolution of GSM-R specification requests



Timeframe of data:
2008-2015

Source of data: The Agency - CCM Database

RI 3.4 — Proportion of vehicles equipped with the ETCS and with ETCS only

Why do we need the indicator?

This deployment indicator monitors ETCS deployment at vehicle side.

The first deployment sub-indicator presents the proportion of vehicles equipped with the ETCS (with or without additional Class B signalling systems) as it indicates when IMs can fully decommission Class B trackside signalling systems.

The second deployment sub-indicator presents the proportion of vehicles equipped with the ETCS only (without additional Class B signalling systems). This indicator represents the implementation of the ETCS in the network, thus giving the RUs the possibility to run with the ETCS only on board.

What are we measuring?

This indicator shows the proportion of vehicles equipped with the ETCS (and other Class B signalling systems) and with the ETCS only (without additional Class B signalling systems).

What is the desired target value?

The desired target value is a progression for both sub-indicators.

How reliable is the data?

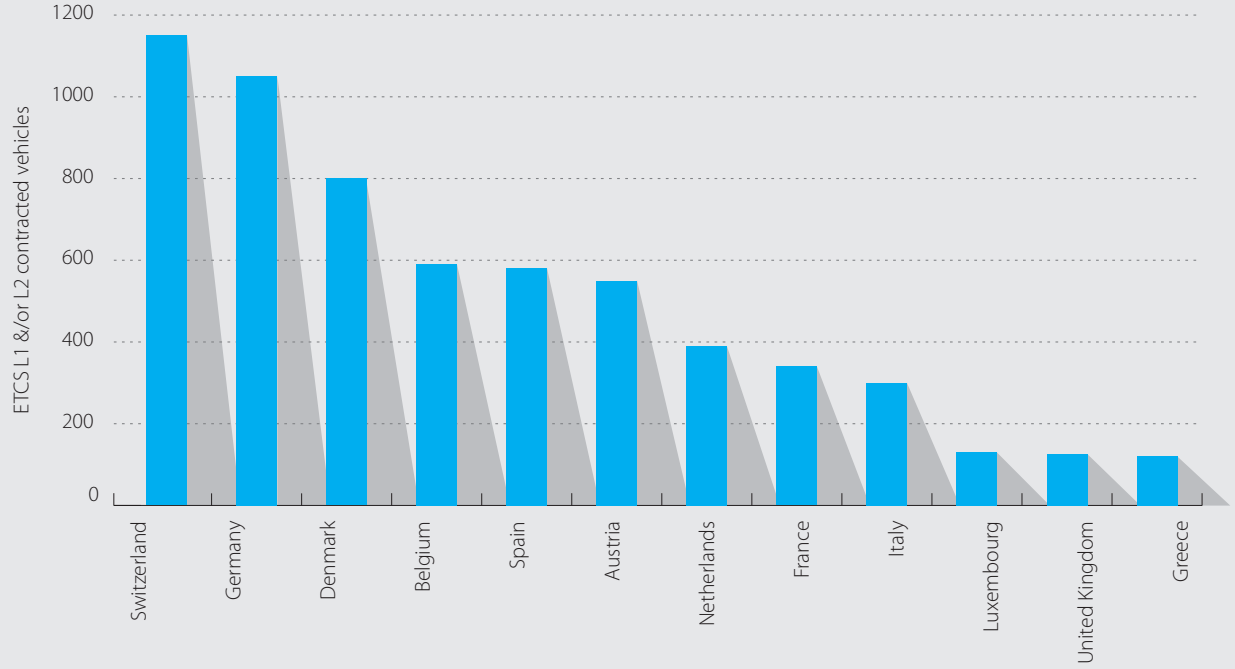
Currently, data on vehicles equipped with the ETCS in Europe is extracted from the Association of the European Rail Industry (UNIFE) annual report for 2015.

The data for the proportion of vehicles equipped with the ETCS will be taken from the ECVVR when sufficiently populated to give reliable data.

What can we learn from the reported data?

The available data for the proportion of vehicles equipped with the ETCS is currently too limited to draw conclusions. According to the UNIFE report, the total number of vehicles that have already been equipped with the ETCS in Europe is around 6 000 units, representing around 10 % of the existing units.

Figure 29: ETCS L1 and/or L2-contracted vehicles in Europe



Timeframe of data: 2015

Source of data: UNIFE

RI 3.5 — Core network equipped with the ETCS and the GSM-R

Why do we need the indicator?

Departing from the situation where migration starts, this deployment indicator is an interoperability indicator to demonstrate to what extent operation with the ERTMS on the core network is possible. Migration is finished when there is no further need for Class B signalling systems.

What are we measuring?

The first indicator measures the number of remaining Class B signalling systems required for operating on the European network.

The second indicator shows the proportion of the core network corridors that are operational with the ETCS and the Global System for Mobile Communications — Railway (GSM-R).

What is the desired target value?

The target value is that 100 % of the core network corridors are equipped with the ERTMS by 2030.

How reliable is the data?

Currently, the data is collected by the deployment management team (contractor engaged by DG Mobility and Transport) and must be validated by the Member States. The data reliability is estimated to be high.

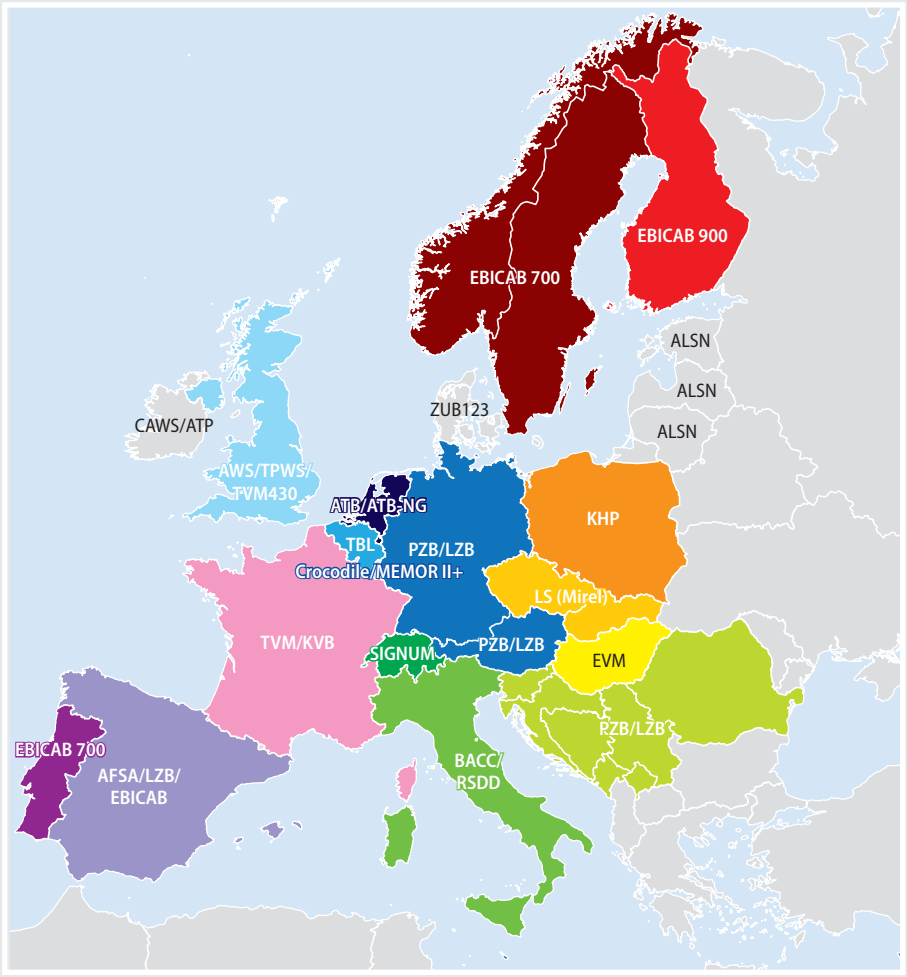
In a next phase, the RINF will be used to retrieve this data.

What can we learn from the reported data?

The monitoring of the remaining Class B signalling systems is a longer-term ETCS deployment measurement to demonstrate which Member States have fully migrated to the ETCS on their network. Examples of Member States which have planned full ETCS migration in the next decade include Belgium and Denmark.

The level of ETCS deployment on the core network corridors is relatively low (9.4 %) compared to the level of GSM-R deployment (53.5 %). Under these conditions, the successful achievement of the target can be put into question.

Figure 30: Class B signalling systems in Europe



Timeframe of data: 2015

Source of data: The Agency - List of Class B systems

Figure 31: Percentage of core network corridors equipped with the ETCS and the GSM-R in operation

Core Network Corridors	Railway Total Length (km)	ETCS in Operation (km)				GSM-R in Operation (km)			
		2014		2015		2014		2015	
Scandinavian-Mediterranean	9 460	419	4.4%	499	5.3%	8 451	89.3%	8 576	90.7%
Rhine-Danube	5 802	334	5.8%	334	5.8%	2 661	45.9%	2 661	45.9%
Rhine-Alpine	3 489	389	11.1%	389	11.1%	2 898	83.1%	2 898	83.1%
Orient-East Mediterranean	5 753	464	8.1%	464	8.1%	2 682	46.6%	2 682	46.6%
North Sea-Mediterranean	6 791	634	9.3%	720	10.6%	4 549	67.0%	4 549	67.0%
North Sea-Baltic	6 209	425	6.8%	425	6.8%	3 175	51.1%	3 175	51.1%
Mediterranean	9 355	1 099	11.7%	1 532	16.4%	3 182	34.0%	3 182	34.0%
Atlantic	8 135	569	7.0%	569	7.0%	2 473	30.4%	2 473	30.4%
Baltic Adriatic	4 588	342	7.5%	666	14.5%	1 705	37.2%	1 705	37.2%
Total Sum	**59 582**	**4 675**	**7.8%**	**5 598**	**9.4%**	**31 776**	**53.3%**	**31 901**	**53.5%**

Timeframe of data: 2014-2015

Source of data: DG MOVE - TENtec

Railway indicators

Operational activity 4: Simplified access for customers

RI 4.1 — Proportion of use cases served by the registers

Why do we need the indicator?

The purpose of this indicator is to measure if the actual usefulness of the railway registers in the activities of the relevant stakeholders is in line with what is expected from the respective registers. It can help with identifying if there are use cases which are not properly fulfilled with a view to further analysis and decision-making.

What are we measuring?

This indicator measures the proportion of registers' use cases which are reported as fulfilled by their respective users. The scope of the indicator includes the railway vehicle, rules and infrastructure registers.

What is the desired target value?

The desired target value of this indicator is to have 100 % of use cases reported as fulfilled for each register.

How reliable is the data?

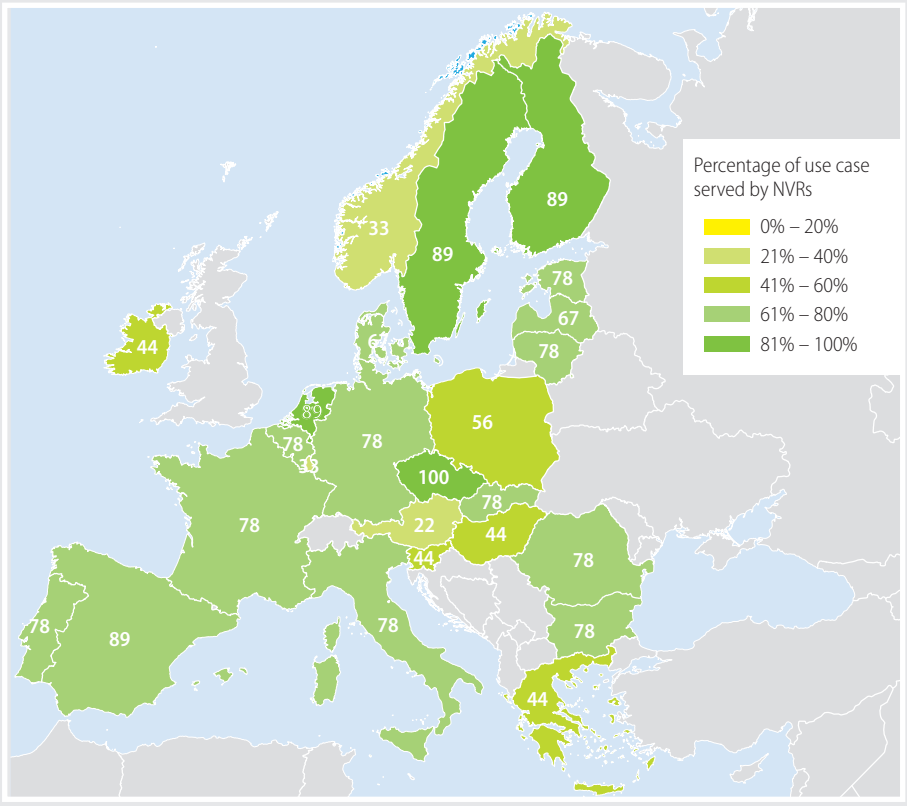
In 2015 this indicator was implemented for the national vehicle registers (NVRs) via a questionnaire addressed to the relevant national authorities in charge of managing the NVRs, in the frame of the rationalisation of vehicle-related registers (RVRR) project. The answers received cover 26 Member States. The data received is considered to be extremely reliable.

Starting from 2017, this indicator will be implemented for the railway vehicle, rules and infrastructure registers managed by the Agency by means of an online survey embedded in the registers' IT tools, which will regularly record and retrieve feedback from the users as regards the proportion of use cases served by the registers.

What can we learn from the reported data?

A large majority of the respondents to the questionnaire issued in 2015 reported a high to very high perceived usefulness of the NVRs, based on the proportion of use cases fulfilled. Further analysis needs to be undertaken in the framework of the Agency's RVRR project as regards reported rates below 100 % as this may be linked to possible lack of necessity of the use case or to a lack of fulfilment of users' needs.

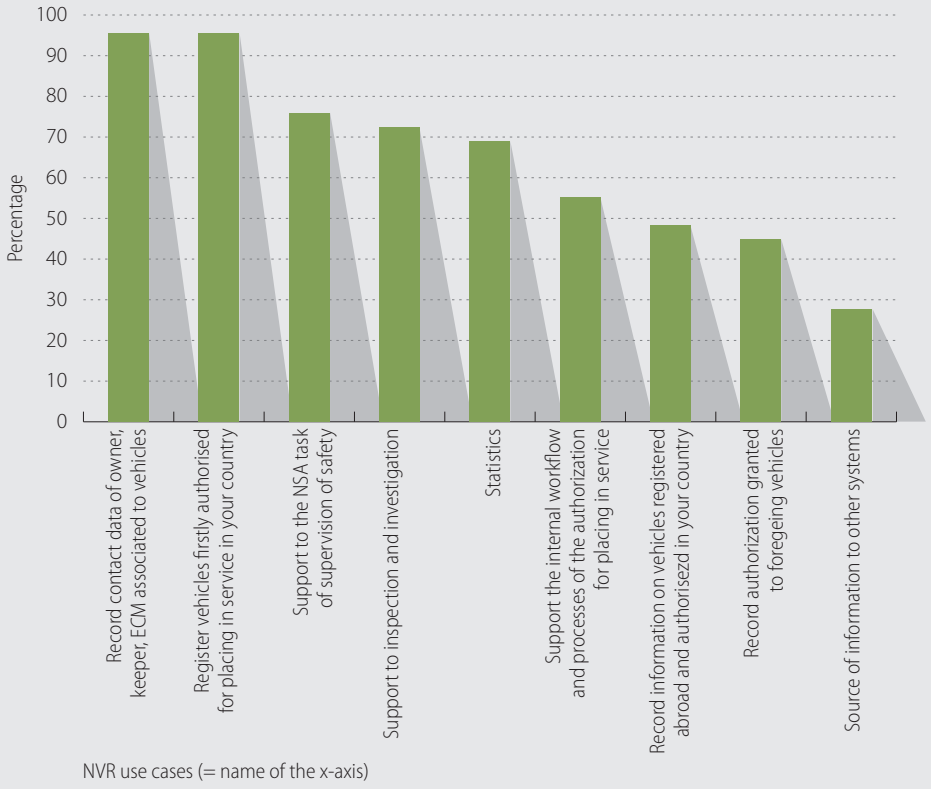
Figure 32: Percentage of NVR use cases reported as fulfilled per Member State



Timeframe of data: 2015

Source of data: The Agency

Figure 33: Percentage of responses confirming every NVR use case as fulfilled



Timeframe of data: 2015

Source of data: The Agency

RI 4.2 — Impacts of TAF TSI functions

Why do we need the indicator?

By measuring the impacts that the Telematics Applications for Freight Technical Specification for Interoperability (TAF TSI) functions generate for their users, the added value of these applications for the various categories of stakeholders could be assessed. A high reported added value is likely to trigger an increase in the rate of deployment, making the process of compliance driven not only by the legal obligation but also by a positive return of experience as regards impacts.

What are we measuring?

This indicator is meant ultimately to analyse the impacts of specific TAF TSI functions on the operational processes of the implementers. The indicator used in the mean time focuses on the reasons for not yet implementing the TAF TSI functions.

What is the desired target value?

The precise target value is to be defined once a sufficient return of experience from TAF TSI deployment is available. It is envisaged that the TAF TSI functions will generate net positive impacts for their end-users.

How reliable is the data?

In order to feed the ultimate indicator, data will be collected via the Agency's TAF TSI regional workshops and the TAF TSI Cooperation Group reporting tool. Participants in the four TAF TSI regional workshops organised so far cover a representative sample in terms of categories of stakeholders and geographical coverage. The deployment rate for TAF TSI functions is still rather limited (see also RI 4.6). For the reference files function, feedback from the implementation started to be available at the end of 2015. In accordance with the TAF TSI master plan for implementation, we will have solid feedback from the implementation of the other functions such as train running information and wagon movement starting in 2018.

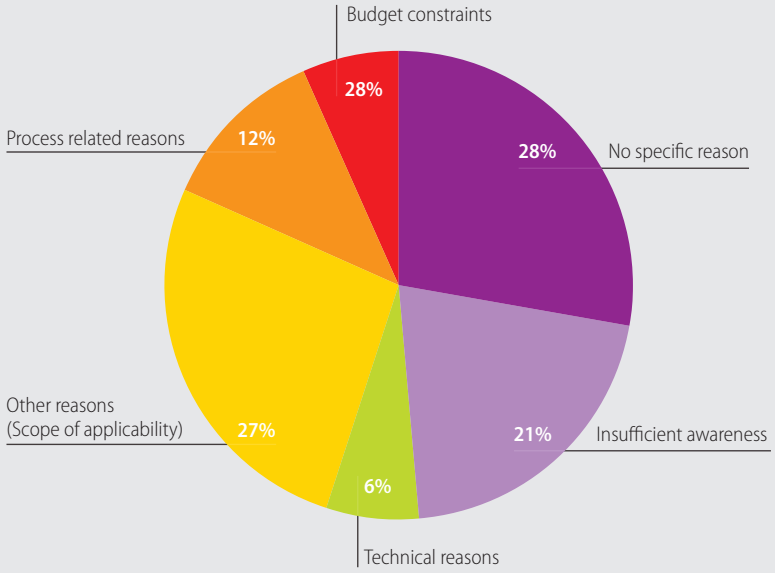
Currently the sector is in a start-up phase of implementation of the TAF TSI functions and is able to generate experience on the main issues faced during implementation, while information on impacts is still limited to the **perceived/expected** impacts and does not cover the **real/actual** impacts. The data to feed the intermediate indicator on implementation is retrieved from the TAF TSI Cooperation Group reporting tool, which covers a high proportion of the concerned stakeholders (232 replies recorded) and can be considered as representative.

What can we learn from the reported data?

Information collected in the current phase can be used to identify problems which can be partly tackled in the Agency's change control management process for TAF TSI, especially if they concern the technical specifications, as well as other types of reasons for not yet proceeding to the implementation of TAF TSI functions. The intermediate indicator has shown that less than 50 % of the respondents quote budgetary and technical constraints as reasons for non-implementation. Further analysis needs to be conducted as regards the 'Other reasons' or 'No specific reasons' quoted.

Figure 34: Reasons reported for not yet implementing TAF TSI functions

232 recorded replies



Timeframe of data: 2015

Source of data: TAF TSI Implementation Cooperation Group reporting tool

RI 4.3 — Easiness-of-use (usability) of the Agency registers' IT tools

Why do we need the indicator?

The indicator measures the easiness-of-use (usability) of the Agency registers' IT tools. It is important for users that railway registers are implemented via user-friendly IT tools, which ensure easy access to the data they are searching for. The indicator can support the Agency in identifying if there are significant issues reported with a view to their progressive elimination.

What are we measuring?

The indicator measures the average rating for the easiness-of-use of each register's IT tool, as reported by the users, on a scale from 1 ('Very difficult') to 5 ('Very easy'). If a negative assessment is made (e.g. 'Very difficult' or 'Difficult'), the respondents are invited to tick possible reasons. This can help to further evaluate the drivers affecting usability and, consequently, to design corrective measures. The scope of the indicator includes the IT tools for the railway vehicle, rules and infrastructure registers.

What is the desired target value?

The desired target value for this indicator is to reach an overall rating equal to or higher than 4 ('Easy') for each register IT tool.

How reliable is the data?

Starting from 2017 the indicator will be implemented by means of an online survey embedded in the registers' IT tools, which will record and retrieve feedback from the users as regards the usability of the respective IT tools.

What can we learn from the reported data?

So far, IT implementation for this indicator is ongoing and data collection has not yet started.

Graphical representation to be presented when the data becomes available.

RI 4.4 — Degree of satisfaction of the various end-users

Why do we need the indicator?

The Agency is keen to understand the extent to which the various categories of users are satisfied with the Agency's registers and databases overall. Monitoring customer satisfaction will help to understand the key drivers of (dis)satisfaction vis-à-vis the registers and databases with a view to further refinement/improvement beyond the usability aspect (e.g. data quality).

What are we measuring?

The indicator measures the average degree of overall user satisfaction as regards the Agency's registers and databases, based on a scale from 1 ('Very dissatisfied') to 5 ('Very satisfied'). The scope of the indicator covers the tools for the railway vehicle, rules and infrastructure registers, as well as databases such as Eradis and the inventory of assets for PRM TSI ('Technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility').

What is the desired target value?

The desired target value for this indicator is to reach an overall rating equal to or higher than 4 ('Satisfied') for each register/database.

How reliable is the data?

Starting from 2017, the indicator will be implemented by means of an online survey embedded in the Agency registers' IT tools, which will record and retrieve feedback from the users as regards their degree of satisfaction.

What can we learn from the reported data?

So far, IT implementation for this indicator is ongoing and data collection has not yet started.

Graphical representation to be presented when the data becomes available.

RI 4.5 — Proportion of stations recorded in the PRM TSI inventory of assets out of the total number of stations

Why do we need the indicator?

This indicator monitors the deployment of the Agency's PRM TSI ('Technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility') inventory of assets (IoA). The IoA is established with a view to identifying barriers to accessibility, providing information to users and monitoring and evaluating progress on accessibility and can therefore serve the information needs of both authorities and passengers, people with reduced mobility in particular.

What are we measuring?

The indicator measures the percentage of EU railway stations whose accessibility characteristics are available in the IoA. In addition to the overall level, it can prove relevant to disaggregate the analysis at the level of clusters of stations depending on the level of traffic (e.g. number of trips per annum) or at the level of types of assets (e.g. elevators). A station is to be considered to be recorded in the IoA if the following conditions are all met: (a) it applies the harmonised data model, as defined in the IoA specifications; (b) it has put in place a tool for data collection/conversion, as defined in the IoA specifications; and (c) it ensures the transfer of all categories of data required by applying the telematics applications for passenger services (TAP) functionality.

What is the desired target value?

The desired value for this indicator is to have all accessibility characteristics available in the PRM TSI IoA for all the railway stations in the EU.

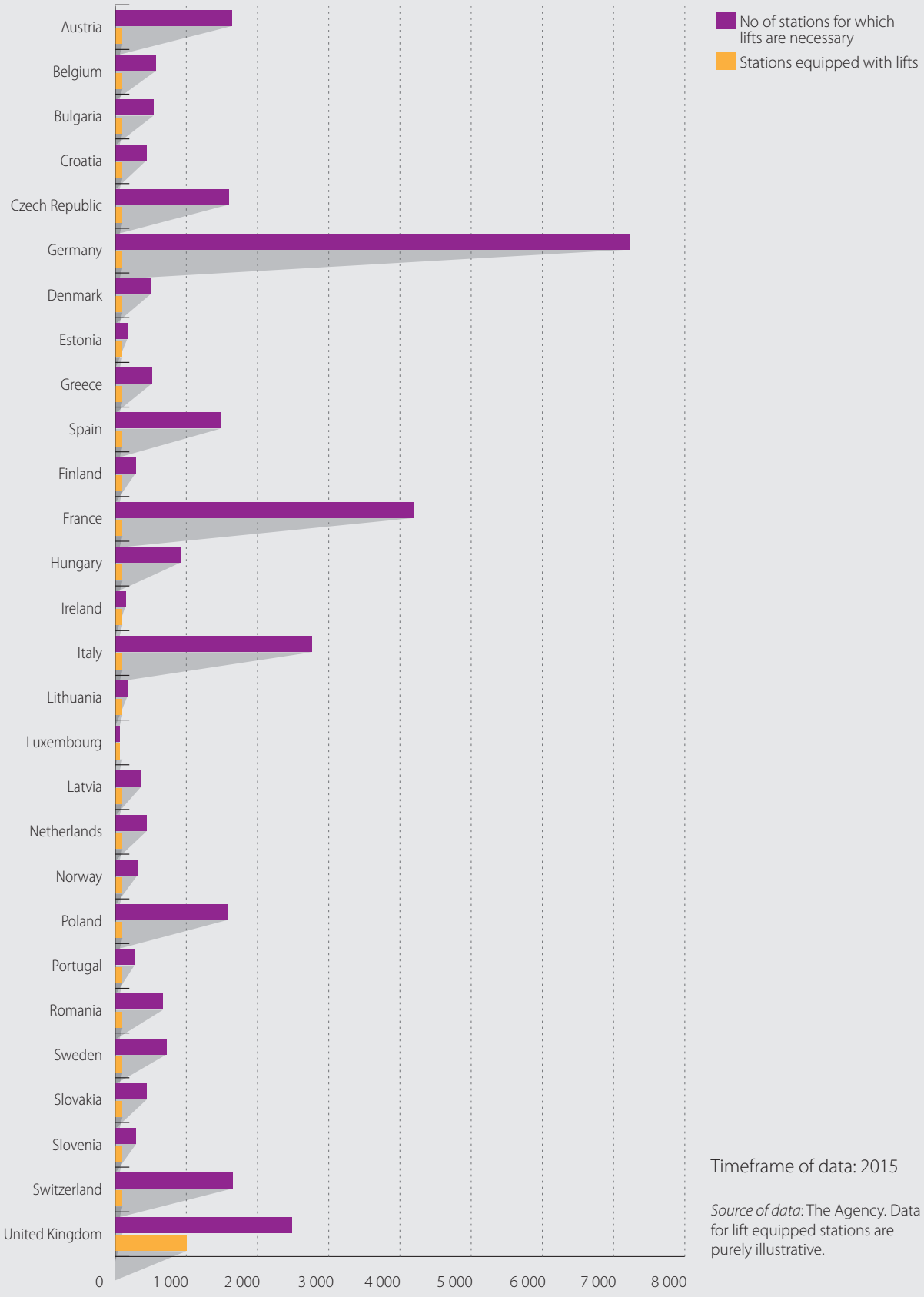
How reliable is the data?

Currently, a revision of the PRM TSI is envisaged with a view to incorporating the specifications of the IoA. Deployment of the IoA will start once the new legal text is in force, most probably in 2017.

What can we learn from the reported data?

Data collection will start once the deployment of the IoA has been performed. The indicator displayed is an example based on hypothetical data. It will be fine-tuned once the IoA starts to be populated.

Figure 35: Number of stations recorded in the IoA equipped with lifts



Timeframe of data: 2015

Source of data: The Agency. Data for lift equipped stations are purely illustrative.

RI 4.6 — Proportion of TAF TSI functions implemented compared to the master plan

Why do we need the indicator?

Given that the revised Telematics Applications for Freight Services Technical Specification for Interoperability (TAF TSI) is now in force, it is relevant to monitor the degree of its deployment. The monitoring is performed at function level in order to be able to highlight the gradual steps taken towards ensuring full TAF TSI compliance.

What are we measuring?

The indicator measures progress in the deployment of TAF TSI. The baseline is the TAF TSI master plan, which includes commitments about the deadlines for implementing the various functions (RU-specific, RU/IM functions, wagon keepers and service provider-related functions).

What is the desired target value?

The desired target value for this indicator is to have 100 % of the individual functions implemented according to their individual implementation dates as communicated in the master plan.

How reliable is the data?

A specific implementation cooperation group led by the Agency and involving the sector and the national contact points was set up for the purpose of collecting data on the TAF TSI implementation. The TAF TSI Implementation Cooperation Group deploys a dedicated tool which allows the RUs and IMs to report twice a year on the degree of implementation of specific TAF TSI functions. Data provided by the RUs and IMs has a good degree of reliability. When analysing the trends in the deployment of the functions, attention should be paid to the fact that the population of respondents may not be the identical across various reporting periods.

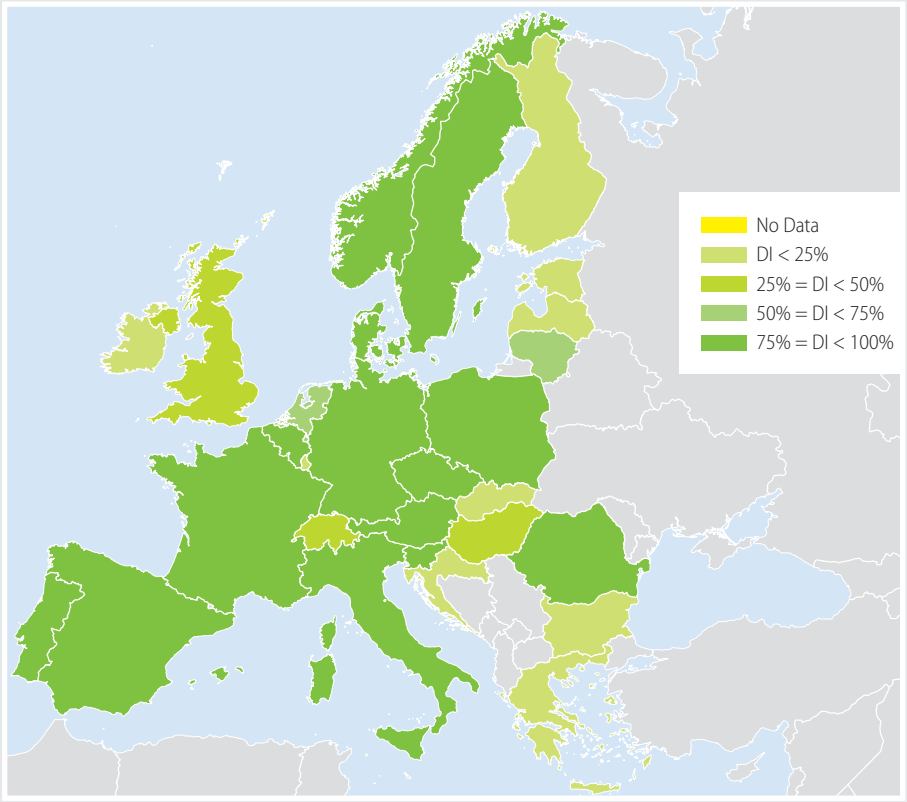
What can we learn from the reported data?

In the period 2014-2016 three reports on the implementation of TAF TSI functions were issued ([1]). As an example, based on the data provided in the reporting tool at the end of 2015, the average degree of implementation of the train running information function was above 60 % for the IMs, while for the reporting RUs it was slightly above 10 %. The level of implementation rate for the IMs, combined with their high potential to drive the TAF TSI implementation process, creates good perspectives for the RUs catching up in the future. The deployment of this function at corridor level is good for most of the corridors and corridor sections.

Potential obstacles to full deployment of the TAF TSI may originate from a low usefulness and/or a low usability of the specific functions. An analysis of the usefulness of the TAF TSI functions can be found in RI 4.2. An analysis of the usability of the functions can be conducted as soon as the implementation progresses.

([1]) http://www.era.europa.eu/Document-Register/Pages/Implementation.aspx

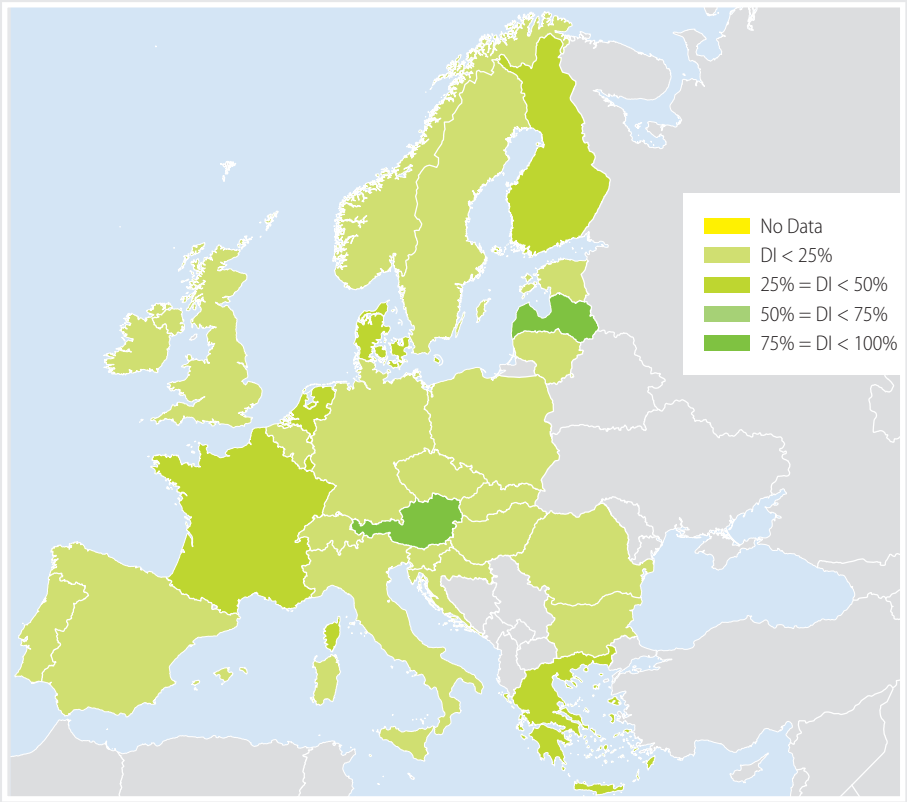
Figure 36: Train running information function implementation for infrastructure managers



Timeframe of data:
Q1 2016

Source of data: The Agency

Figure 37: Train running information function implementation for railway undertakings



Timeframe of data:
Q1 2016

Source of data: The Agency

Annex


Oostnik Kortrijk
40 Bru-Luxenbourg Oftignies L 15
Bru-Luxenburg Oftignies
40 Aalst Panne IC 10
Aalst De Panne
50 Ma vers-Central IC 16
en Antwerpen-C
51 Knok enkenberge IC 17

List of the Agency's registers

RINF

Article 35 of the interoperability directive requests that the Agency ensures that a register of infrastructure (RINF) is published. The main purpose of the RINF is to provide transparency on the characteristics of the EU's railway network and allow the execution of preliminary compatibility checks in the future.

As provided by Commission Implementing Decision 2014/880/EU, the RINF Common User Interface (RINF CUI) is a web-based application hosted and maintained by the Agency. A version for tests was made available throughout the year. By the end of 2015, eight Member States had published via the production version data describing their networks.

ECVVR

The European Centralised Virtual Vehicle Register (ECVVR) is based on Article 33 of the interoperability directive and Commission Decision 2007/756/EC ([1]).

In 2015, the last six national vehicles registers (NVRs) became connected to the ECVVR; therefore, the NVRs of all EU Member States were connected to the ECVVR.

ERATV

The European Register of Authorised Types of Vehicles (ERATV) is based on Article 34 of the interoperability directive and Commission Decision 2011/665/EU ([2]).

In 2015, 100 type authorisations were recorded in ERATV by NSAs of 13 EU Member States and Switzerland.

VKMR

The Vehicle Keeper Marking Register (VKMR) is defined in Appendix 6, Part 1 to Decision 2007/756/EC ([3]).

In 2015, 207 new vehicle keeper markings (VKMs) were assigned and 12 existing VKMs were revoked.

Eradis

The European Railway Agency Database of Interoperability and Safety (Eradis) is used for the collection and publication of specific documents concerning safety and interoperability according to Regulation (EC) No 881/2004.

In 2015, 18 European Commission declarations and 84 service quality reports were published.

([1]) ***Official Journal of the European Union*** L 305, 23.11.2007, p. 30–51
([2]) ***Official Journal of the European Union*** L 264, 8.10.2011, p. 32–54
([3]) ***Official Journal of the European Union*** L 305, 23.11.2007, p. 30–51

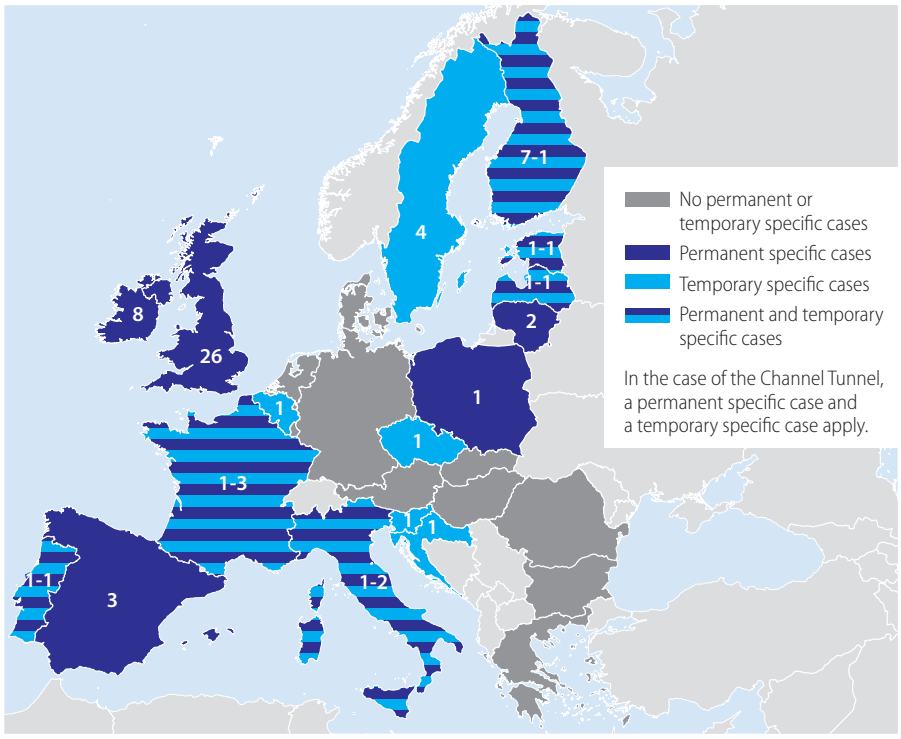
Update on the technical specifications for interoperability

LOC&PAS TSI

Regulation (EU) No 1302/2014 ([4]) sets out a technical specification for interoperability relating to the 'rolling stock — locomotives and passenger rolling stock' subsystem of the rail system in the EU. Presently, there are still nine open points regarding the compatibility with train detection systems, the running dynamic behaviour for the 1520 mm track gauge system, the braking system independent of adhesion conditions, aerodynamic effects for 1520 mm, 1524 mm and 1668 mm track gauge systems, the aerodynamic effect on ballasted track for rolling stock of design speed ≥ 190 km/h, passive safety, variable gauge wheelsets, on-board energy measurement systems and fire containment and control systems. The Agency intends to close some of the abovementioned open points during the ongoing revision process.

In addition to the specific cases indicated in Figure 38, there are 'Environmental conditions' in the Locomotive and Passenger Rolling Stock Technical Specification for Interoperability (LOC&PAS TSI) which, when not fulfilled, may limit the access to a national network in certain months of the years/specific locations.

Figure 38: Specific Cases of the LOC&PAS TSI



Timeframe of data: 2015

Source of data: The Agency

([4]) Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the 'rolling stock — locomotives and passenger rolling stock' subsystem of the rail system in the European Union

WAG TSI

The Wagon Technical Specification for Interoperability (WAG TSI) concerns the technical specification for interoperability relating to the 'rolling stock — freight wagons' subsystem of the rail system in the EU. There are three remaining open points in the revised WAG TSI: the first one relates to on-board monitoring of axle-bearing condition, the second to test conditions for on-track tests and the third to variable gauge wheelsets. An open point on composite brake blocks has already been closed in 2015 ([5]). The Agency intends to close the aforementioned three open points in the ongoing revision process.

CCS TSI

The Control Command and Signalling Technical Specification for Interoperability (CCS TSI) contains technical specifications for interoperability relating to the control–command and signalling subsystems of the trans-European rail system. This decision has been amended by Decisions 2012/696/EU ([6]) and (EU) 2015/14 ([7]).

In December 2015, the Agency sent a recommendation for amending and recasting the CCS TSI to the European Commission.

The draft CCS TSI prepared with the working parties has been submitted to consultation ([8]) with social partners from June to September and discussed in specific workshops of the Railway Interoperability and Safety Committee (RISC) in February, June and October.

The main features of the amended CCS TSI are as follows:

- There will no longer be a decision but rather a regulation.
- Baseline 3 Release 2 for the ETCS and Baseline 1 for the GSM-R are referenced. While Baseline 1 for the GSM-R fully replaces the pre-existing set of specifications (with which it is fully backward compatible), introducing in particular requirements to manage interferences with public operators and the General Packet Radio Service (GPRS), the current sets of specifications for the ETCS (Baseline 2 and Baseline 3 Maintenance Release 1) are still permitted. This ensures the protection of investments already made, while introducing additional functionalities, as requested by the sector and defined in the memorandum of understanding (MoU) signed in July 2008 by the European Commission and sector associations.
- Important clarifications are made concerning the procedures of certification, reinforcing the obligation to make public the engineering rules and operational test scenarios for track-side subsystems and clarifying the management for checking compatibility between on-board and track-side.
- Clarifications are made in implementation requirements (Chapter 7) in view of a separate decision for the European deployment plan (EDP) of the ETCS.
- The open point related to axle counter compatibility in direct current (DC) power systems has been closed.

There are presently 11 open points remaining. The Agency is working to close them, especially the one related to reliability/availability and the ones related to compatibility of train detection systems.

The specific cases for CCS TSI are the following:

([5]) Commission Regulation (EU) 2015/924 of 8 June 2015 amending Regulation (EU) No 321/2013 concerning the technical specification for interoperability relating to the 'rolling stock — freight wagons' subsystem of the rail system in the European Union
([6]) Commission Decision 2012/696/EU of 6 November 2012 amending Decision 2012/88/EU on the technical specifications for interoperability relating to the control-command and signalling subsystems of the trans-European rail system
([7]) Commission Decision (EU) 2015/14 of 5 January 2015 amending Decision 2012/88/EU on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system.
([8]) Consultation Reference ERA-CON-2015-01-ERTMS available online: http://www.era.europa.eu/Document-Register/Pages/Consultation-on-recast-of-CCS-TSI-.aspx

- Belgium, Germany, Estonia, Latvia, Lithuania, Luxembourg, Poland and the United Kingdom: compatibility of train detection systems, requiring additional verifications for vehicles.
- United Kingdom: also has specific cases for the ETCS and GSM-R driver machine interface (DMI) related to use of imperial measurement units and a special format for train running numbers.
- Sweden: specific case permitting the use of 2-watt GSM-R mobiles (instead of standard 8-watt). This does, however, not prevent the use of standard mobiles.
- Germany and Estonia: specific cases have been added. This is not a new incompatibility, but only more precise information on the existing network with respect to previous CCS TSI.

NOI TSI

There have been no new developments regarding the Noise Technical Specification for Interoperability (NOI TSI) in 2015.

INF TSI

At present, there are still nine open points that affect the Infrastructure Technical Specification for Interoperability (INF TSI); some of them are being addressed so that they can be closed at the end of 2016/early 2017.

ENE TSI

The first merged Energy Technical Specification for Interoperability (ENE TSI) (Regulation (EU) No 1301/2014 ([9])) entered into force on 01 January 2015.

The requirements set out in the TSI include only those elements that are important from the interoperability point of view, for the compatibility of the energy subsystem, as defined in the interoperability directive, with a TSI-compliant rail vehicle.

The open point related to interface protocols between the energy measurement system (EMS) and the data collecting system (DCS) and transferred data format is expected to be closed at the end of 2016 or beginning of 2017, depending on the time framework of standardisation activities (EN 50463).

PRM TSI

The Persons with Reduced Mobility Technical Specification for Interoperability (PRM TSI) is a set of technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility. In 2015, the Agency produced an intermediate report about the characteristics of the IoA system required in Article 7 of Commission Regulation (EU) No 1300/2014 ([10]) (architecture, data to collect and to provide to users, forma, etc.) and issued a questionnaire to Member States in order to identify the most appropriate entity for collecting and exchanging the data. The Agency assisted the European Commission in selecting the contractor in charge of the development of the IT tools necessary for the IoA system.

SRT TSI

There have been no new developments regarding the Safety in Railway Tunnels Technical Specification for Interoperability (SRT TSI) in 2015.

([9]) Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/2006

([10]) Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility

OPE TSI

The Operation and Traffic Management Technical Specification for Interoperability (OPE TSI) describes 'the procedures and related equipment enabling a coherent operation of the various structural subsystems, during both normal and degraded operation, including in particular train composition and train driving, traffic planning and management'.

The latest TSI entered into force in July 2015 pursuant to Commission Regulation 2015/995 ([11]).

The main change in the latest OPE TSI was the development of common operational principles and rules in Appendix B. The aim is to gradually extend this appendix to cover more harmonised operating rules. The open point on the rear end signal was also closed.

TAP TSI

The Telematics Applications for Passenger Service Technical Specification for Interoperability ([12]) (TAP TSI) describes the protocols and data formats for the exchange of passenger information in the pre-, during and after journey phases. The specification addresses provisions for the RUs, IMs and ticket vendors concerning timetable information, tariff information, availability and booking (e.g. for seats or berths), ticketing and journey information (e.g. delays, re-routing).

The TAP TSI does not contain any specific case, but six open points mainly concerning tariff data exchange and ticketing. In 2015, the Agency elaborated the options for closing these open points in a working party for the revision of the TAP TSI.

The TAP TSI is currently in the implementation phase. The European rail sector (railways, infrastructure managers and ticket vendors) have to implement the TSI according to the TAP TSI master plan ([13]), quoting the milestones and deadlines for the implementation of the abovementioned TAP functions and processes. In 2016, the Agency will start a TAP TSI implementation cooperation group which will assess the progress in implementation. This work will result in two TAP implementation reports per year to be sent by the Agency to the European Commission and the TAP TSI Steering Committee.

TAF TSI

The purpose of the Telematics Applications for Freight Services Technical Specification for Interoperability (TAF TSI) in the EU, Commission Regulation (EU) No 1305/2014 ([14]), is to ensure the efficient interchange of information by setting up the relevant technical framework. It covers the applications for freight services and the management of connections with other modes of transport. This means that that the TAF TSI, in addition to the pure operation of trains, also addresses the transport services of a RU.

The TAF TSI also has an impact on the conditions of use of rail transport by users. In this respect the term users means not only IMs and RUs but also all other service providers such as wagon companies, intermodal operators and even customers.

The TAF TSI contains neither open points nor specific cases.

([11]) Commission Regulation (EU) 2015/995 of 8 June 2015 amending Decision 2012/757/EU concerning the technical specification for interoperability relating to the 'operation and traffic management' subsystem of the rail system in the European Union

([12]) Commission Regulation (EU) No 1273/2013 of 6 December 2013 amending Regulation (EU) No 454/2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services' of the trans-European rail system

([13]) http://www.era.europa.eu/Document-Register/Pages/TAP-TSI-Technical-Documents.aspx

([14]) Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/

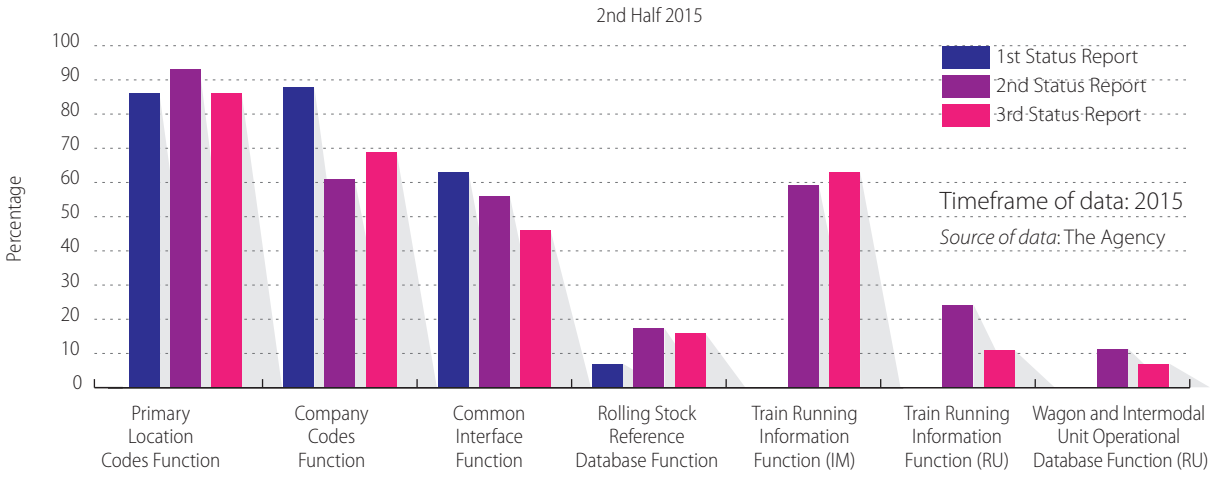
This TAF TSI concerns the element 'applications for freight services' of the subsystem 'telematics applications' included in the functional area of the list in Annex II to Directive 2008/57/EC ([15]).

Currently the TAF TSI is in the implementation phase. In January 2013, the European rail sector players (RUs, IMs, wagon keepers, service providers, intermodal operators and customers) submitted a master plan quoting the milestones and deadlines for the implementation of the above TAF TSI functions and processes. In 2014 the Agency set up a TAF TSI implementation cooperation group in which the abovementioned progress in implementation is assessed and overseen and which delivers two reports per year to the European Commission and the TAF TSI Steering Committee.

The content of the 'Third TAF TSI status implementation report' delivered by the Agency in May 2016 to the European Commission and the TAF TSI Steering Committee is based on the responses of 156 companies out of 347 rail companies across Europe. This content is limited to six TAF TSI functions:

- common reference files — primary location codes;
- common reference files — company codes;
- common interface implementation;
- train running information;
- wagon and intermodal unit operational database (WIMO);
- rolling stock reference database (RSRD).

Figure 39: Implementation of the TAF TSI functions



The following key findings of the 'third TAF TSI status implementation report' per TAF TSI function can be highlighted.

- When a reference group is defined in the three reports delivered, the comparison of the data included for these companies does not show a significant advancement of the implementation for the same subset of TAF TSI functions. The addition of new companies reporting is contributing mostly to better reflect the real degree of implementation.
- By the beginning of 2015, the majority of IMs had already completed the population of the common reference files for locations of their network.
- Company codes are already widely used within the sector, both by IMs and RUs. Nevertheless, some difficulties remain in getting the company codes, in particular for new

([15]) Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community

railways undertakings joining the TAF TSI community which are not aware, in most of the cases, of the procedure in place for getting a company code. The wagon keepers only apply for a company code when they have the business need to exchange TAF TSI messages with their partners.

- The majority of railway undertakings and wagon keepers are still developing the common interface, while most of the infrastructure managers have already finished its implementation.
- The deployment of the RSRD has been already launched, but mostly International Union of Wagon Keepers (UIP) members have delivered data concerning the implementation of this function. Regarding the data delivered, these wagon keeper companies have already completed the implementation of this function.
- The level of realisation of train running information is progressing in accordance with the implementation schedule quoted in the TAF TSI master plan which calls for completion by 2017, in particular for the IMs.
- The level of fulfilment of the wagon and intermodal unit operational database (WIMO) is behind schedule compared to the milestones for its realisation contained in the TAF TSI master plan ([16]).

For more details, see the implementation reports delivered to the European Commission and the TAF TSI Steering Committee and published on the Agency's website. Moreover, the outcomes of the implementation reports are summarised on the progress implementation maps ([17]).

([16]) http://www.era.europa.eu/document-register/documents/taf-tsi-master-plan.pdf
([17]) http://www.era.europa.eu/tools/taftsi/pages/home.aspx

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