

Report

5th TAF TSI IMPLEMENTATION STATUS REPORT OF THE EUROPEAN UNION AGENCY FOR RAILWAYS – 2nd HALF 2016

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Abbreviations

Abbreviation	Definition
CEF	Connecting Europe Facility
CER	Community of European Railway and Infrastructure Companies
CI	Common Interface
CRD	Central Reference Database
DI	Degree of Implementation
EC	European Commission
ECM	Entity in Charge of Maintenance
EIM	European Rail Infrastructure Managers
EPTO	European Passenger Transport Operators
ERA	European Union Agency for Railways (also referred to as Agency)
ERFA	European Rail Freight Association
ESC	European Shippers' Council
ETA	Estimated Time of Arrival
GCU	General Contract for Use of Wagons
GIS	Geographical Information System
ICG	Implementation Cooperation Group
IM	Infrastructure Manager
INEA	Innovation and Networks Executive Agency
JSG	Joint Sector Group
NCP	National Contact Point
PCS	Path Coordination System by RNE
PM ²	Official Project Management Methodology of the European Commission
RailData	International organisation of European cargo Railway Undertakings. It is established as special group of the International Union of Railways (UIC)
RISC	Rail Interoperability and Safety Committee
RNE	Rail Net Europe
RSRD	Rolling Stock Reference Database
RSRD ²	Rolling Stock Reference Database implementation made by UIP members
RU	Railway Undertaking
TAF	Telematics Applications for Freight
TIS	Train Information System developed by RNE

Abbreviation	Definition
CEF	Connecting Europe Facility
TSI	Technical Specification for Interoperability
UIC	Union Internationale des Chemins de fer
UIRR	International Union for Road-Rail Combined Transport
UIP	International Union of Wagon Keepers
UITP	International Organisation for Public Transport
UNIFE	Association of the European Rail Industry
WIMO	Wagon and Intermodal Unit Operational Database

Reference documents

Ref. N°	Title	Reference	Version
(1)	TAF-TSI Master Plan	TAF Master Plan – v4.0	17.01.2013
(2)	NOTE TO ERA EXECUTIVE DIRECTOR: Assessment of TAF TSI implementation by the European Railway Agency	Ref. Ares(2014)1706338	26.05.2014
(3)	1 st Status Report in 2014 of the European Railway Agency for European Commission regarding the Implementation of TAF TSI.	1 st Status Report ERA-REP-114 - IMPL-2015-01	21.04.2015
(4)	2 nd Status Report in 2014 of the European Railway Agency for European Commission regarding the Implementation of TAF TSI.	2 nd Status Report ERA-REP-114 - IMPL-2015-02	27.11.2015
(5)	3 rd TAF TSI Implementation Status Report of the European Union Agency for Railways – 2 nd Half 2015	3 rd TAF TSI Implementation Status Report ERA-REP-114- IMPL-2016-01.	26.07.2016
(6)	4 th TAF TSI Implementation Status Report of the European Union Agency for Railways – 1 st Half 2015	4 th TAF TSI Implementation Status Report ERA-REP-114- IMPL-2016-02.	22.12.2016
(7)	5 th ERA TAF TSI Implementation Cooperation Group held on 22 nd and 23 rd March 2017	Minutes TAF Cooperation Group 20170322 23 Draft v02	27.03.2017

Reference legislation

Ref. N°	Document Reference	Title	Last Issue
[1]	Directive 2008/57/EC	Interoperability of the rail system	17.06.2008
[1]	Directive (EU) 2016/797	Directive of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union	11.05.2016
[2]	TAF TSI Regulation No 1305/2014	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	11.12.2014
[3]	Corridor Regulation N° 913/2010	Regulation (EU) No 913/2010 of the European Parliament and of the Council of 22 September	22.09.2010

Ref. N°	Document Reference	Title	Last Issue
		2010 concerning a European rail network for competitive freight	
[4]	CEF Regulation	Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010	11.12.2013

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1. Executive summary

This report contains the data provided to report the status of the implementation by **27.01.2017** of the following TAF TSI [2] functions:

- Reference Files Function:
 - Company Codes
 - Primary Location Codes
- Common Interface Function
- Rolling Stock Reference Database.
- Train Running Information Function
- Wagon and Intermodal Unit Operational Database
- Train Composition Message

This fifth report, compared to the fourth report issued in December 2016, provides a view of the implementation of these seven functions, agreed by the Agency TAF TSI Cooperation Group in October 2016 and March 2017. This first conclusion can be drawn from the fact that number of companies reporting has significantly increased compared to the previous report, because 197 companies responded out of 366 companies registered in the JSG Reporting Tool (<http://taf-jsg.info/>). Therefore the number of companies reported is close to half of the potential responding companies.

To better evaluate the current degree of implementation for each function, the data provided is compared to the baseline defined in the Master Plan (1) ¹ to implement the TAF TSI [2] regulation delivered by the European Rail Sector in 2013. The TAF-TSI Master Plan (1) was submitted to the TAF-TSI Steering Committee, DG MOVE and the Agency on 15th November, 2012. A total of 58 companies, representing over 85% of the total Tonne and Track Kilometres in Europe responded with their individual plans for implementation. The target dates are based on the corresponding TAF-TSI function to be implemented and they were set when 80% or more of the respondents indicated a final implementation.

The data provided is a self-declaration made by every company about the level of implementation of the above mentioned functions. Most of the data has been collected through an entity set-up by the European Rail Sector, the so called Joint Sector Group (JSG), to technically support the implementation of the system. The members of the JSG are:

- CER²
- UIC
- EIM
- UNIFE
- UIRR
- ESC
- UIP

¹ See «Reference Documents».

² See «Abbreviations» for acronyms.

- RNE
- ERFA
- RAILDATA
- UITP
- EPTO

In addition, the Agency has kept the “Degree of Implementation” for 5 companies, which have not delivered data for the current report, but data from preceding deliveries was available. All these companies were duly consulted before keeping their reporting values.

Regarding the function “Rolling Stock Reference Database”, the implementation data has been collected by the JSG in close cooperation with the International Union of Wagon Keepers, UIP. They have submitted to the Agency a file containing the status information of one hundred eight (108) companies across Europe.

The following key findings per TAF function can be highlighted:

- In general terms, whether we consider a reference group of companies reporting in the last three implementation reports, we can observe an increase of companies having finished implementation of the earliest TAF TSI functions.
- The majority of IMs has completed the population of the Common Reference Files for locations on their network.
- Company codes are already widely used within the sector, by both IMs and RUs. Nevertheless, some difficulties still remain in the process conducting to get the Company Codes, in particular for newcomers and wagon keepers.
- The majority of RUs is still developing the common interface, while a most of the IMs have already finished the implementation of the common interface.
- The deployment of the Rolling Stock Reference Database has been already launched. Although the number of Railway Undertakings reporting about this function has significantly increased, however still mainly UIP members have delivered data concerning the implementation of this function. Regarding the data delivered, these Wagon Keepers companies’ members of UIP have already completed the implementation of this function. Nevertheless, the accomplishment of this function considering the whole European fleet of wagons is clearly delayed.
- The level of realisation of Train Running Information is progressing in accordance with the implementation schedule quoted in the TAF TSI Master plan by 2017, in particular for the Infrastructure Managers, meanwhile the evolution for the Railway Undertakings has significantly improved meeting the milestones quoted in the TAF TSI Master Plan (1).
- The level of fulfilment of the Wagon and Intermodal Unit Operational Database is improving in comparison with the realisation milestones committed on the TAF TSI Master Plan (1). Indeed, the actual value is reaching the expected implementation value by end 2016, when half of Railway Undertakings respondents committed to deploy this function by 2016. Nevertheless, the whole implementation is expected by 2018.
- In regards the level of implementation of the Train Composition Message, the actual implementation status is significantly below the expectations committed by the companies on the TAF TSI Master Plan (1).

Furthermore, the report identifies the TAF TSI functions where the sector shall allocate more resources to meet the target implementation date quoted in the TAF TSI Master Plan (1), in particular the Rolling Stock Reference Database, the Wagon and Intermodal Unit Operational Database and the Train Composition Message. These functions are either already delayed or on the way of not meeting the implementation deadlines quoted on the TAF TSI Master Plan (1).

In particular, this report shows that the implementation of the Rolling Stock Reference Database (RSRD) by 2nd half of 2016 is in average for the overall European rail sector delayed compared to the declared target implementation date in the Master Plan, 2015. The implementation data used in this report permits to conclude that the RUs have already started delivering information about the implementation of the TAF TSI [2] compliant RSRD database.

2. Introduction

This 5th Status Report is delivered in accordance with the legal frame provided by the 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 in force, TAF TSI [2].

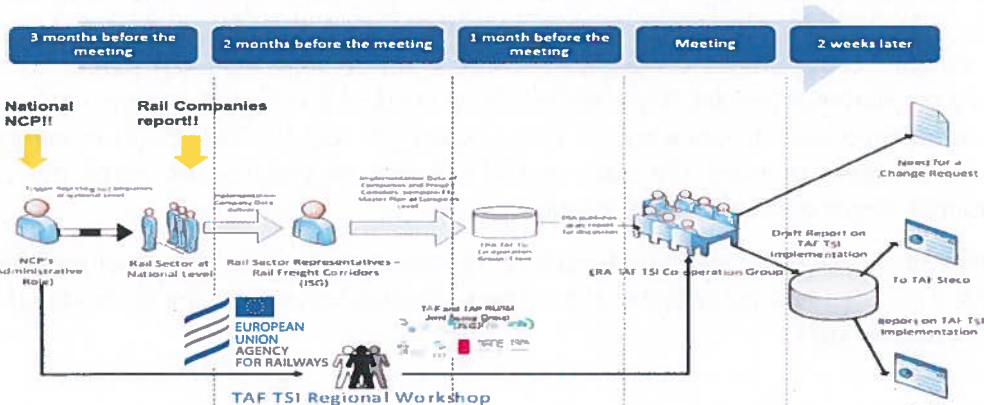
In particular, Article 5 of the Regulation [2] attributes to the European Union Agency for Railways, named the Agency along the report, the task to assess and oversee the implementation of the Regulation to determine whether the agreed objectives and deadlines have been achieved and to provide an assessment report to the TAF steering committee referred to in Section 7.1.4 of the Annex. Furthermore, the European Commission (EC) issued a letter on 26.05.2014 (2) describing the tasks expected to be carried out by the Agency for the Assessment of TAF TSI [2] implementation. In addition, since June 2016 the Agency becomes a system authority for Telematics. This new role prescribed on article 23 of Regulation (EU) 2016/796 requires the Agency to assist the Commission in the monitoring of deployment of specifications for telematics applications in accordance with relevant TSIs.

Beyond this, this activity meets the 4th Strategic Priority of the Agency work programmes 2016 and 2017, "Simplified Access for Customers". On this basis, the Agency launched in October 2014 the Co-operation Group for the Implementation of Telematics Applications for Freight. The Co-operation Group performs the following tasks:

- To assess the reports from the sector (companies, NCPs and RBs) about the TAF TSI [2] implementation.
- To compare the data received with the content of the TAF TSI Master Plan (1) and assess the progress of implementation to determine whether the objectives pursued and deadlines have been achieved.
- To use Key Performance Indicators (KPIs) previously agreed between the Agency and the Rail Sector to assess the evolution of the deployment of the system and report twice per year to the European Commission and to the TAF Steering Committee.
- To perform a dissemination campaign to NCPs and assist them to follow-up the TAF TSI [2] implementation at national level.

All these activities are performed in close cooperation with the different stakeholders, who will provide implementation reports. The diagram below shows the process allowing the Agency to perform the above listed activities:

Figure 1: Agency TAF TSI Implementation Cooperation Group process.



The Agency has to inform the EC about the results of this monitoring and has to advise the EC about the possible changes needed. In a multimodal context, the Agency has to guarantee that any of the actions taken do not create additional obstacles for multimodal environment.

In addition, the effort made by the European rail sector to deploy the TAF TSI [2] system is also supported by the Connecting Europe Facility (CEF) [4] programme launched by the European Commission and managed by the INEA Executive Agency.

The CEF³ [4] will better mobilise private financing and allow for innovative financial instruments such as guarantees and project bonds to gain maximum leverage from this EU funding injection as it's a financial tool at disposal of all the companies implementing TAF TSI [2] regulation.

3. Context

The final version of the TAF-TSI Master Plan (1), establishing the implementation timeline for the Regulation, was submitted to the TAF-TSI Steering Committee, DG MOVE and the Agency on 15th November 2012.

A total of 58 companies, representing over 85% of the total Tonnes and Track Kilometres in Europe responded with their individual plans for implementation. Target dates were set when 80% or more of the respondents indicated a final implementation. The target dates are based on the corresponding TAF-TSI function to be implemented.

An analysis, based on Corridor Regulation N° 913/2010 [3], was also incorporated into this Master Plan (1). As the Corridor Regulation specifically addresses Short Term Path Requests and Train Running Information, these were the only functions included. It should be noted that the TAF-TSI is a supporting tool – and not a prerequisite – for the implementation of Regulation N° 913/2010. Therefore the later date of implementation of the TAF-TSI should have no impact on the implementation of 913/2010.

In order to collect the data and to boost the involvement of the higher possible number of companies, the European Union Agency for Railways has closely worked with the European Rail Sector to set-up the appropriate mechanism to collect the data concerning the deployment of the above mentioned functions. Indeed, the European Rail Sector grouped through the entity Joint Sector Group (JSG) and the Agency has set-up two IT tools to collect and visualize the data submitted by the European rail companies, Infrastructure Managers, Railway Undertakings and Wagon Keepers. For this purpose the companies submit their information to the JSG IT tool through a Web service available for all the companies registered. For the time being the **number of registered companies is three hundred sixty six (366) thanks to the information delivered by the National Contact Points (NCPs)**. Once the data is collected, the raw data is delivered to the Agency, who incorporates this information in the Agency IT tool for TAF TSI [2] monitoring. This IT tool comprises a database to store the data and a GIS tool to visualize on maps the progress of the implementation. There are three groups of maps:

- Maps to report about common functions. These maps show the degree of implementation of the Reference Files (Company Codes and Primary Location Codes) and the Common Interface functions at European level.

³<https://ec.europa.eu/inea/en/connecting-europe-facility/2016-cef-synergy-call>

- Maps to report about RU-IM Communication functions. These maps show the degree of implementation at country level of the RU-IM Communication functions and there is an additional publication of the data per rail freight corridor in Europe as defined in the Corridor Regulation N° 913/2010 [3]. The presentation of the progress evolution per corridors underpins the implementation of Corridor Regulation N° 913/2010 [3]. Thereby, the maps used in this report represent the progress of the implementation at country level and at corridor level of the following functions :
 - Short Term Path Request,
 - Train Running Information,
 - Train Preparation,
 - Service Disruption and
 - Unique Train Identifiers.
- Maps to report about Railway Undertaking's functions. These maps show the degree of implementation at country level of the functions to exchange data amongst Railway Undertakings and Wagon Keepers:
 - Consignment Data Function,
 - Wagon and Intermodal Unit Operational Database (WIMO) Function,
 - Wagon Movement Function,
 - Shipment ETA Function and
 - Rolling Stock Reference Database.

The scope of the present 5th report is to inform about the deployment of the functions scheduled to be implemented by 2nd half 2016 in the Master Plan (1) delivered by the sector for the implementation of the TAF TSI [2] system. This temporary scope was agreed by the members of the Co-operation Group for the Implementation of Telematics Applications for Freight in the 4th meeting (6) held on 19th and 20th October 2016, this report provides information about the implementation of the following functions:

- Reference Files Function:
 - Company Codes
 - Primary Location Codes
- Common Interface Function
- Rolling Stock Reference Database.
- Train Running Information Function
- Wagon and Intermodal Unit Operational Database
- Train Composition Message

To have a common approach for all companies' contributors submitting implementation information, **an optional common criterion has been agreed with the representatives of the rail sector to assess the degree of deployment of TAF TSI functions.** This criterion is based on the standard division in project phases of IT projects defined in the methodology for project management in use at the European Commission (PM²). Assuming that project phases are divisions within a project where extra control is needed to effectively

manage the completion of a major deliverable, then it may be ideally assimilated with each of the 12 TAF TSI functions identified in the TAF TSI Master Plan (1) to an individual IT reference implementation project.

Within every individual IT reference implementation project, we use percentages of completion as early indicators to track the progress made each period of one year (n-3, n-2, and n-1, n) over a 4-year time span. This allows detecting delays in the implementation of a particular function.

Therefore, taking into account the above mentioned assumptions, every function implementation may be considered as an individual project to be split in the following reference phases:

- **Initiating Phase:** This phase may comprise those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. This phase includes typically the following activities:
 - Feasibility Study
 - Business Case
 - Gathering of Technical and Functional Requirements

These activities may correspond in an “optional” reference implementation to a Degree of Implementation (DI) between 0% and 25% for a particular function. If the DI is achieved at the beginning of the timeframe for the deployment of such a function, ideally deadline minus three years (deadline-3), the implementation of this function can be deemed on time.

- **Planning Phase:** this phase includes typically those activities required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve:
 - Resource Planning
 - Project Work Planning (Working Break Down Structure)
 - Migration Planning
 - Outsourcing Plan
 - Risk Management Planning

These activities may correspond in an “optional” reference implementation to a Degree of Implementation (DI) between 25% and 50% for a particular function. If the DI is achieved ideally within the deadline minus two years (deadline-2) period, the implementation of this function could be deemed to be on time.

- **Executing Phase:** this phase may comprise those processes performed to complete the work defined in the project management plan to satisfy the project specifications. This phase includes activities such as:
 - Procurement
 - Executing
 - Testing (User Acceptance and system Integration)
 - Training and Education

These activities may correspond in an “optional” reference implementation to a Degree of Implementation (DI) between 50% and 100% for a particular function. If the DI is achieved ideally within the deadline minus one year (deadline-1) period, the implementation of this function could be deemed to be on time.

- **Closing & Production:** this phase may comprise those processes performed to finalise all activities across all phases to formally close the project. Therefore, it may include the delivery of the product/service, in the context of the TAF TSI [2] deployment, the delivery of the IT system implementing a particular TAF TSI [2] function moving to production environment. These activities correspond in an “optional” reference implementation to a Degree of Implementation (DI) of 100% for a particular function. If the DI is achieved within the deadline minus ideally one year (deadline-1) period, the implementation of this function could be deemed to be on time. This level of implementation means that the company is capable to use the system in production or is using already the system in production for a particular TAF TSI function.

The above explained phases are summarised in the following diagram explaining the expected commitment of resources made for every phase of the project.

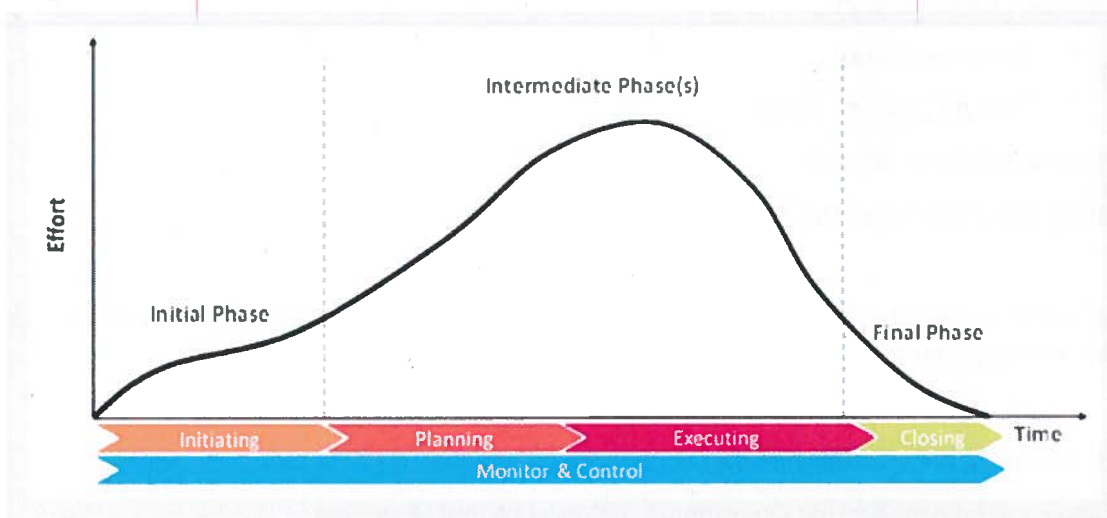


Figure 2: PM² project lifecycle.

Nevertheless, the different activities to be developed in the framework of a project to implement a particular TAF TSI [2] function should be adapted to the particular situation in every company. Therefore, every project may be assimilated, on a voluntary basis, to the addition of the four phases aforementioned (Initiating, Planning, Executing and Closing) establishing an optional comparable reference implementation to assess the progress of the implementation per company.

In conclusion, in the context of the Co-operation Group for TAF TSI Implementation there are two ways to report about the implementation of a particular TAF TSI function compared to the TAF TSI Master Plan (1):

- on one hand, companies may declare the final delivery of a particular TAF TSI function within the deadline set out in the TAF TSI Master Plan (1); in this case the implementation of this function will be deemed to be on time, and thus DI = 100% -> Dark Green colour on the map;
- on the other hand, companies may declare the Degree of Implementation (DI) for every function using the optional methodology aforementioned with different phases for the execution of the project. In this case, the declared Degree of Implementation will be colour-coded and displayed as follows:
 - Project not launched: No data -> Blue colour on the map.

- Initiating Phase accomplished: 0% =< DI < 25% -> Red colour on the map.
- Planning Phase accomplished: 25% =< DI < 50% -> Orange colour on the map.
- Executing Phase accomplished: 50% =< DI < 100% -> Green colour on the map.
- Closing & Production accomplished: DI = 100% -> Dark Green colour on the map.

4. Analysis

TAF TSI Master Plan (1) shows that most of functions of the TAF TSI can be achieved by the end of 2018, with most functions operational by 2016. The most difficult part of the realisation will be the implementation of the unique Train Identifiers (TID) and the Path Request function, upon which many other functions are dependent. Indeed, the set of functions to be early implemented in order to facilitate the further deployment of the system is:

- Reference Files Function:
 - Company Codes
 - Primary Location Codes
- Common Interface Function
- Rolling Stock Reference Database.

In addition to the above listed functions, in previous meetings of the TAF TSI Implementation Cooperation Group, it has been agreed to incorporate the following functions to be reported:

- Train Running Information Function
- Wagon and Intermodal Unit Operational Database (WIMO) Function
- Train Composition Message

4.1 Evolution of TAF functions at Country level

In line with the timeline defined in the TAF TSI Master Plan (1) and the request of the TAF TSI Implementation Co-operation Group members, the reporting of this fourth report is limited to the TAF TSI [2] functions which could be achieved by 2nd half 2016:

- Reference Files Function:
 - Company Codes
 - Primary Location Codes
- Common Interface Function
- Rolling Stock Reference Database.
- Train Running Information Function
- Wagon and Intermodal Unit Operational Database (WIMO) Function
- Train Composition Message

The data were collected by the JSG tool in January 2017 and transferred to the Agency TAF TSI Implementation Co-operation Group IT tool. This data has been uploaded on the Agency's GIS tool website: <http://www.era.europa.eu/tools/TAFTSI/Pages/Home.aspx>.

Concerning the criteria adopted to estimate the level of implementation per country, it has been agreed within the context of the TAF TSI Implementation Co-operation Group to apply a weighting factor per company to those functions where the market share per country of RUs, Wagon keepers and Infrastructure Managers is relevant to have a better view of the degree of implementation. Thereby, the weighting factor per company has been applied for the following functions:

- Rolling Stock Reference Database.
- Train Running Information Function
- Wagon and Intermodal Unit Operational Database (WIMO) Function
- Train Composition Message

More details about the particular weighting factor applied is provided in every section for every function. Indeed, this weighting factor depends on different parameters as track kilometres for Infrastructure Managers, tonne kilometres for Railway Undertakings and number of wagons for Wagon Keepers.

For the remaining functions an average calculation for the values supplied by all the companies reporting that they have started freight transport activities or intent to develop it in the near future is applied. Thereby, the average without any weighting factor is applied to the following functions:

- Reference Files Function:
 - Company Codes
 - Primary Location Codes
- Common Interface Function

The number of companies reporting about the implementation of the above quoted TAF TSI functions in the 5th Implementation report is the following:

	Company Codes function	Primary Location Codes function	Common Interface function	Rolling Stock Reference Database function	Train Running Information Function	Wagon and Intermodal Unit Operational Database function
Number of IMs 5 th Report per function	29	29	29	0	29	0
Number of RUs 5 th Report per function	60	0 ⁴	60	0	60	60
Number of WKs 5 th Report per function	108	0 ⁵	108	108	0 ⁶	0
TOTAL Number of Companies 5th Report per function	197	29	197	108	89	60

Table 1 : Number of companies reporting per function and type of company

The first conclusion that we can draw from the table above is that the number of Wagon Keepers participating in the 5th survey is higher than the number of Wagon Keepers who delivered data for the 4th report (6). This provides a better view of the TAF TSI function that it has more impact on their business, the Rolling Stock Reference Database function. Secondly, we draw the conclusion that the number of Railway Undertakings reporting remains stable compared to previous reports. Concerning the number of Infrastructure Managers we can observe a slight increase of the number of companies reporting and moreover, we can draw the conclusion that mostly incumbent Infrastructure Managers report, therefore, it is still missing the information about the level of fulfilment of small and medium size infrastructure managers.

⁴ Railway Undertakings are not intended to populate the Primary Location Codes Reference File.

⁵ Wagon Keepers are not intended to populate the Primary Location Codes Reference File.

⁶ Wagon Keepers are not intended to implement the Train Running Information Function.

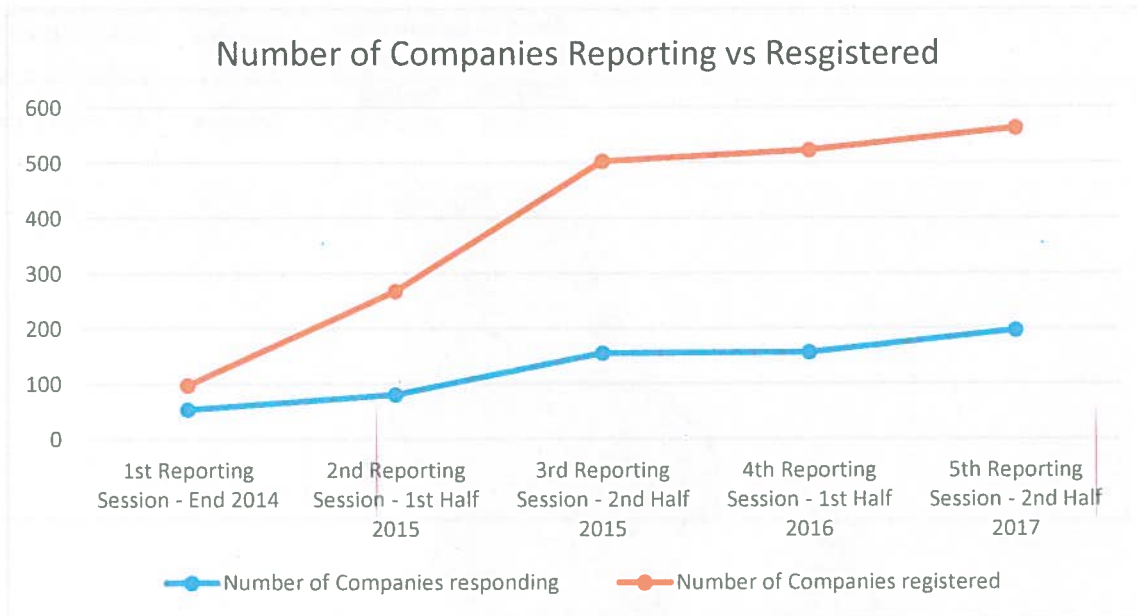


Figure 3: Evolution of Companies participating in the Reporting Sessions

The increase of companies participating in the Reporting sessions can be partially attributed to the activity of dissemination performed by the Agency through the set-up of the Regional workshops for TAF TSI.

4.1.1. Implementation status in the 2nd half of 2016 for Company Codes function

In every country, the **Average Degree of Implementation (DI)** for the **Company Codes function** is calculated from the data provided by the companies responding the JSG survey in every country without applying any weighting factor. It means that an arithmetic mean of a series of degree of implementation for this function supplied by the companies is calculated. It results the value per country and therefore the colour attributed to every country.

$$\text{Average DI} = \left(\sum_{i=1}^n \text{DI}(i) \right) / n ;$$

Where DI(i) = Degree of Implementation declared by the company (i) starting freight transport activities or intending to develop it in the near future,

and n = number of companies reporting in a country.

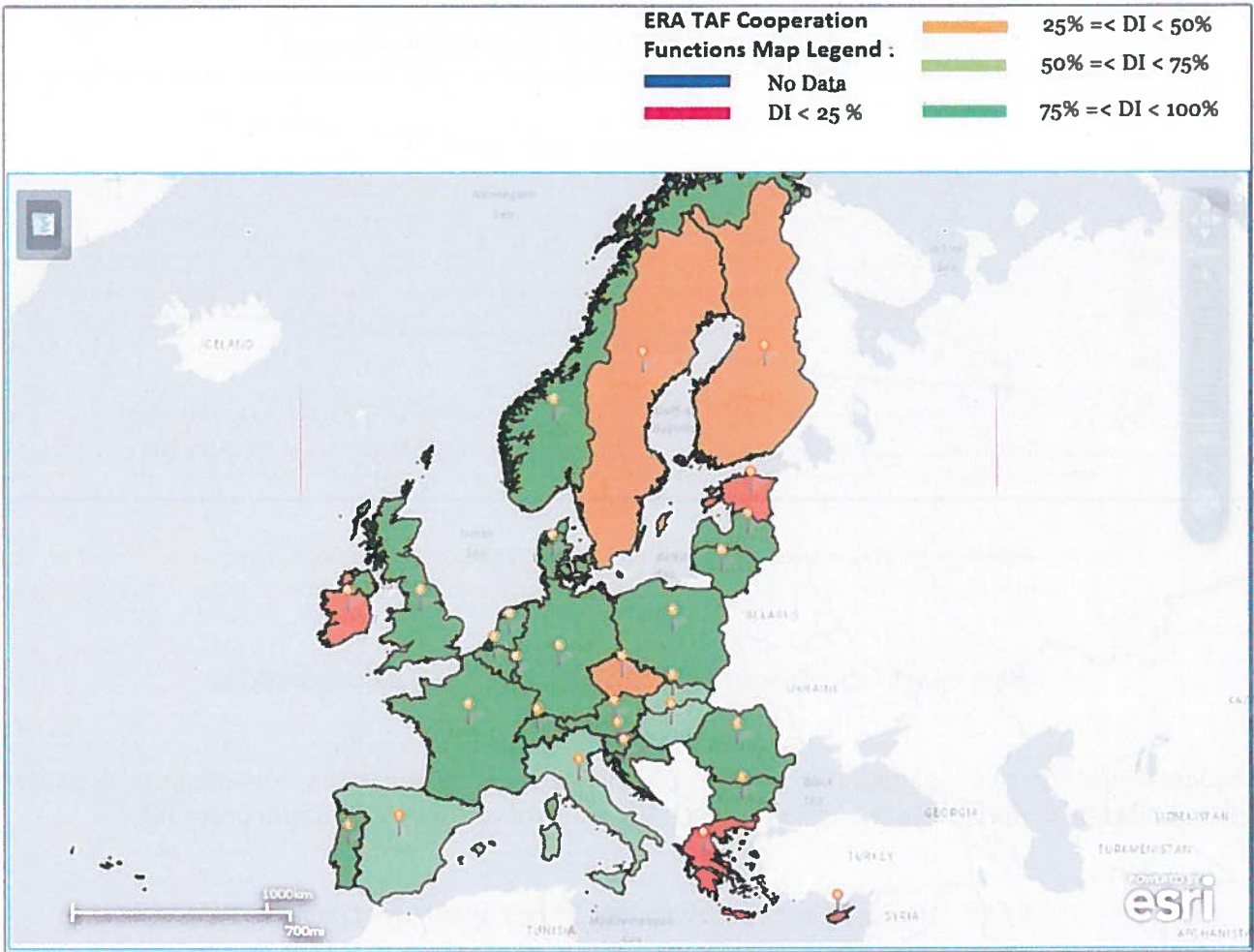


Figure 4: Company Codes function implementation in June 2016.

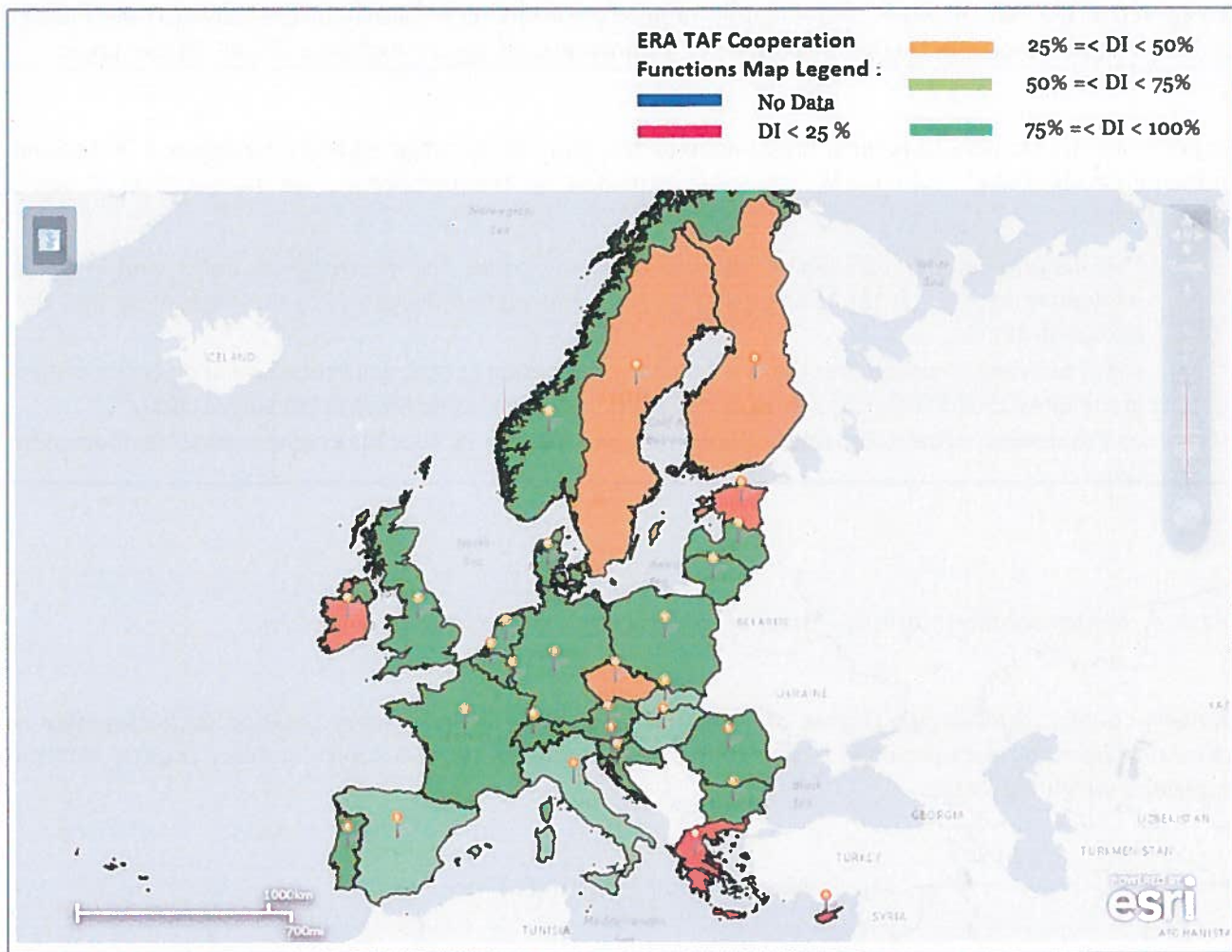


Figure 5: Company Codes function implementation in January 2017.

We can draw from the map the conclusion that in the 2nd half of 2016 more than 70% of Infrastructure Managers and Railway Undertakings have already performed the implementation of the **Company Codes function**. Indeed, the data stored in the **Annex 1** indicates an average level of **89% degree of implementation at European level for all companies having reported**.

In general, this means a significant increase of the level of fulfilment of this function in comparison to previous reports (<http://www.era.europa.eu/tools/TAFTSI/Pages/Company-Codes.aspx>). . If we split the aggregated value by actor, we obtain the following levels of Implementation:

- the level of Implementation of the Wks, 85%, has improved compared to the 78% in the 4th report (6);
- for the RUs, the level of fulfilment reaches 87%, a significant improvement compared to the 66% of previous report;
- and for the IMs, the degree of implementation of 93% is slightly higher than the 87% reached in the previous report.

This means that at European level the deployment of this function is reaching the "Closing & Production" in an "optional" reference implementation; therefore, most of the countries are either coloured on green or on

dark green on the map. However, these figures outlined the effort accomplished by the Railway Undertakings and the Wagon Keepers through the adoption of a company code for the exchange of TAF TSI messages.

To get more information concerning the companies, this data can be retrieved from the **Annex 1 “Maps and Implementation Data”**. Within this raw data provided by the companies, we have collected some observations:

- The majority of the companies just use company codes for international traffic and IT tools implementing TAF TSI [2] functionality as Train Information System (TIS) tool hosted by Rail Net Europe (RNE),
- some companies quoted that there is a lack of information concerning procedure in place (described in the ERA-TD-103: TAF TSI - Annex D.2 : Appendix C - Reference Files) to get such a code,
- and moreover, some companies question the need of paying fees for getting a code mandatory by law.

4.1.2. *Implementation status in 2nd half of 2016 for Primary Location Codes function*

In every country, the **Average Degree of Implementation (DI)** for the **Primary Location Codes function** is calculated from the data provided by the companies responding the JSG survey in every country without applying a weighting factor:

$$\text{Average DI} = \left(\sum_{i=1}^n \text{DI}(i) \right) / n ;$$

Where DI(i) = Degree of Implementation declared by the Infrastructure Manager (i),

and n = number of Infrastructure Managers reporting in a country.

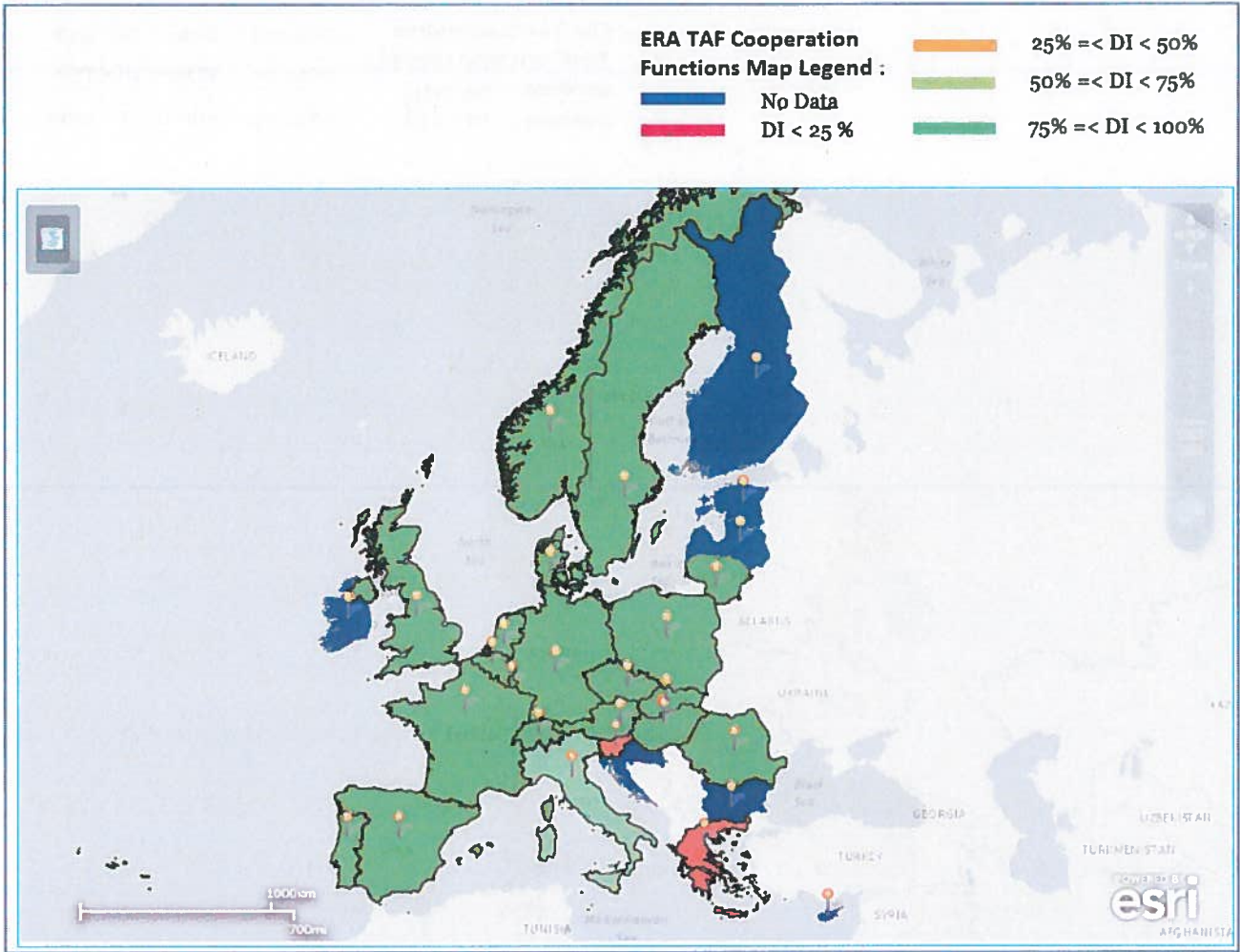


Figure 6: Primary Location Codes function implementation in June 2016.

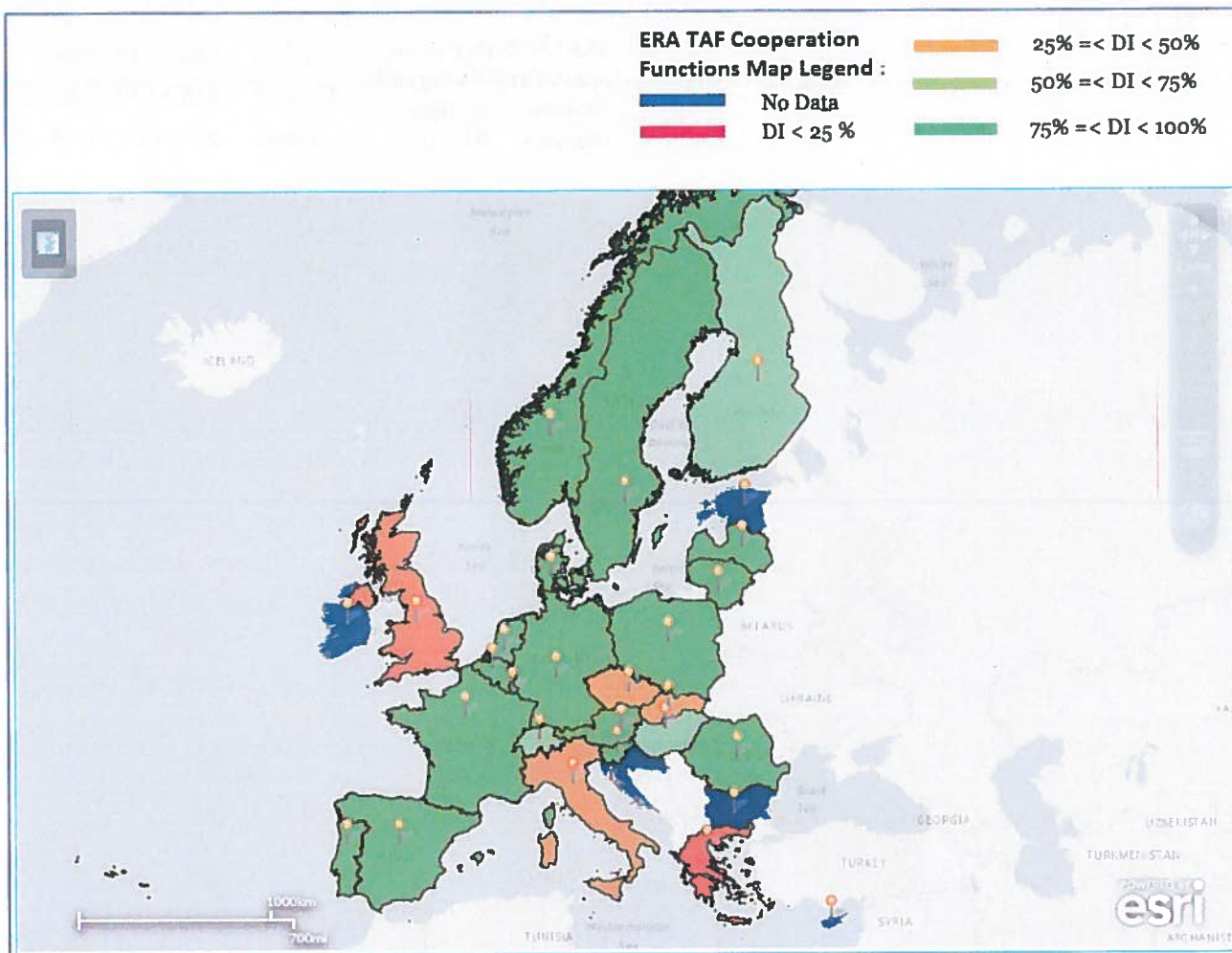


Figure 7: Primary Location Codes function implementation in January 2017.

The map confirms that in the 2nd half 2016 most of the Infrastructure Managers have already performed the implementation of the **Primary Location Codes function**, with an average level of **73% degree of implementation at European level for all Infrastructure Managers having reported**. This means that at European level this function is almost ready to be in production for the exchange of TAF TSI compliant messages as it was already observed in the 4th Status Report (6). This data is being delivered in almost all the countries by the Infrastructure Managers or Allocation Bodies as entities driving the implementation of the above mentioned function. Moreover, in most of the EU Members States, Norway and Switzerland the incumbent Infrastructure Managers have completed the deployment of this function and they have reached the “Executing Phase”. In addition, it cannot be neglected the effort made by the Railway Undertakings the EU member states to cooperate with the Infrastructure Managers to improve the data quality.

In comparison with the **level of fulfilment reported in June 2016** we observe a **limited decline of the implementation, from 81% to 733% ()**. This conclusion is based on the fact that almost the majority of incumbent Infrastructure Managers has deployed by end 2015 this functionality in line with the realisation scheduled in 2013 according to the TAF TSI Master Plan, but not the small Infrastructure Managers starting to report about their level of deployment.

To get more information concerning the companies, this data can be retrieved from the **Annex 1 “Maps and Implementation Data”**. Within the raw data provided by the companies, we have collected some observations:

- The primary location codes are already in use for some international trains and in some cases for domestic traffic as well.
- Although the Railway Undertakings stated in their report that the publication of the **Primary Location Codes** is an obligation for the Infrastructure Managers, and thereby, it has to be reported only by the IMs (decision adopted in the Telematics Cluster TAF on the 20th of January 2015 in Vienna), the Railway Undertakings are as well working together with the Infrastructure Managers to improve the quality data.
- Furthermore, some Railway Undertakings pointed out that the treatment of border points and the fees to be paid for the maintenance of this reference file provokes some kind of discussion within the EU rail sector.
- In addition, some companies reported that there are missing steps to reach full operational status with regular update and quality control.
- Finally, some companies reported that the development of the reference files for some Infrastructure Managers is strongly linked to the set-up of the Rail Freight Corridors across Europe.

4.1.3. *Implementation status in 2nd half of 2016 for Common Interface function*

In every country, the **Average Degree of Implementation (DI)** for the **Common Interface function** is calculated from the data provided by the companies responding the JSG survey in every country without applying any weighting factor. In addition, two different reference populations have been defined to better evaluate the different evolution of the implementation, one reference population is composed of the Infrastructure Managers and the second reference population is composed of the Railway Undertakings and Wagon Keepers. It means that an arithmetic mean of a series of degree of implementation provided by the companies belonging to one of these groups is calculated applying the formula below.

$$\text{Average DI} = (\sum_{i=1}^n DI(i)) / n ;$$

Where $DI(i)$ = Degree of Implementation declared by the company (i) starting freight transport activities or intending to develop it in the near future,

and n = number of companies reporting in a country.

The results lead to the attribution of a colour per country reflecting the average level of deployment in this particular country.

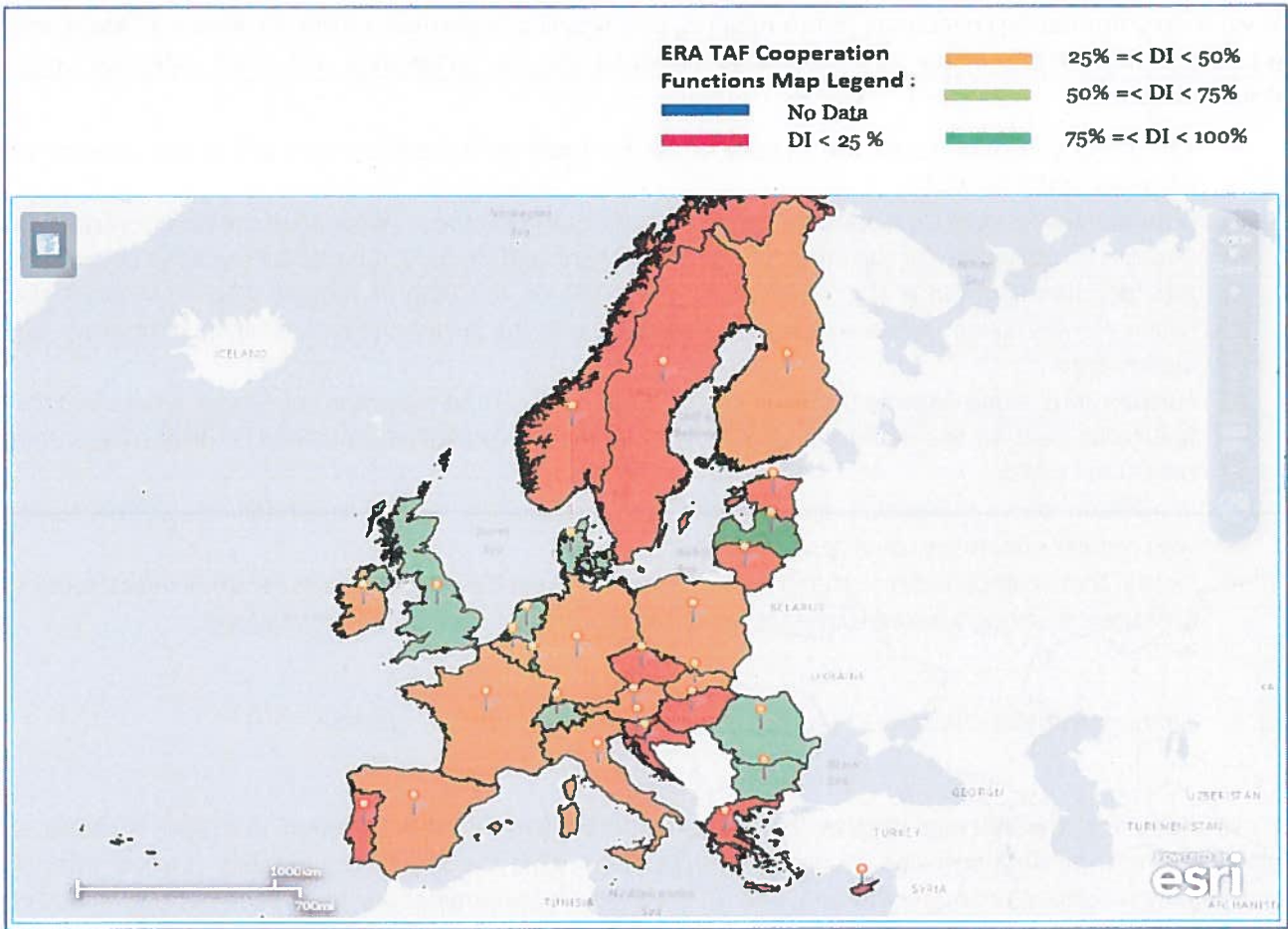


Figure 8: Common Interface function implementation for Railway Undertakings in June 2016.

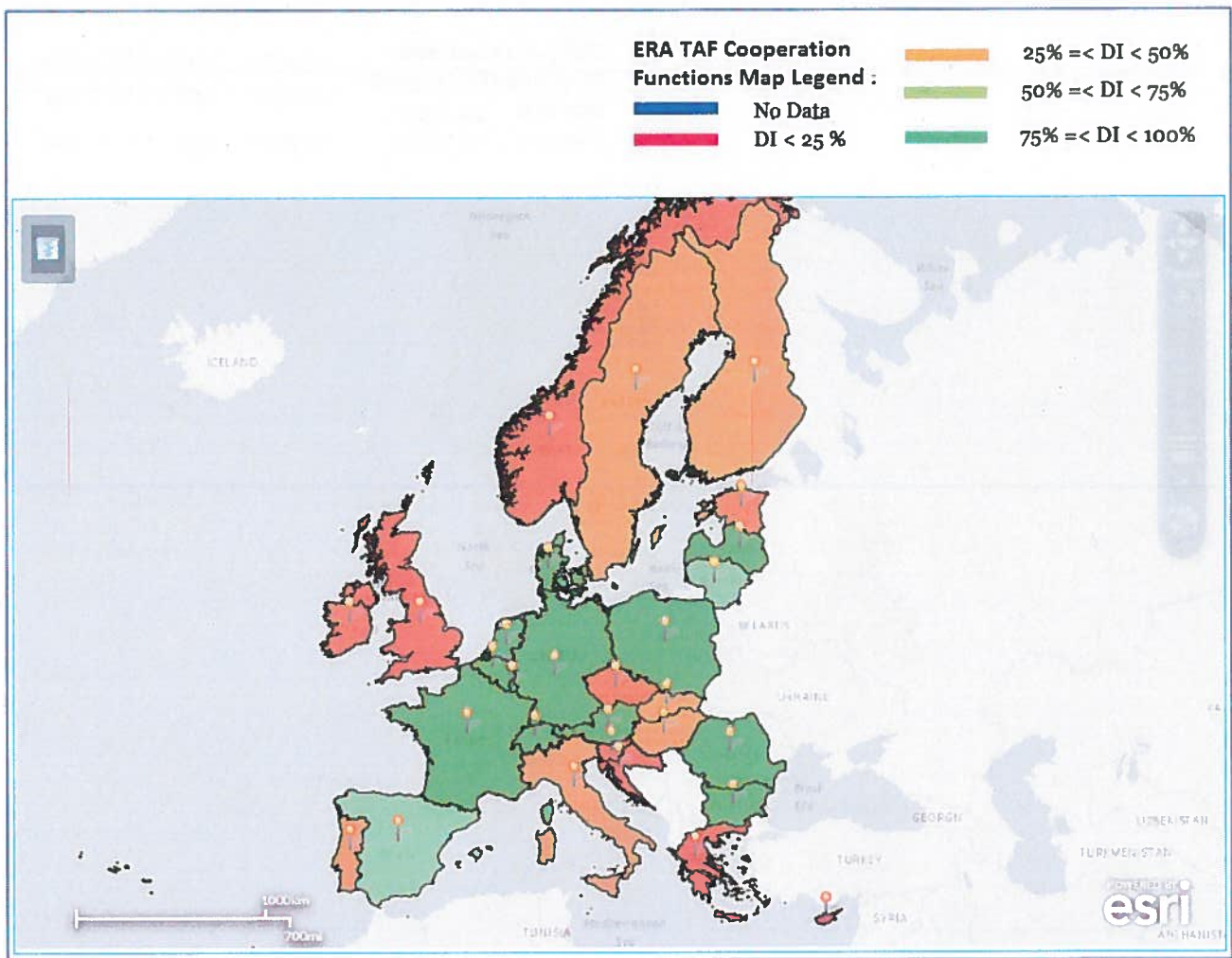


Figure 9: Common Interface function implementation for Railway Undertakings in January 2017.

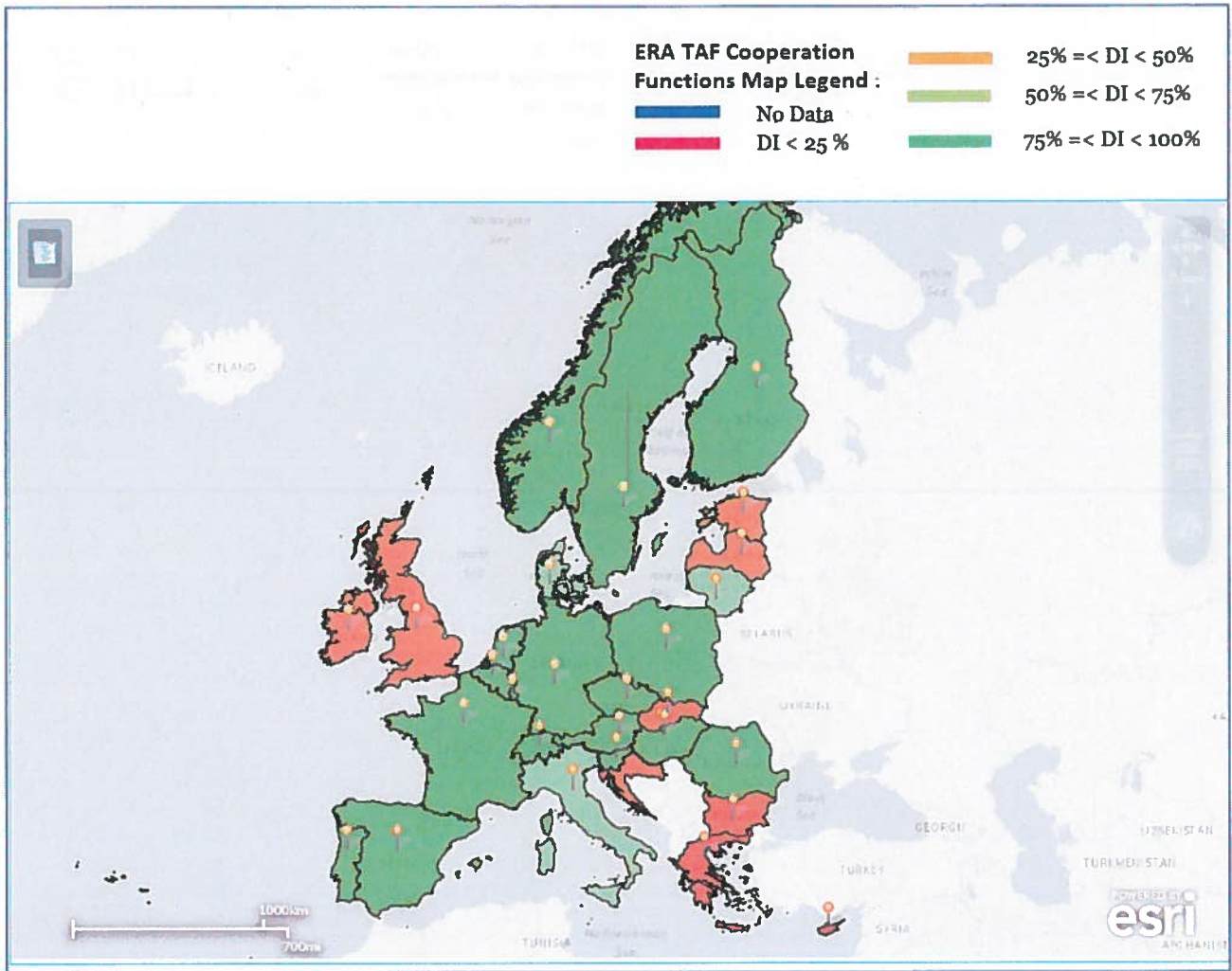


Figure 10: Common Interface function implementation for Infrastructure Managers in June 2016.

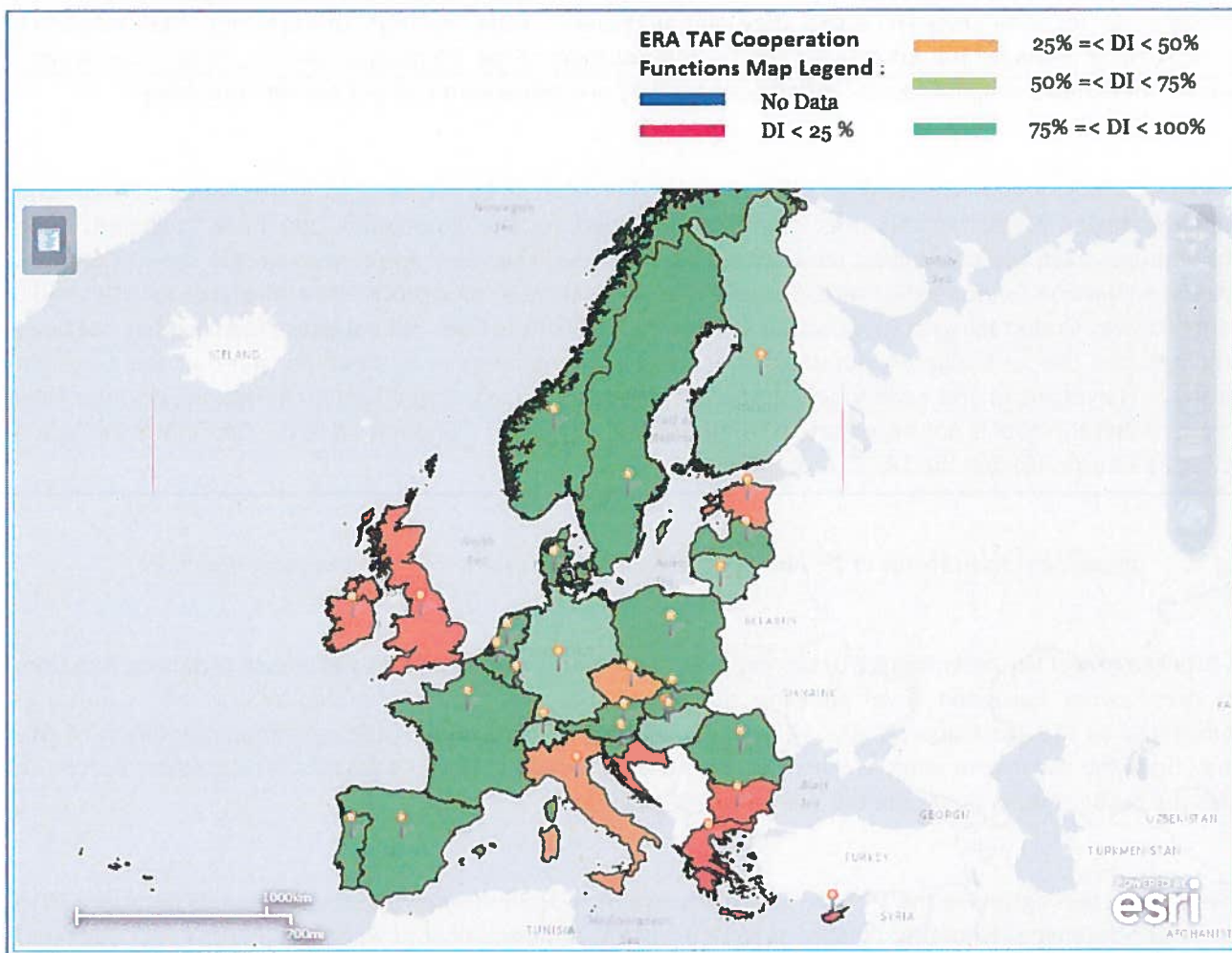


Figure 11: Common Interface function implementation for Infrastructure Managers in January 2017.

The raw data in the **Annex 1 “Maps and Implementation Data”** combined with the map published above shows that the majority of RUs is still deploying this function in the 2nd half 2016 , while above 70% of IMs have already finished the implementation of the Common Interface. The level of fulfilment reaches the value of **79,3% for the Infrastructure Managers which responded to the survey** (<http://www.era.europa.eu/tools/TAFTSI/Pages/Common-Interface-Function.aspx>), whereas for the **Railway Undertakings the level of accomplishment is 46,25 %** (<http://www.era.europa.eu/tools/TAFTSI/Pages/Common-Interface-Function.aspx>), because only 8 companies out of 61 Railway Undertakings responding the survey have fully implemented the Common Interface. The average level for the whole rail sector is **almost 63% degree of implementation at European level for all companies having responded to the survey performed by JSG**. This means that at European level the deployment of this function is starting the “Executing Phase”, therefore, the implementation is clearly delayed compared to the calendar committed by the rail sector in the **TAF TSI Master Plan, 95% degree of implementation for the Railway Undertakings and 98% for the Infrastructure Managers by end 2014**.

Whether this data is compared to the level of fulfilment reported in June 2016, we can observe a positive trend of the level of implementation, **from 54% to 63% in January 2017**. Although there is a positive increase of the implementation of this function, many of the new Railway Undertakings joining the TAF TSI implementation are not aware of the existence of Common Interface Function to exchange TAF TSI Compliant

messages. Other companies argue that they cannot implement the Common Interface until their reference Infrastructure Manager has completed the implementation of the Common Interface. Within the Wagon Keepers only those wagon keepers' members of RSRD2 are implementing the Common Interface.

To get more information concerning the companies, this data can be retrieved from the **Annex 1 “Maps and Implementation Data”**. Within this raw data provided by the companies, we have collected some observations from the companies. Some companies outlined that they don't envisage the use of **Common Interface Function** for domestic trains, because they will continue using proprietary interfaces for this traffic. Other Railway Undertakings stated that the implementation of the **Common Interface function** has not been accomplished due to budgetary constraints. Moreover, many companies argue as well that the Common Interface is overpriced and a monopoly protected through European law without alternative, because they estimate that this tool is not necessary to communicate with other companies and the Common Interface is acting as a barrier to join the TAF TSI community.

4.1.4. Implementation status in 2nd half of 2016 for Rolling Stock Reference Database function

In order to reflect the real progress of the implementation of the **Rolling Stock Reference Database function**, an overview at European Level showing the information concerning the deployment per country is considered as the most appropriate. Moreover, the value which reflects the real implementation of this function is the number of wagons stored in the Rolling stock Reference Databases set-up across Europe to fulfil the requirements quoted in the TAF TSI [2] Regulation.

Therefore, it was agreed in the 1st TAF TSI Implementation Cooperation Group meeting on 26 February 2015 to use as reference the number of wagons composing the complete fleet of wagons in Europe split down per country. In line with these assumptions, the data has been sorted in the following table estimating the percentage of wagons stored in a **Rolling Stock Reference Database**:

Country	Valid registrations VVR / Eurostat	Wagons In GCU	Wagons In RSRD (Data provided by RSRD ² – UIP) ⁷	Percentage Implementation ⁸
Austria	19.706	20.052	7.882	40%
Belgium	40.375	10.426	17.361	43%
Bulgaria	12865	3.492	244	7%
Croatia		5.837	5	0%
Czech Republic	53.885	40.503	20.251	50%
Denmark	2.305	1	830	36%
Estonia	-	0	0	0%
Finland	-	4	-	25%
Norway	-	0	0	0%

⁷ The table has been updated with the data provided by UIP-RSRD².

⁸ Average per country based on the data provided by the companies on the JSG survey on 10th March 2016 (<http://www.era.europa.eu/tools/TAFTSI/Pages/RU-Rolling-Stock-Reference-Database.aspx>)

Country	Valid registrations VVR / Eurostat	Wagons In GCU	Wagons In RSRD (Data provided by RSRD ² – UIP) ⁷	Percentage Implementation ⁸
France	113.261	77.319	53.232	47%
Germany	102.778	168.866	100.722	60%
Greece	4.094	0	2.047	50%
Hungary	12.918	11.649	646	5%
Ireland	-	0	0	0%
Italy	44.482	26.519	31.137	70%
Latvia	11.210	0	8.676	77,4%
Lithuania	-	0	0	0%
Luxembourg	4.216	2.966	8432	50%
Netherlands	21.957	18.058	7.026	32%
Poland	109.165	70.435	22.924	21%
Portugal	3.379	6	206	6%
Romania	24.076	14.561	963	4%
Slovakia	33.359	24.279	24.352	73%
Slovenia	3.767	3.468	54	2%
Spain	12.760	18.131	4.014	31%
Switzerland	27.398	17.211	13.425	49%
Sweden	12.760	8.820	4.083	60%
United Kingdom	-	616	-	23%

Table 2 : Degree of Implementation per country of the Rolling Stock Reference Database function.

Furthermore, in order to define a reference population, the Agency has decided for those countries where there is no data concerning the number of wagons in NVR register to use as reference the GCU (General Contract for Use of Wagons) register as a reference. The data concerning the number of wagons are stored in GCU (<http://www.gcubureau.org/wagons>). Moreover, due to the need of having a visualization of this data and applying the same process that it has been applied for the above functions, this information has been uploaded in a Geographical Information System (GIS) obtaining the following map of Europe representing the implementation of this function at European level:

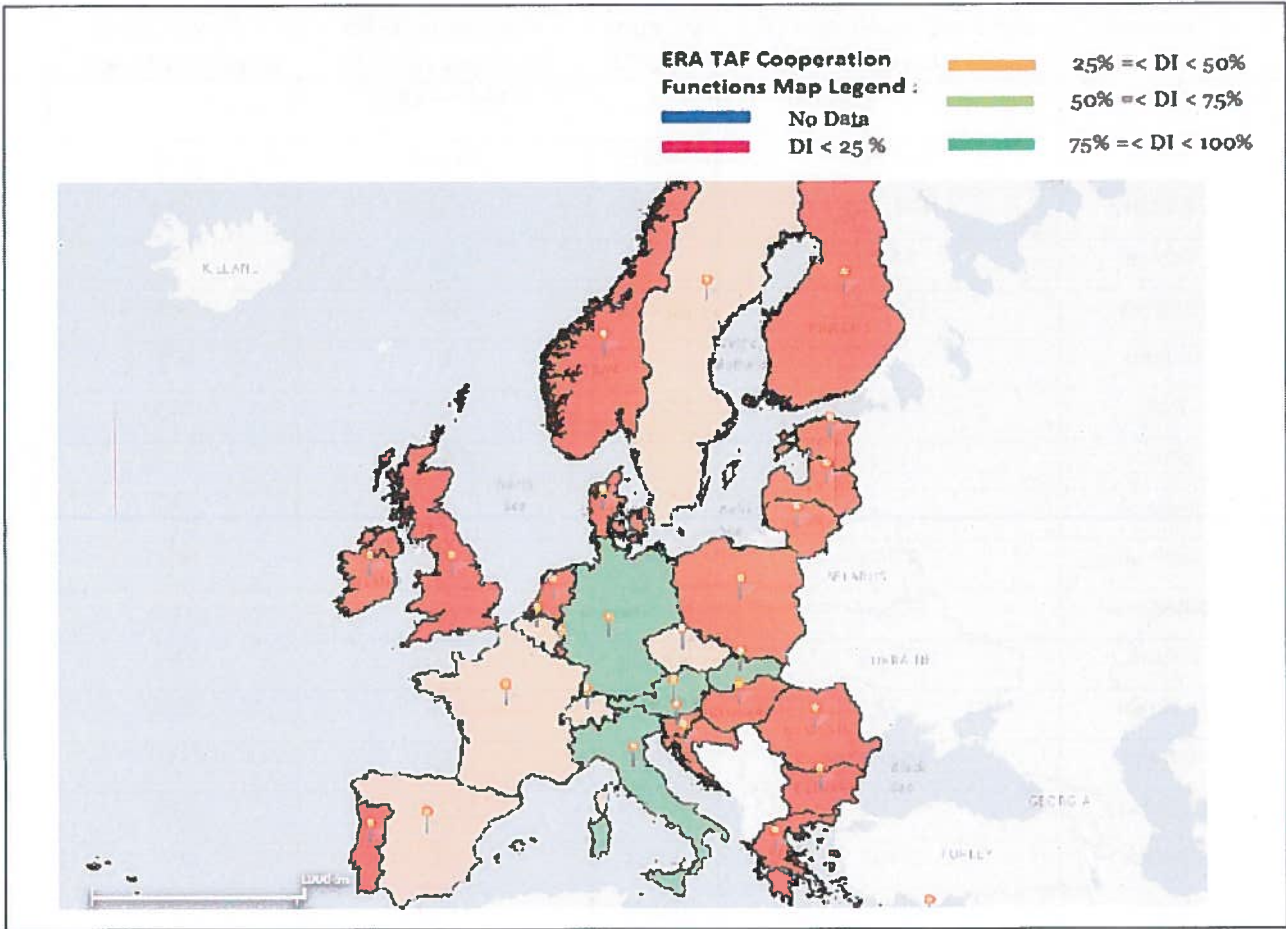


Figure 12: Rolling Stock Reference Database function implementation in June 2016.

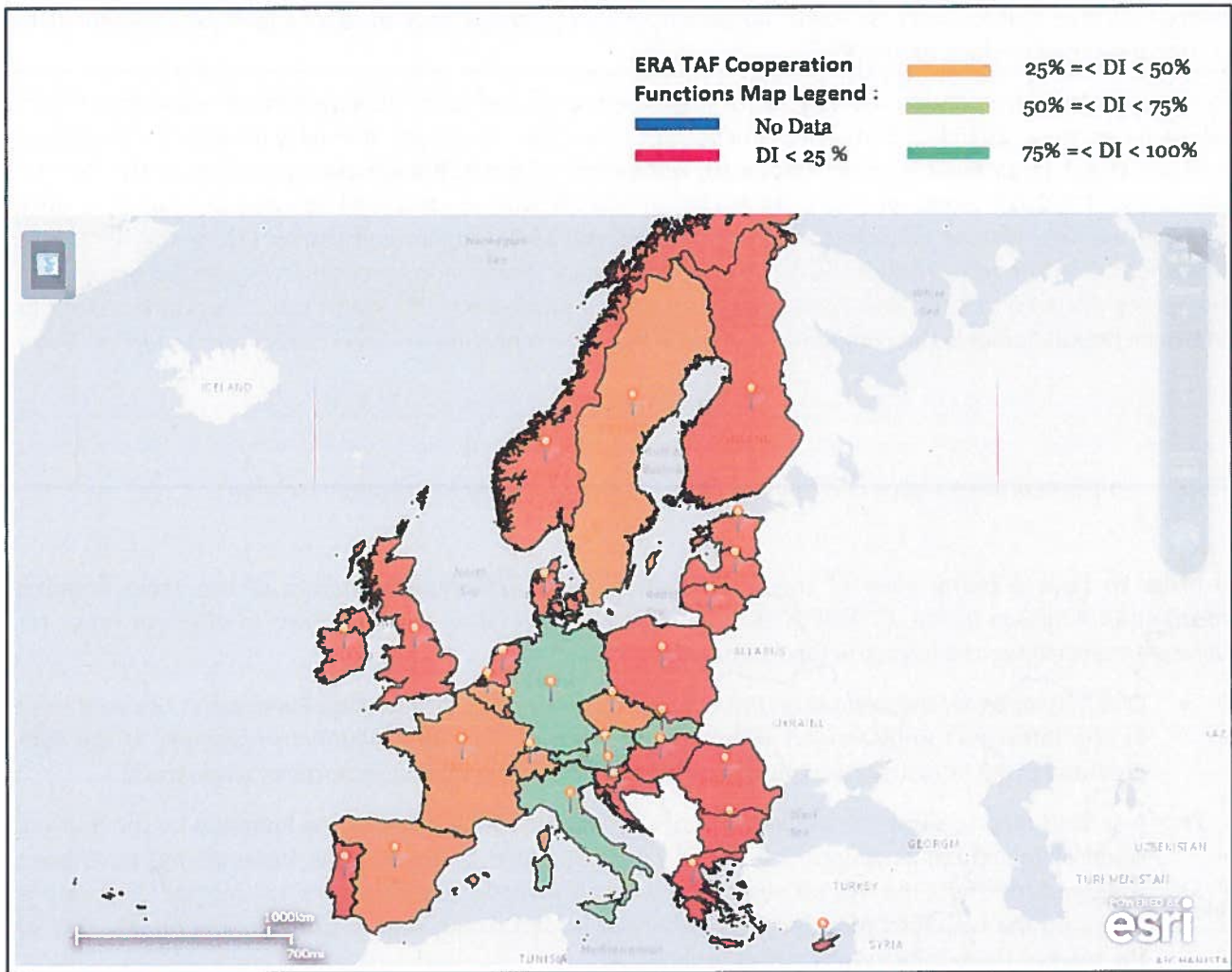


Figure 13: Rolling Stock Reference Database function implementation in January 2017.

The map shows that in the 2nd half of 2016 some Wagon Keepers and Railway Undertakings have already completed the implementation of the **Rolling Stock Reference Database** function. Indeed, the arithmetic average degree of implementation at European level is 38% (<http://www.era.europa.eu/tools/TAFTSI/Pages/RU-Rolling-Stock-Reference-Database.aspx>). This means that at European level the deployment of this function has reached, in average, the “**Planning Phase**” (Resource Planning, Project Work Planning (Working Break Down Structure), Migration Planning, Outsourcing Plan and Risk Management Planning). Thus, most of the countries are displayed in average on red or orange colour on the map, with some exceptions, where the level of implementation is more advanced and therefore their level of fulfilment corresponds to a green colour, “**Executing Phase**” or dark green, “**Closing & Production Phase**”.

To get more information concerning the performance of a particular company, this data can be retrieved from the **Annex 1 “Maps and Implementation Data”**. The data has been supplied by JSG and the European association of private wagon keepers, UIP. In particular the data concerning the deployment of the RSRD² database to fulfil the requirements of the **Rolling Stock Reference Database** function are provided by UIP-RSRD². For these companies using this tool, the data stored in RSRD² is complete wagon data sets (mandatory data) therefore, data completeness is 100% ensured for recorded wagons. These figures do not cover keepers

having indicated that they will use RSRD² but which are currently in a stage of collecting required wagon data or preparing the interface to RSRD².

The degree of implementation shows a sort of stagnation compared to the 39% quoted in the previous report issued in December 2016 (4th Status Implementation report (6)). Therefore, the delay persists in comparison with the **target Implementation Milestone for realisation of the RSRD function** according to the TAF TSI Master Plan (1), 2015. However, this does not mean that no company has implemented this function, since only the average data is displayed on the map. Indeed, 69 European companies (57 in the 4th Status Implementation Report (6)) out of 106 companies (74 in the 4th Status Implementation Report (6)) responding the survey declared to have this functionality in place realised with the RSRD² tool. Therefore, taking as reference population only the companies participating in the reporting the level of fulfilment reaches 77%.

4.1.5. Implementation status in 2nd half of 2016 for Train Running Information Function

In order to have a better view of the real situation about the implementation of the **Train Running Information Function** in the 2nd half 2016, the implementation data will be shown in different maps for Railway Undertakings and Infrastructure Managers:

- One map to show the realisation level of the **Train Running Information Function** at network level by the Infrastructure Managers (IMs) at country level. This information corresponds to the data provided by 29 Infrastructure Managers (almost 90% of the market in terms of track-kms).
- A second map to show the deployment of the **Train Running Information Function** by the Railway Undertakings (RUs) at country level. The values provided by the Railway Undertakings have been weighted to reflect the market share of these companies in their national rail market. This data is based on the response provided, by 60 Railway Undertakings, representing approximately 80% of the market share for RUs in terms of tonne-kms.

To better estimate the degree of implementation, the information provided by the rail companies is compared in both cases with the milestones prescribed in the TAF TSI Master Plan (1). The weighting factor used to weigh the RUs declared data in the JSG survey is based on the figures stated in the report “**Fourth report on monitoring development in the rail market**” issued by the European Commission in June 2014, where **Annex 19** provides the figures concerning “Market shares of railway undertakings (2011-2012)”. While for the Infrastructure Managers a Weighting Factor is not yet used in this report. However, in upcoming reports a Weighting Factor will be applied to the degree of implementation declared by the Infrastructure Managers, based on the ratio of track-kms managed by the concerned Infrastructure Manager divided by the total track-kms in the country.

Regarding the Railway Undertakings, an addition of series of degree of implementation weighted by a Weighting factor is calculated using the following formula:

$$\text{Average DI} = \sum_{i=1}^n DI(i) \times WF(i) ;$$

Where DI(i) = Degree of Implementation declared by the company (i) starting freight transport activities or intending to develop it in the near future,

WF(i) = Weighting Factor for company (i) based on "Fourth report on monitoring development in the rail market" issued by the European Commission in June 2014,
 and n = number of companies reporting in a country.

Concerning the Infrastructure Managers an arithmetic mean of series of degree of implementation is calculated using the following formula:

$$\text{Average DI} = (\sum_{i=1}^n DI(i)) / n ;$$

Where DI(i) = Degree of Implementation declared by the Infrastructure Manager (i),
 and n = number of Infrastructure Managers reporting in a country.

The results lead to the attribution of a colour per country reflecting the average level of deployment in this particular country. Therefore, two sets of maps with the implementation levels are displayed:

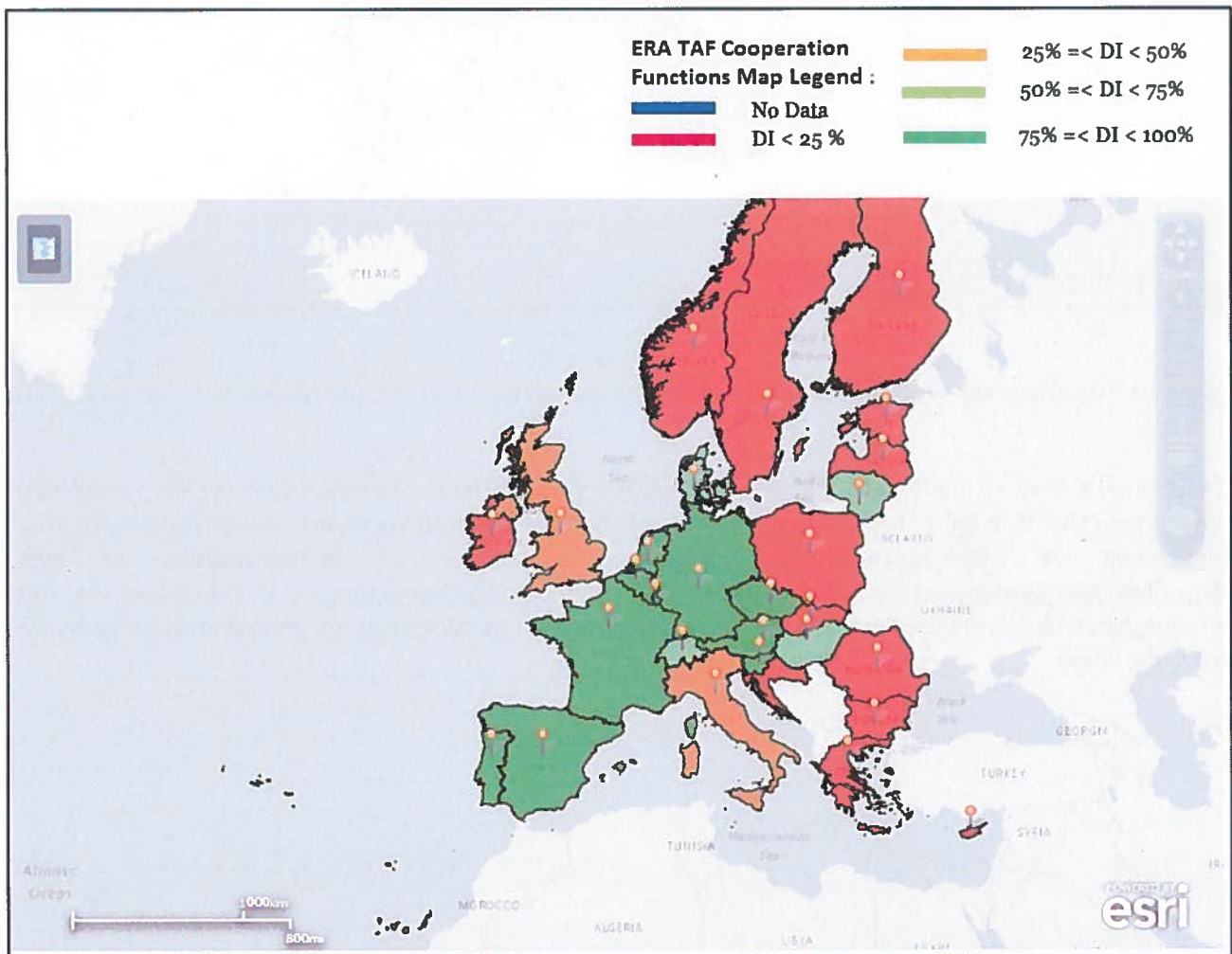


Figure 14: Train Running Information Function implementation for Infrastructure Managers in June 2016.

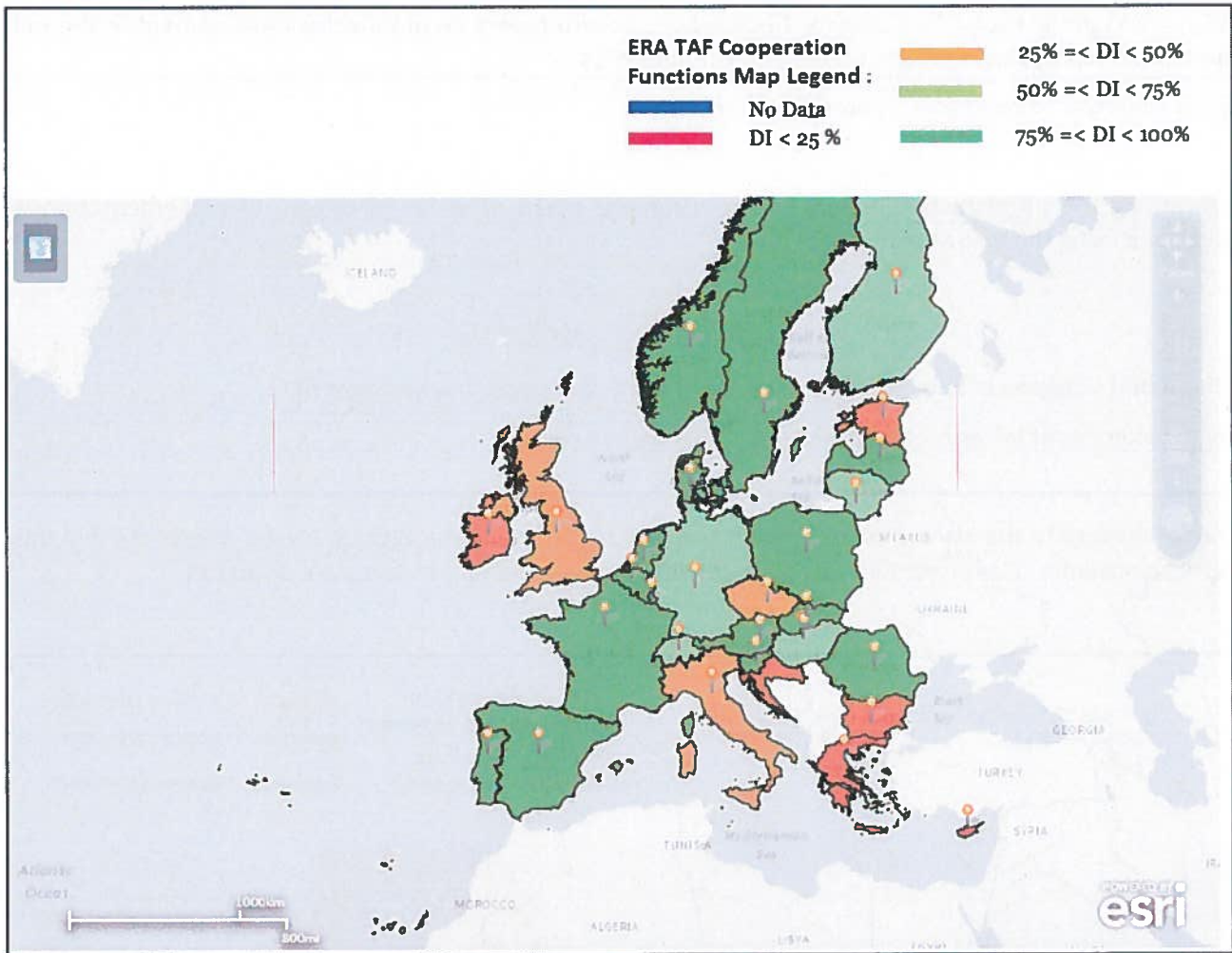


Figure 15: Train Running Information Function implementation for Infrastructure Managers in January 2017.

The data published on the Annex 1 “Maps and Implementation Data” combined with the map published above shows that in the 1st half 2016 the majority of the **Infrastructure Managers** have already started the deployment of this function having reached a degree of implementation of **80%** (<http://www.era.europa.eu/tools/TAFTSI/Pages/IM-Train-Running-Function.aspx>). Therefore, the IMs are quite advanced in the deployment of this key TAF function because they are already in average in the Executing Phase.

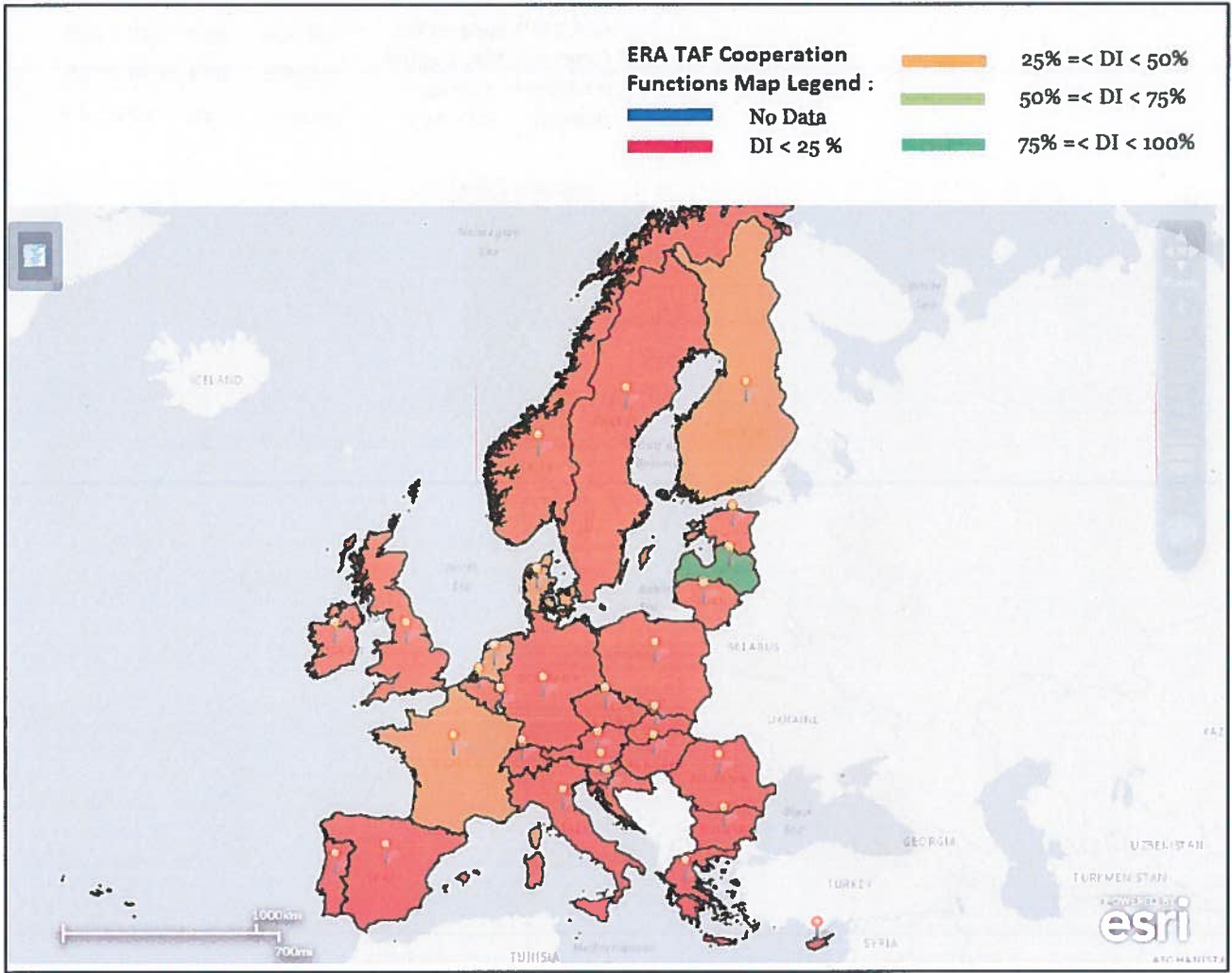


Figure 16: Train Running Information Function implementation for Railway Undertakings in June 2016.

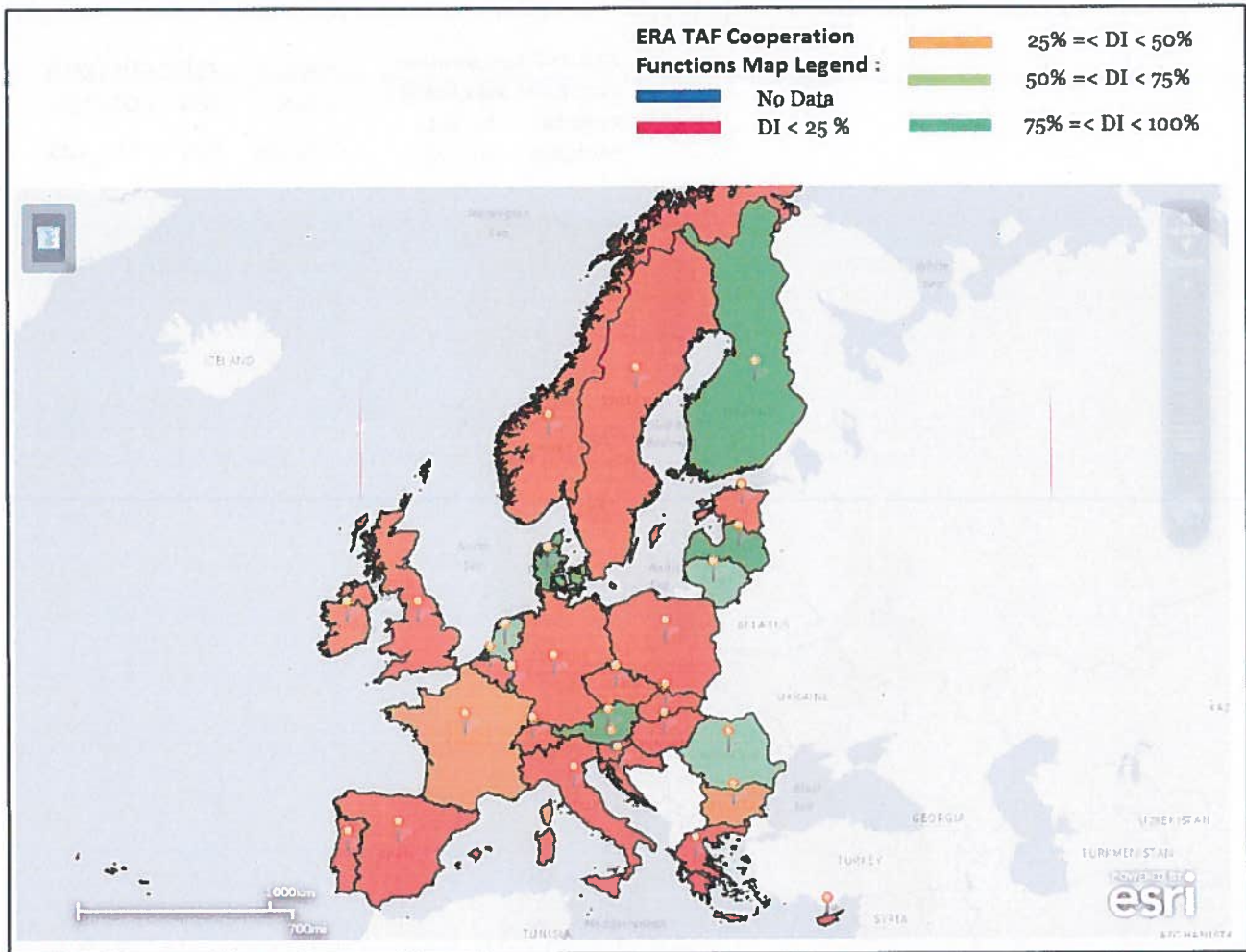


Figure 17: Train Running Information Function implementation for Railway Undertakings in January 2017.

Moreover, concerning the **Railway Undertakings**, the weighted level of implementation is lower compared to the IMs, in particular the degree of implementation of the companies responding the online JSG questionnaire is **47,25% ()**. **Nevertheless**, this means a significant increase in one year time from the **11%** level of fulfilment reached in the 1st half 2016.

The average level for the whole rail sector is over **63%** degree of implementation at European level for all companies having reported. This means that at European level the deployment of this function is reaching in still at the “Executing Phase”.

In every country, the average level of deployment is calculated from the data provided by the companies responding the JSG survey in that country, thus this average defines the colour attributed to a particular country.

To get more information concerning the companies, this data can be retrieved from the **Annex 1 “Maps and Implementation Data”**. Within this raw data provided by the companies, we have collected some observations from the companies. In most of the cases the companies are testing **Train Running function** with pilot projects. Moreover, the companies agreed in the context of the Telematics Cluster TAF on the 1st of July 2015 in Vienna that the stakeholder IM & RU only reported the Train Running Information Message.

Beyond this, some railway undertakings commented that they have the same process requested in the regulation, but using a different data format for the exchange of information, in most of the cases the national legacy data format. Moreover, some of them stressed that they will be able to exchange these messages subject to the availability of Train ID function by 2020. The level of fulfilment of the Infrastructure Managers paves the way to the Railway Undertakings in order to move forward in the implementation of this functionality, because for them the delivery of this message using TAF TSI compliant format depends on the implementation schedule of their reference Infrastructure Managers and when they envisage its use for international traffic.

4.1.6. Implementation status in 2nd half of 2016 for Wagon and Intermodal Unit Operational Database (WIMO) Function

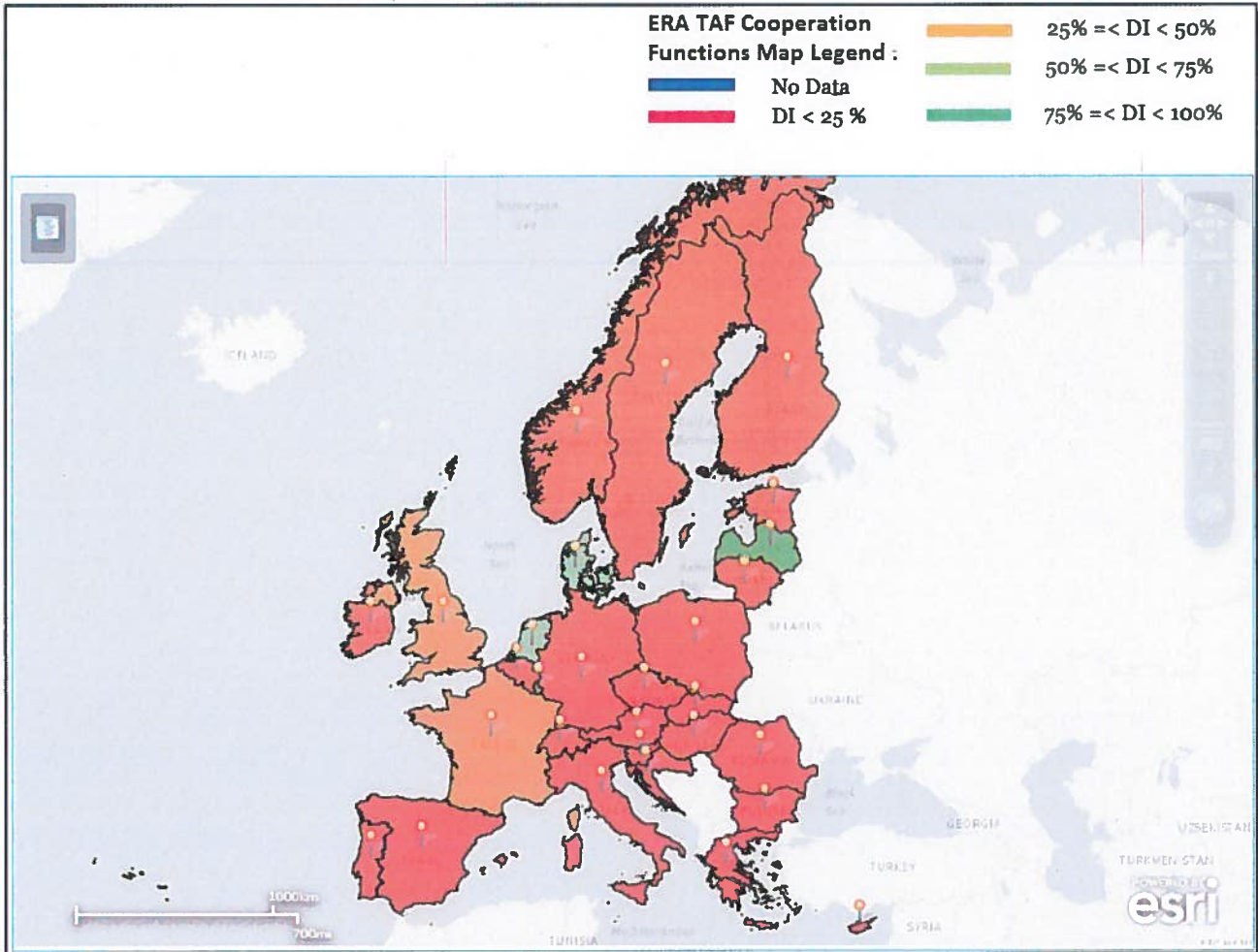


Figure 18: Wagon and Intermodal Unit Operational Database (WIMO) Function implementation for Railway Undertakings in June 2016.

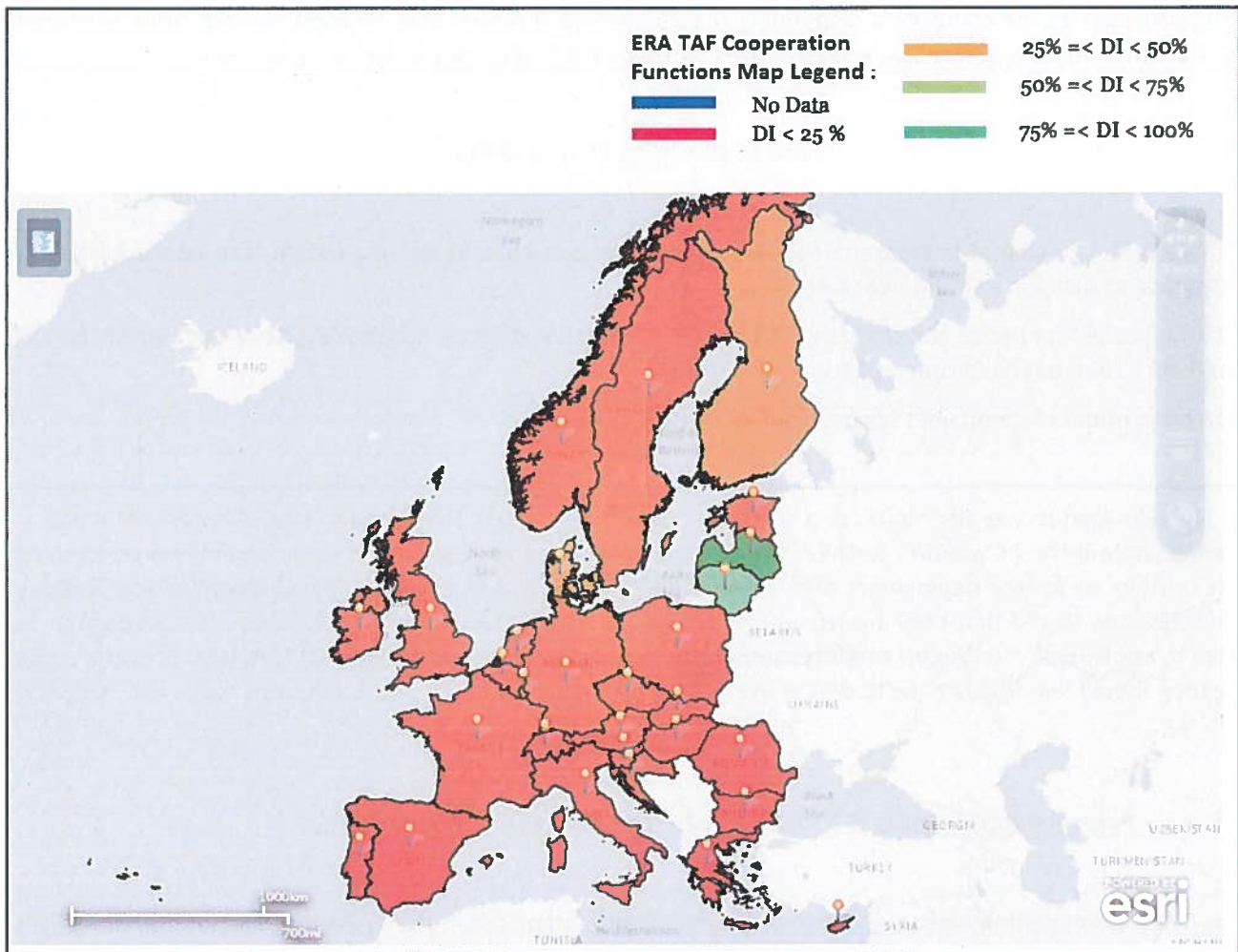


Figure 19: Wagon and Intermodal Unit Operational Database (WIMO) Function implementation for Railway Undertakings in January 2017.

The **Wagon and Intermodal Unit Operational Database (WIMO) Function** is a function to be implemented **only by Railway Undertakings**. Therefore, the map shows that in the 1st half of 2016 the Railway Undertakings have already started the implementation of the **Wagon and Intermodal Unit Operational Database (WIMO) Function**, reaching a **degree of implementation of 37 % ()** for the companies having answered to the survey performed by the JSG. The degree of implementation has significantly increased compared to the **15%** of the survey performed in June 2016. This means that at European level the deployment of function is in the “Planning Phase”. Although there is a relevant increase of the implementation, it remains still the risk of not delivery of the function on time in accordance with the target implementation milestone for realisation of the WIMO function according to the TAF TSI Master Plan (1), the year 2016.

The baseline to compare the data declared by the Railway Undertakings to better estimate the degree of fulfilment is the TAF TSI Master Plan (1), where the milestones for the implementation of this functionality are established. The weighting factor used for the RUs is based on the figures stated in the report “**Fourth report on monitoring development in the rail market**” issued by the European Commission in June 2014, where **Annex 19** provides the figures concerning “Market shares of railway undertakings (2011-2012)”.

In every country, the **Average Degree of Implementation (DI)** for the **Wagon and Intermodal Unit Operational Database (WIMO) Function** is calculated applying weighting factor (WF) per company to the

data provided by the companies responding the JSG survey. It means that an addition of a series of degree of implementation pondered by a Weighting factor is calculated using the following formula:

$$\text{Average DI} = \sum_{i=1}^n \text{DI}(i) \times \text{WF}(i) ;$$

Where DI(i) = Degree of Implementation declared by the company (i) starting freight transport activities or intending to develop it in the near future,

WF(i) = Weighting Factor for company (i) based on “**Fourth report on monitoring development in the rail market**” issued by the European Commission in June 2014,

and n = number of companies reporting in a country.

The results lead to the attribution of a colour per country reflecting the average level of deployment in this particular country. In addition to these results, the companies have provided some comments concerning the tools in use for the deployment of this functionality. In particular, most of the incumbent former Railway Undertakings stated that they are using or they will use RAILDATA-ISR and the HERMES 30 data format to fulfil to implement the **Wagon and Intermodal Unit Operational Database (WIMO) Function**. Therefore, the Agency should take the actions to define the further steps regarding use of the different tools (ISR, HERMES, WIMO).

4.1.7. Implementation status in 2nd half of 2016 for Train Composition Message

The **Train Composition Message** is one of the messages comprised in the **Train Preparation function**. This message contain the minimum elements to be delivered for the message exchange between RU and IM for the purpose Train Composition as defined in Chapter 4.2.2.7.2 of Decision 2012/757/EU, OPE TSI. This functionality must be implemented **only by Railway Undertakings**.

Therefore, the Railway Undertakings have already started the implementation of **Train Composition Message**, reaching a **degree of implementation of 46 % ()** for the companies having answered to the survey performed by the JSG.

The baseline to compare the data declared by the Railway Undertakings to better estimate the level of fulfilment is the TAF TSI Master Plan (1), where the milestones for the implementation of this functionality are established. Thereby, we can conclude that the **Railway Undertakings** are finalising at European level the “**Planning Phase**” for the implementation of this message with an average implementation level below the **85%** committed by the **Railway Undertakings** for this particular message by end 2016:

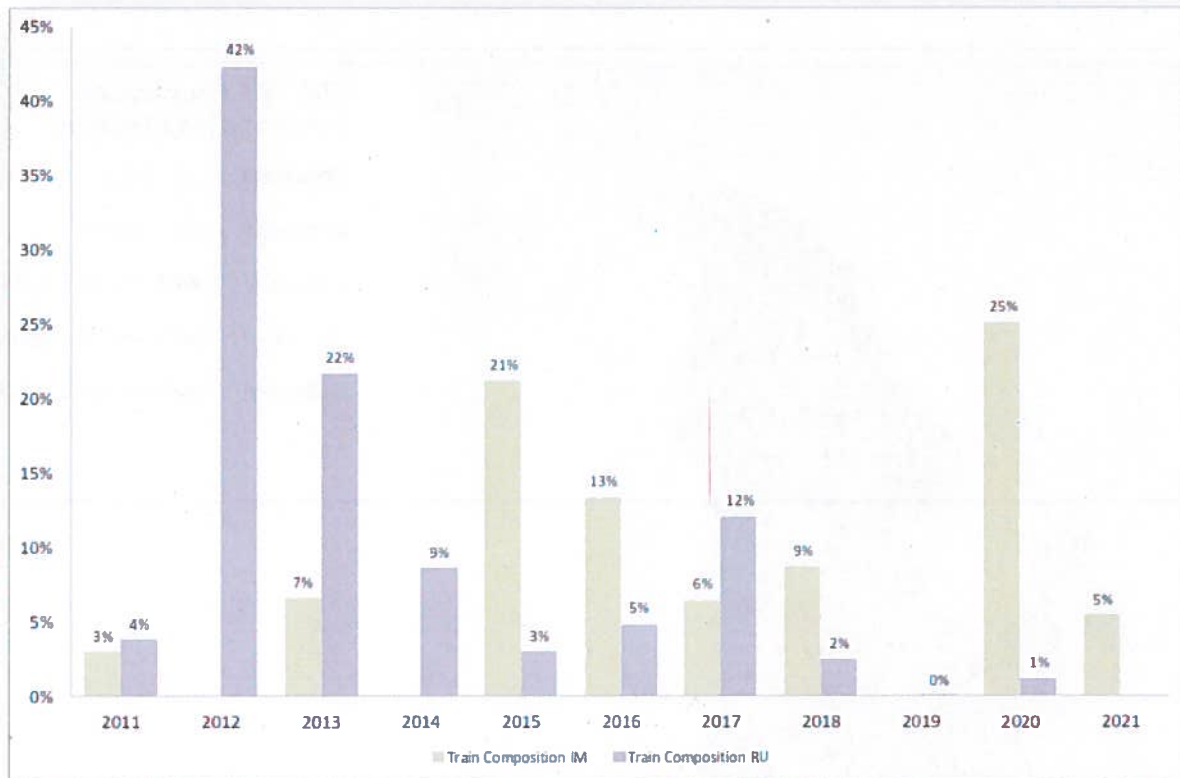


Figure 20: TAF TSI Master Plan - Realisation of the Train Composition Message

The weighting factor used for the RUs is based on the figures stated in the report “**Fourth report on monitoring development in the rail market**” issued by the European Commission in June 2014, where **Annex 19** provides the figures concerning “Market shares of railway undertakings (2011-2012)”.

In every country, the **Average Degree of Implementation (DI)** for the **Train Composition Message** is calculated applying weighting factor (WF) per company to the data provided by the companies responding the JSG survey. It means that an addition of a series of degree of implementation pondered by a Weighting factor is calculated using the following formula:

$$\text{Average DI} = \sum_{i=1}^n DI(i) \times WF(i) ;$$

Where DI(i) = Degree of Implementation declared by the company (i) starting freight transport activities or intending to develop it in the near future,

WF(i) = Weighting Factor for company (i) based on “**Fourth report on monitoring development in the rail market**” issued by the European Commission in June 2014,

and n = number of companies reporting in a country.

The results lead to the attribution of a colour per country reflecting the average level of deployment in this particular country:

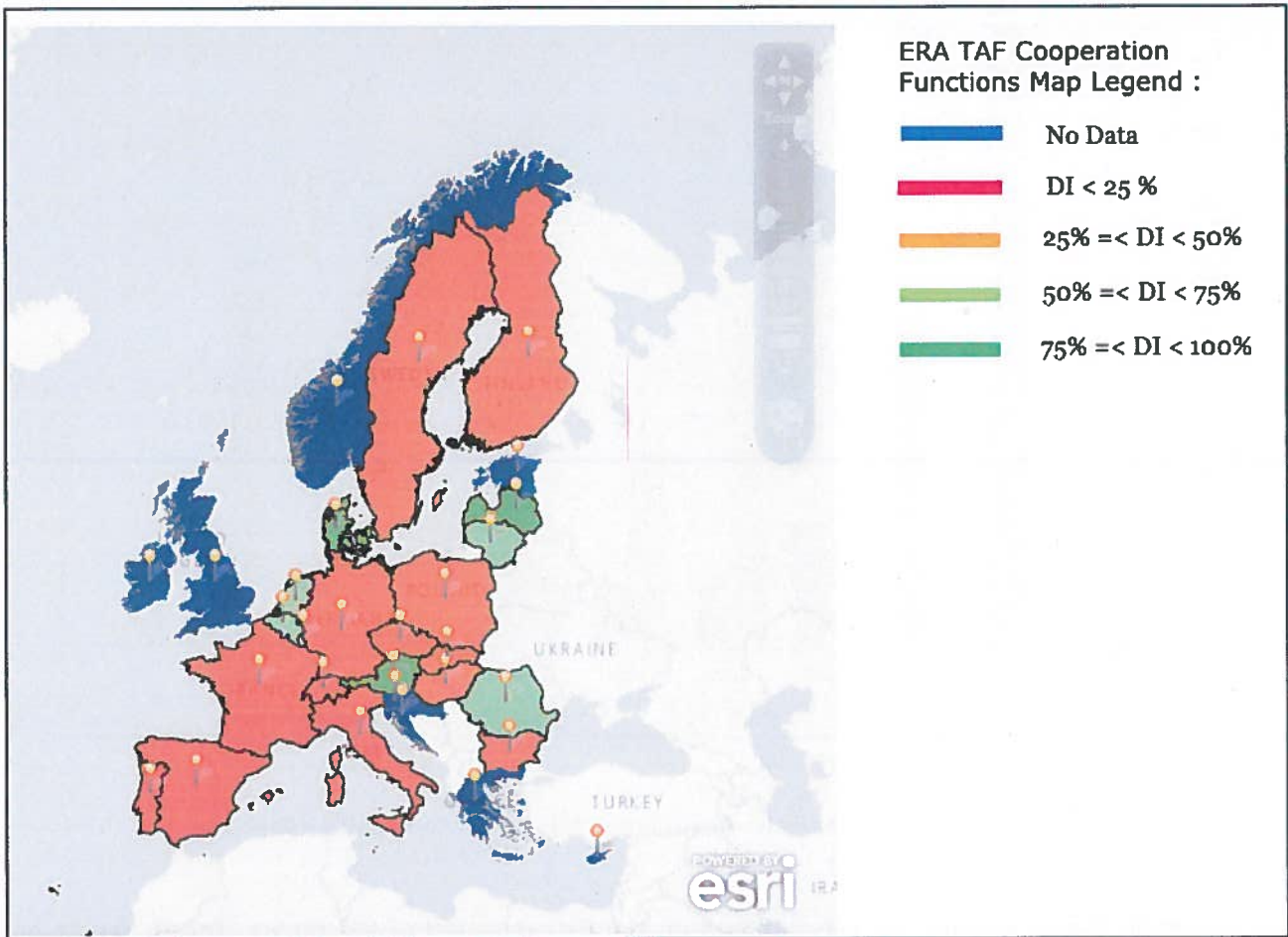


Figure 21: Train Composition Message for Railway Undertakings in January 2017.

In addition to these results, the companies have provided some comments concerning the actual status of deployment of this message. In particular, new Railway Undertakings jumping into the European market hesitate whether to use the legacy data format or the TAF TSI data format. The decision will depend of the geographical scope of their operations and the discussions to be held with the respective Infrastructure Managers.

4.1.8. Evolution of RU-IM functions per corridor in 2nd half of 2016

In line with the agreements reached in the Kick-Off meeting of the TAF TSI Implementation Co-operation Group, this report includes information concerning the implementation of RU-IM Communication functions per corridor. In particular, this report contains the degree of implementation per corridor for the Train Running Information Function. The data displayed on the map for the corridors is obtained from the data delivered by the Infrastructure Managers for the implementation of Train Running Information Function.

The level of implementation for every corridor is the same as the level of deployment in the country where the corridor is located. That means that the degree of implementation corresponds to the same level shown in the map summarising the level of implementation in chapter 4.1.5. "Implementation status in 1st half of 2016 for Train Running Information Function".

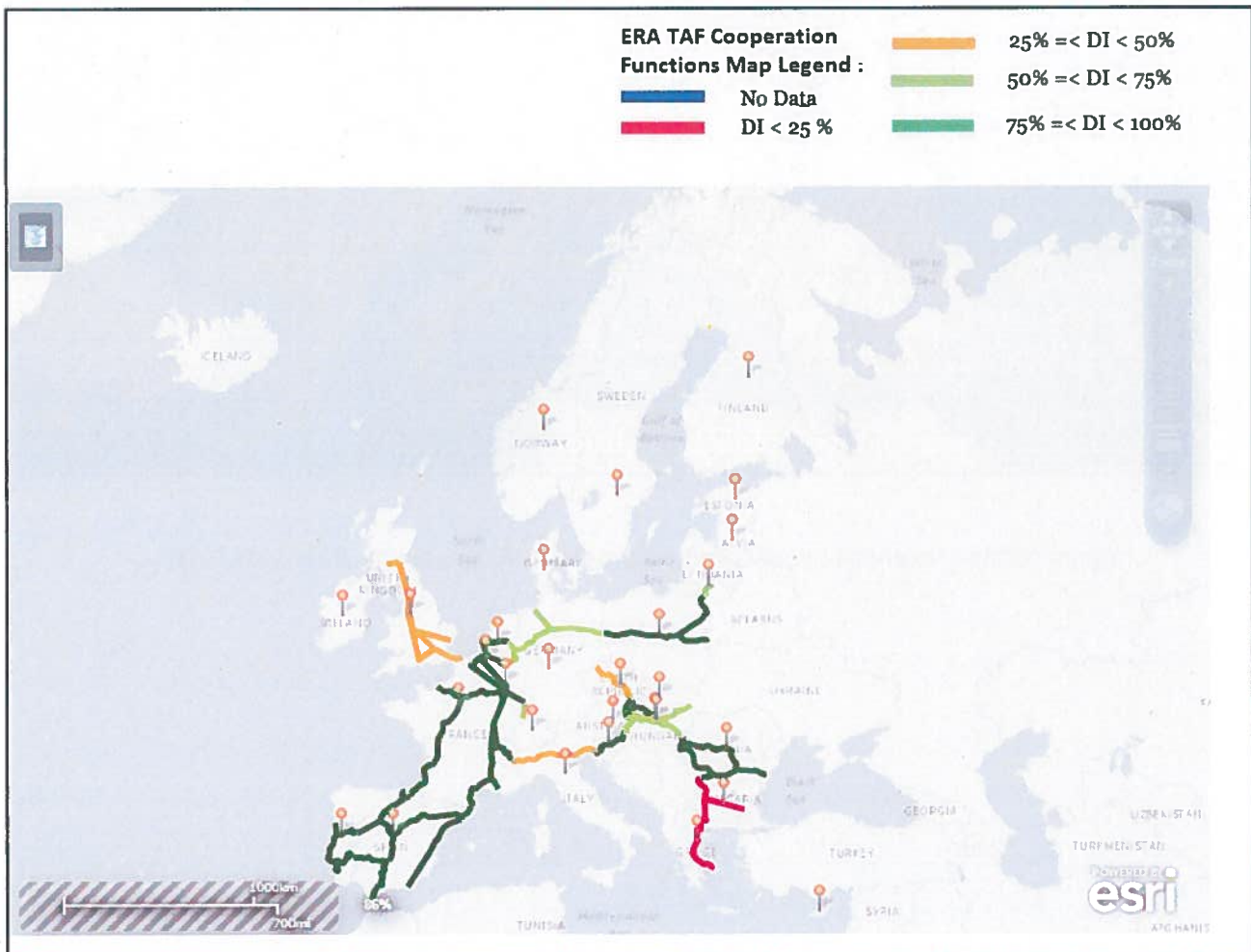


Figure 22: Corridor implementation of Train Running Information Function for Infrastructure Managers in January 2017.

In regards the implementation per corridors, we can conclude that the Infrastructure Managers in charge of every section of any particular corridor defined on the Regulation (EU) No 1316/2013, is, under request of the concerned Railway Undertaking, either capable to deliver the TAF TSI Message Train Running Information

or is on the way to implement this message. (<http://www.era.europa.eu/tools/TAFTSI/Pages/IM-Cor-Train-Running-Function.aspx>). Nevertheless, in some sections of corridors RFC2 (North Sea Mediterranean) and RFC7 (Orient) more resources should be allocated in the mid-term to meet the implementation target milestone by end 2017.

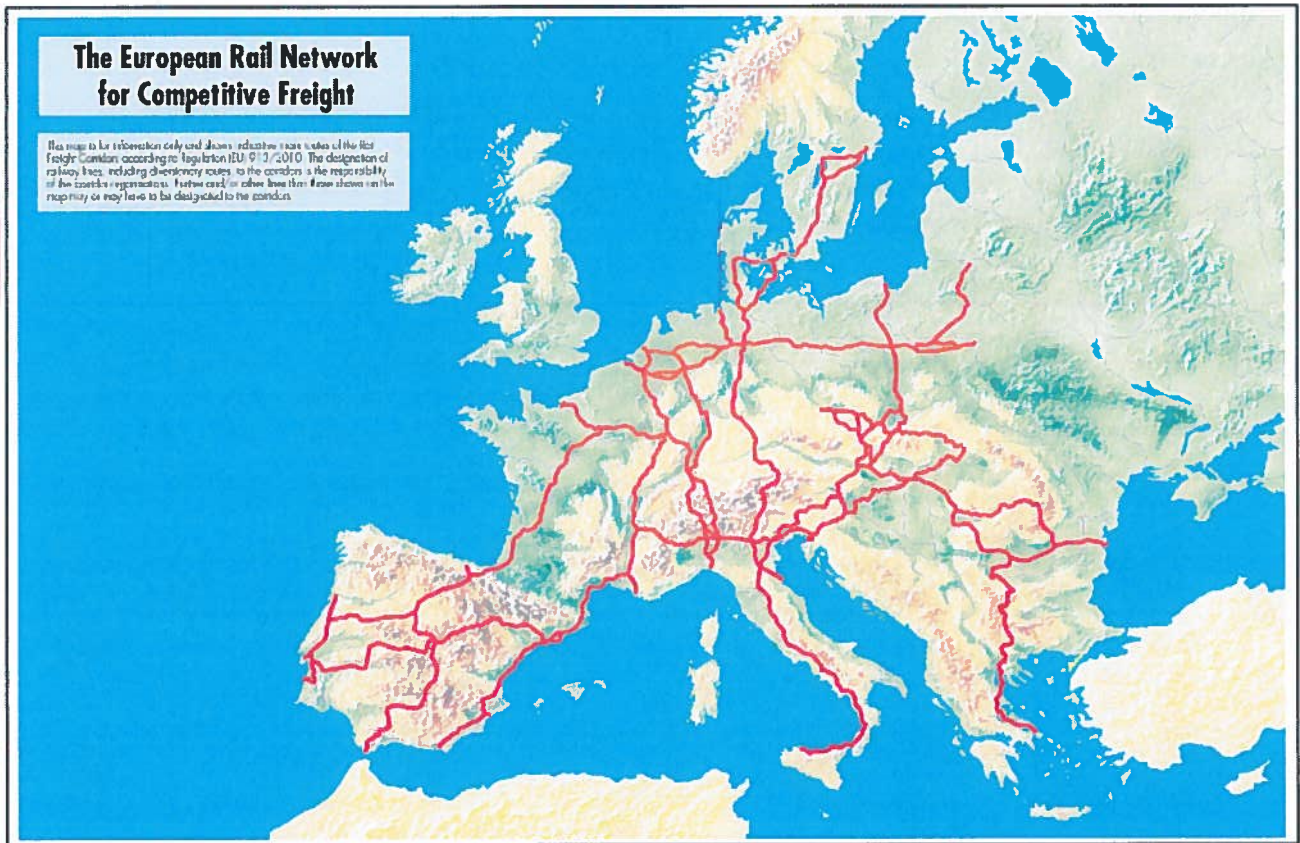


Figure 23: Rail Freight Network Corridors defined by Regulation (EU) No 1316/2013.

5. Progress of the Implementation of TAF TSI functions from this report compared with previous reports

Therefore, at a first glance the target milestones quoted in the Master Plan (1) are met in most of the cases for the first functions by 2nd half of 2016 (reporting session 5). However, the comparison with previous Status Reports shows that contrary to the expectations the level of accomplishment has stagnated for some functions:

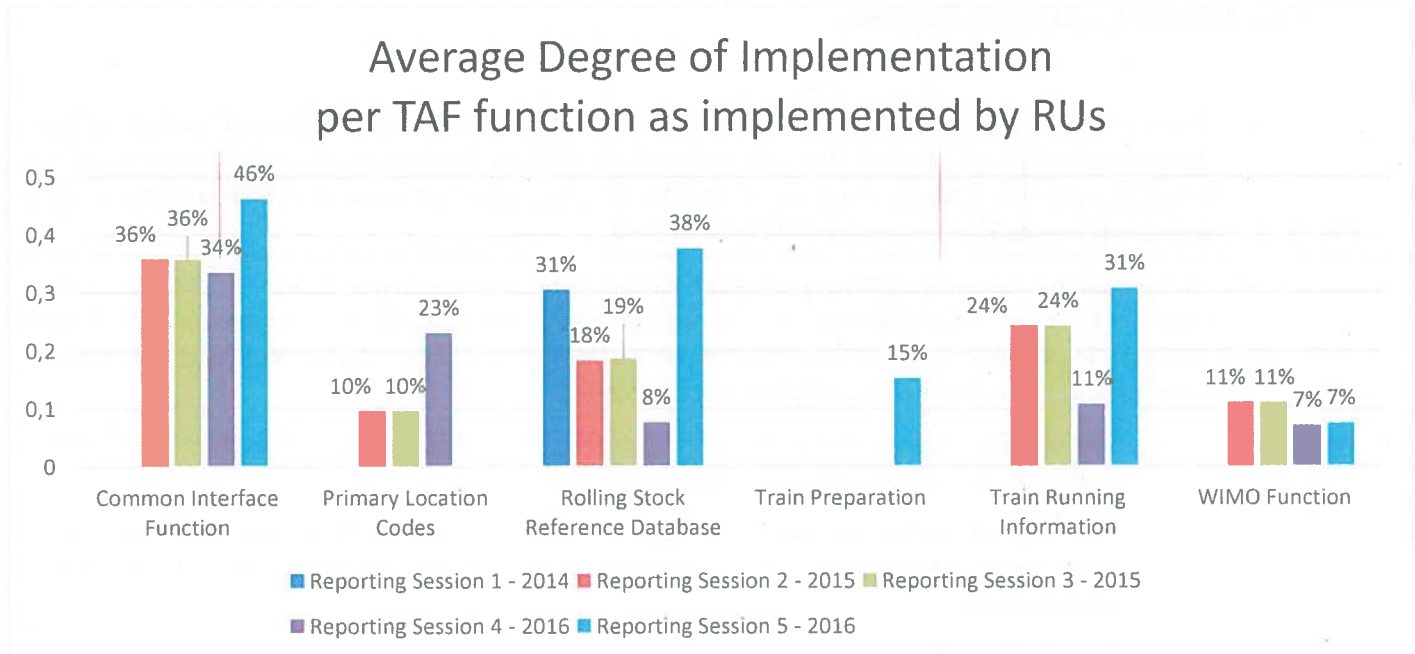


Figure 24: Summary of the degree of implementation for RUs along the reports of implementation

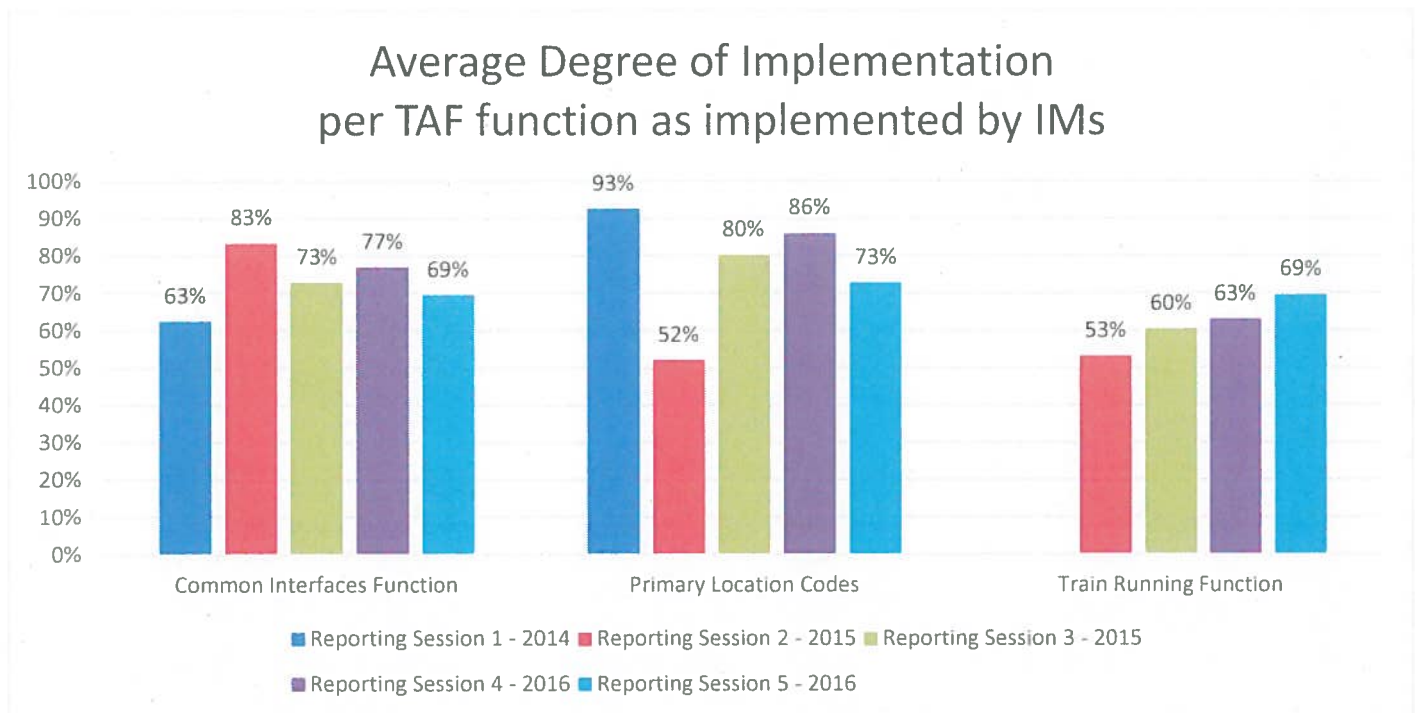


Figure 25: Summary of the degree of implementation for IMs along the reports of implementation

Thus, different trends can be observed:

- There is a clear situation of stagnation over two reporting sessions, yellow colour, of the Rolling Stock Reference Database Function. This evolution may be partially justified because the realisation of this function over 40% strongly depends on the pending implementation of the Railway Undertakings, who owns round 60% of the wagon fleet in Europe.
- The remaining functions, Primary Location Codes Function, Company Codes Function, Common Interface Function, Train Running Information Function and Wagon and Intermodal Unit Operational Database Function show a positive evolution of the deployment in comparison with previous reports. In particular, it can be drawn the following conclusions:
 - The implementation of the Primary Location Codes Function and Company Codes Function is almost concluded in line with the master plan.
 - The implementation of Train Running Information is progressing better than expected. It must be outlined the significant improvement observed for the figures of the Railway Undertakings.
 - The effort made by the Railway Undertakings can be as well appreciated in the aggregated degree of implementation declared for the Wagon and Intermodal Unit Operational Database Function. This does not prevent the Agency and the sector to continue exploring the definition of a soft compliance assessment for this particular function.

6. Conclusions

The fourth report to evaluate the degree of implementation of Commission Regulation (EU) No 1305/2014, TAF TSI [2], shows a stagnation compared to the reference baseline, the Master Plan (1) to implement TAF TSI [2] delivered by the sector in January 2013.

The TAF TSI Master Plan (1) issued by the rail sector in January 2013 foresees the following level of realisation by **end 2016** for the reported functions:

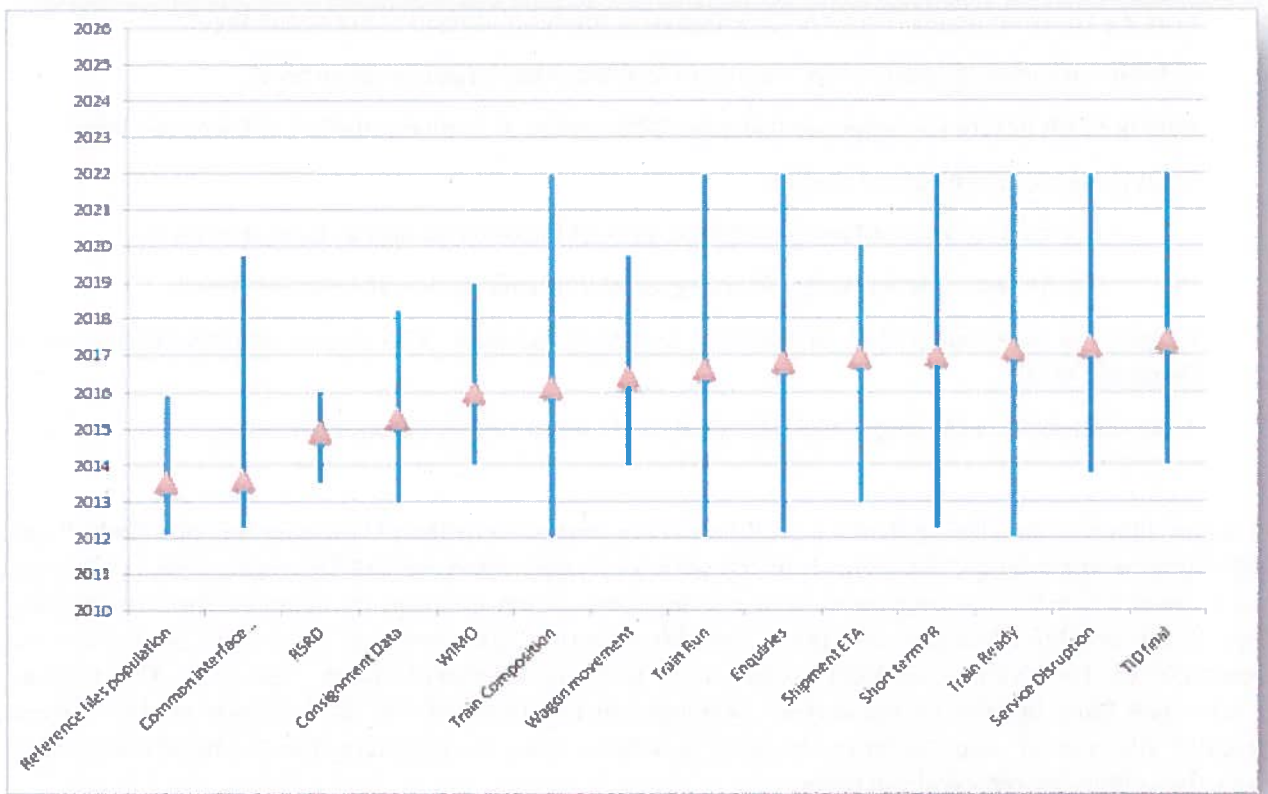


Figure 26: Minimum and Maximum Implementation Dates in the TAF TSI Master Plan delivered in January 2013.

- Reference files population (Primary Location Codes Function and Company Codes Function):
 - 98% degree of implementation at European level for Infrastructure Managers and
 - 95% degree of implementation at European level for Railway Undertakings.
- Common Interface Function:
 - 98% degree of implementation at European level for Infrastructure Managers and
 - 95% degree of implementation at European level for Railway Undertakings.

- Rolling Stock Reference Database Function: 80% or more of the respondents (Wagon keepers and Railway Undertakings) indicated a final implementation in 2015.
- Train Running Information Function:
 - 62% degree of implementation by end 2016 at European level for Infrastructure Managers and
 - 33% degree of implementation by end 2016 at European level for Railway Undertakings.
- **Wagon and Intermodal Unit Operational Database Function: 39% by end 2016 for the Railway Undertakings.**
- **Train Composition Message: 85% by end 2016 for the Railway Undertakings.**

The data reported in **January 2017** shows different degrees of implementation per function:

- **Company Codes function: 89% degree of implementation at European level.**
- **Primary Location Codes function: 73% degree of implementation at European level.**
- **Common Interface function: 63% degree of implementation at European level.**
- **Rolling Stock Reference Database function: 38% degree of implementation at European level.**
- Train Running Information Function:
 - **For Infrastructure Managers: 80% degree of implementation at European level.**
 - **For Railway Undertakings: 47% degree of implementation at European level.**
- **Wagon and Intermodal Unit Operational Database function: 37% degree of implementation at European level.**
- **Train Composition Message: 46% degree of implementation at European level.**

The report allows us concluding that the evolution of the **implementation of “Primary location Codes” and “Train Running Information” functions is in line with level required in the TAF TSI Master Plan (1)**. Indeed, for this second function we may state that the implementation is ahead of schedule for both Railway Undertakings and Infrastructure Managers. The Infrastructure Managers are in fact the drivers for the deployment of the “Primary Location Codes” and “Train Running Information” functions. This positive evolution will bring benefits in the further development of other TAF TSI [2] functions as the “Service Disruption Information” and “Shipment ETI/ETA” functions. Thus, we can state that the basic elements to deploy the system are technically in place.

Regarding the **“Company Codes” function**, we can observe a **significant improvement in the level of fulfilment**. Thereby, we may conclude that a negligible number of companies has applied to get the company codes. Nevertheless, it cannot be neglected the fact that the Wagon Keepers and small Railway Undertakings don't perceive yet the benefits of getting **“Company Codes”** through the current procedure in place and most of them don't envisage to have it. The assignment of the role to the Agency as body issuing the **“Company Codes”** in a timeframe of 4 years for other administrative purpose than telematics may facilitate the usage of the Company Codes by all the actors in the TAF TSI system.

The level of **implementation of the “Common Interface” function** has not yet met the implementation deadline, but it shows a positive progress in the last reporting session. However, some companies still declared that they will be able to generate TAF TSI [2] compliant messages from their legacy systems without

further conversion. Therefore, the implementation of this function should be closer overseen by the Agency TAF TSI Implementation Cooperation Group to propose measures when needed.

The results for the “Rolling Stock Reference Database” function shows that the sector is slowly progressing towards the implementation of this functionality, in particular the Wagon Keepers, who are doing a great effort materialised in the tool RSRD². Indeed, although a browser interface is being developed by the Railway Undertakings to deploy this functionality, the improvement of the implementation results will not be visible until end of the year 2017. Nevertheless, if we may confront these results with the number of wagons stored in the GCU wagon database (with more than 600,000 wagons currently declared across 20 countries in Europe), we can conclude that for the time being almost 40% of the European wagon fleet is fulfilling the legal requirements requested for “Rolling Stock Reference Database” function through the implementation of RSRD² database. Therefore, we may draw the conclusion that the fleet not owned by the Railway Undertakings is already almost completely stored in a tool implementing the RSRD database.

Regarding the level of accomplishment declared for Wagon and Intermodal Unit Operational Database function over the last two reports, we can draw the conclusion that a delay can be still expected compared to the commitment in the TAF TSI Master Plan (1). The Agency TAF TSI Implementation Cooperation Group treated this risk and agreed submitting a request to the TAF TSI Steering Committee for discussion and adoption of mitigation measures. In regards to the request, the European Commission mandated the Agency and JSG to launch a discussion in order to assess together with the European rail sector different ways of compliance for this function WIMO and to revert the outcomes of this reflection to both Agency TAF TSI Implementation Cooperation Group and TAF TSI Steering Committee.

In regards the degree of implementation of the Train Composition Message, the actual implementation status is significantly below the expectations and the commitment of the companies reflected on the TAF TSI Master Plan. Therefore, the European rail sector together with the Agency should agree on some measures facilitating the deployment of this function to be completed by 2020 by the Railway Undertakings.

Furthermore, the results obtained allow concluding that more support from the EU institutions can be provided to help the companies to implement these functions through different actions as better dissemination and increase of funding.

7. Regional Workshops

To provide an appropriate response to the first action requested to EU institutions, the Agency TAF TSI Implementation Cooperation Group adopted in the 2nd meeting held on 29th and 30th September 2015 (6) the decision to launch a campaign of Regional Workshops across European Member States.

7.1 Outcomes of the Regional Workshops

There was no additional workshop between the last held in Bratislava in October 2016 and the 5th reporting session.

7.2 General Recommendations

In comparison to previous implementation reports, the Agency has not collected further recommendations to improve the Regional Workshops. It is expected to have further comments in the upcoming workshops to be held in London by June 2017 and in Warsaw by September 2017:

- Workshop in London for United Kingdom and Ireland scheduled in June 2017.
- Workshop in Warsaw for Poland, Lithuania, Latvia and Estonia scheduled in September 2017.

8 Proposals to support the Reporting Process

In order to clarify the scope and content of the TAF TSI Implementation Report and the TAP TSI Implementation Report, it has been agreed (7) that the content of the reports will be discussed in TAF TSI co-operation group for TAP TSI RU-IM basic parameters and in the TAP TSI retail co-operation group for the TAP TSI retail basic parameters.

Therefore, the Agency will deliver two reports, one for TAF TSI and another for TAP TSI (retail and RU-IM-communication).

Beyond this, it has been agreed to put in place the following measures to facilitate the implementation and engagement of the small and medium sized RUs and IMs:

- To deliver newsletters after every Implementation Cooperation Group (ICG) meeting to the NCPs with the main outcomes of every meeting.
- To define an EU communication strategy in close cooperation with the National Contact Points.
- The Agency must address the TSI TAF TAP topic to the top management of IMs and RUs by participation in appropriate "High Level Rail Events" throughout Europe.
- The Agency will analyse the costs for the upgrade/setup of the legacy systems of the RU's.
- The Agency should explain together with EC about the additional funding for the TAF TSI functions, and in particular, the implementation of the common interface and the upgrade of the legacy systems.

9 Functions to be reported in the next report

During the 5th TAF TSI Implementation Cooperation Group meeting held in March 2017 (7), it was agreed to report about the following functions for the 6th Reporting wave in the frame of the TAF TSI regulation:

- Primary location codes
- Company codes
- Common interface
- Train running information
- RSRD (WK)
- WIMO (RU)
- Train composition message
- Consignment note data

Regarding the RU-IM Communication for TAP TSI, it was agreed to report these two basic parameters for TAP TSI:

- Company codes
- Common interface

9.1 Calendar for reporting

In the frame of the 5th TAF TSI Implementation Cooperation Group meeting held in March 2017 (7), it was agreed the following schedule to report about the implementation of TAF TSI functions and RU-IM Communication for TAP TSI:

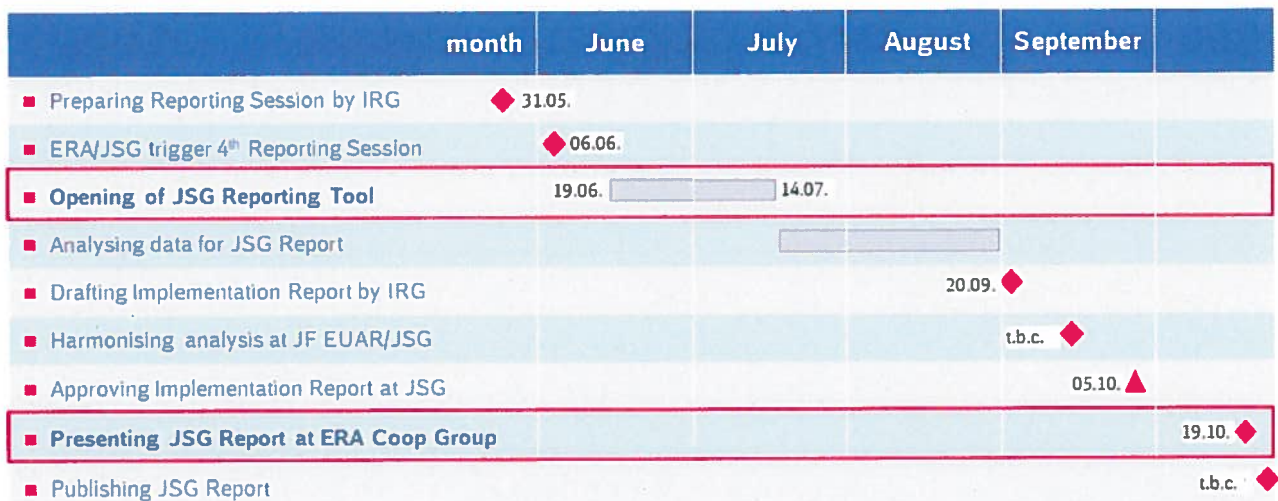


Figure 27: Reporting Schedule for the 6th Reporting wave

Annex 1: Maps and Implementation Data

Common Functions, RU's functions and RU-IM Communication Functions Maps + Raw data on Agency website: <http://www.era.europa.eu/tools/TAFTSI/Pages/Home.aspx>

