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Report

10th status report about the implementation progress of the TAP TSI (2023)

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Acronyms

Table 1: Table of abbreviations

Acronyms	*Definition*
API	Application programming interface
CEF	Connecting Europe Facility
CER	Community of European Railway and Infrastructure Companies
CRD	Central reference database
CSG	Common support group
DI	Degree of Implementation
EC	European Commission
EIM	European Rail Infrastructure Managers
ERA	European Union Agency for Railways (also referred to as Agency)
GIS	Geographical Information system
IM	Infrastructure Manager
INEA	Innovation and Networks Executive Agency
MCT	Minimum connecting time
JSG	Joint Sector Group (sector cluster in charge of following TAF Implementation)
NCP	National Contact Point
PM^2	Official Project Management Methodology of the European Commission
RISC	Rail Interoperability and Safety Committee
RNE	Rail Net Europe
RU	Railway Undertaking
SM	Station Manager
TAP	Telematics applications for passengers
TAF	Telematics Applications for Freight
TSGA	TAP TSI Services Governance Association
TSI	Technical Specification for Interoperability
TV	Ticket vendor
UIC	Union Internationale des Chemins de fer
UNIFE	Association of the European Rail Industry

Reference documents

Table 2: Table of reference documents

Ref. N°	*Title*	*Reference*	*Version*
(1)	TAP TSI ANNEX B.62 TAP MASTER PLAN	TAP TSI Master Plan	06.12.2013
(2)	TAP TSI consolidated Master Plan		28.04.2013
(3)	NOTE TO ERA EXECUTIVE DIRECTOR: Assessment of TAP TSI implementation by the European Railway Agency	Ares(2015)5967753	21.12.2015
(4)	Report of the TAP TSI Implementation for 2021 - RU/IM Telematics Joint Sector Group (JSG)		January 2022

Reference legislation

Table 3: Table of reference legislation

Ref. N°	*Document Reference*	*Title*	*Last Issue*
[1]	Directive 2008/57/EC	Interoperability of the rail system	17.06.2008
[2]	TAP TSI Regulation No 454/2011	Commission Regulation (EU) No 454/2011 of 11 May 2011 on the technical specification for interoperability relating to the telematics applications for passenger’s subsystem of the rail system in the European Union	11.05.2011
[3]	Regulation (EU) 2016/796	REGULATION (EU) No 2016/796 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004	11.05.2016
[4]	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
[5]	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

1 ABSTRACT

The report shows the implementation progress in 2023 of the TAP TSI implementation in the European rail sector. The actors of the European rail sector – subject to the implementation of the TAP TSI – have to implement this TSI in accordance with the Master Plan and to report about the implementation progress in the co-operation group for the TAP TSI implementation. The affected actors are the railway undertakings, the infrastructure managers and the ticket vendors. Furthermore, there is a common organisation – the TAP TSI Services Governance Association (TSGA) – responsible for the reporting of the implementation progress of the regulatory functions of the TAP TSI.

Furthermore, this report contains the reporting about a subset of the TAP TSI basic parameters for retail functions, mainly for the reservation, ticketing, tariffs/fares and timetables. The subset of these retail functions has been agreed in the TAP TSI co-operation group on 17 October 2017.

To evaluate the current degree of implementation for every function, the data provided is compared to the baseline defined in the TAP TSI Master Plan delivered by the European Rail Sector in 2012.

The monitoring of the implementation takes as baseline:

1. The consolidated Master Plan – the implementation of the individual TAP TSI functions by the railway undertakings, the ticket vendors and the infrastructure managers – has been submitted by the European rail sector on 28th April 2013. A total of 40 companies, RUs, IMs and groups – representing a total of over 70 licensed railways - have submitted their plans in time for the consolidation exercise performed by the TAP TSI project team between January and April 2013. The target dates are based on the corresponding TAP-TSI function to be implemented and they were set when 80% or more of the respondents indicated a final implementation.

The following key findings per TAP TSI regulatory function can be highlighted:

- The TAP TSI governance body has been set-up and the TSGA is established, staffed and operational
- The setup of the TAP TSI architecture is in place, comprising:
    - the setup of the TAP TSI registry
    - the setup of the TAP TSI Retail reference database
    - the setup of the TAP TSI Data quality tool
- The usage of the TSGA services is limited

The 10th report contains as well the implementation report of the individual railway undertakings about the implementation progress of the following TAP TSI retail functions:

Table 4: TAP TSI retail functions of the 10th reporting session

Activity	**TAP TSI basic parameter**	**Responsible**
8.1 Sending request to agreed RU`s in B5 format	TAP BP 4.2.9.1	RU, TV
8.2 Answering reservation requests from agreed RU`s and agreed 3rd parties in B5 format	TAP BP 4.2.9.2	RU
8.3 Sending reservation requests for bicycle carriage to agreed RU`s in B5 format	TAP BP 4.2.7.2	RU, TV
8.4 Answering reservation requests for bicycle carriage from agreed RU`s and agreed 3rd parties in B5 format	TAP BP 4.2.7.3	RU
8.5 Sending reservation requests for car carriage to agreed RU`s in B5 format	TAP BP 4.2.8.2	RU, TV

8.6 Answering reservation requests for car carriage from agreed RU`s and agreed 3rd parties in B5 format	TAP BP 4.2.8.3	RU
9.1 Issuing value paper tickets for international and foreign sales in B6 format	TAP BP 4.2.11.1	RU, TV
9.2 Accepting value paper tickets for international and foreign sales in B6 format	TAP BP 4.2.11.1	RU
9.1 Issuing home printed tickets for international and foreign sales in B7 format	TAP BP 4.2.11.2	RU, TV
9.2 Accepting home printed tickets for international and foreign sales in B7 format	TAP BP 4.2.11.2	RU
10.1 Sending PRM assistance reservation requests via IT communication to agreed RU`s, IM's and SM's in B10 format	TAP BP 4.2.6.2	RU, TV
10.2 Answering PRM assistance reservation requests via IT-communication from agreed RU`s and agreed 3rd parties in B10 format	TAP BP 4.2.3	RU
Exchange of timetable data in B4 format	TAP BP 4.2.1	RU
Exchange of NRT tariff/fare data in B1 format	TAP BP 4.2.2	RU
Exchange of IRT tariff/fare data in B2 format	TAP BP 4.2.2	RU
Exchange of special tariff/fare data in B3 format	TAP BP 4.2.2	RU
Delivery of timetable data, tariff data to TSGA	TAP TSI TD B.60	RU
Registration at TSGA	TAP TSI TD B.60	RU, TV
Subscription for timetable data, tariff data, public keys at TSGA	TAP TSI TD B.60	RU, TV

2 Introduction

This 10th Status Report is delivered in accordance with Commission Regulation (EU) No 454/2011 of 11 May 2011 on the Technical Specification for Interoperability relating to the Telematics Applications for Passenger subsystem of the rail system in the European Union [2].

In particular, Article 23 of Regulation EC 2016/796 [2] attributes to the European Railway Agency the task to assist the European Commission in the implementation of the Community legislation and oversee the implementation of the Regulation to determine whether the agreed objectives and deadlines have been achieved. ERA has the task to provide an assessment report to the TAP TSI steering committee referred to in Section 7.3 of the TAP TSI. Furthermore, the European Commission (EC) issued a letter on 21.12.2015 (2) describing the tasks expected to be carried out by the Agency for the Assessment of TAP TSI [2] implementation.

On this basis, the Agency launched on 31st May 2016 the Co-operation Group for the Implementation of Telematics Applications for passengers. The Co-operation Group performs the following tasks:

- To assess the reports from the sector (companies, NCPs and RBs) about the TAP TSI [2] implementation.
- To compare the data received with the content of the TAP 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 once per year to the European Commission and to the TAP TSI Steering Committee.
- To perform a dissemination campaign to NCPs and assist them to follow-up the TAP TSI [2] implementation at national level.

All these activities are performed in close cooperation with the different stakeholders, who will provide implementation reports.

2.1 Reporting structure

The reporting takes into account the different reporting procedures, depending on the nature of the information to be reported and the responsibilities for the implementation of the TAP TSI. There are 4 different reporting streams – reporting procedures for certain business areas of the regulation - in the TAP TSI reporting:

1. The reporting about the implementation of the **conditions of carriage** by the individual passenger railway undertakings
2. The reporting about the implementation of the **regulatory functions** by the TAP TSI governance body (TSGA)
3. The reporting about the implementation of the **retail functions** by the individual passenger railway undertakings and the ticket vendors
4. The implementation of the **RU/IM-functions** by the individual passenger railway undertakings

“Conditions of carriage” means the implementation of the publication of the conditions of carriage and certain accessibility conditions by the railway undertakings. This obligation is specified in the TAP TSI basic parameters 4.2.4, 4.2.5, 4.2.7, 4.2.6 and 4.2.8. The basic parameter had to be implemented 6 months after the publication of the TAP TSI, means until the 11.11.2011.

“Regulatory functions” means those functions which cover the central functions of the TAP TSI and have to be implemented by the TAP TSI governance body (TSGA). Those functions are – beside of the setup of the TAP TSI governance - the TAP TSI architecture including registry, the retail reference database and the data quality tool. The functionalities are specified in the TAP TSI technical document B.60[1] and have to be implemented by the TSGA.

"Retail functions" means those functions which cover functions such as timetable data exchange, tariff data exchange or fulfilment and have to be implemented individually by the passenger railway undertakings and the ticket vendors. These functions are described in TAP TSI chapter 4 and have to be implemented following the TAP TSI Master Plan[2].

"RU/IM functions" are those functions for planning and booking of train paths and information during the operation and the functions related to "information in the stations" and "information on-board". They have to be implemented by the railway undertakings, infrastructure managers according to the TAP TSI Master Plan.

The following table shows an overview about the different reporting streams for the TAP TSI.

Table 5: Reporting streams for TAP TSI

	Conditions of Carriage	**Regulatory functions**	**Retail basic parameters**	**RU/IM basic parameters**
TAP TSI Basic parameter	4.2.4.1, 4.2.5.1, 4.2.7.1, 4.2.6.1, 4.2.8.1	TAP TSI chapter 7.3	Remaining TAP TSI functions	4.2.15, 4.2.16, 4.2.17
Implementation plan specified in	TAP TSI regulation 454/2011	TAP TSI Technical document B.62	TAP TSI Master Plan	TAP TSI Master Plan
Implementation date	11.11.2011	31.10.2014	Milestones according TAP TSI Master Plan	Milestones according TAP TSI Master Plan
Who has to implement the function(s)	Passenger railway undertakings	TSGA	Passenger railway undertakings, ticket vendors	Infrastructure managers, railway undertakings
Who has to report to ERA	None (data will be collected automatically by the Agency)	TSGA	RU's via Common support group (CSG), ticket vendors via ETTSA/ECTAA	RU's, IM's via Joint sector group (JSG)
Publication by	ERA			
Report	Report about the implementation of the conditions for carriage	Status report for the TAP TSI retail functions		Status report for the TAF TSI functions
Report frequency	Annual			

2.2 Reporting procedures

As shown in the Table 5 there are four different reporting streams in place. Each stream has a different procedure for the reporting, including the involved actors, the procedure and the scope. These differences have to be respected in the reporting for the TAP TSI implementation progress.

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[1] https://www.era.europa.eu/sites/default/files/filesystem/tap/baseline_1.4.0_archive/era_technical_document_tap_b_60_final.pdf
[2] https://www.era.europa.eu/sites/default/files/activities/docs/tap_master_plan_delivery_en.pdf

2.2.1 *Reporting for the conditions of carriage*

Reporting of the implementation of the conditions of carriage is done by ERA. Once per year, ERA is checking the websites of passenger railway undertakings across EU, analysing conditions of carriage and the accessibility conditions. ERA uses the list of passenger railway undertakings for the reporting which has been delivered by the NCP's of the member states or which are publicly known. The report is delivered by ERA once per year to the European Commission.

2.2.2 *Reporting for the regulatory functions*

The reporting procedure (workflow) for regulatory functions is shown at the following picture:

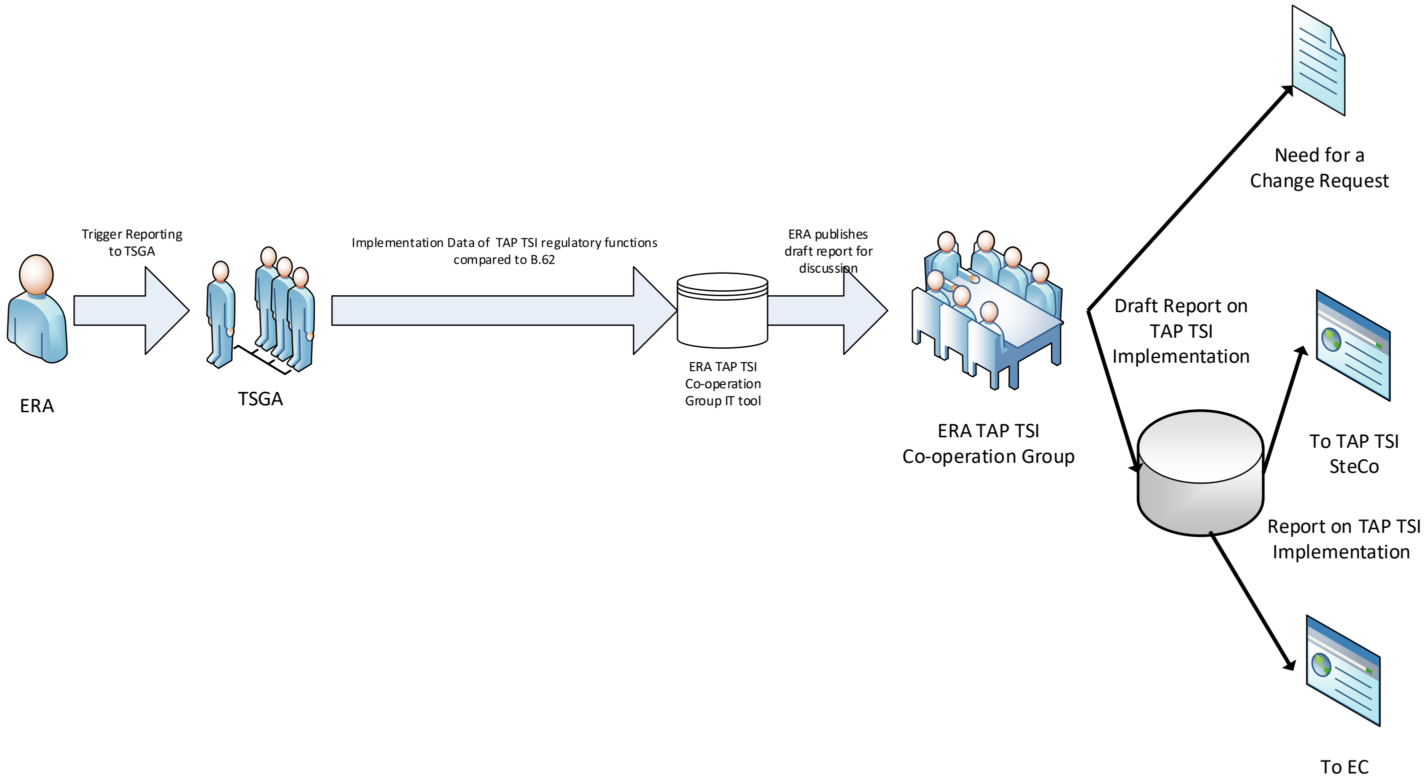

Trigger Reporting to TSGA
ERA
TSGA
Implementation Data of TAP TSI regulatory functions compared to B.62
ERA TAP TSI Co-operation Group IT tool
ERA publishes draft report for discussion
ERA TAP TSI Co-operation Group
Need for a Change Request
Draft Report on TAP TSI Implementation
To TAP TSI SteCo
Report on TAP TSI Implementation
To EC

Figure 1: ERA TAP TSI Implementation Cooperation Group process for regulatory functions

The process is triggered by ERA to TSGA to request with a predefined questionnaire a report about the implementation progress for the regulatory functions of the TAP TSI. The request is sent 3 months before the TAP TSI co-operation group to the TSGA. The report will be sent back from TSGA to ERA and incorporated in the IT-tool and the implementation progress report for the working party. After the discussion in the TAP TSI co-operation group two additional weeks are given for further remarks. Then, the implementation progress will be incorporated in the report about the TAP TSI implementation and it is delivered by the Agency to the TAP TSI Steering Committee and the European Commission.

2.2.3 *Reporting for TAP TSI retail basic parameters*

The diagram below shows the process allowing ERA to perform the above listed activities for the TAP TSI retail basic parameters:

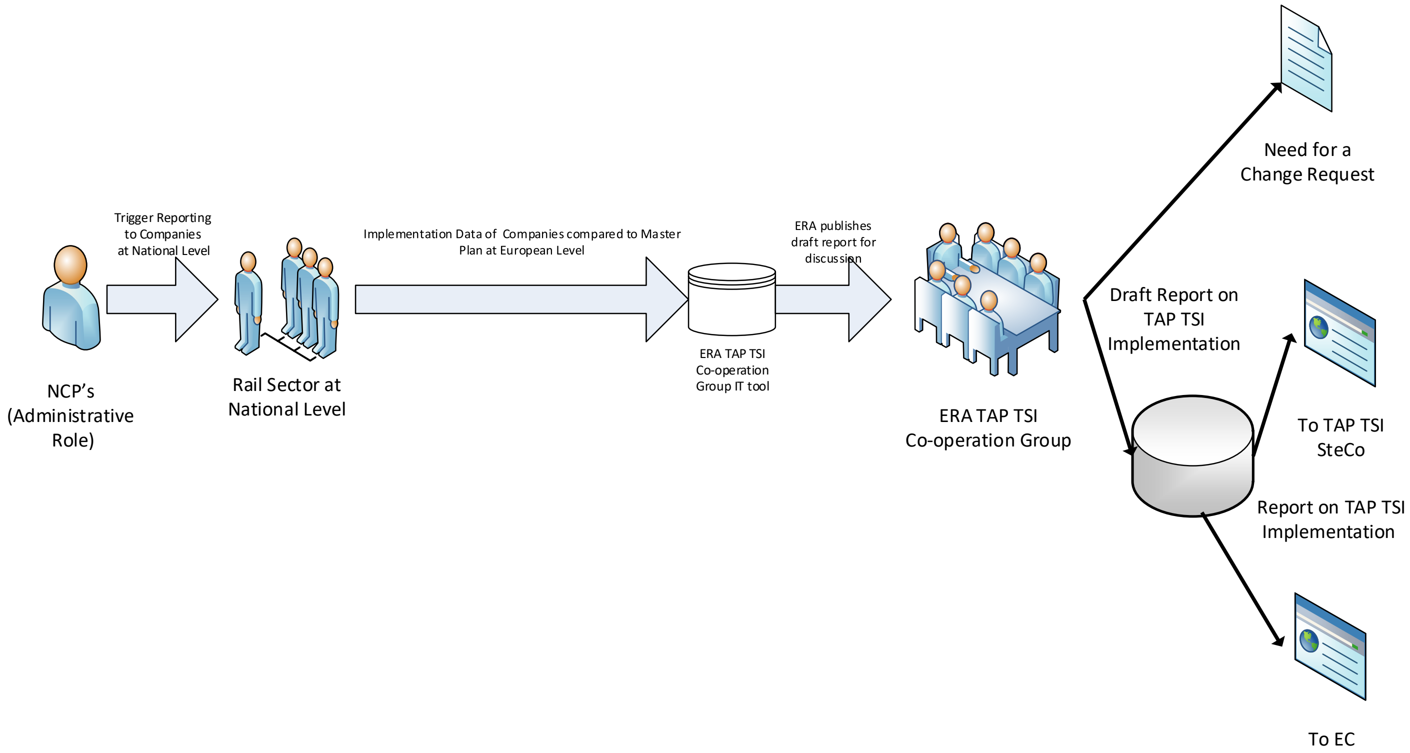

Need for a Change Request
Trigger Reporting to Companies at National Level
Implementation Data of Companies compared to Master Plan at European Level
ERA publishes draft report for discussion
Draft Report on TAP TSI Implementation
NCP's (Administrative Role)
Rail Sector at National Level
ERA TAP TSI Co-operation Group IT tool
ERA TAP TSI Co-operation Group
To TAP TSI SteCo
Report on TAP TSI Implementation
To EC

Figure 2: ERA TAP TSI Implementation Cooperation Group process for retail basic parameters.

The process is triggered by the NCP's keeping the list of passenger railway undertakings up-to date. A questionnaire is drafted by ERA and CSG, based on agreed KPI's to evaluate the evolution of TAP TSI retail basic parameters. The common support group (CSG) will deliver 3 months before the TAP TSI co-operation group meeting an e-mail contacting all the companies of the reporting list and launching the reporting. The questionnaire is provided as electronic form on a website. The companies have 1 month to report. Once the reporting is concluded, the tool is closed and the CSG will elaborate an implementation report with the sector's view on the implementation. At the same time, the raw data will be delivered to the Agency for uploading the data on the Agency GIS Implementation tool and for drafting the complementary Agency status report for discussion in the TAP TSI co-operation group. The content of the Agency report is discussed and amended during the TAP TSI co-operation group meeting giving two additional weeks for further remarks. Once is concluded the allegation period, the report is delivered by the Agency to the European Commission and to the TAP TSI Steering Committee.

The ticket vendors (TV) are subject to the reporting of the implementation progress of some TAP TSI retail basic parameters as well. These basis parameters are mainly those for the usage of the data delivered by the railway undertakings. The process for ticket vendors is the similar one as for the passenger railway undertakings: The TV are invited to submit their implementation data to their stakeholder organisations EU Travel Tech and ECTAA (The European Travel Agents' and Tour Operators' Associations). They will compile a report based on the data received from their members.

2.2.4 Reporting for TAP TSI RU/IM basic parameters

For the TAP TSI RU/IM-communication basic parameters, the process existing for TAF TSI (described in the following picture) is followed.

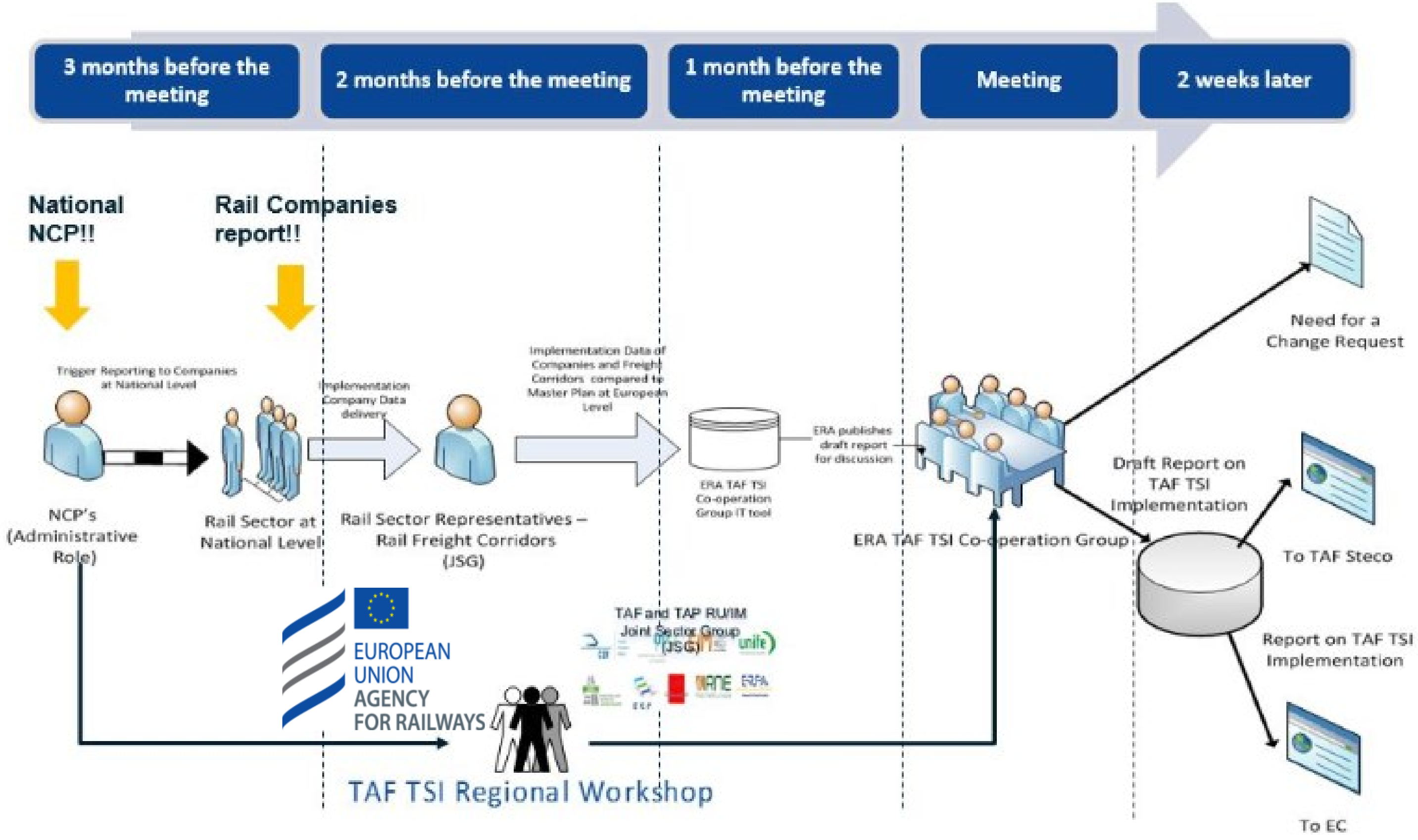

3 months before the meeting
2 months before the meeting
1 month before the meeting
Meeting
2 weeks later
National NCP!!
Rail Companies report!!
Trigger Reporting to Companies at National Level
NCP's (Administrative Role)
Rail Sector at National Level
Implementation Company Data delivery
Rail Sector Representatives – Rail Freight Corridors (JSG)
Implementation Data of Companies and Freight Corridors compared to Master Plan at European Level
ERA TAF TSI Co-operation Group IT tool
ERA publishes draft report for discussion
ERA TAF TSI Co-operation Group
Draft Report on TAF TSI Implementation
Need for a Change Request
To TAF Steco
Report on TAF TSI Implementation
To EC
EUROPEAN UNION AGENCY FOR RAILWAYS
TAF and TAP RU/IM Joint Sector Group (JSG)
TAF TSI Regional Workshop

Figure 3: ERA TAF TSI Implementation Cooperation Group process for RU/IM basic parameters.

For the reporting of the RU/IM basic parameters the co-operation group for the implementation of the TAF TSI is in charge of the reporting for the TAP TSI as well. The t reporting about the TAF TSI basic parameters is not in the scope of the current report about the TAP TSI implementation progress.

2.2.5 Further steps after the reporting

After the reporting of the progress for the TAP TSI implementation further steps must be done by ERA. ERA has to inform the EC about the results of this monitoring and has to advise the EC about the possible changes needed. For the common part TAP and TAF, the report will be as well submitted to the TAP TSI Steering Committee. In a multimodal context, ERA has to guarantee that any of the actions taken do not create additional obstacles for the multimodal environment.

The Agency delivers the reports also to the Member States through the European commission and the Rail Interoperability and Safety Committee (RISC).

3 Context

The context of the reporting of the implementation progress of the TAP TSI is based on two legal documents: the TAP TSI Master Plan (TAP TSI technical document B.62) (1), covering the implementation timetable for the TAP TSI regulatory services and the TAP TSI consolidated Master Plan covering the implementation dates of the specific functions for the TAP TSI for each actor (e.g. RU, IM, ticket vendor)

The final version of the TAP-TSI Master Plan (1), establishing the implementation timeline for the regulatory functions of the Regulation, was submitted to the DG MOVE and ERA on 11th May 2012. This Master Plan contains the milestones for the implementation of the regulatory functions of the TAP TSI ecosystem, which must be implemented in common by the affected actors. These functions must be provided to all actors affected by the TAP TSI.

Based on the submission of the TAP TSI Master Plan for the regulatory functions ERA has submitted on 31st October 2012 a recommendation about a revised TAP TSI to the European commission. The revised TAP TSI has been published on the official journal of the EU on 6th December 2013 as EC 1273/2013. The TAP TSI Master Plan has been annexed to the TSI as technical document B.62. Therefore, the TAP TSI Master Plan is legally binding for the implementation of the regulatory functions of the TAP TSI.

On the other hand, the undertakings have submitted their individual implementation plans to the TAP TSI project team until end 2012. The consolidated Master Plan document summarises the consolidation of the individual TAP TSI implementation plans established by RUs, IMs and SMs in 2012 and 2013. Overall, 40 RUs, IMs and groups – representing a total of over 70 licensed railways - have submitted their plans in time for the consolidation exercise performed by the TAP TSI project team between January and April 2013. The target dates are based on the corresponding TAP-TSI function to be implemented.

The reporting for the implementation of the TAP TSI functions by the actors is two folded: the reporting for the RU-IM communication and the reporting for the retail functions. Latter one has been assigned to the co-operation group for the implementation of the TAF TSI. Most of the RU/IM-functions are common with the TAF TSI and therefore the reporting has been centralised in the co-operation for the implementation of the TAF TSI, considering the milestones set-out in the TAP TSI Master Plan.

In order to collect the data and to boost the involvement of the higher possible number of companies, the European Railway Agency 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, on the RU/IM functions, the European Rail Sector grouped through the sector cluster 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 about the progress of implementation of the RU-IM-communication basic parameters to the JSG IT tool through a Web service available for all the companies registered. For TAP TSI this reporting process is assigned to the TAF TSI co-operation group.

For the TAP TSI retail basic parameters a similar process has been applied. The data are collected by the Common support group (CSG) and the Agency uses the same tool for the reporting of the TAP TSI retail basic parameters.

For the reporting the **number of registered companies on 5th November 2023 was 246 (243 0railway undertakings and 6 ticket vendors**.

The scope of the present report is to inform about the deployment of the functions that were scheduled to be implemented by 2nd half 2017 in the Master Plan (1) delivered by the sector for the implementation of the TAP TSI [2] system. This report provides information about the implementation of the following functions:

- TAP TSI architecture:
    - Registry
    - Retail reference database

    - Data quality tool
- Governance

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 implementation of TAP 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 each of **the 22 TAP TSI retail functions** identified in the TAP 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 will allow raising warnings to prevent delays in the implementation of a particular function.

Therefore, considering 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, deadline minus ideally 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 within the deadline minus ideally 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 75% 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.

- **In Production & Monitor & Control:** 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 TAP TSI [2] deployment, the delivery of the IT system implementing a particular TAP TSI [2] function moving to production environment. These activities correspond in an “optional” reference implementation to a Degree of Implementation (DI) between 75% and 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.

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

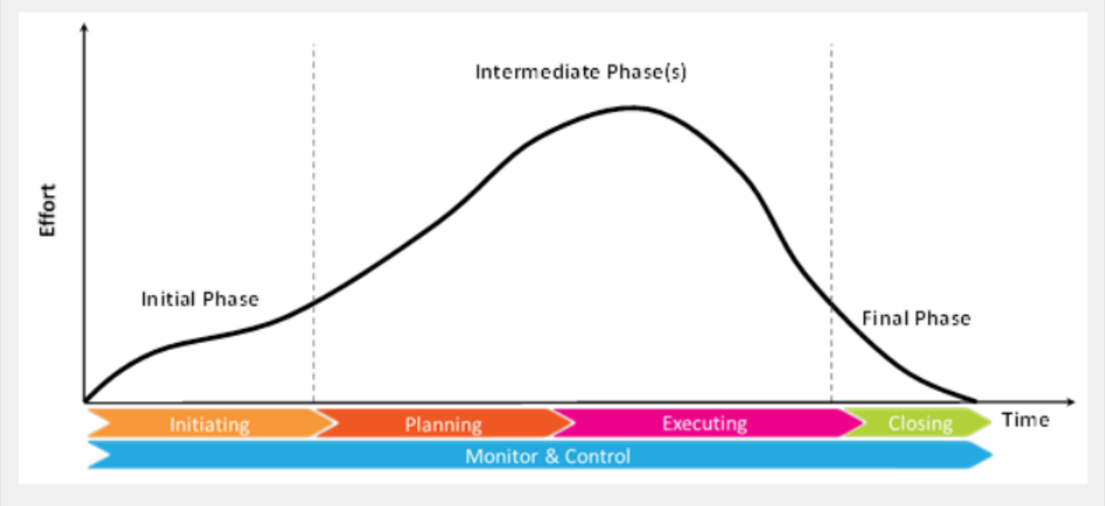


Figure 4: PM^2 project lifecycle.

Nevertheless, the different activities to be developed in the framework of a project to implement a particular TAP TSI [2] function should be adapted to the particular situation in every company. Therefore, every project may be assimilated, in 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 TAP TSI Implementation there are two ways to report about the implementation of a particular TAP TSI function compared to the TAP TSI Master Plan (1):

- on one hand, companies may declare the final delivery of a particular TAP TSI function within the deadline set out in the TAP TSI Master Plan (1); in this case the implementation of this function will be deemed to be on time, and thus DI = 100% -> Green colour on the map;
- on the other hand, companies may declare the Degree of Implementation (DI) for every function taking into account the optional methodology aforementioned based on different phases for the project. In this case, the declared Degree of Implementation will be colour-coded and displayed as follows:
  - Project not launched: 0% or no data -> Blue colour on the map.
  - Initiating Phase accomplished: DI < 25% -> Red colour on the map.
  - Planning Phase accomplished: 25% =< DI < 50% -> Orange colour on the map.

  - Executing Phase accomplished: 50% =< DI < 75% -> Light Green colour on the map.
  - In Production & Monitor & Control accomplished: 75% =< DI =< 100% -> Green colour on the map.

4 Analysis

4.1 Implementation of the regulatory functions

The regulatory functions of the TAP TSI have been implemented in full by TSGA, as seen in the picture below.

Table 6: Milestones for TAP TSI regulatory functions (as of 18/12/2019)

Milestone	*Planned date*	*Actual date*	*Degree of fulfilment*
Setup of the TSGA	30/09/2013	31/12/2016	100%
Setup of the Retail reference database	01/10/2014	31/08/2019	100%
Setup of the TAP TSI registry	01/10/2014	31/08/2019	100%
Setup of the Data quality tool	01/10/2014	31/08/2019	100%

4.2 Implementation of the functions according to the original consolidated TAP TSI Master Plan

The milestones for the TAP TSI consolidated Master Plan for the implementation of the individual functions of the TAP TSI are shown in Figure 5: TAP TSI Master Plan for the retail functions.

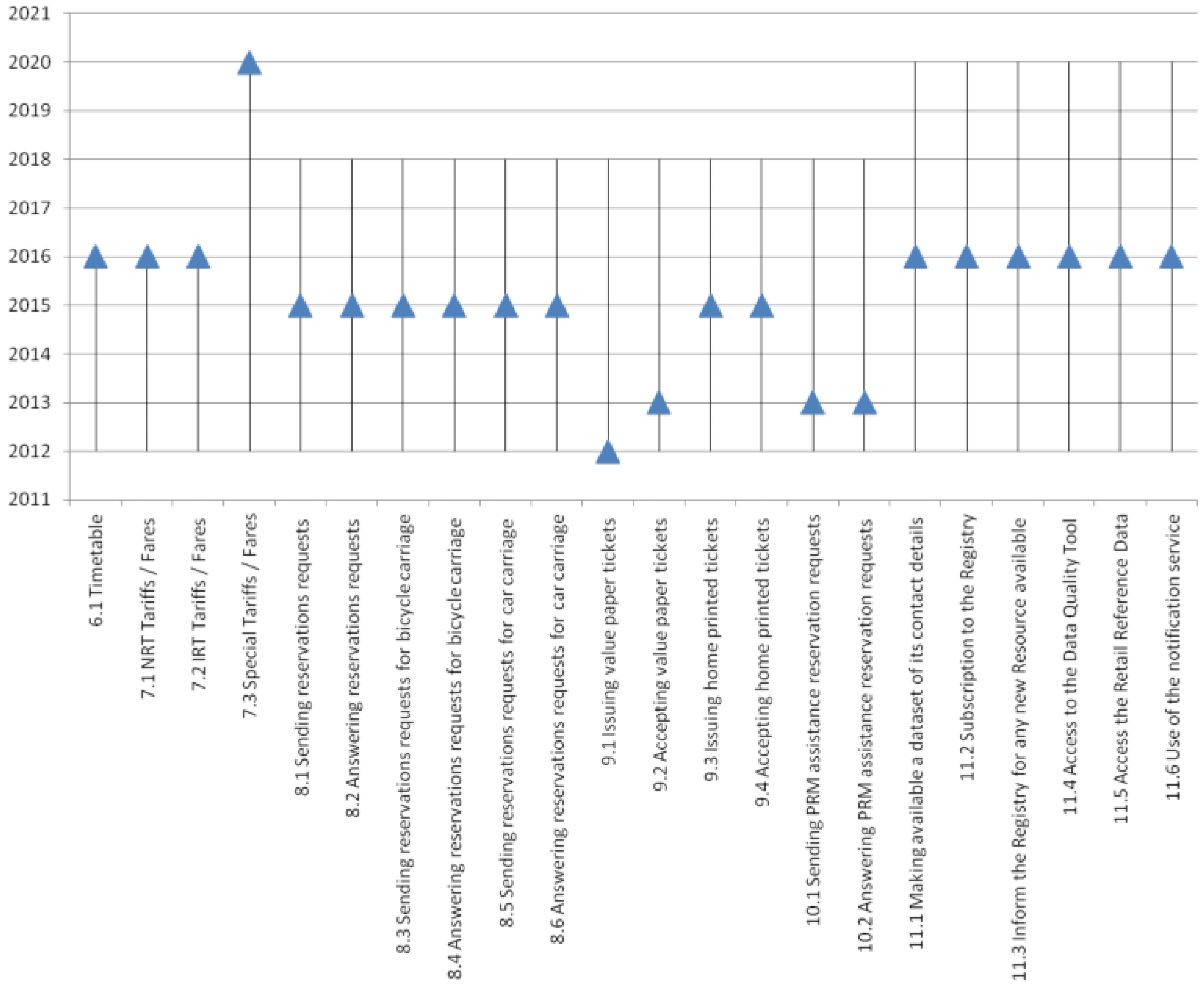


Figure 5: TAP TSI Master Plan for the retail functions

4.2.1 Process for the questionnaire

For the collection of the progress report for the implementation of the TAP TSI retail functions, ERA has drafted a questionnaire, based on the decisions in the TAP TSI co-operation group meeting from (9 March 2023). The calendar for the data collection and analysis has been agreed in this meeting as follows:

#	Step	Date
1	ERA will send the request to update PM‘s	30.09.2023
2	Update TAP TSI RU/TV PM list	04.11.2023
3	CSG send the questionnaire to ERA	N/A
4	ERA/JSG/CSG/ETTSA triggers reporting session	13.11.2023
5	Opening JSG/CSG tool for reporting	13.11.2023– 10.12.2023
6	Analysing data for report	January 2024
7	Preparing JSG/CSG report	February 2024
8	Harmonising analysis with ERA	t.b.c.
9	Approving report JSG	28.2.2024

10	Presenting TAP TSI implementation report at ERA co-operation group	07.03.2024
11	Publishing implementation report	t.b.c.

Table 7: Reporting schedule for TAP TSI basic parameters (10th reporting)

In the meeting of the TAP TSI co-operation group on 9 March 2023 it has been agreed to report about the following TAP TSI retail basic parameters as described in Table 4: TAP TSI retail functions of the 10th reporting session.

The reporting has been executed using the survey tool EUSurvey. The English questionnaire has been translated using machine translation tools into Bulgarian, Czech, Danish, Greek, Estonia, Finnish, Croatian, Latvian, Lithuanian, Dutch, Polish, Portuguese, Romanian, Slovakian, Slovenian, Swedish, Spanish, Hungarian, Italian and German.

The market shares of the railway undertakings were taken from the SCI Verkehr market report.

For the processing of the received data the following preparation procedure has been applied:

1. Some undertakings have reported their data as well for undertakings belonging to the same group: The reporting data of DB AG have been submitted for the undertakings S-Bahn Berlin GmbH, S-Bahn Hamburg, DB Regio AG, DB Fernverkehr AG, DB RegioNetz Verkehr GmbH, DB ZugBus Regionalverkehr Alb-Bodensee GmbH, S-Bahn Stuttgart, UBB Usedomer Bäderbahn GmbH.
   The data of the undertaking undertaking BeNEx GmbH have submitted for the following undertakings BeNEX GmbH, NBE nordbahn Eisenbahngesellschaft mbH & Co. KG, nordbahn Verkehrsgesellschaft Nord mbH, nordbahn Verkehrsgesellschaft Ost-West mbH, cantus Verkehrsgesellschaft mbHand agilis Verkehrsgesellschaft mbH & Co. KG.
2. For Switzerland the 8 biggest RU have reported their data in one single data set, as they use the same IT-systems. (The whole amount of RU's in Switzerland is 74).
3. Some undertakings reported to use equivalent UIC leaflets to fulfil some basic parameters. In these cases it has been assumed, that the corresponding ERA technical documents have been fulfilled.

The reporting campaign was held in November/December 2023. 52 companies submitted their replies to the report. The results of the reporting have been presented in the TAP TSI co-operation group meeting on 9 March 2024.

The report reflects the state of play for the implementation of the TAP TSI end of 12/2023.

4.2.2 Results of the reporting for the TAP TSI retail basic parameters to be implemented by railway undertakings

The following chapter shows the results of the analysis of the data reported by the railway undertakings concerning the implementation of the TAP TSI retail basic parameters.

This 10th reporting is using the weighting factor based on *passengerkm* to secure better view of the status of the TAP implementation across Europe. The weighting factor has been calculated through the 2021 public market share data per company in each country and the *passengerkm* per country (source of data: SCI Verkehr market report 2021). All reporting results for TAP TSI retail basic parameters are presented graphically through Chapter 4.2.2, considering both absolute number of companies and weighting factor (market share of companies according to *passengerkm*), shown in brackets in each graph.

If market share of responsive companies would be considered, then 60% of European market share is covered with this TAP implementation report, as shown at following diagram:

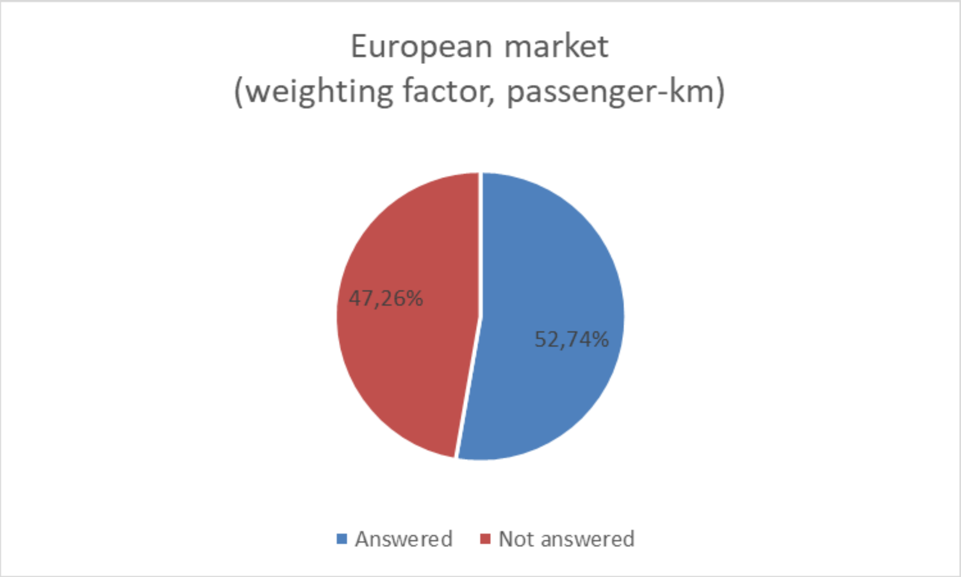


Figure 6: Reporting session 2023 participation per weighting factor (market shares according to passenger-km)

The following diagram shows the answer rate of the questionnaire.

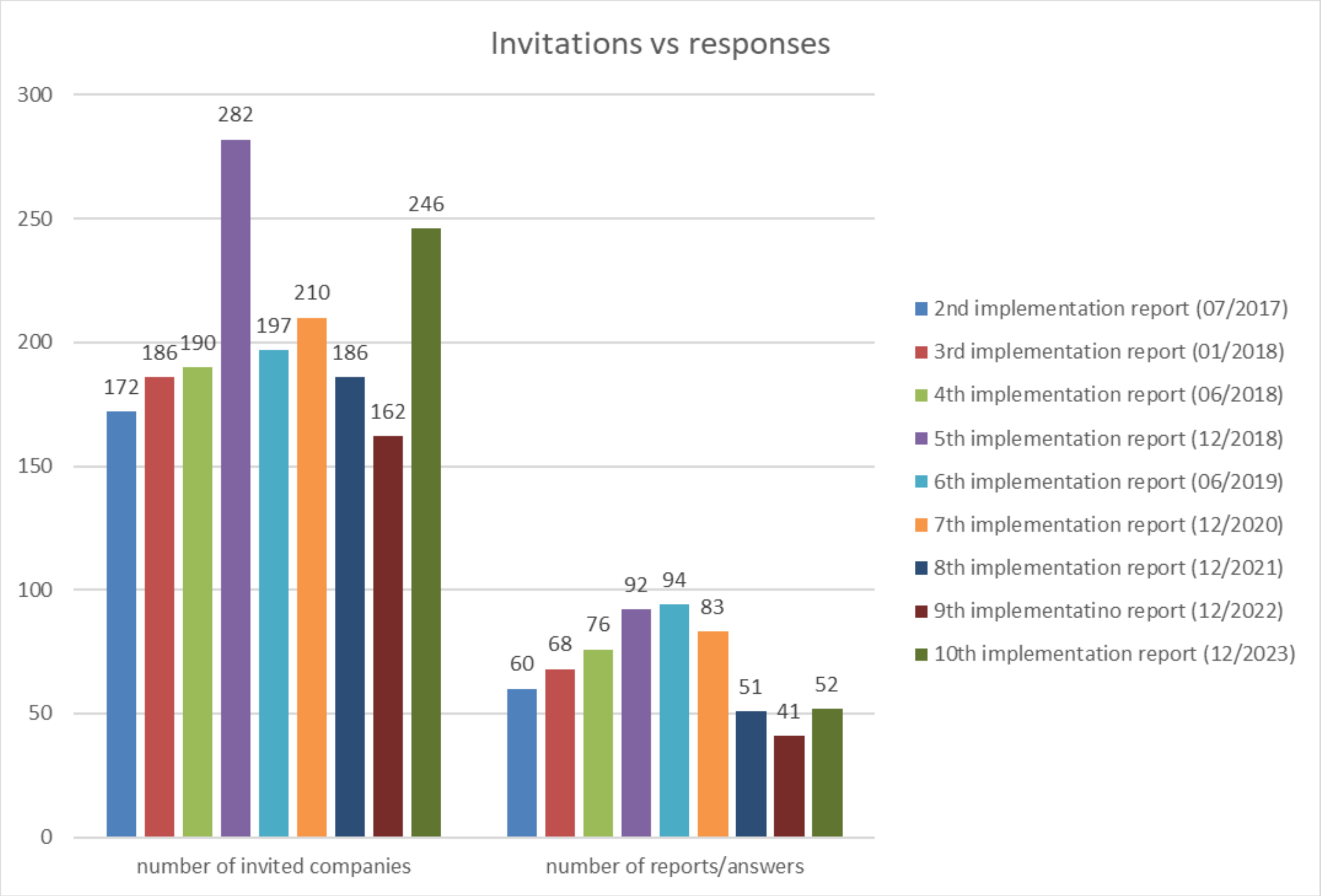


Figure 7: Number of invitations and responses per implementation report

The response rate, calculated as number of received reports in relation to the number of companies invited, is shown at the following diagram:

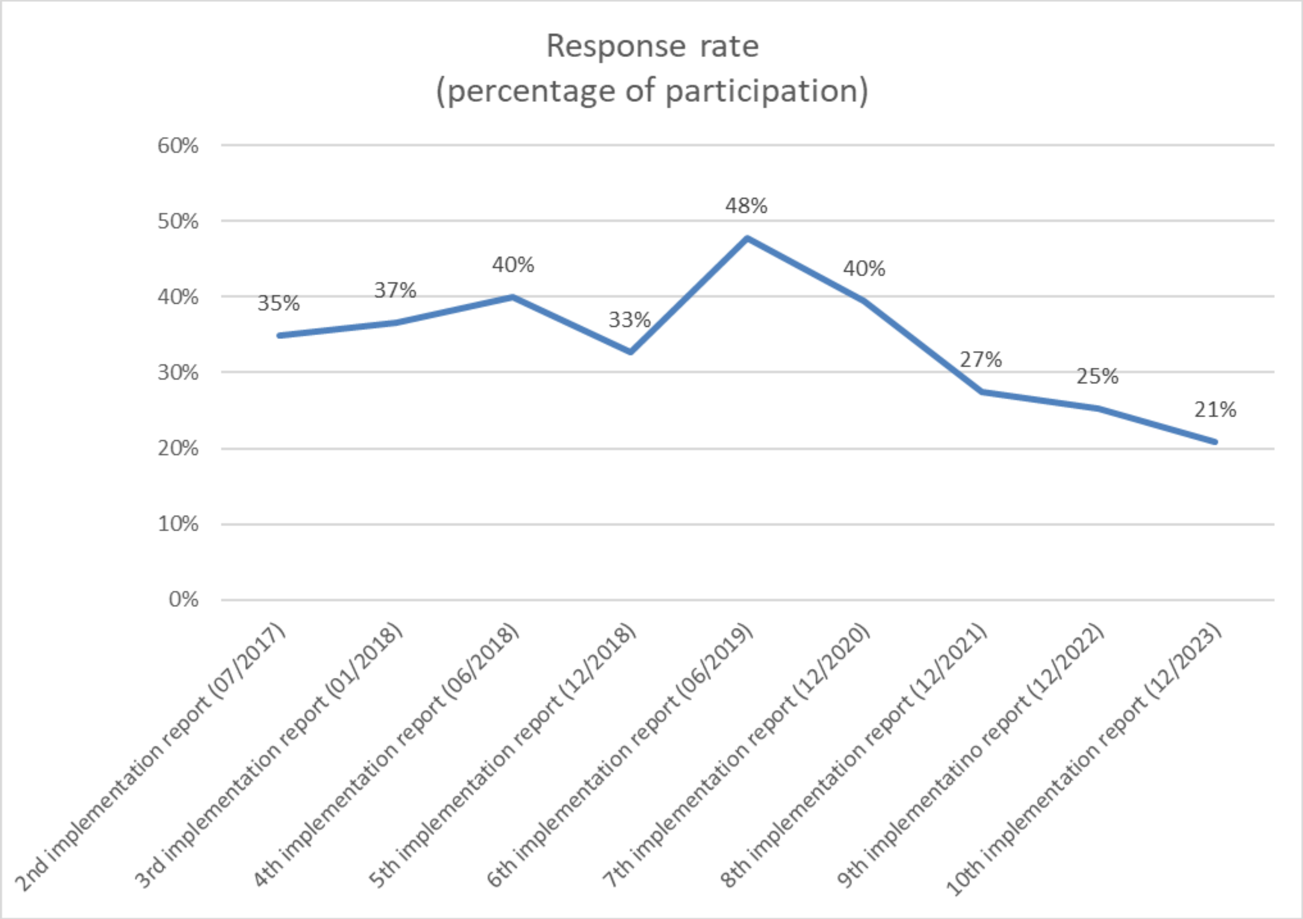


Figure 8: Evolution of response rate vs invited companies

Between 2nd and 6th reporting session the number of responses was slowly increasing by 8 per reporting session, similar as overall answer rate increased from 35% (2nd report) to 48% (6th report). Unfortunately for the 10th report the response rate has been further reduced to 21% mainly because the number of companies contacted for the report has been significantly increased.

The following diagram shows the distribution of answers concerning the request. The RUs from 16 countries (15 member states plus Switzerland plus two companies reporting for whole EU) have submitted their responses to the implementation progress of the TAP TSI retail basic parameters. The value for Europe stands for ticket vendors, being active on the whole market of the EU.

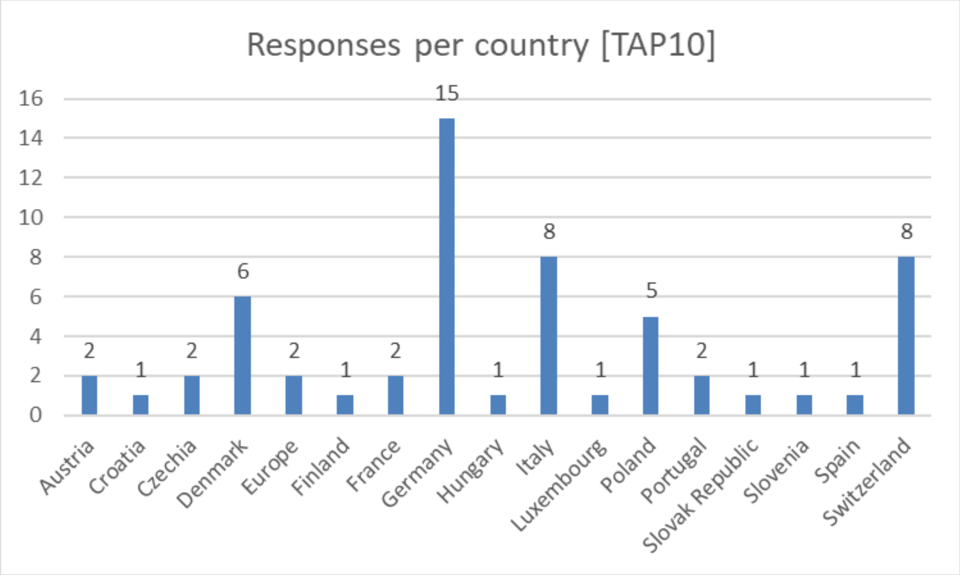


Figure 9: Number of responses per country

The following diagram shows the distribution of the invitations and the answers received per country (EU member states + Switzerland and Norway).

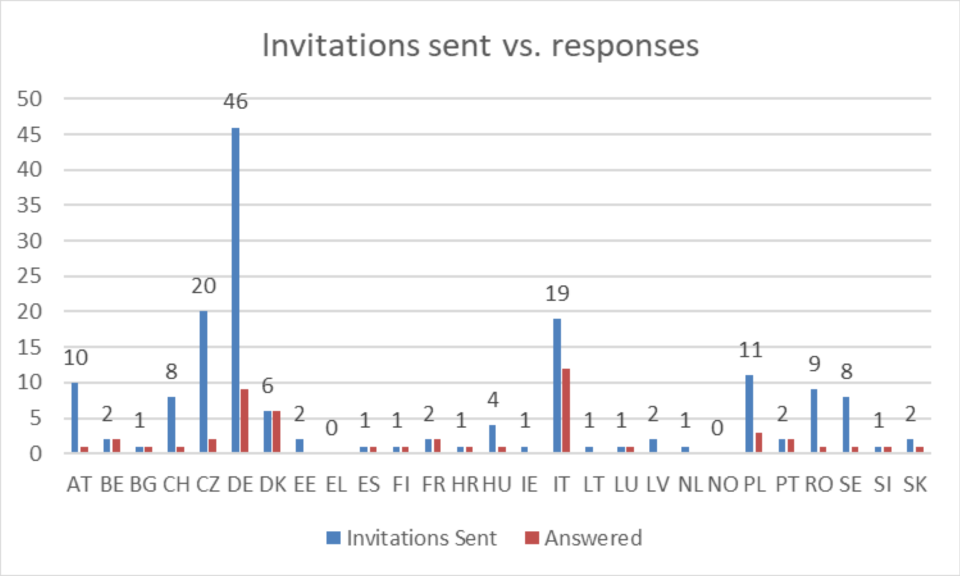
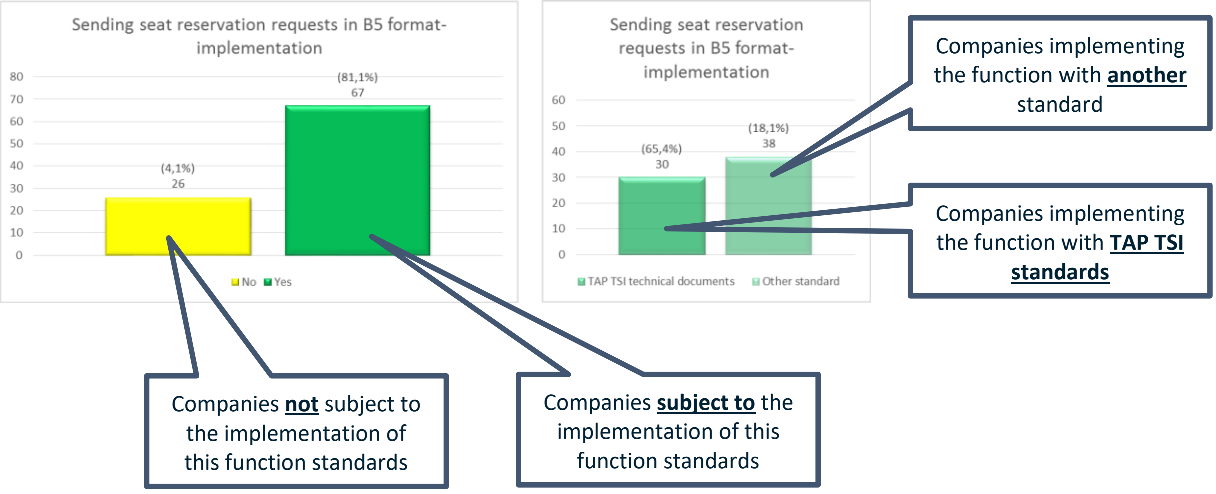


Figure 10 - Invitations and responses per country

Explanation of the diagrams about the implementation progress per function:

For the explanation of the implementation progress of the TAP TSI basic parameters, the same diagrams are used to make the results comparable. The values shown in the diagrams are explained in as follows:

The first diagram shows the companies subject to the implementation of a specific TAP TSI function and the standards used or planned to be used for the implementation.



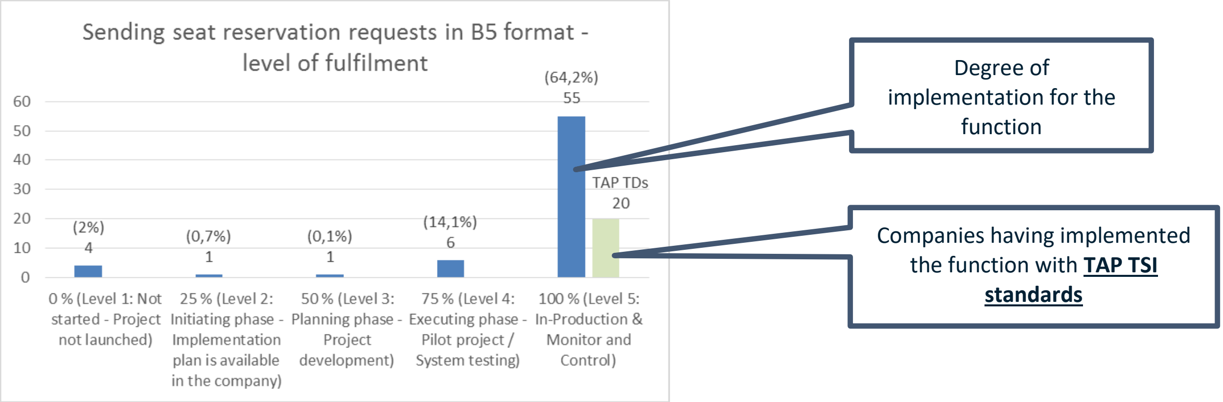
Companies implementing the function with **another** standard

Companies implementing the function with **TAP TSI standards**

Companies **not** subject to the implementation of this function standards

Companies **subject to** the implementation of this function standards

The second diagram shows the progress of the implementation of a specific function depending on the state of the implementation project. The number of completed implementations using TAP TSI technical documents is shown.



4.2.2.1 *Sending reservation requests from agreed RU`s and agreed 3rd parties in B5 format (TAP TSI basic parameter 4.2.9.1)*

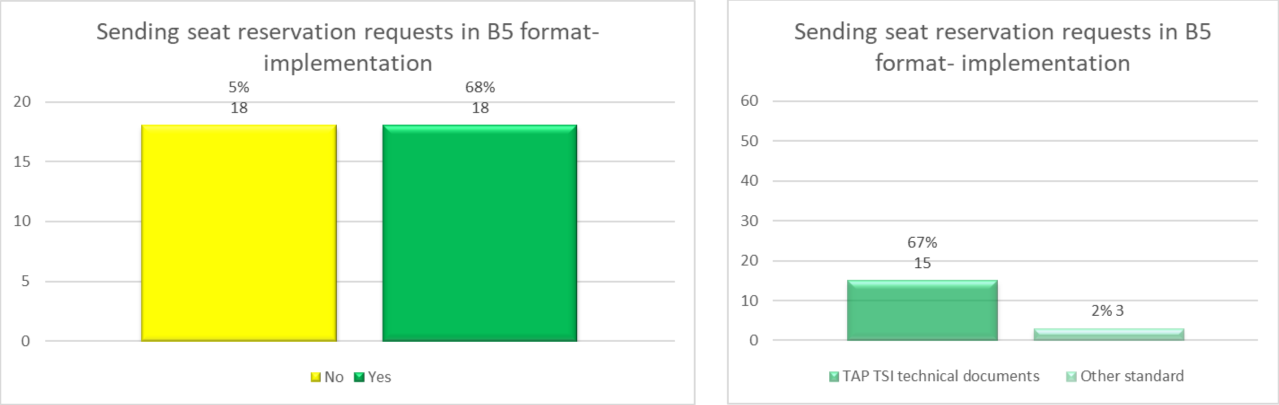


Figure 11: Sending seat reservation requests in B5 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor][3]

18 companies confirmed, that they are subject to implement this basic parameter. Companies not subject to the implementation of this basic parameter stated, that they either have no seat reservation system at all (e.g. for local traffic operation only) or they are using direct links to the systems of those other railway undertakings for seat reservation.

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[3] 1 RU declared implementation by using both TAP TSI technical documents and other standards.

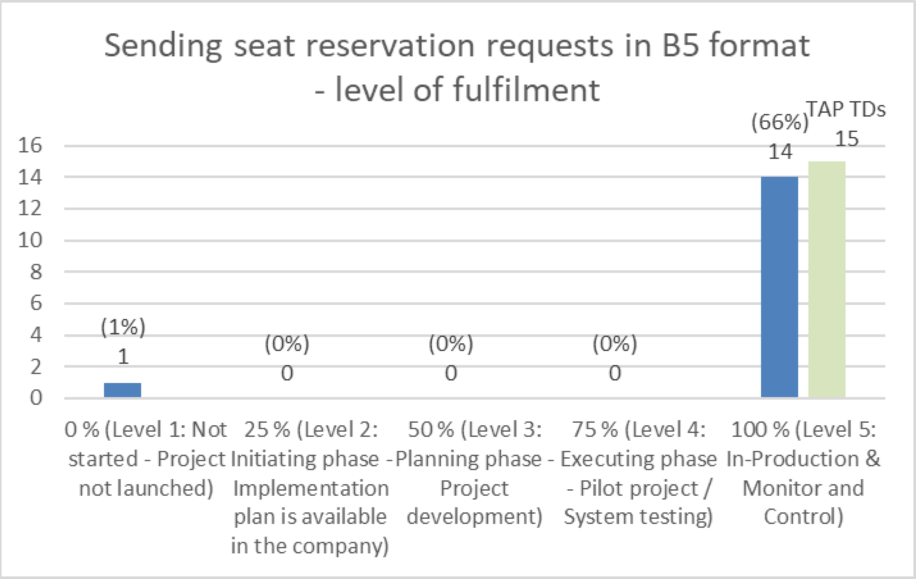

Figure 12: Sending seat reservation requests in B5 format – level of fulfilment, [number of responses % based on European passenger per km factor]

The implementation status of the function “Sending reservation requests” is low, considering number of companies. 14 European companies have fully implemented the function according to TAP TSI standards.

However, considering market shares of companies, the implementation level looks better than observing just absolute number of companies. 68% of European railway market declared to be subject of implementation and 67% are part of implementation process according to TAP TSI standards.

4.2.2.2 Answering reservation requests from agreed RU`s and agreed 3rd parties in B5 format (TAP TSI basic parameter 4.2.9.2)

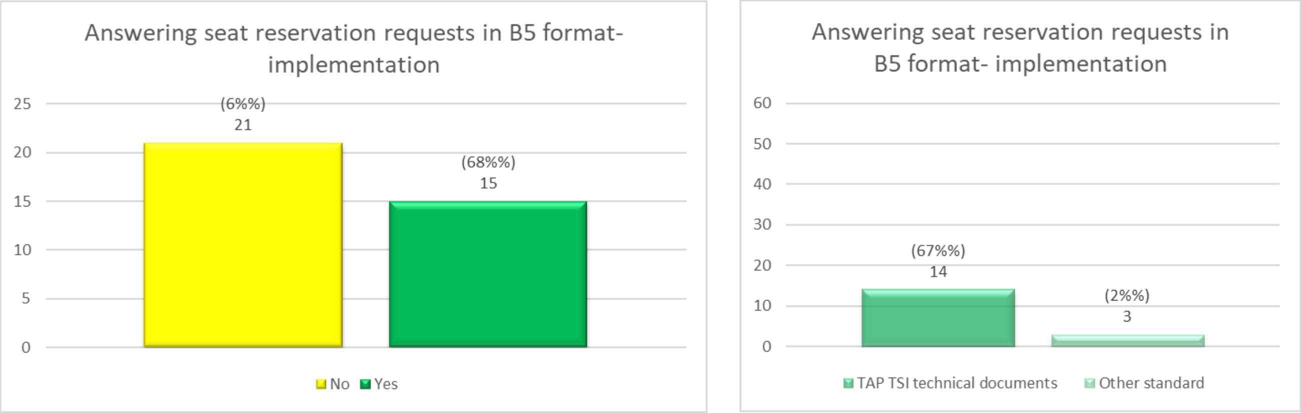

Figure 13: Answering seat reservation requests in B5 format: subject to the implementation (Y/N), [number of responses % based on European passenger per km factor]

23 companies reported that they are subject to implementation of this function. 22 out of them have implemented the function using TAP TSI standards.

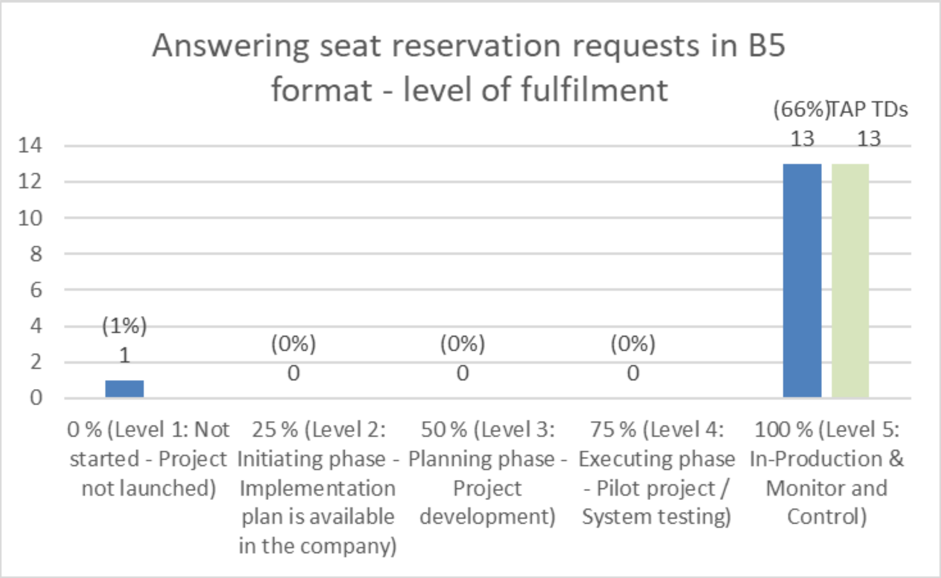

Figure 14: Answering seat reservation requests in B5 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function "Answering seat reservation requests" for those companies is low, considering the number of companies. 15 companies have reported that they are subject to the implementation this function and 13 have fully implemented this function according to TAP TSI technical documents.

Most of the other companies are not offering seat reservations in their trains and therefore do not implement the function to answer to reservation messages.

4.2.2.3 Sending reservation requests for bicycle carriage to agreed RU`s in B5 format (TAP TSI basic parameter 4.2.7.2.)

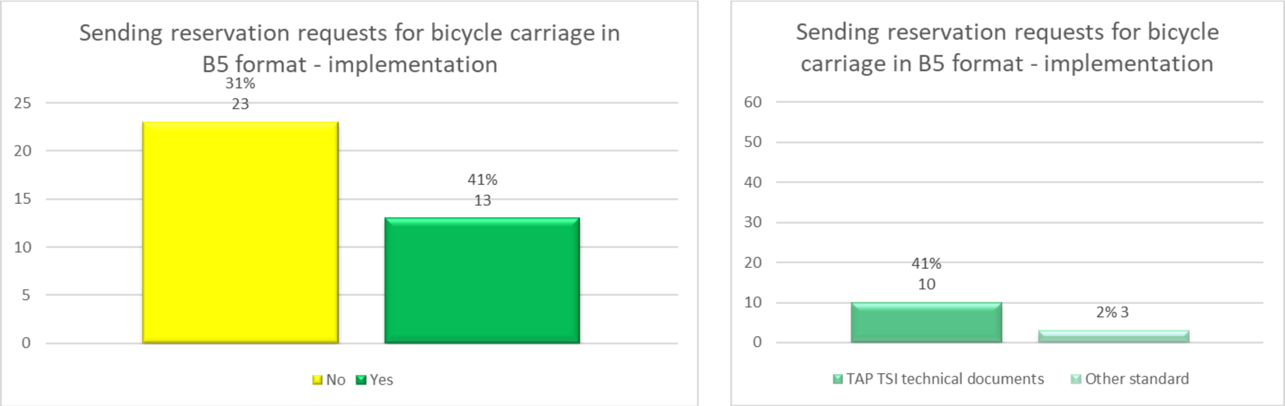

Figure 15: Sending reservation requests for bicycle carriage in B5 format: subject to the implementation (Y/N), [number of responses % based on European passenger per km factor]

13 companies confirmed that they are subject to implement this basic parameter. Companies not subject to the implementation of this basic parameter stated, that they either have no bicycle reservation system at all

(e.g. for local traffic operation only) or they are using direct links to the systems of those other railway undertakings for bicycle reservation.

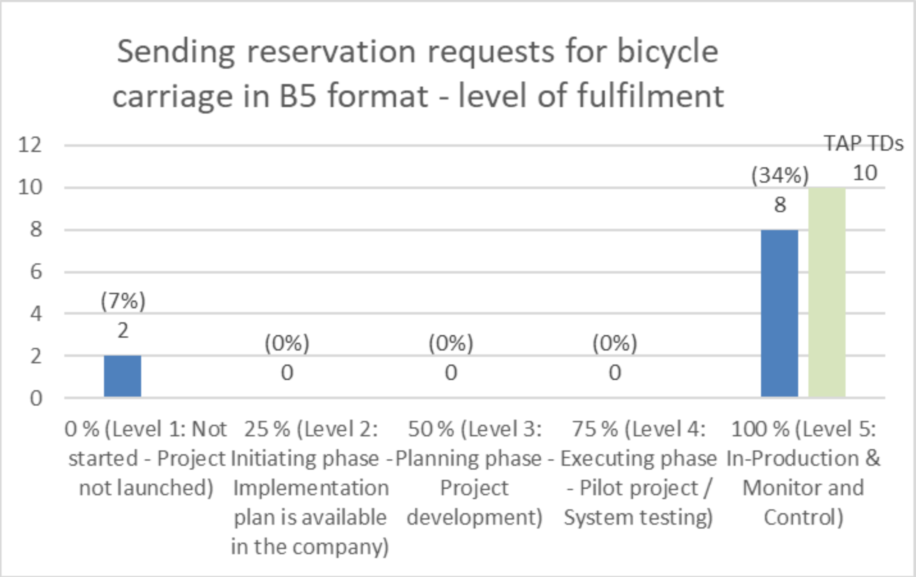

Figure 16: Sending reservation requests for bicycle carriage in B5 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

All 8 companies which reported full implementation of this function declared that they have fully implemented it in accordance to TAP TSI technical documents.

4.2.2.4 Answering reservation requests for bicycle carriage from agreed RU`s and agreed 3rd parties in B5 format (TAP TSI basic parameter 4.2.7.3.)

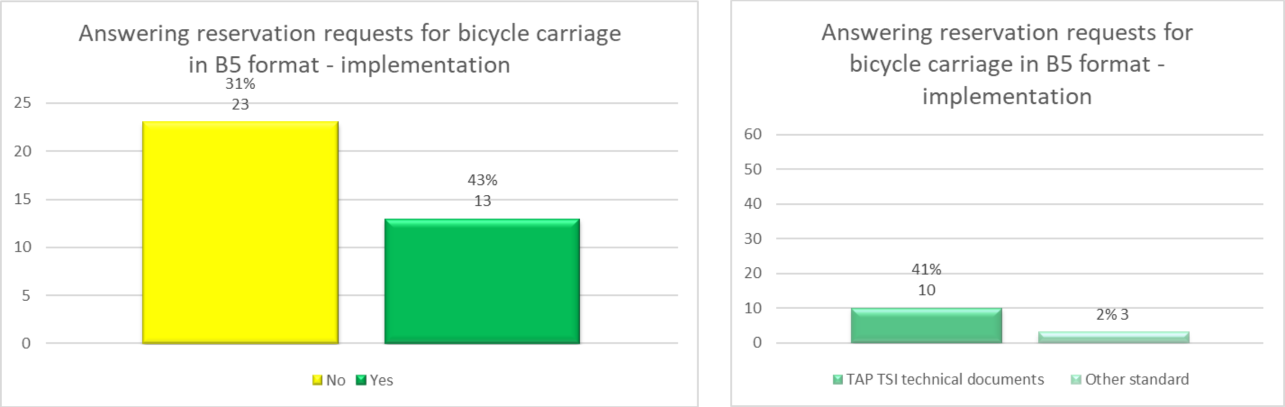

Figure 17: Answering reservation requests for bicycle carriage in B5 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

13 companies confirmed that they are subject to implement this basic parameter.
Companies not being subject to the implementation of this basic parameter stated, that they either have no bicycle reservation system at all (e.g. for local traffic operation only) or they are using direct links to the systems of those other railway undertakings for bicycle reservation.

Figure 18: Answering reservation requests for bicycle carriage in B5 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

Although only 22 companies have reported that they are subject to the implementation of this function, the implementation level from perspective of market shares looks better than observing just absolute number of companies.

Most of the other companies are not offering bicycle reservations in their trains and do not implement the function to answer to reservation messages.

4.2.2.5 Sending reservation requests for car carriage to agreed RU`s in B5 format (TAP TSI basic parameter 4.2.8.2.)

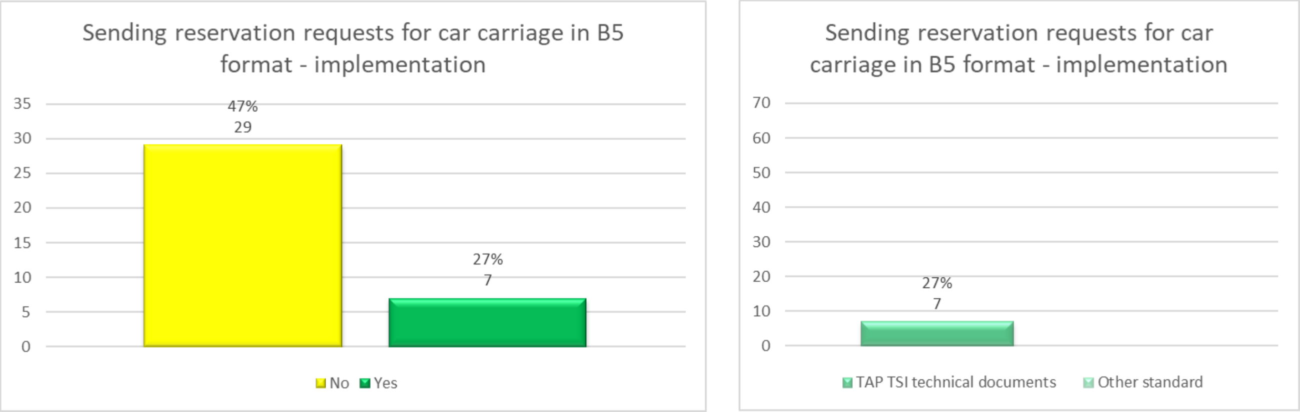

Figure 19: Sending reservation requests for car carriage in B5 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

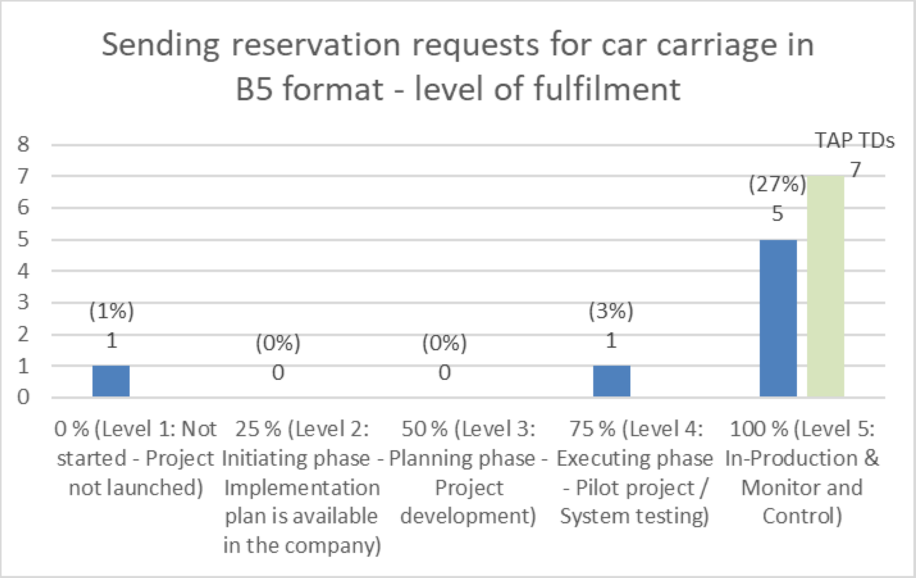

Figure 20: Sending reservation requests for car carriage in B5 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function "Sending reservation requests for car carriage" is low, considering number of companies. Considering market shares of companies, 27% of European railway market declared to be subject of implementation.

Most of the other companies are not offering car reservations for their trains at all (e.g. no operation of car-carrying trains, regional trains only) and have not implemented a reservation system including the reservation request for cars in their distribution systems.

4.2.2.6 Answering reservation requests for car carriage from agreed RU`s and agreed 3rd parties in B5 format (TAP TSI basic parameter 4.2.8.3.)

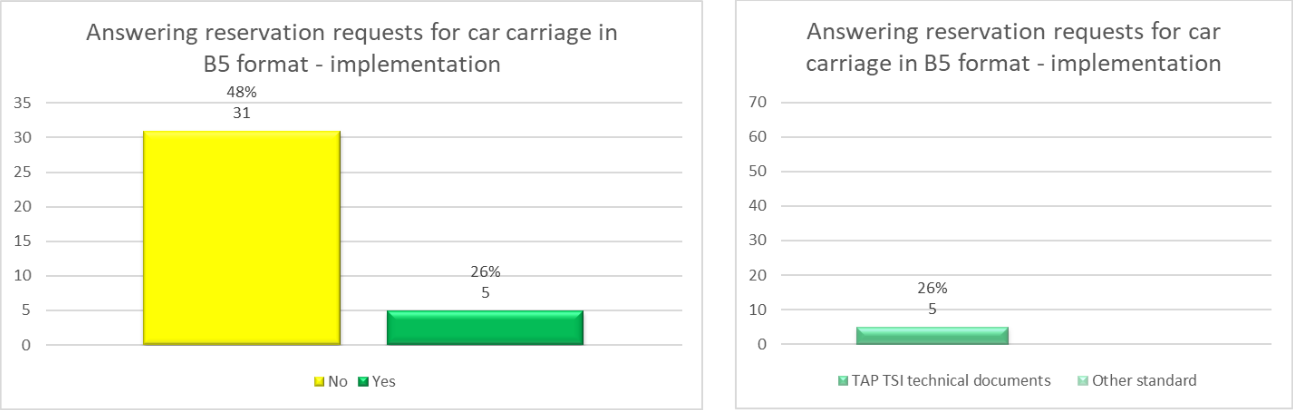

Figure 21: Answering reservation requests for car carriage in B5 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

Only 5 companies reported to be subject to implementation of this basic parameter, where all of them are using TAP TSI standards.

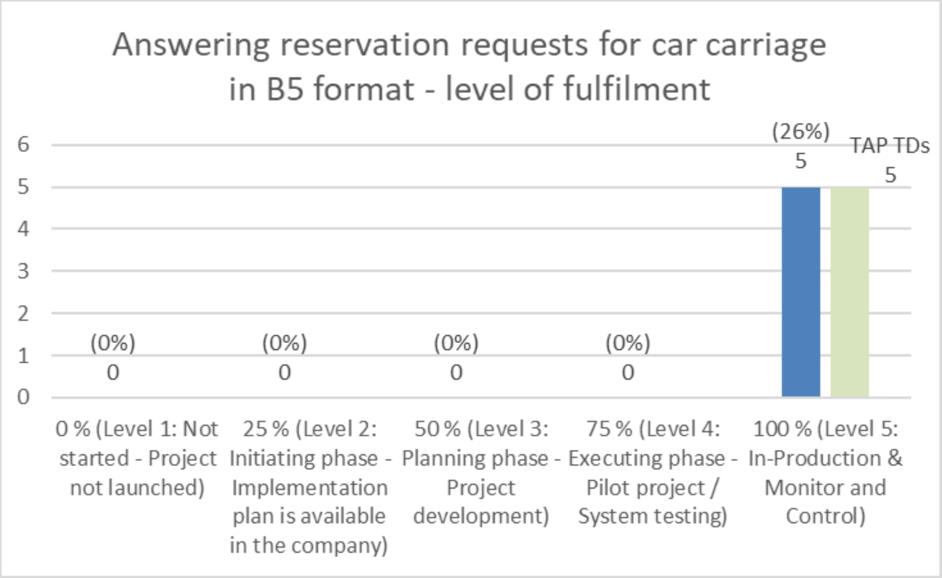

Figure 22: Answering reservation requests for car carriage in B5 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function "Answering reservation requests for car carriage" is low, considering number of companies. Considering market shares of companies, 26% of European railway market declared to be subject of implementation and 26% are part of implementation process according to TAP TSI standards. This function is fully implemented by 5 companies. Most of the other companies are not offering car carriage reservations in their trains and do not implement the function to answer to reservation messages.

4.2.2.7 *Issuing value paper tickets for international and foreign sales in B6 format (TAP TSI basic parameter 4.2.11.1.)*

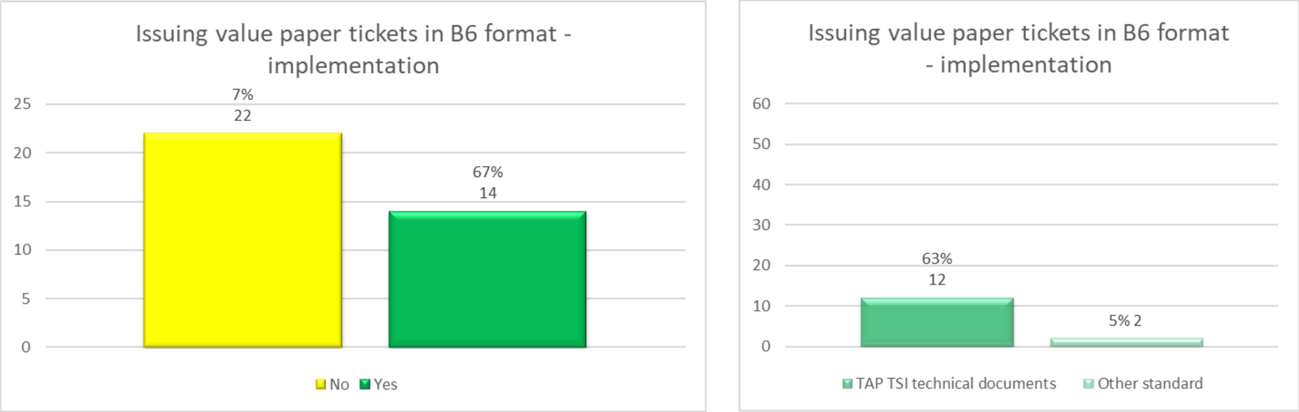

Figure 23: Issuing value paper tickets in B6 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

14 companies reported they are subject to the implementation of this basic parameter. 12 of these companies are using TAP TSI technical documents to issue value paper tickets.

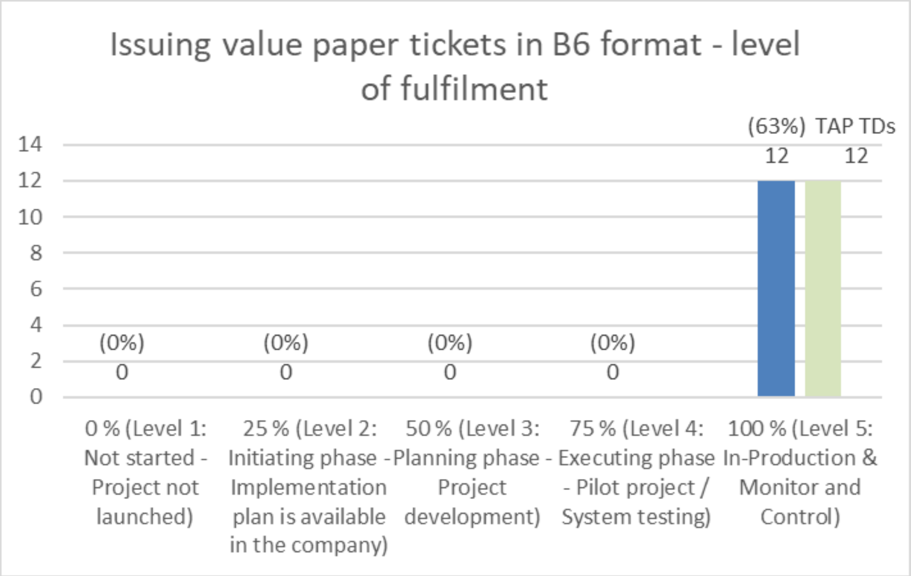

Figure 24: Issuing value paper tickets in B6 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function “Issuing value paper tickets for international and foreign sales in B6 format” is low, considering the absolute number of companies. However, considering the market shares of companies, the implementation level looks better as 67% of European railway market declared to be subject of implementation and 63% are part of implementation process according to TAP TSI standards.

4.2.2.8 Accepting value paper tickets for international and foreign sales in B6 format (TAP TSI basic parameter 4.2.11.1.)

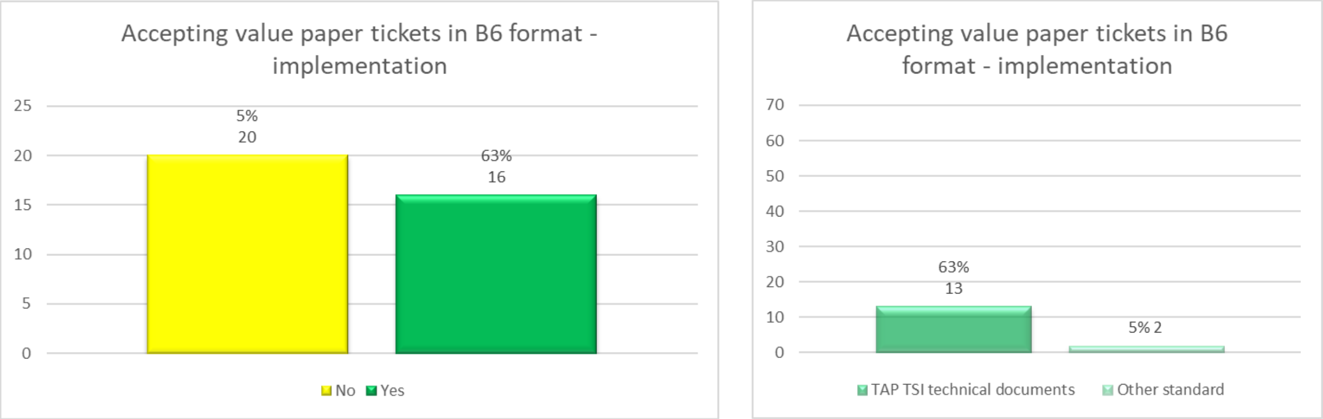

Figure 25: Accepting value paper tickets in B6 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

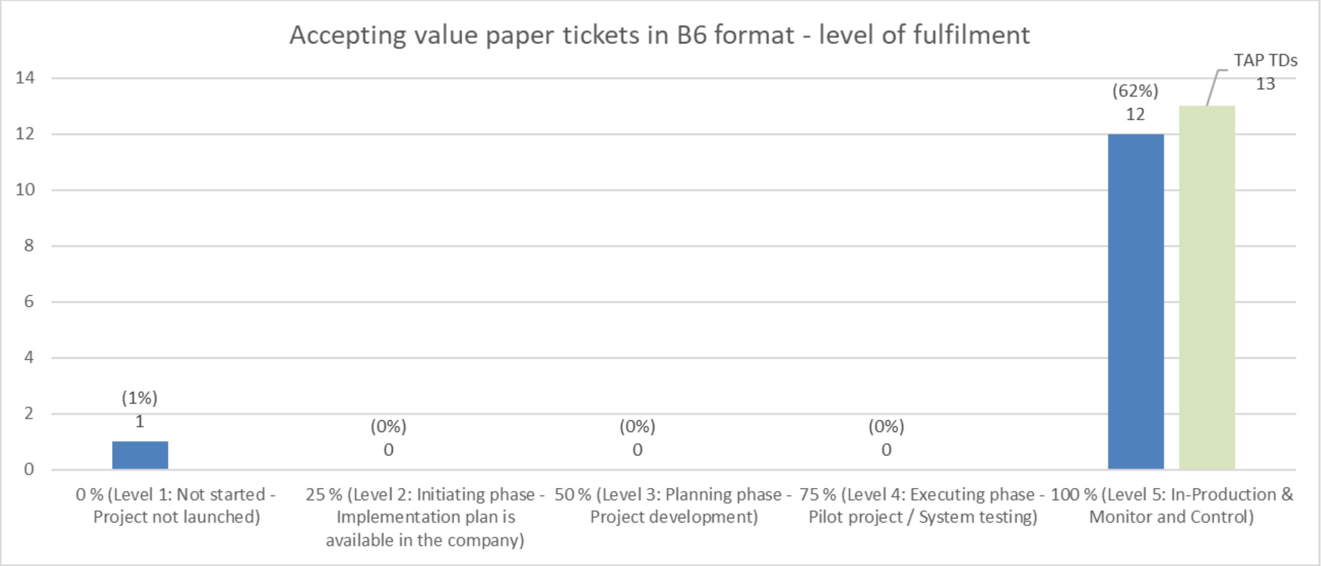

Figure 26: Accepting value paper tickets in B6 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

4.2.2.9 Issuing home printed tickets for international and foreign sales in B11/B12 format (TAP TSI basic parameter 4.2.11.2.)

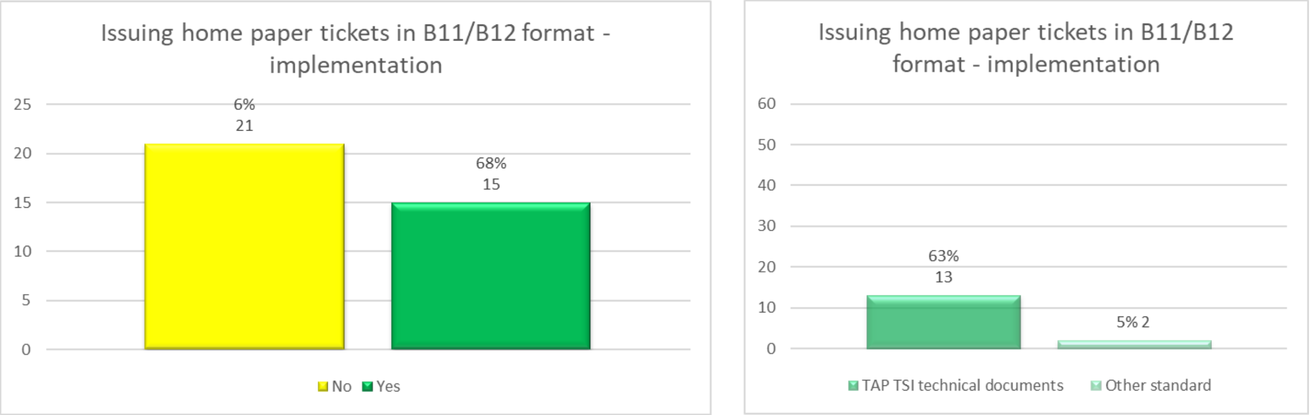

Figure 27: Issuing home paper tickets in B11/B12 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor][4]

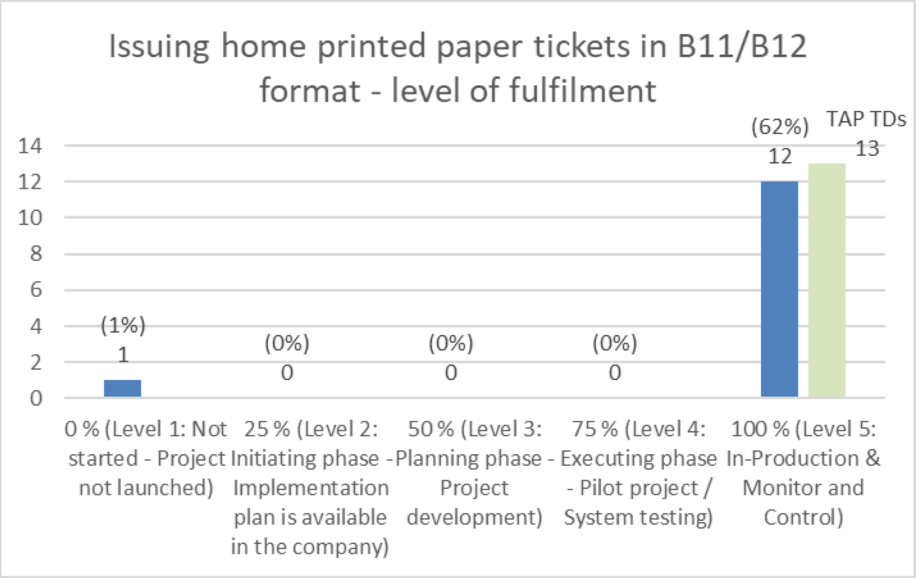

Figure 28: Issuing home paper tickets in B7/B11 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function “Issuing home printed tickets for international and foreign sales in B11/B12 format” is low, considering the overall number of companies. 68% of European railway market declared to be subject of implementation and 63% are part of implementation process according to TAP TSI standards.

4.2.2.10 Accepting home printed paper tickets for international and foreign sales in B11/B12 format (TAP TSI basic parameter 4.2.11.2.)

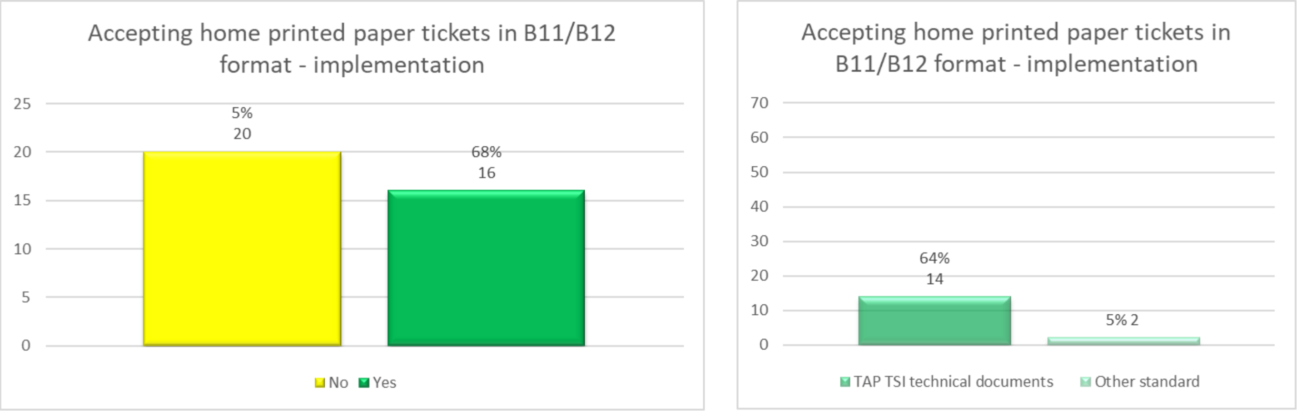

Figure 29: Accepting home paper tickets in B11/B12 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

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[4] 1 RU declared implementation by using both TAP TSI technical documents and other standards.

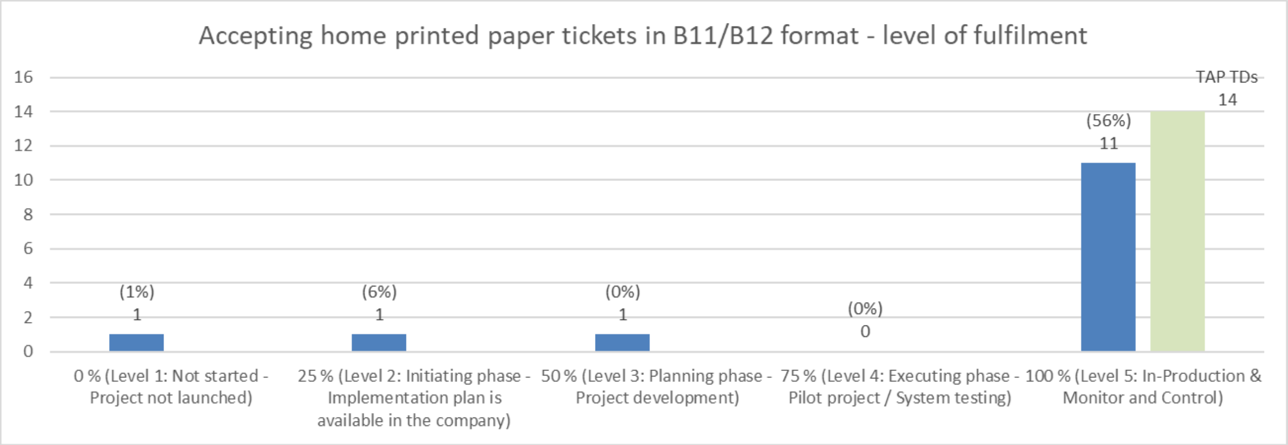

Figure 30: Accepting home printed paper tickets in B11/B12 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The implementation status of the function “Accepting home printed tickets for international and foreign sales in B11/B12 format” is good, considering the number of RUs being subject to implementation of this function according to TAP TSI documents and according to level of fulfilment. Considering the market shares of companies, the implementation level analysis showed that 68% of European railway market declared to be subject of implementation and 64% are part of implementation process according to TAP TSI standards.
Most of the RUs which declared not to be subject of implementation are not accepting home printed tickets. However, the implementation of the acceptance of those tickets has to be part of a commercial agreement between the parties.

4.2.2.11 Sending PRM assistance reservation requests via IT communication to agreed RU`s, IM's and SM's in B10 format (TAP TSI basic parameter 4.2.6.2.)

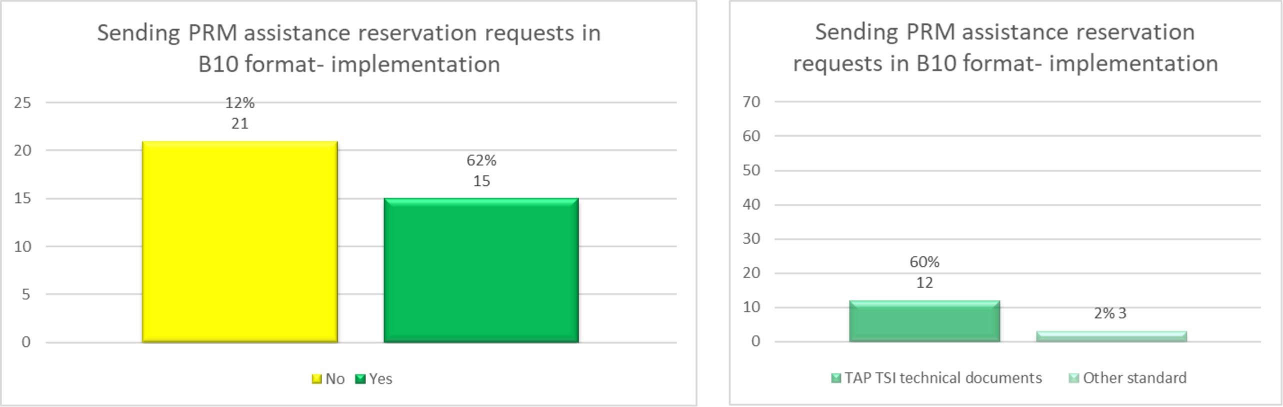

Figure 31: Sending PRM assistance reservation requests in B10 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

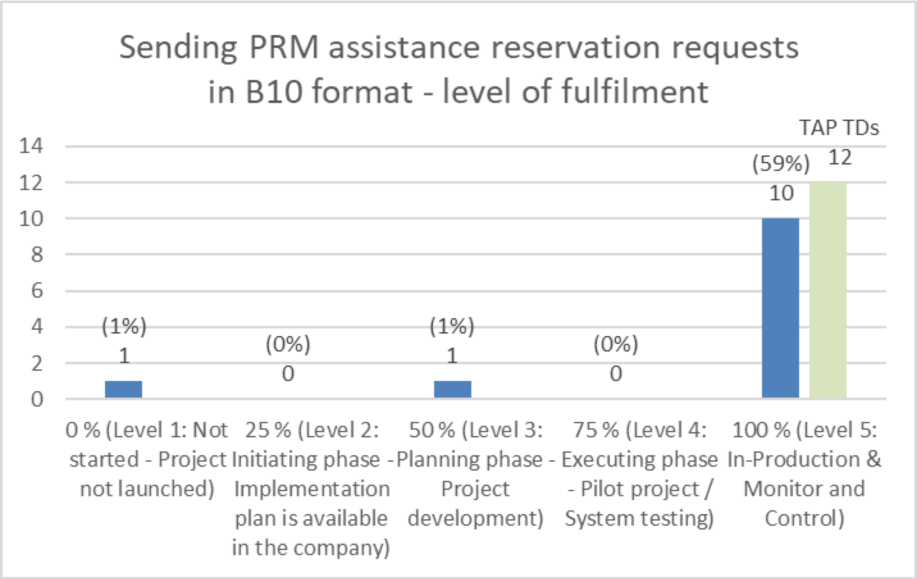

Figure 32: Sending PRM assistance reservation requests in B10 format: level of fulfilment, [number of responses (% based on European passenger per km factor]

The function “Sending PRM assistance reservation requests via IT communication to agreed RU`s, IM's and SM's in B10 format” has been fully implemented by 10 companies (59% of European market).

62% of European railway market declared to be subject of implementation and 60% are part of implementation process according to TAP TSI standards.

4.2.2.12 Answering PRM assistance reservation requests via IT-communication from agreed RU`s and agreed 3rd parties in B10 format (TAP TSI basic parameter 4.2.3.)

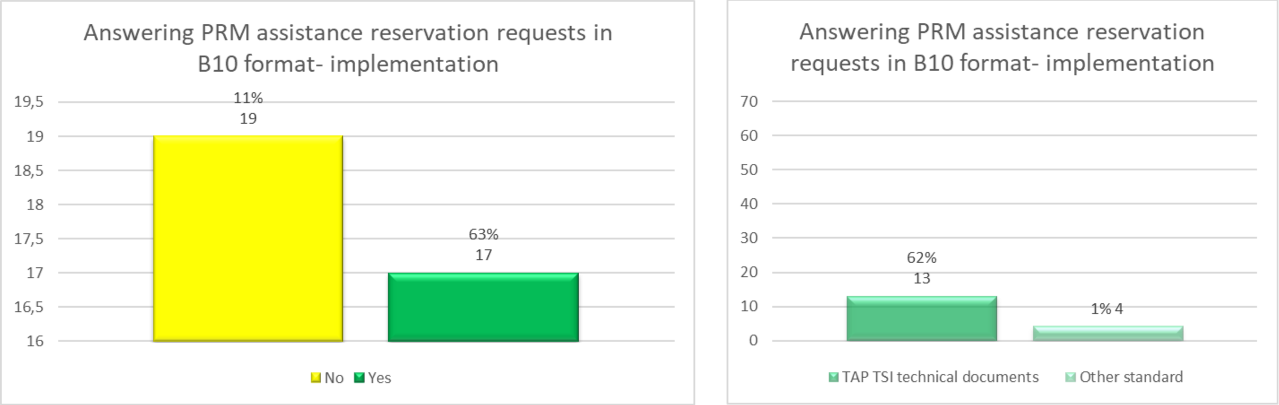

Figure 33: Answering PRM assistance reservation requests in B10 format: subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

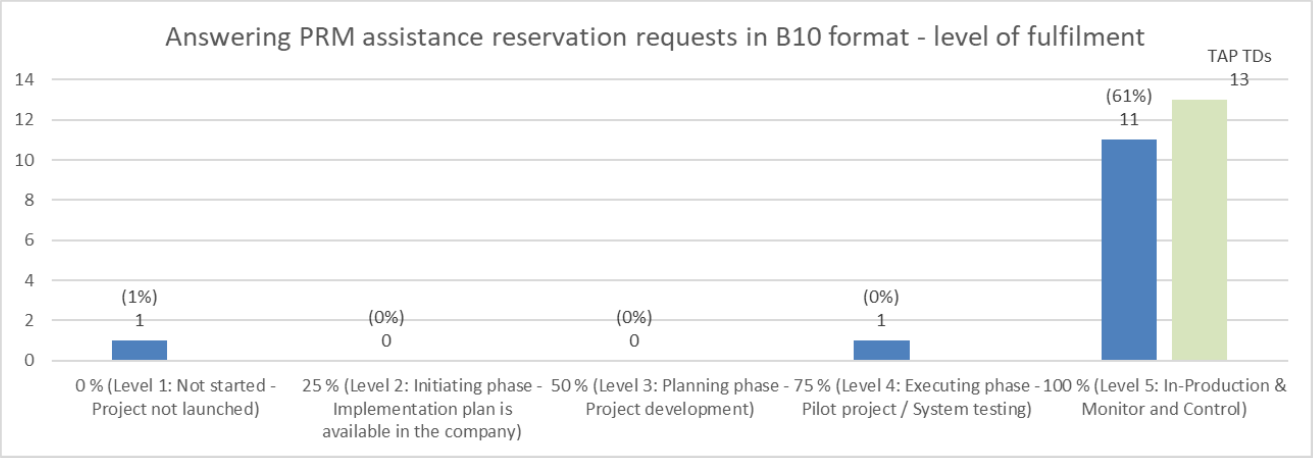

Figure 34: Answering PRM assistance reservation requests in B10 format – level of fulfilment, [number of responses (% based on European passenger per km factor]

The function “Answering PRM assistance reservation requests via IT communication to agreed RU`s, IM's and SM's in B10 format” has been fully implemented by 11 companies (61% of European market).

63% of European railway market declared to be subject of implementation and 62% are part of implementation process according to TAP TSI standards.

4.2.2.13 NRT tariffs/fares (TAP TSI basic parameter 4.2.2)

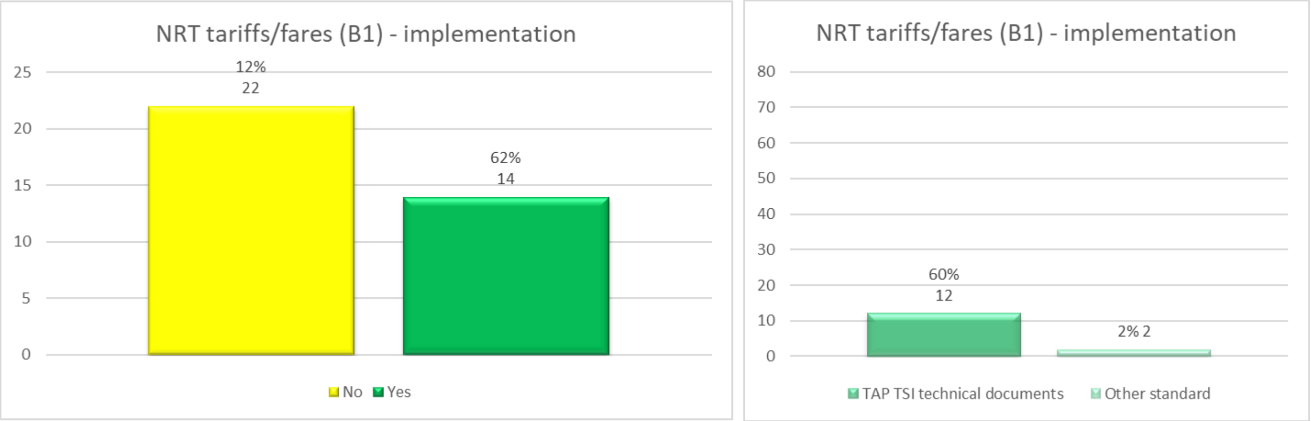

Figure 35: NRT tariffs/fares (B1): subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor]

14 companies are subject to the exchange of data for the NRT fares. 12 are using the TAP TSI standards and 3 other standards. It has to be elaborated, which standards are used as ‘other standards’.

Considering market shares of companies, 62% of the European railway market declared to be subject of implementation and 60% are part of implementation process according to TAP TSI standards.

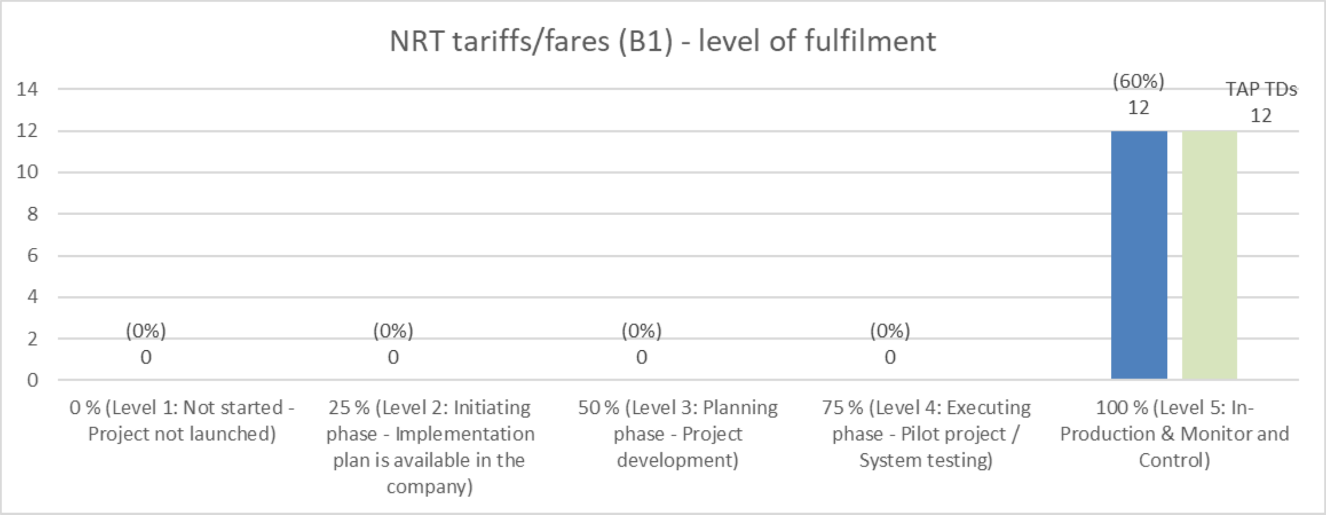

Figure 36: NRT tariffs/fares (B1) – level of fulfilment,
[number of responses (% based on European passenger per km factor]

4.2.2.14 IRT tariffs/fares (TAP TSI basic parameter 4.2.2)

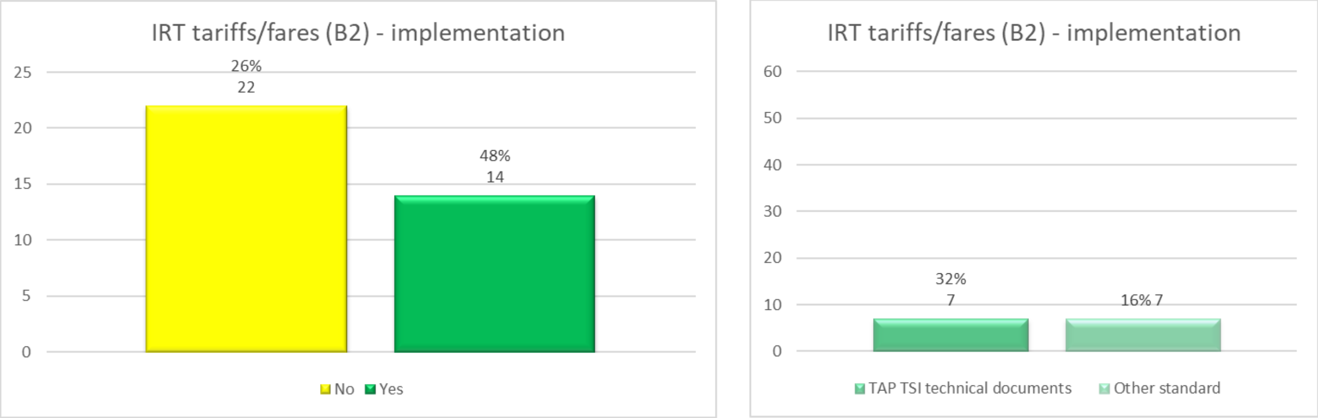

Figure 37: IRT tariffs/fares (B2): subject to the implementation (Y/N),
[number of responses (% based on European passenger per km factor]

14 companies are subject to the exchange of data for the IRT fares. 7 are using the TAP TSI standards and 6 other standards. Considering the market shares of companies, 48% of European railway market declared to be subject of implementation and 32% are part of implementation process according to TAP TSI standards.

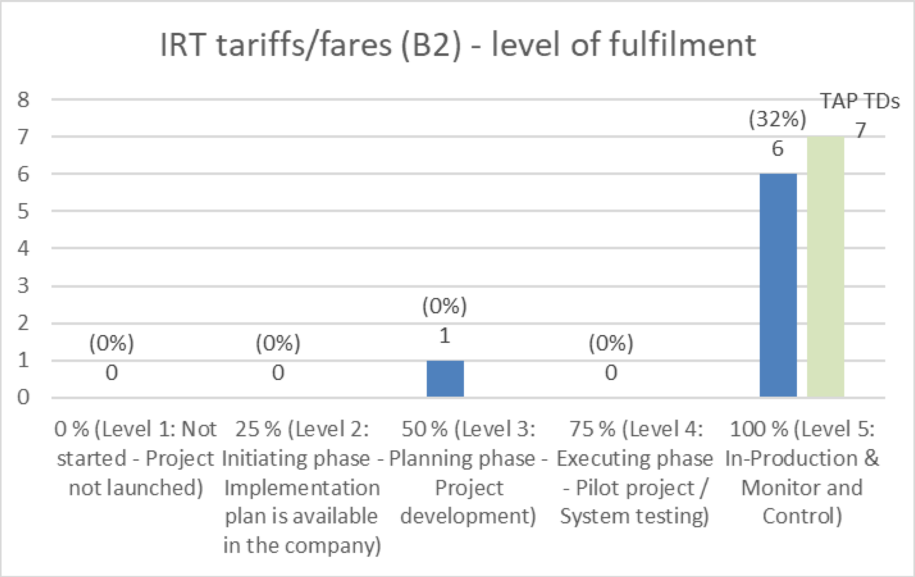

Figure 38: IRT tariffs/fares (B2) – level of fulfilment,
[number of responses (% based on European passenger per km factor]

4.2.2.15 Special tariffs/fares (TAP TSI basic parameter 4.2.2)

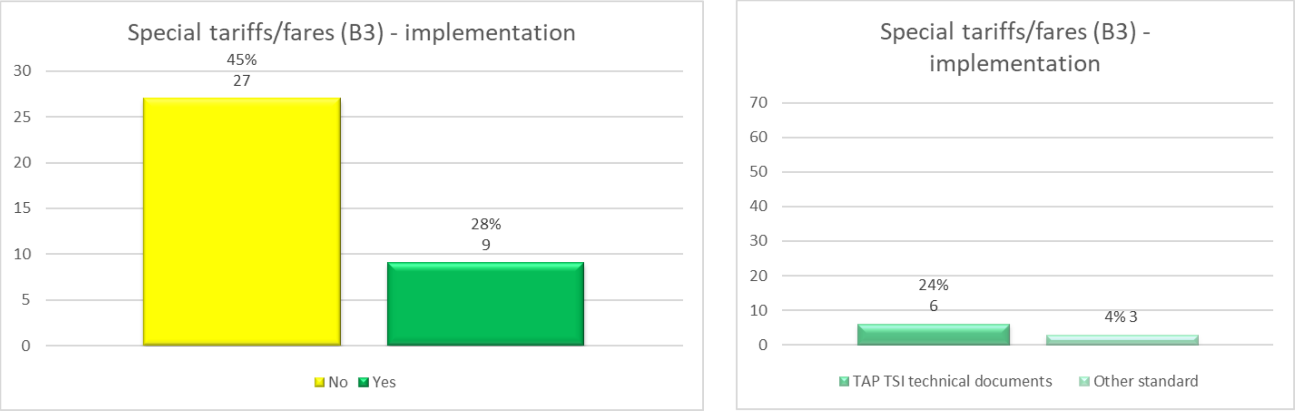

Figure 39: Special tariffs/fares (B3): subject to the implementation (Y/N),
[number of responses (% based on European passenger per km factor]

According to the TAP TSI master plan, the implementation of this function was foreseen in 2021. According to the reported figures, 9 railway undertakings reported to be subject of implementation of this function – 6 according to TAP TSI documents and 3 according to other standards. 27 companies reported they are not subject of implementation of this function.

Considering the market shares of companies, the implementation level analysis showed that 28% of European railway market declared to be subject of implementation and 24% are part of implementation process according to TAP TSI standards.

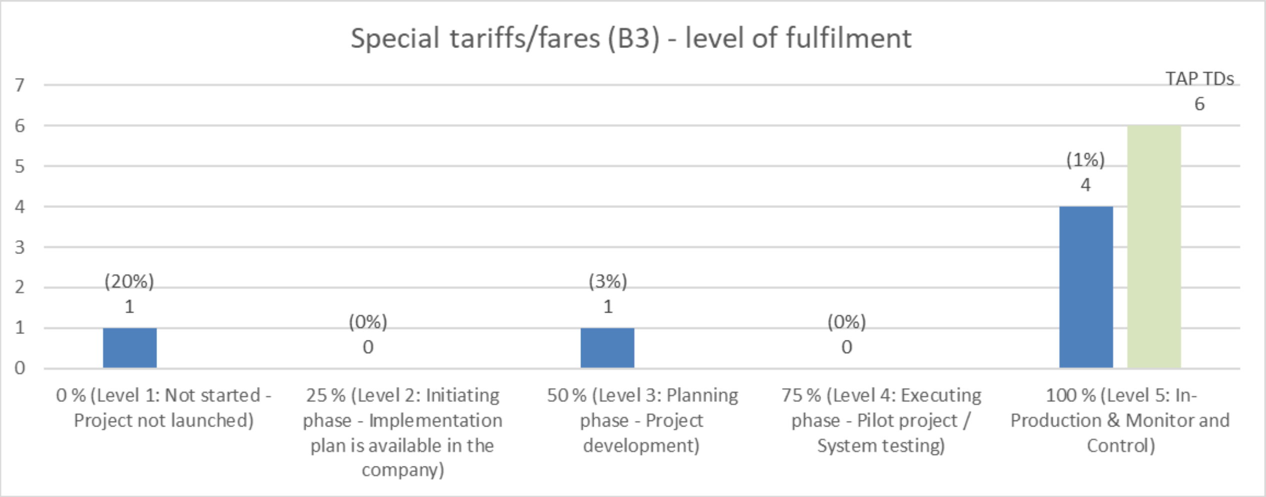

Figure 40: Special tariffs/fares (B3): level of fulfilment, [number of responses (% based on European passenger per km factor]

The main problems of the implementation of the TAP TSI basic parameter "publication of special tariffs/fares" are classified as 'other', out of possible options offered by the reporting questionnaire. Also, 2 RUs declared they don't see benefits in implementation of this function.

4.2.2.16 Timetables (TAP TSI basic parameter 4.2.1)

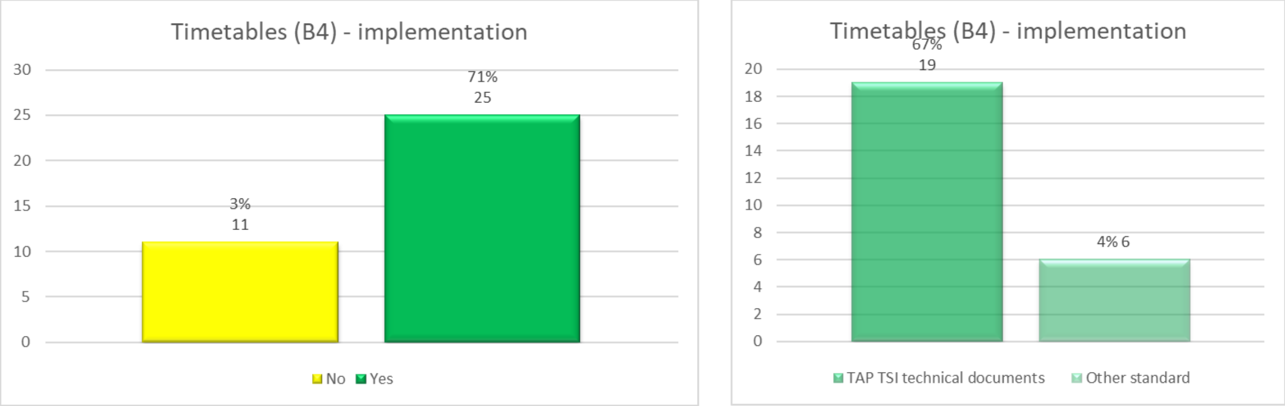

Figure 41: Timetables (B4): subject to the implementation (Y/N), [number of responses (% based on European passenger per km factor][5]

A great majority of the reporting companies stated that they are subject to implementation of the basic parameter to provide TAP TSI timetable data. 19 of them are using the TAP TSI standards and only 6 their own specifications.

Considering the market shares of companies, the implementation level also looks good as 71% of European railway market declared to be subject of implementation and 67% are part of implementation process according to TAP TSI standards.

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[5] 33 RUs (14% of market) declared implementation by using both TAP TSI technical documents and other standards.

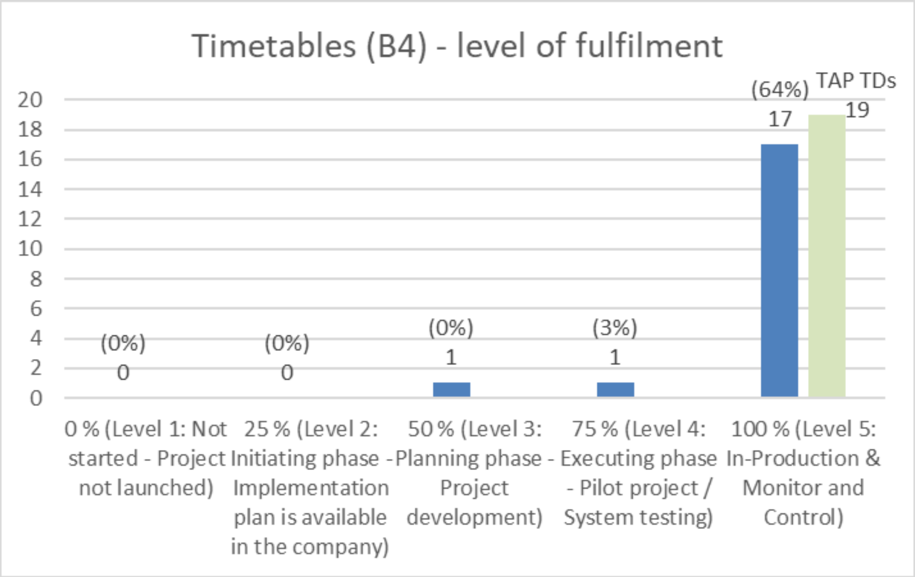

Figure 42: Timetables (B4) – level of fulfilment,
[number of responses (% based on European passenger per km factor]

The implementation progress of the timetable data provision by the railway undertakings is good. 19 railway undertakings confirmed to be already in production and 2 confirmed to be in the system testing phase.

The main declared problems of the implementation of the TAP TSI basic parameter “publication of timetable data” are dependency on other reservation systems and technical limitations.

4.2.2.17 Common sector tools

The usage of common sector tools, used by the railway undertakings, has been analysed in this report. The amount of companies and the European market share of the users of these tools is shown in the table below.

Common sector tool	*Companies*	*Market share*
Merits (UIC) Usage	21	70%
PRM ABT (Assistance Booking Tool) (UIC) Usage	9	62%
PRM Booking function	9	62%
OSDM Offline	11	61%

4.2.2.18 Delivery of timetable data, tariff data to TSGA

This question concerning the implementation of the functions for TSGA has been used in the questionnaire for the first time. The question has been raised to the railway undertakings, to collect information about the usage of TSGA to deliver the data for the access by 3rd parties.

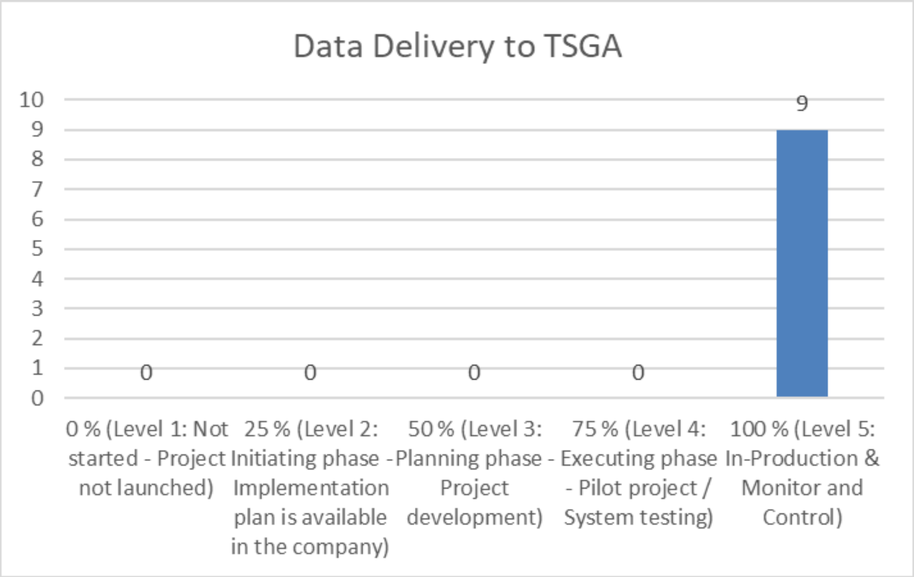

Figure 43 - Implementation of data delivery to TSGA

The Figure 43 - Implementation of data delivery to TSGA shows the number of the implementing companies per member state delivering data to TSGA. In some member states one leading company deals with the data provision to TSGA, such as in DK and DE.

4.2.2.19 Registration at TSGA

This question concerning the implementation of the functions for TSGA has been used in the questionnaire for the first time. The question has been raised to the railway undertakings and ticket vendors, if they have been registered at TSGA to receive data from other railway undertakings.

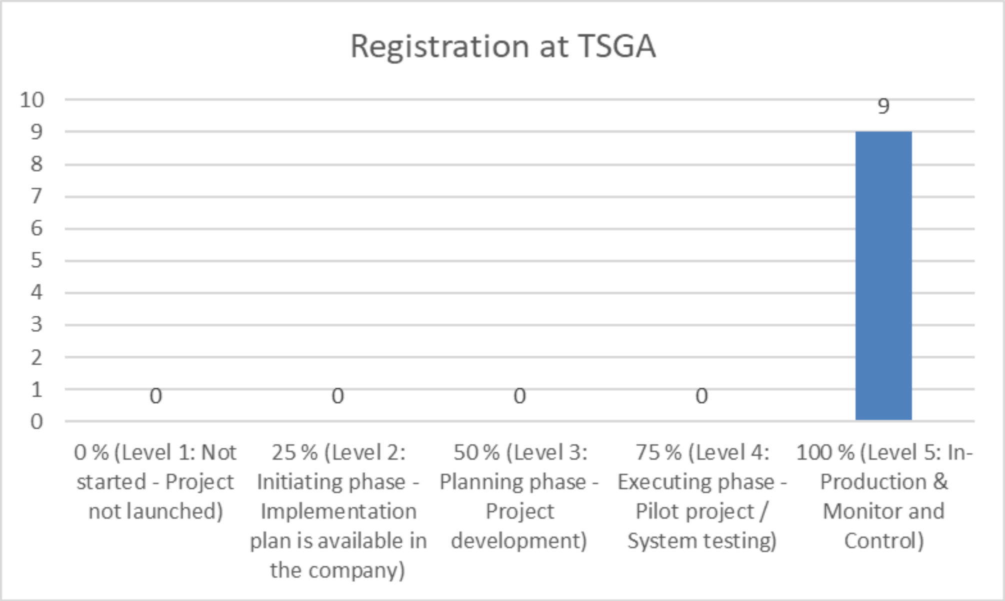

Figure 44 - Registration at TSGA

The Figure 44 - Registration at TSGA shows the number of the companies per member state which have registered at TSGA.

4.2.2.20 Subscription for timetable data, tariff data, public keys at TSGA

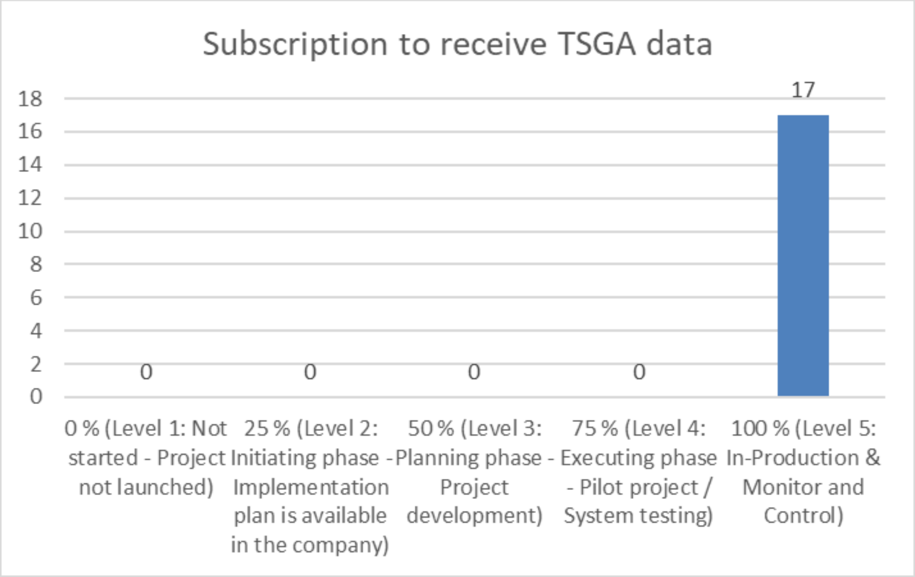

Figure 45 - Subscription for data deliveries

The Figure 45 - Subscription for data deliveries shows the number of the railway undertakings per member state registered for the data delivery from TSGA. The number of the registered railway undertakings is similar to the undertakings, which have been registered at TSGA.

4.2.3 Implementation of alphanumeric company codes

The TAF and the TAP TSI have been modified within the change control management process in 2020 to allow the usage of alphanumeric company codes instead of the current numeric company codes. There is a fixed deadline for the 31.12.2025 in place when all actors addressed by the TAF/TAP TSI have to use alphanumeric company codes.

To monitor the migration towards the usage of alphanumeric company codes, the TAP TSI questionnaire contained the question about the ongoing migration towards the alphanumeric company code for the first time. The answers should allow the close monitoring of the ongoing migration.

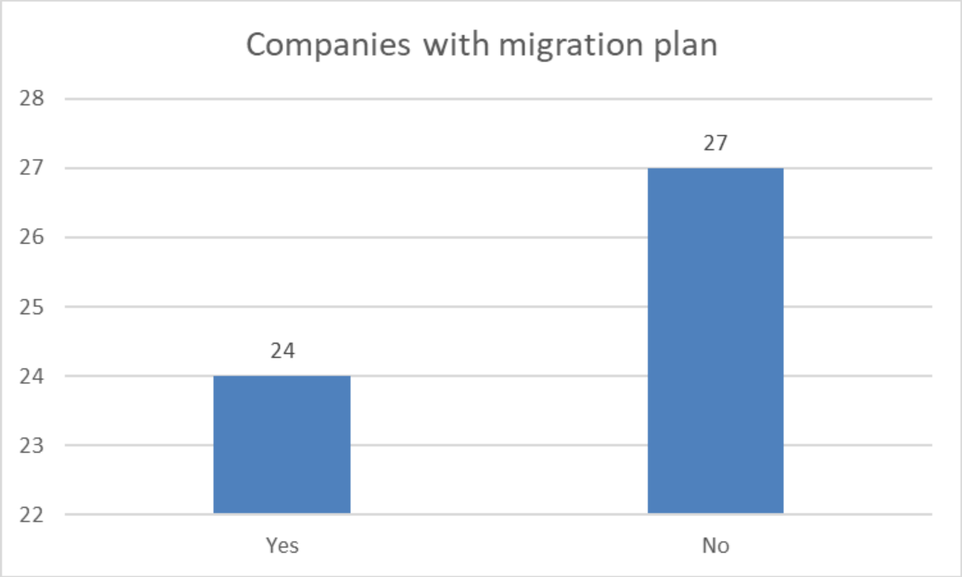

Figure 46 - Companies with migration plan

24 companies reported to have already a migration plan in place, where 27 companies have not yet established such a plan.

The undertakings reported the following dates for the operational use of company codes.

Table 8 dates for operational use of alphanumeric company codes

Date for operational use of alphanumeric company codes	*Number of companies*
30.09.2024	2
14.12.2025	1
31.12.2025	6
15.12.2026	1

4.2.4 Results of the reporting for the TAP TSI retail basic parameters to be implemented by ticket vendors

ERA received 2 reports from ticket vendors, which reflect very low level of implementation. The main reason for non-implementation is the reluctance of RUs to themselves use TAP TSI based standard APIs and the low quality of data provided for timetables and minimum connection times (MCTs) in TSGA.

Despite the fact of the small number of respondents, the ticket vendors represent a wide range of geographical territory with diverse business models and scale of market share.

The answers for each question are briefly described as it follows.

Two of the two reporting companies or associations reported about their engagement with TSGA:

- no TV reported to have registered their membership in TSGA, subscribed to receive notifications about the data set changes in operational use.

Ticketing - Issuing value paper tickets for international and foreign sales in B6/B11 format is not scheduled at all in any of the asked companies so they are at 0% fulfilment. The reasons are the following:

- RUs are using their own distribution channels and systems in their dealings with third party ticket vendors. These are used in the absence of RU TAP TSI compliance.
- Ticket distribution is handled by our GDS, we do not implement it ourselves.

Reservation - Sending PRM assistance reservation requests via IT communication to agreed RU`s, IM's and SM's in B10 format is not planned by none of the asked companies. They are at 0% level fulfilment.

Sending requests to agreed RU`s in B.5 format is also not planned and implemented at all as well as for Sending requests for bicycle carriage to agreed RU`s in B.5 format and Sending requests for car carriage to agreed RU`s in B.5 format. It has been commented that, “RUs are using their own distribution channels and systems in their dealings with third party ticket vendors. These are used in the absence of RU TAP TSI compliance.”

4.2.5 Results of the reporting for the TAP TSI RU/IM basic parameters to be implemented by railway undertakings

The reporting about the progress of the RU/IM functions for passenger railway undertakings is covered in the co-operation group for the implementation monitoring of the TAF TSI. However, the passenger railway undertakings have to implement the RU/IM functions for the TAP TSI as well.

According to the agreements in the TAF TSI implementation co-operation group, the passenger railway undertakings have reported about the implementation progress for the following functions:

- Implementation of company code
- Implementation of the common interface
- Path request
- Train Running Information

The TAF TSI RU/IM reporting session followed the same schedule as presented in Table 7: Reporting schedule for TAP TSI basic parameters (10th reporting). Overall 48 passenger railway undertakings in Europe sent answers through questionnaire to the Joint Sector Group (JSG).

The following chapters were taken from the report of the Joint sector group. More information can be found in the report for the TAF TSI implementation.

4.2.5.1 Common Reference Files - Company Code (all companies)

The Target Implementation Milestone for realisation of the Company Code Function (CC) for RUs according to the TAP TSI Masterplan was 2015.

The bar chart below (Figure 47 - Common Reference Files - Company Codes (CC)) is indicating the existence and use of company codes as part of the Common Reference Files for IMs and RUs-P(passenger transport). For CCs only two predefined percentage steps exist, because either a company does have an own CC or not. Most of companies having replied to the query possess a CC.

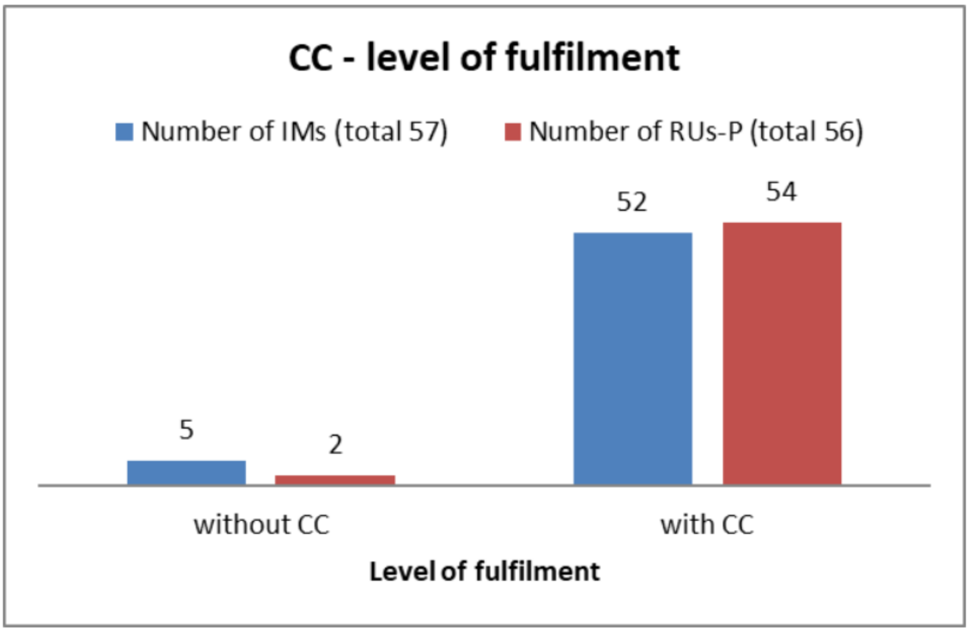

Figure 47 - Common Reference Files - Company Codes (CC)

According to Figure 48 - Evolution of responses and implementation for Company Codes, the number of companies with CCs has increased for IMs and decreased for RUs-P.

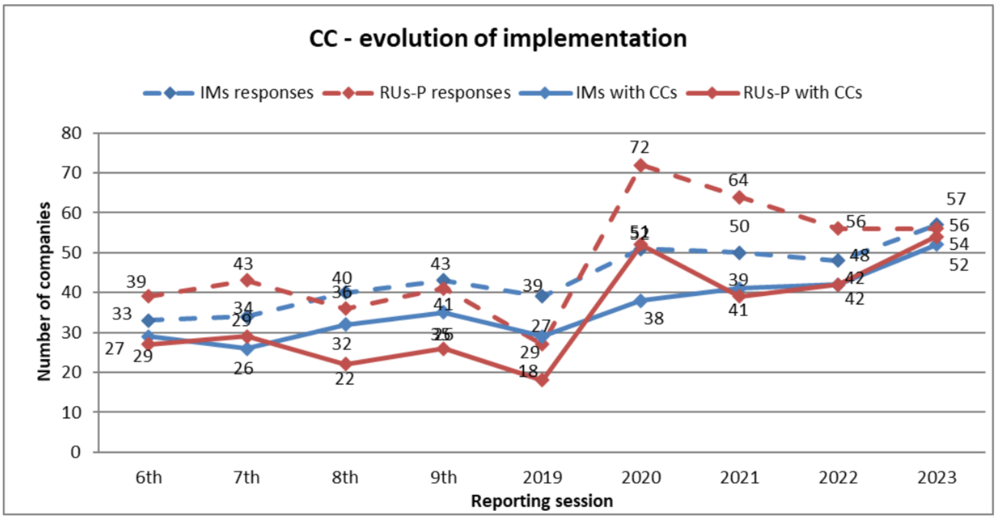

Figure 48 - Evolution of responses and implementation for Company Codes

For the RU-IM implementation the migration towards the alphanumerical company codes is as well progressing. According to the legal provisions of the TAF TSI the usage of alphanumeric CCs is required from 01.01.2026.

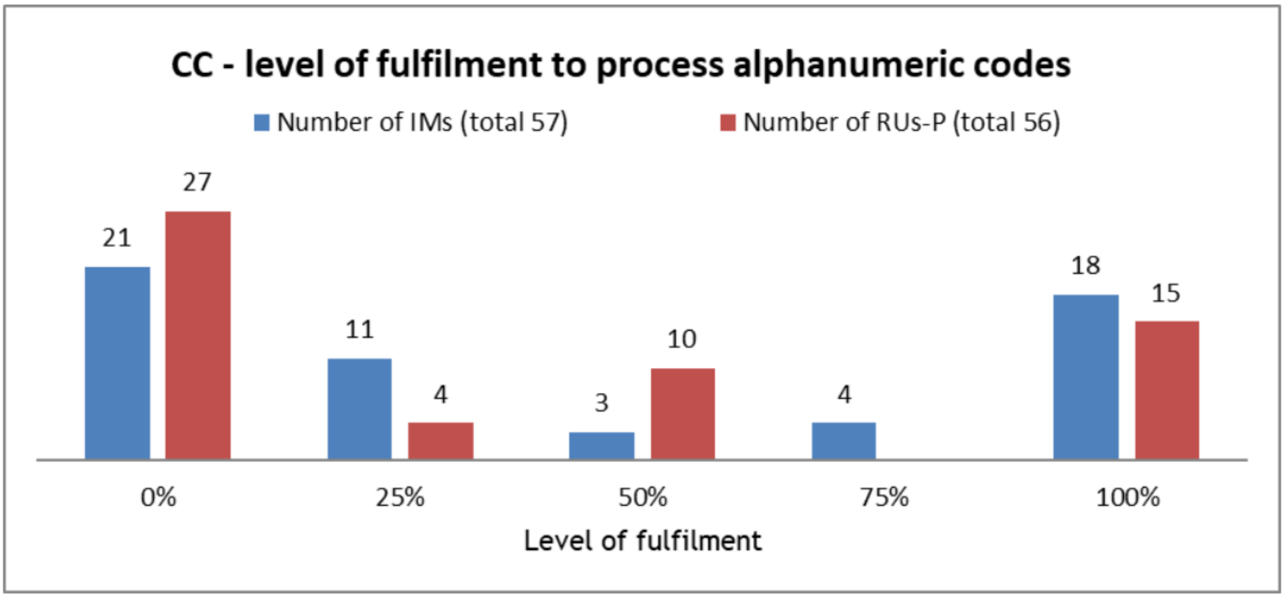

Figure 49 - level of fulfilment to process alphanumeric codes

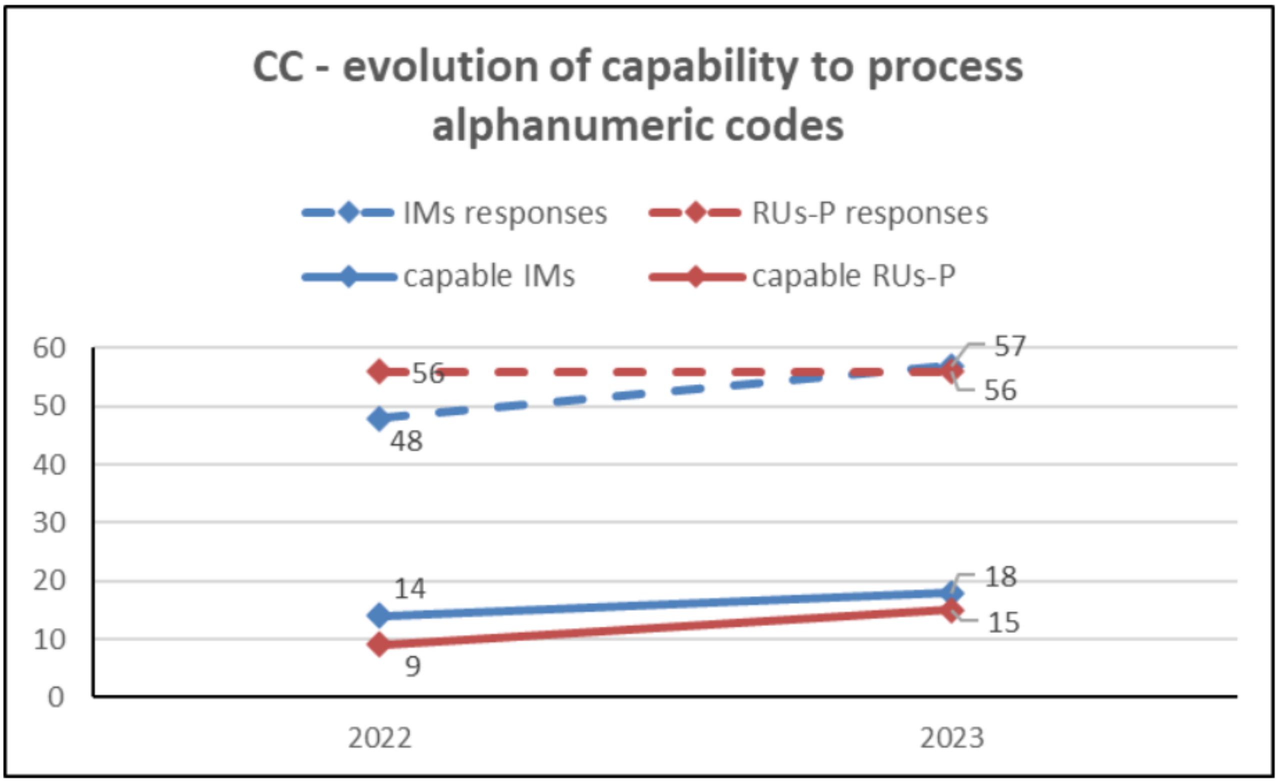

Figure 50 - evolution of capability to process alphanumeric codes

4.2.5.2 *Common Interface Implementation (all companies)*

The Target Implementation Milestone for realisation of the Common Interface Function (CI) for RUs according to the TAP TSI Masterplan was 2015.

Figure 51 - Common Reference Files – Common Interface (CI) summarises the feedback related to the availability of CI and shows a difference in level of fulfilment between IMs and RUs-P. The CI is completely implemented by 23 IMs and 13 RUs-P.

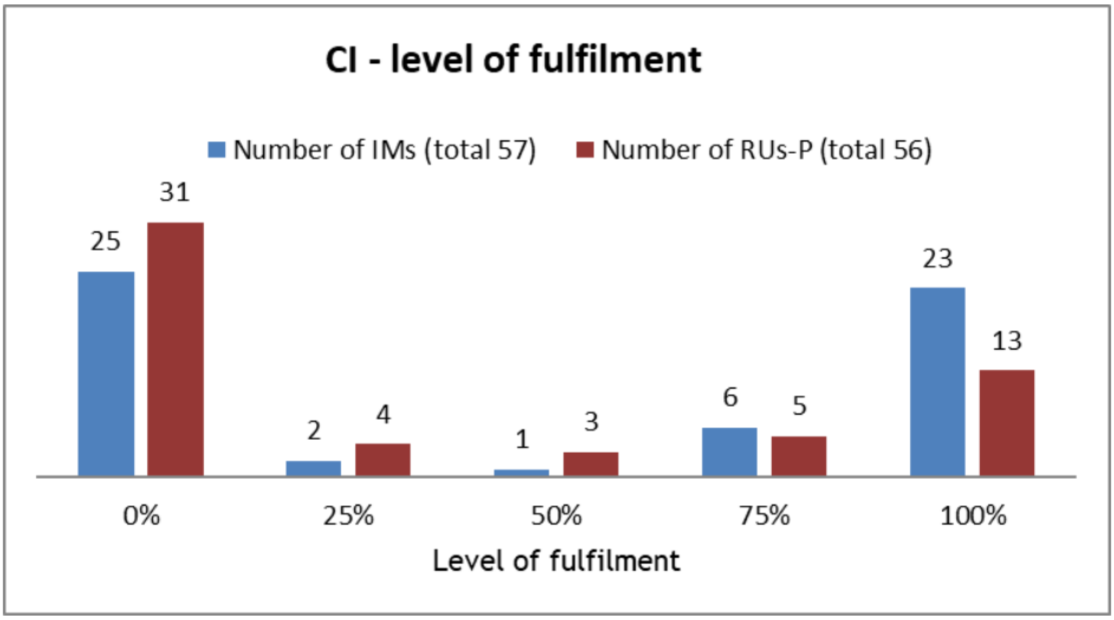

Figure 51 - Common Reference Files – Common Interface (CI)

Figure 52 - Evolution of responses and implementation for Common Interface shows the development of complete implementation of the CI and the number of responses per company type. There is a positive evolution of CI in production for IMs and RUs-P up to December 2023.

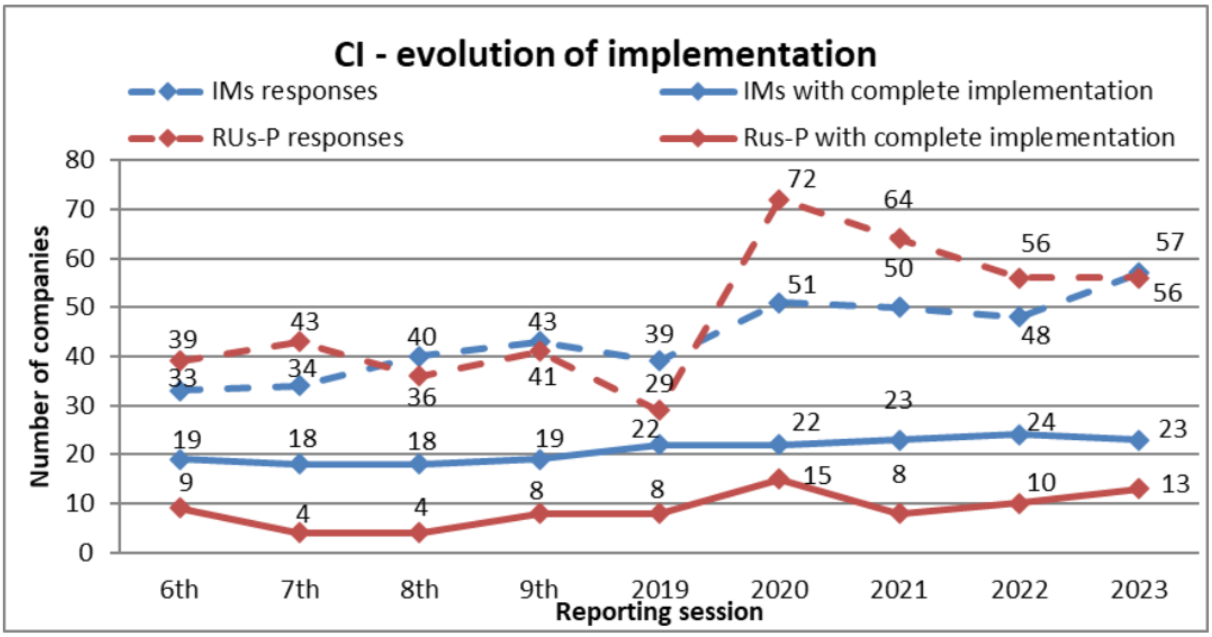

Figure 52 - Evolution of responses and implementation for Common Interface

4.2.5.3 New identifiers

The Target Implementation Milestone for realisation of the New Identifiers (NI) according to the TAP TSI Masterplan was 2020. The bar chart Figure 53 - realisation of new identifiers illustrates that most companies not having yet implemented the NI function.

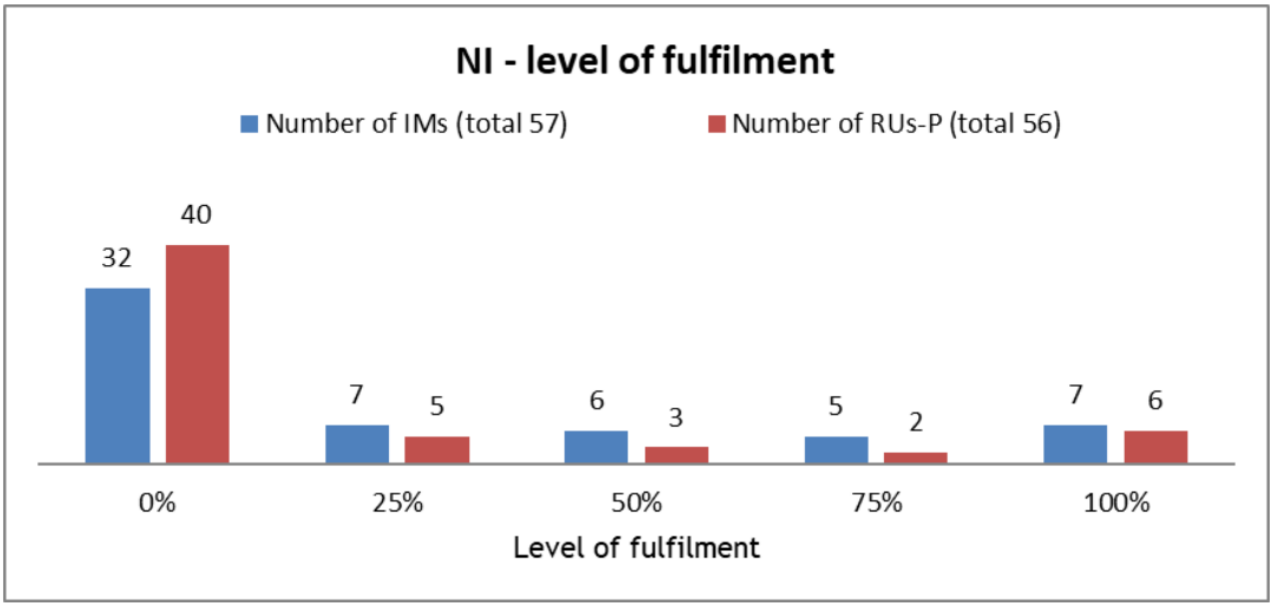

Figure 53 - realisation of new identifiers

The number of all types of companies having introduced NIs is stable since 2022 according to Figure 54 - NI evolution of implementation

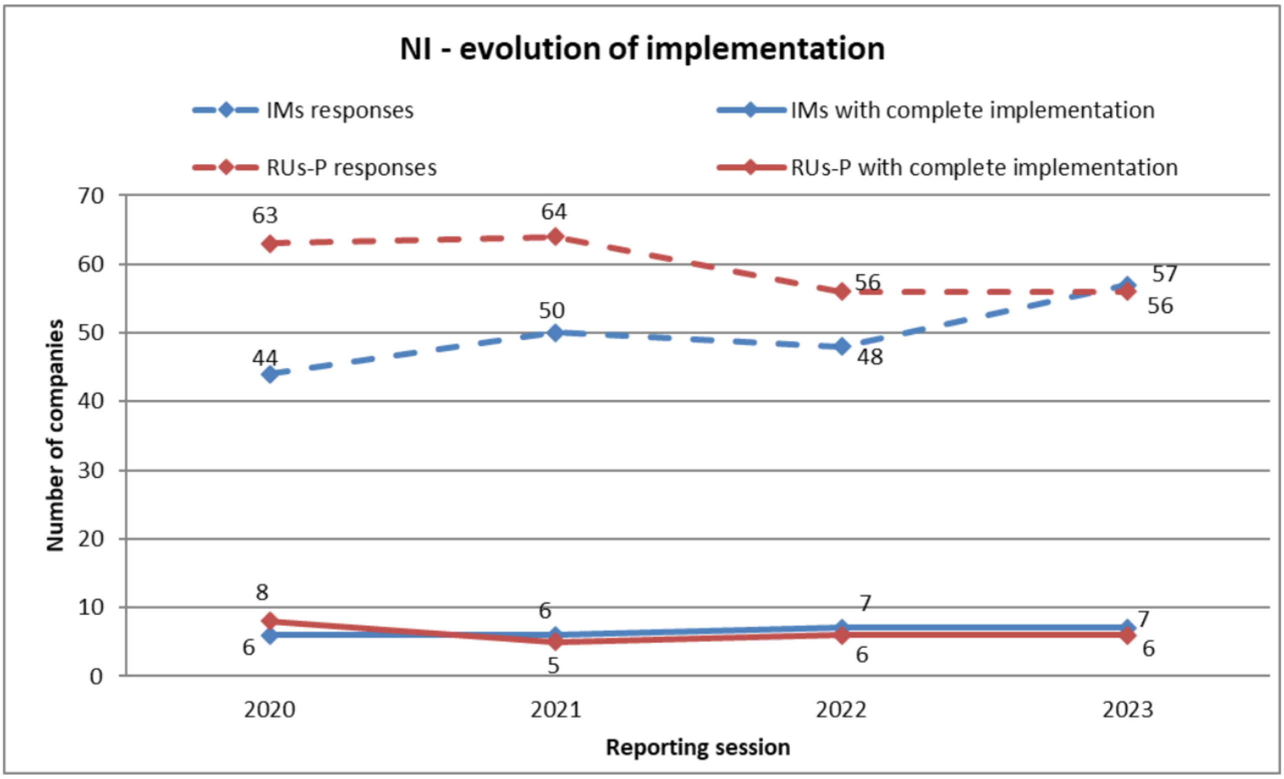

Figure 54 - NI evolution of implementation

4.2.5.4 Path request

The Target Implementation Milestone for realisation of the Path Request (PR) according to the TAP TSI Masterplan was 2020 for IMs and 2018 for RUs-P.

The level of fulfilment of diagram 18 shows 12 IMs and 14 RUs-P with 100% implementation of the PR message. In addition, 50 companies which do not have fully implemented PR declared to use PCS according to their feedback to the survey.

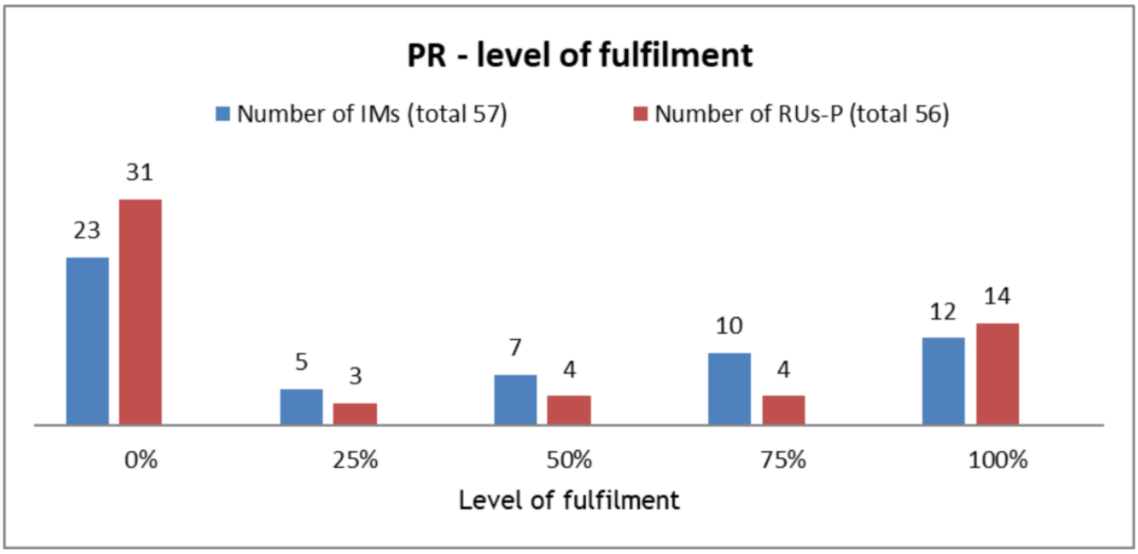

Figure 55 - PR level of fulfilment

The number of IMs and RUs-F having introduced PR messages is stable according to diagram 19, while the trend for RUs-P is positive.

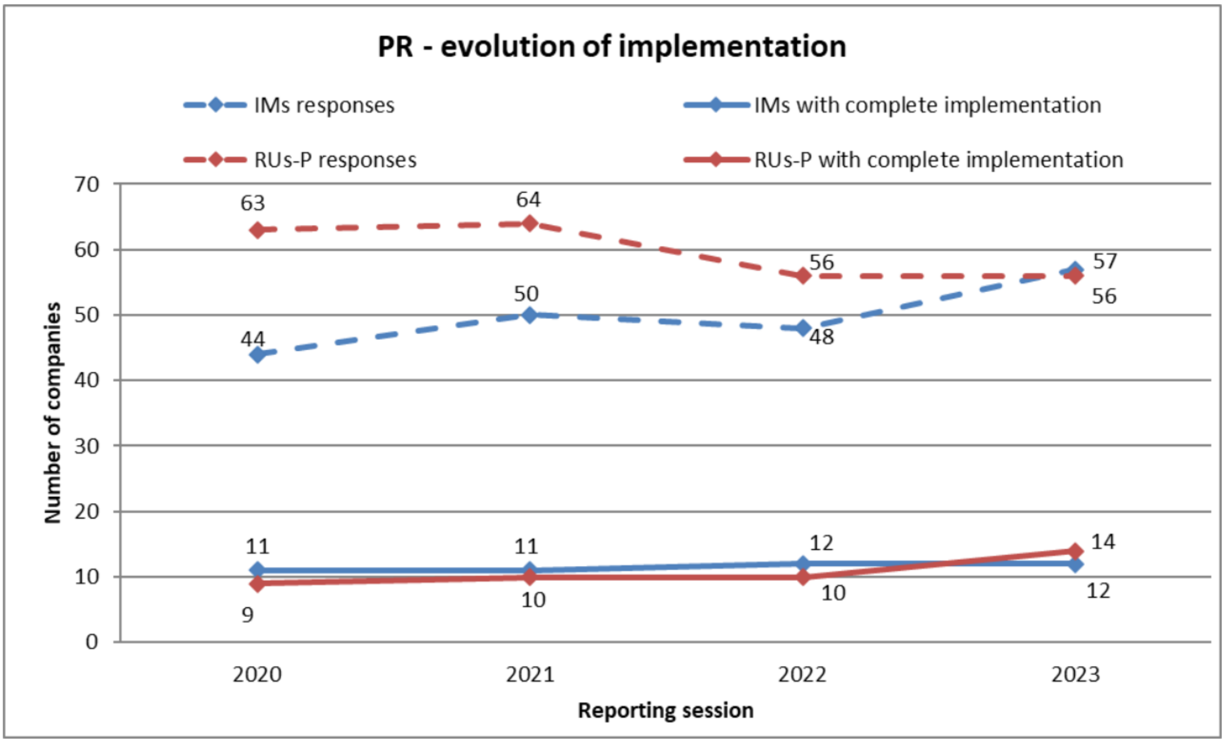

Figure 56 - evolution of responses and implementation for Path Request

4.2.5.5 Path details (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Path Details (PD) according to the TAP TSI Masterplan was 2020 for IMs and 2018 for RUs-P.

The level of fulfilment of diagram 20 shows 15 IMs and 14 RUs-P with 100% implementation of the PD message.

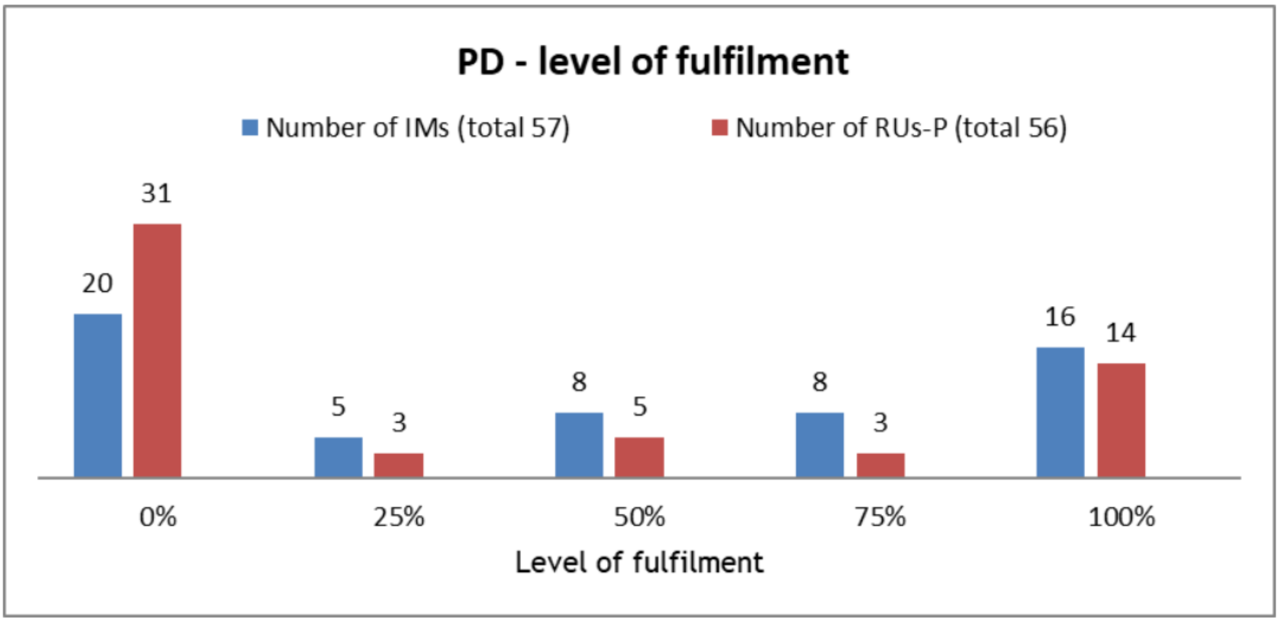

Figure 57 - Path details (PD)

The number of IMs and RUs-P having introduced PD messages has increased according to Figure 58 - Evolution of responses and implementation for Path Details.

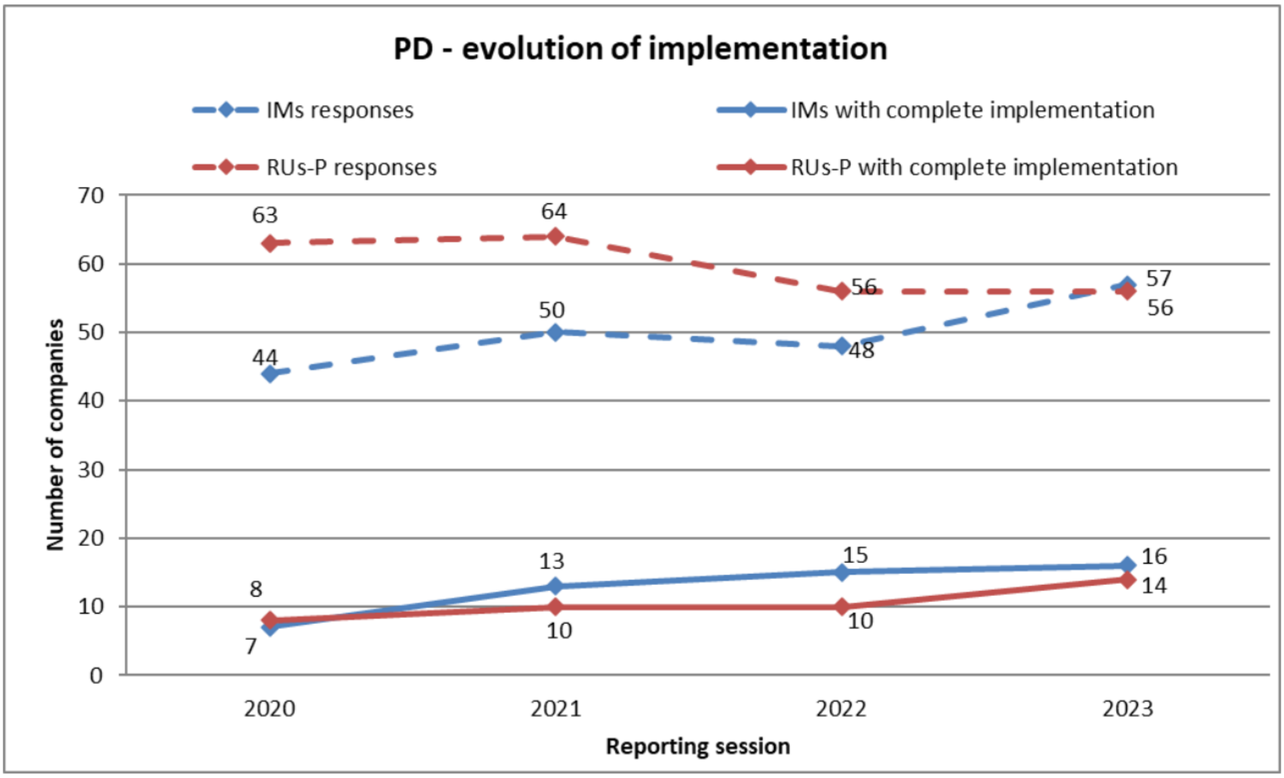

Figure 58 - Evolution of responses and implementation for Path Details

4.2.5.6 Train Ready (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Train Ready Message (TR) for RUs according to the TAP TSI Masterplan was 2018.

About one third of IMs and RUs-P stated implementing the Train Ready function using the respective TAP message, which is like the previous reporting period. Companies using other means of implementation in accordance with the TSIs remain out of consideration.

Regardless of the higher participation in the 2022 survey, the share of TAF/TAP messages for TR implementation remains quite similar.

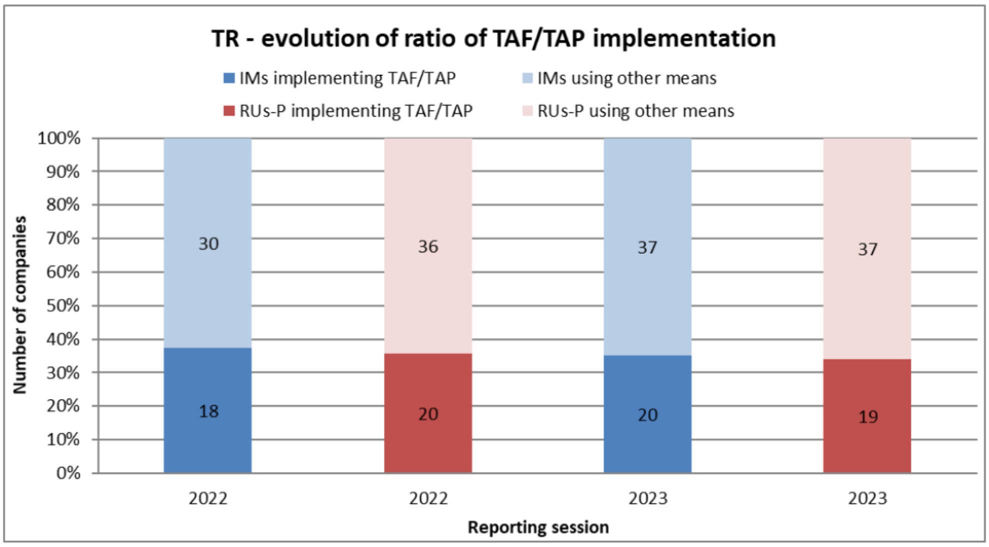

Figure 59 - Train Ready (TR)

The level of fulfilment of Figure 60 - Train Ready (TR) shows 8 IMs and 11 RUs-P with 100% implementation of the TR message.

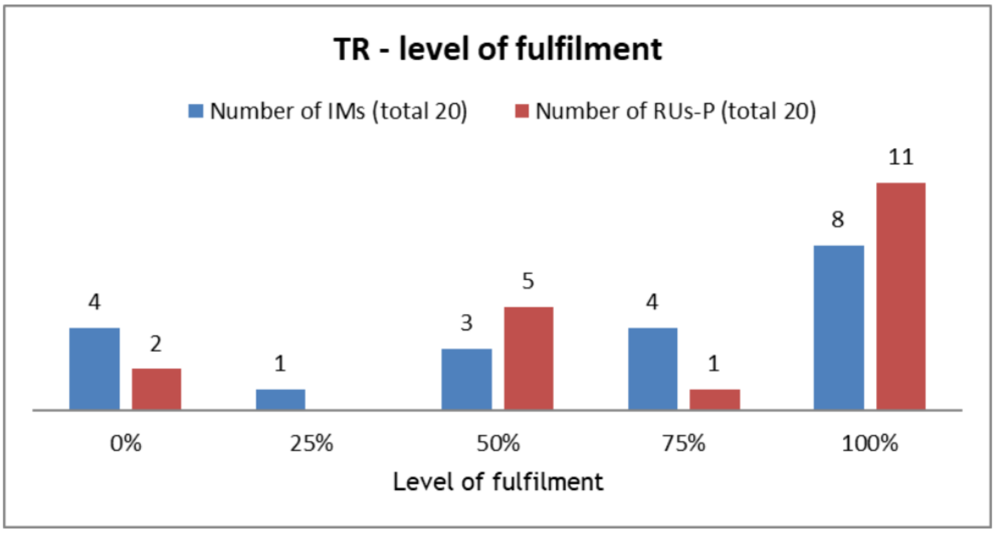

Figure 60 - Train Ready (TR)

The development of complete implementation and the number of responses per company type of the TAF message TR since 2019, when it was reported for the first time, is shown in Figure 61 - Evolution of responses and implementation for Train Ready. There is a similar positive evolution of TR in production for IMs and RUs-P up to December 2023.

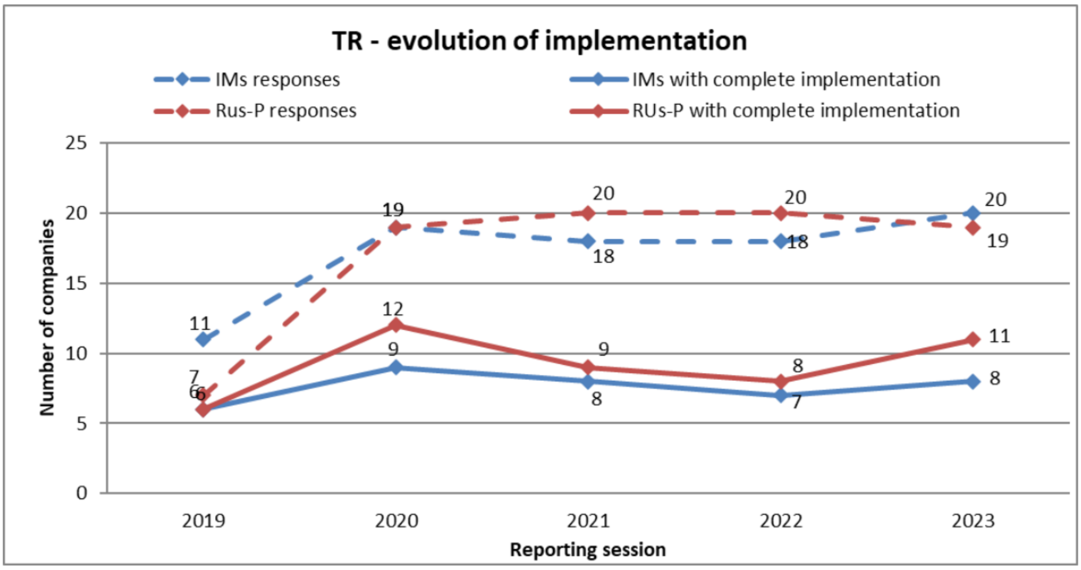

Figure 61 - Evolution of responses and implementation for Train Ready

4.2.5.7 Train Running Information (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Train Running Information message (TRI) for RUs according to the TAP TSI Masterplan was end of 2018. This monitoring concerns only one aspect of the TAF TSI basic parameter 'Train running forecast', the Train Running Information message. The Train Information System (TIS) is a common sector tool managed by RNE. Messages sent by IMs to TIS or messages received by RUs from TIS through traditional interfaces are considered as 75 % fulfilment. TAF messages sent or received by Common Interface are counted as 100 % fulfilment.

Figure 62 - Train Running Information (TRI)indicates 26 IMs and 16 RUs-P with 100 % level of fulfilment. 35 companies which do not have fully implemented TRI declared to use TIS according to their feedback to the survey.

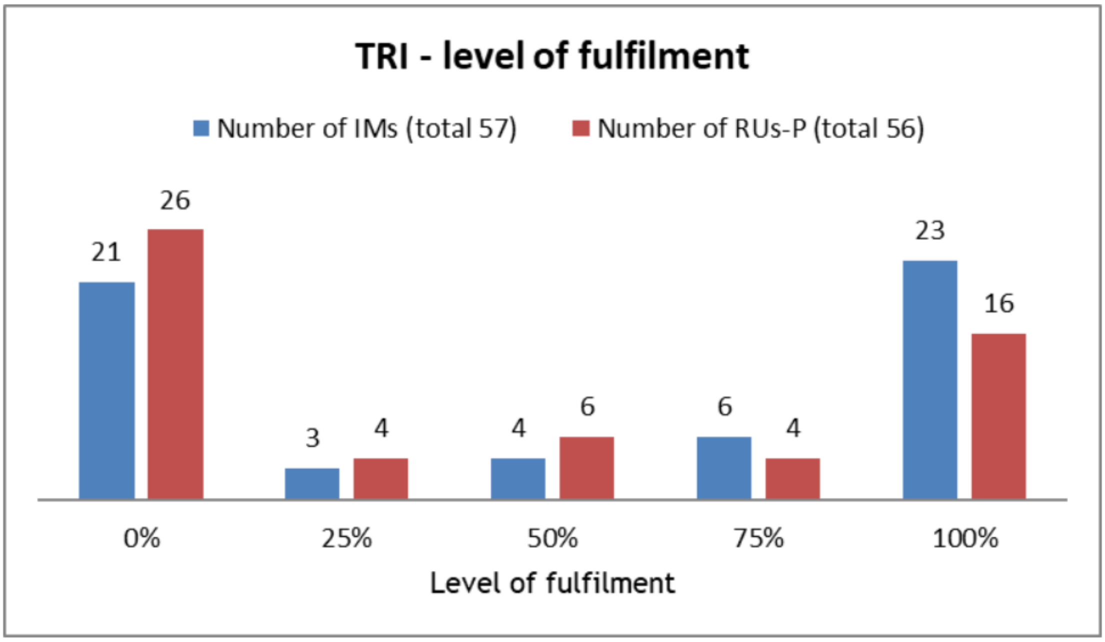

Figure 62 - Train Running Information (TRI)

Regarding Figure 63 - Evolution of responses and implementation for Train Running Information the number of RUs-F P having implemented completely the TRI increased in comparison to the previous reporting session at the same level of participation. For IMs participation and implementation went up.

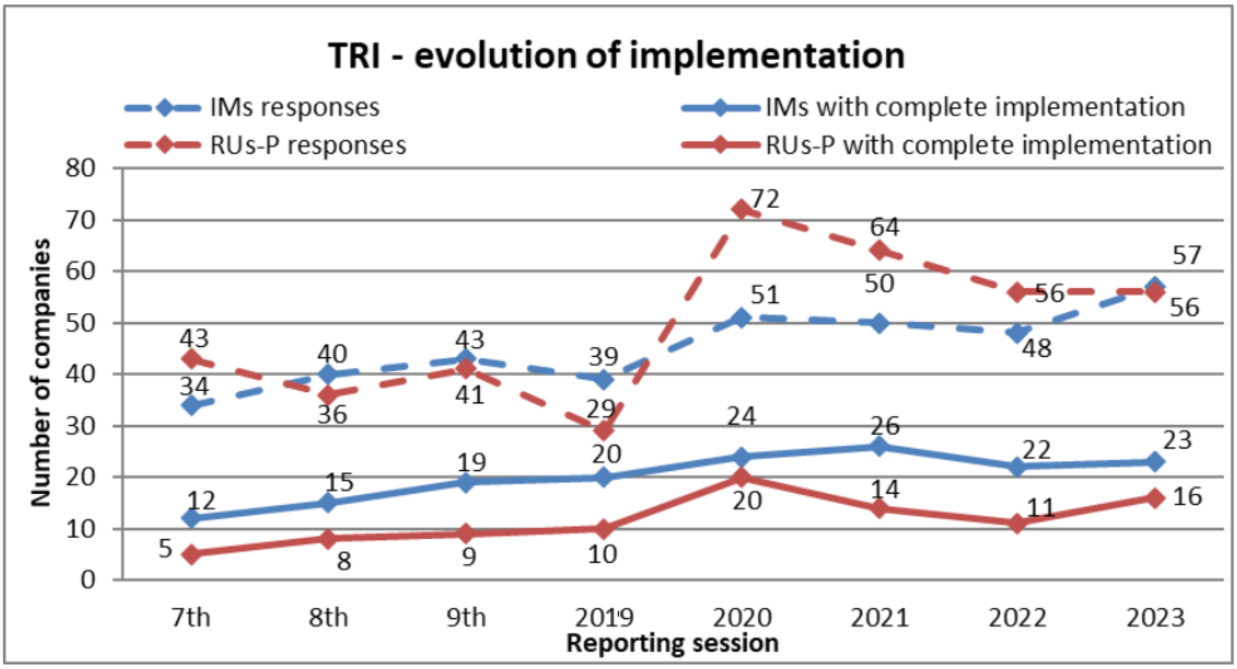

Figure 63 - Evolution of responses and implementation for Train Running Information

4.2.5.8 Train Running Interruption Message (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Train Running Interrupted Message (TRIM) according to the TAP TSI Masterplan was 2018.

The level of fulfilment of Figure 64 - Train Running Interruption Message (TRIM) shows 16 IMs and 10 RUs-P with complete implementation of the TRIM message. However, most companies have not yet started implementation.

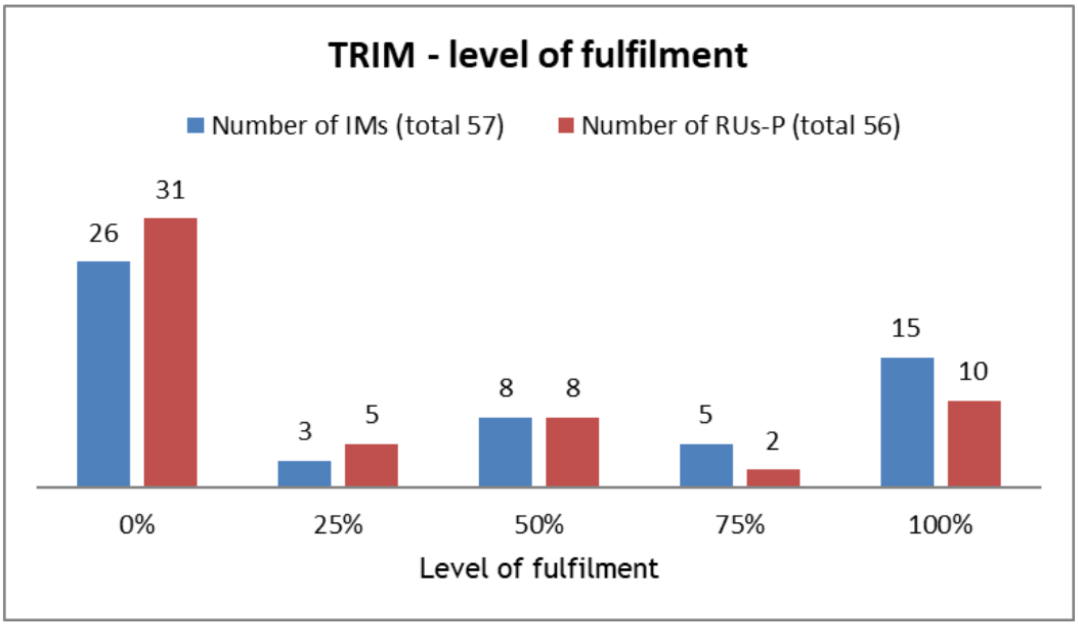

Figure 64 - Train Running Interruption Message (TRIM)

Figure 65 - Evolution of responses and implementation for Train Running Interruption Message indicates the positive evolution of implementation for TRIM at a relative low level compared to the number of participating companies.

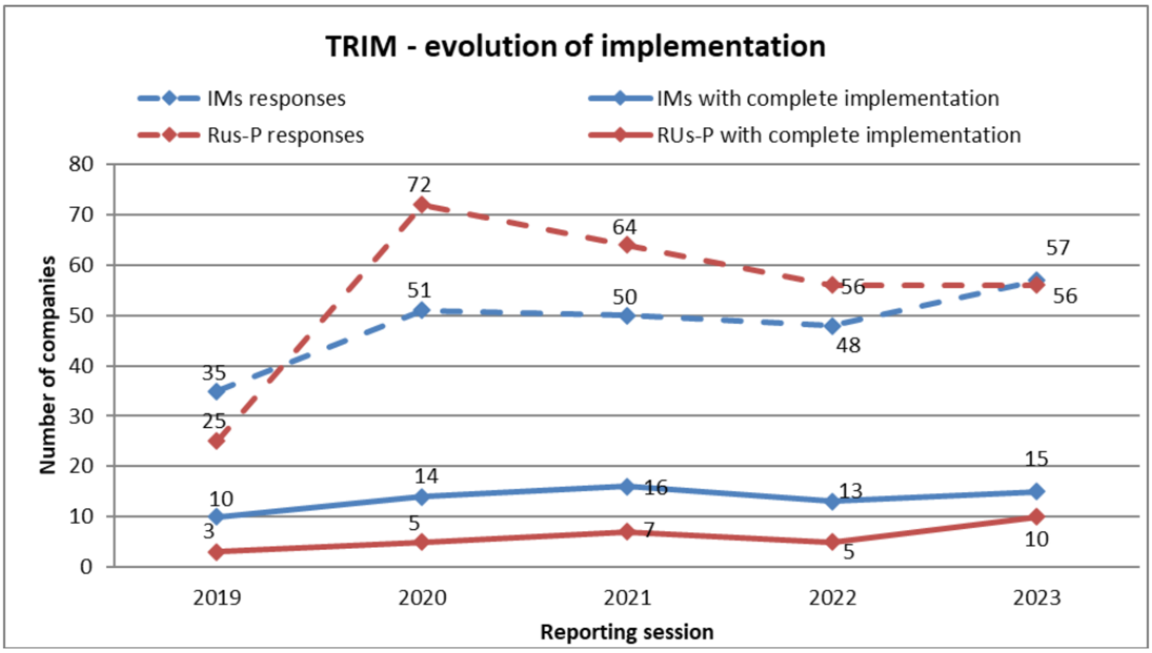

Figure 65 - Evolution of responses and implementation for Train Running Interruption Message

4.2.5.9 Train Running Forecast (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Train Running Forecast (TRF) according to the TAP TSI Masterplan was 2018.

TRF is reported to be fully implemented end of 2023 by 16 IMs and 12 RUs-P.

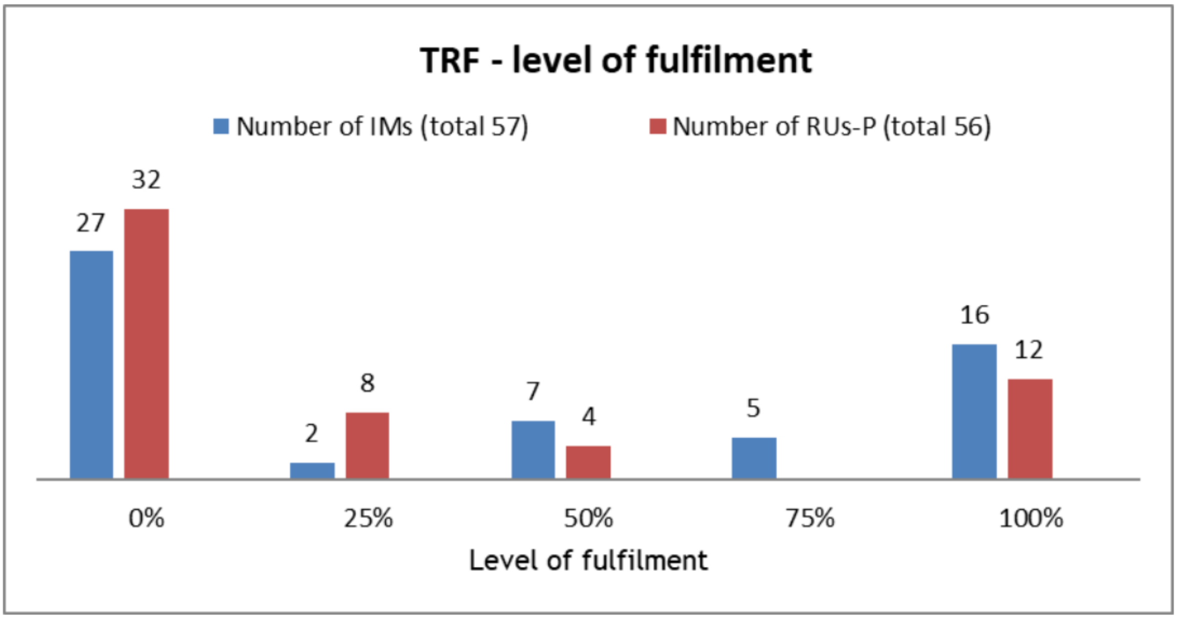

Figure 66 - Train Running Forecast (TRF)

Following a higher participation of IMs and RUs-P, complete implementation of the TRF function remains stable or shows a higher level than the previous year.

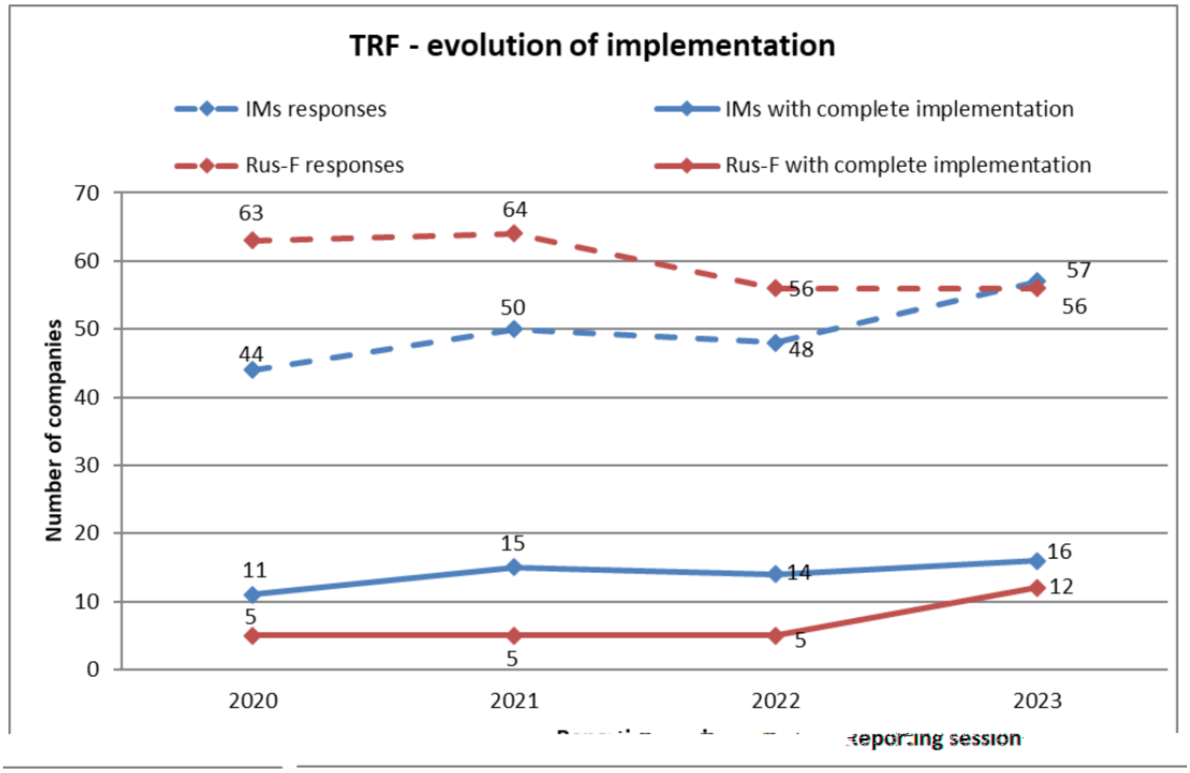

Figure 67 - Evolution of responses and implementation for Train Running Forecast

4.3 Publication of the conditions of carriage and access conditions

Not elaborated for this report.

4.4 Evolution of TAP TSI regulatory functions at European level

The implementation of the TAP TSI regulatory function has been achieved in Europe. The following table shows the progress of the implementation, compared with the previous five reports published by ERA. The following table is created by comparing previous TSGA reports.

Table 9: Progress of implementation of TAP TSI regulatory functions

Milestone	*Planned date*	*Degree of fulfilment 01.09.2016*	*Degree of fulfilment 01.07.2017*	*Degree of fulfilment 26.03.2018*	*Degree of fulfilment 19.06.2018*	*Degree of fulfilment 19.12.2018*	*Degree of fulfilment 19.12.2019*
Setup of the TAP TSI governance body	01/10/2013	75%	100%	100%	100%	100%	100%
Setup of the Retail reference database	01/10/2014	N/A	50 %	50 %	50 %	50 %	100%
Setup of the TAP TSI registry	01/10/2014	N/A	50 %	50 %	50 %	50 %	100%
Setup of the Data quality tool	01/10/2014	N/A	25 %	50 %	50 %	50 %	100%

4.5 Reasons for not starting implementation of TAF/TAP TSI functions

Companies could declare in a dedicated answer for each TAF/TAP TSI function one reason why they did not yet start implementing it. Diagram 31 gives a summary of the total number of reasons mentioned in the questionnaire.

Compared to the previous survey, feedback regarding reasons for not implementing went up by about 8 % in total from 1336 reasons in 2021.

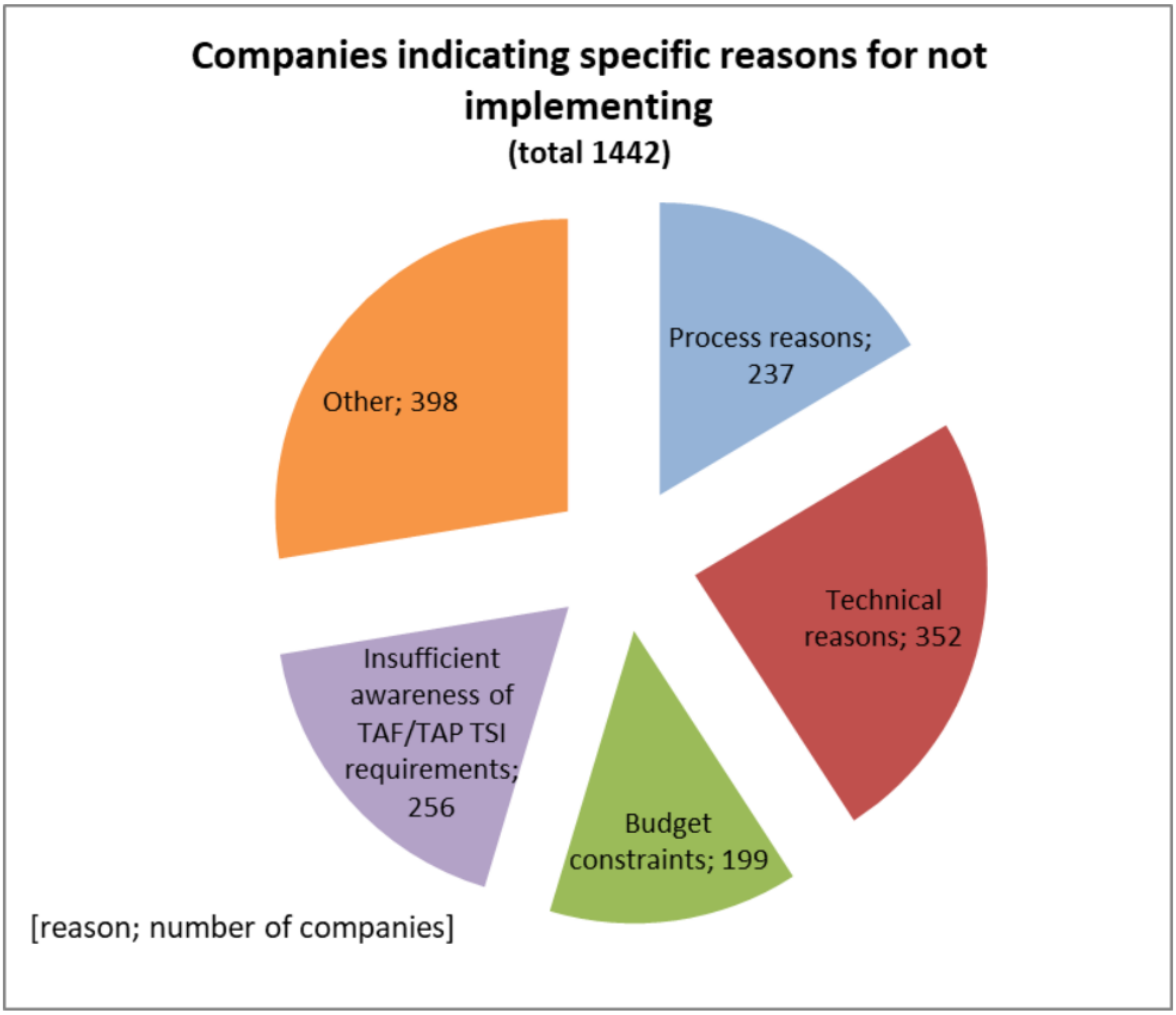

Figure 68 - Reasons for not starting implementation of TAF/TAP TSI functions

4.6 Evolution of TAP TSI retail functions at Member state level

The chapter will be amended if there will be sufficient number of reliable data with which it will be possible to distinguish the difference between stable changes and temporary trends in specific basic parameters.

4.7 Analysis of problems

In the questionnaire the railway undertakings have been asked to provide data about the problems for the implementation of the TAP TSI basic parameters, subject to the reporting.

The following problems were asked in the questionnaire:

- The dependency on other retail system or on participation of other railway undertakings
- Internal IT redesign needed
- Lack of financial resources
- Technical limitations
- Stability of [TAP TSI] baseline documents
- No benefits seen
- Other

These answers were analysed in more detail by ERA. It has been analysed:

a) which functions are affected by the problems
b) which member states are mostly affected

Table 10: Problems for TAP TSI implementation per member state and problem scope

Function	*Dependency on other retail system*	*Internal IT redesign needed*	*Lack of financial resources*	*No benefits seen*	*Stability of TAP documents*	*Technical limitations*	*Other*
Answer Bike Reservation	PL, ES						
Answer Car Reservation							
Answer Seat Reservation	PT						
B10 Answer	PT	PL	PL				IT
B10 Send	PT	PL	PL				
B6/B11 Acceptance							
B6/B11 Issuing	PT						
B7/B12 Acceptance							
B7/B12 Issuing	PT	ES				HR	
Provide B1 data							
Provide B2 data		ES		HU			
Provide B3 data	IT			HU			AT, DE
Provide B4 data	AT, PL					HR	DE, IT
Send Bike reservation	PT	PL, ES					PL
Send Car Reservation	AT, PT						
Send Seat reservation	PT						

The analysis of the main problems has shown the following results:

The problems were reported from only 7 member states.

One of the main problems is the “dependency on other railway undertakings or distribution systems”. This is especially the case when reservation messages have to be exchanged. It has to be checked what is the reason for this problem. The reservation systems for seats, bikes and trains are using the TAP TSI standards for many reservation systems, based on UIC standards, now technical documents of the TAP TSI. If the systems are developed according to these standards, there should not be any issue with the dependency on other distribution systems. For the exchange of data (timetable, tariff), the problem cannot be understood, because the data can be exchanged without any interaction and dependency on other systems.

The lack of financial resources is a problem only in 1 member state and technical limitations have been reported by companies from 1 member state as a problem for the TAP TSI implementation.

The problem raised in previous reports about the “Stability of [TAP TSI] baseline documents” has been raised only by no participant, so it seems that the problem is solved.

5 Conclusions

The implementation of the TAP TSI is delayed significantly. The delay is visible in most of the covered reporting streams, the implementation of the TAP TSI retail basic parameters by the railway undertakings and ticket vendors as well.

The governance framework (TSGA) for the coordinated development of the TAP TSI implementation is in place and operational. Therefore, the first milestone to implement the TAP TSI governance has been achieved.

The implementation of the regulatory functions (TAP TSI registry, retail reference database, data quality tool) is achieved now. This means that the railway undertakings can start to implement the access to the TAP TSI registry services to provide their data and to have access to the data from other parties.

For the progress of the TAP TSI implementation for **regulatory functions** the following conclusions can be made:

- The figures delivered by the railway undertakings concerning the implementation of the regulatory functions, are not in line with the figures delivered by TSGA (see **Error! Reference source not found.**).

For the implementation of the TAP TSI retail basic parameters, in majority of cases, the implementation progress looks better when considering passenger market shares of railway undertakings (with applied weighting factor) than when considering absolute numbers of railway undertakings which declared full implementation of any of TAP TSI retail basic parameter. Therefore, major carriers of TAP TSI retail implementation are still railway undertakings with larger share of passenger market.

For the progress of the TAP TSI implementation for **reservation basic parameters** the following conclusions can be made:

- For the reservation message exchange, either sending or receiving, there is a high level of implementation of those reservation messages used by incumbent railway undertakings. According to applied weighting factor, 76 % of the railway market is sending seat reservation requests and 74% is answering on seat reservations requests. The reservation requests/replies for bicycles are only supported by almost the same amount of undertakings as for the reservation of seats.
- The reservation request for car-carrying trains is supported by a marginal number of undertakings only.
- For the reservation requests for PRM assistance, 59 % of the railway market is both sending and answering on PRM assistance reservation requests.
- For the small and medium size railway undertakings who have not reported any degree of implementation, there is almost no intention to implement these functions. The explanation is in many cases that their trains are not subject to reservation (e.g. local trains only) and therefore there is no need to implement reservation messages, neither as railway undertaking nor as issuer of seat reservations.

For the progress of the TAP TSI implementation for **ticketing basic parameters** the following conclusions can be made:

- For the ticketing of international or foreign sales, either issuing or accepting, there is a high level of implementation of these functions for the incumbent railway undertakings. With the applied weighting factor, 63 % of the railway undertakings are issuing and 62 % of the railway undertakings are accepting tickets in value paper tickets in B6 format. For home printed tickets in B7 format 55 % of the railway undertakings are issuing and 52 % of the railway undertakings are accepting those tickets.
- For the small and medium size undertakings there are only few projects ongoing for the implementation of international ticketing, either on a value paper ticket or as home printed ticket.

For the progress of the TAP TSI implementation for **tariff data exchange basic parameters** the following conclusions can be made:

- The implementation of the tariff data exchange for the NRT- and the IRT-tariff data is low. This is maybe due to the fact that those tariffs are not offered by some RU's. Successful implementation for the NRT-tariff data has been declared by 64% of railway market (weighting factor applied) and only 32% for IRT-tariff data.
- Few companies with a low EU market share of are in the implementation process for IRT-tariff data.
- Based on the fact that these data are available in the TAP TSI format, it has to be checked how these data can be provided to the ticket vendors to allow them to the implement the TAP TSI basic parameters concerning the tariff data exchange. The services of TSGA to have access to those data by the ticket vendors have to be taken into account.
- The implementation of the tariff data exchange according to the technical document B.3 has to be checked. The document is to our knowledge not implemented in the rail sector. Maybe there is a misunderstanding of the underpinning question in the questionnaire.

For the progress of the TAP TSI implementation for **timetable data exchange basic parameters** the following conclusions can be made:

- For the timetable data exchange the implementation progress is very good: 64% of the railway market has implemented this basic parameter, 64 % in operation and only 3 % in pilot testing phase.
- For the small and medium size undertakings there are only few projects ongoing for the implementation of timetable data exchange.
- Based on the fact that these data are available in the TAP TSI format, it has to be checked how these data can be provided to the ticket vendors to allow them to implement the TAP TSI basic parameters concerning the timetable data exchange. The services of TSGA to have access to those data by the ticket vendors have to be taken into account.

Based on the comments in the answers submitted by the participants the following conclusions can be made for the tool "EU Survey:

1. The mandatory answers should be verified if in some cases they can be replaced by voluntary ones
2. The questions offering single or multiple choices should be verified, if they should be modified to single choice or multiple ones
3. Questions should be formulated clearly, e.g. concerning timetable exchange obligations, to allow the respondents to answer correctly.

6 Recommendation / actions to be taken

6.1 Functions to be reported in the next report

During the TAP TSI Implementation Cooperation Group meeting held on 9 March 2024, it was agreed to report in 2024 about the same functions as reported in 2020.

6.2 Calendar for next reporting

In the frame of the TAP TSI Implementation Cooperation Group meeting held on 9 March 2024, it was agreed the following schedule to report about the implementation of TAP TSI functions: 18.11.2024 - 13.12.2024

#	Step	Date
1	ERA will send the request to update PM's	30.09.2024
2	Update TAP TSI RU/TV PM list	04.11.2024
3	CSG send the questionnaire to ERA	N/A
4	ERA/JSG/CSG/ETTSA triggers reporting session	18.11.2024
5	Opening JSG/CSG tool for reporting	18.11.2024 – 13.12.2024
6	Analysing data for report	January 2025
7	Preparing JSG/CSG report	February 2025
8	Harmonising analysis with ERA	t.b.c.
9	Approving report JSG	t.b.c.
10	Presenting TAP TSI implementation report at ERA co-operation group	12.03.2025
11	Publishing implementation report	t.b.c.

Figure 69: Reporting Schedule for the 2021 Reporting wave

6.3 ERA recommendations for next reporting

ERA recommends the following actions to accelerate the TAP TSI implementation:

Table 11: Proposed actions for TAP TSI implementation

Who	Action
NCPs	The availability of the regulatory services, provided by TSGA, shall be communicated to the railway undertakings.
Ticket vendors	The ticket vendors should establish the operational reporting procedure for the report of the implementation progress of the TAP TSI.
NCP, ERA	Addressing the ticket vendors not organised in the European organisations ECTAA, EU Travel Tech
NCPs, ERA	The translations of the questionnaire for 2024 shall be revised by the NCP's, if they discover the translation as useful for an improved response rate.

ERA	The questionnaire shall be checked according to the optional/mandatory questions
NCPs	It should be checked how to secure contact data from few countries which didn't deliver any contact data of their RUs.
NCP, ERA, CSG, JSG	It should be discussed how to find out more or even how to measure the level of TAP TSI obligations awareness in Europe, between TAP project managers in obliged RUs. Possible solution could be in modifying the questionnaire with an adequate question.
NCP, ERA, CSG, JSG	The identified problems shall be discussed in the next co-operation group in detail, taking into account the member states affected, the impact of these risks and issues on the further implementation of the TAP TSI. Additionally, ERA will contact the NCPs of countries regarding the details of reported problems in order to facilitate the problem resolution processes.

The future reporting depends on the progress on the revision of the Telematics TSI. No major changes in the reporting for 2024 are foreseen.