

Moving Europe towards a sustainable and safe railway system without frontiers.

Report

9th status report about the implementation progress of the TAP TSI (2022)

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Contents

Acronyms.....	4
Reference documents	5
Reference legislation	5
1 ABSTRACT.....	6
2 Introduction	8
2.1 Reporting structure.....	8
2.2 Reporting procedures	9
2.2.1 Reporting for the conditions of carriage.....	10
2.2.2 Reporting for the regulatory functions.....	10
2.2.3 Reporting for TAP TSI retail basic parameters	10
2.2.4 Reporting for TAP TSI RU/IM basic parameters.....	11
2.2.5 Further steps after the reporting.....	12
3 Context.....	13
4 Analysis.....	17
4.1 Implementation of the regulatory functions	17
4.2 Implementation of the functions according to the original consolidated TAP TSI Master Plan.....	17
4.2.1 Process for the questionnaire	18
4.2.2 Results of the reporting for the TAP TSI retail basic parameters to be implemented by railway undertakings.....	20
5 Implementation monitoring of TAP TSI functions	25
5.1.1 Ticketing.....	25
5.1.2 Direct fulfilment for international and foreign sales in B6 format	25
5.1.3 Indirect fulfilment for international and foreign sales in B6 or B7 format OR OTHER FORMATS	26
5.1.4 Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (direct fulfilment).....	27
5.1.5 Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (indirect fulfilment).....	29
5.1.6 Accepting home printed tickets for international and foreign sales in B7 format	30
5.2 Reservation	31
5.2.1 Sending PRM assistance reservation requests in B10 format or other standards	32
5.2.2 Answering PRM assistance reservation requests in B10 format or other standards	34
5.2.3 Sending reservations requests in B5 format or other standards.....	35
5.2.4 Answering reservation requests in B5 format or other standards	36
5.2.5 reservation requests for bicycle carriage in B5 format or other standards.....	37
5.2.6 Answering reservation requests for bicycle carriage in B5 format or other standards.....	38
5.2.7 Sending reservation requests for car carriage in B5 format or other standards.....	39
5.2.8 Answering reservation requests for car carriage in B5 format or other standards.....	40
5.3 TIMETABLE	41
5.3.1 TIMETABLE (B4 format).....	42
5.4 TARIFF	43
5.4.1 NRT TARIFFS/FARES (B1 format).....	43

5.4.2	IRT TARIFFS/FARES (B2 format)	44
5.4.3	SPECIAL TARIFFS/FARES (B3 format).....	45
5.5	REASONS CAUSING DELAY IN IMPLEMENTATION	47
5.6	TAP TSI architecture	48
5.6.1	Membership registration	48
5.6.2	Resource registration	48
5.6.3	Subscription to a resource	49
5.7	Migration plan for alphanumeric company codes.....	50
5.8	TOOLS.....	51
5.9	Results of the reporting for the TAP TSI RU/IM basic parameters to be implemented by railway undertakings.....	52
5.9.1.1	Common Reference Files - Company Code (all companies)	52
5.9.1.2	Path Request (IMs and RUs-P)	54
5.9.2	Path Details (IMs and RUs-P)	55
5.9.2.1	Train Ready (IMs and RUs-P).....	57
5.9.2.2	Train Running Information (IMs and RUs-P)	58
5.9.2.3	Train Running Interruption Message (IMs and RUs-P)	59
5.9.2.4	Train Running Forecast (IMs and RUs-P).....	60
5.10	Publication of the conditions of carriage and access conditions	61
5.11	Evolution of TAP TSI regulatory functions at European level	61
5.12	Evolution of TAP TSI retail functions at Member state level	62
6	Conclusions	63
7	Recommendation / actions to be taken	65
7.1	Functions to be reported in the next report.....	65
7.2	Calendar for next reporting	65
7.3	ERA recommendations for next reporting.....	65

Acronyms

Table 1: Table of abbreviations

<i>Acronyms</i>	<i>Definition</i>
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

<i>Ref. N°</i>	<i>Title</i>	<i>Reference</i>	<i>Version</i>
(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 2022 - RU/IM Telematics Joint Sector Group (JSG)		09/02/2023
(5)	TAP TSI Implementation of Retail functions Reporting campaign 2022 (9th campaign) 10th report - Common Support Group (CSG)		09/02/2023

Reference legislation

Table 3: Table of reference legislation

<i>Ref. N°</i>	<i>Document Reference</i>	<i>Title</i>	<i>Last Issue</i>
[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 2022 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 9th 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 9th 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 3 rd 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 3 rd 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 3 rd 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 3 rd 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 9th 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.60¹ 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 Plan².

“**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 ET TSA/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.

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.

This reporting is currently not executed by ERA due to the lack of resources at the Agency.

2.2.2 Reporting for the regulatory functions

The regulatory functions are implemented, so the monitoring is not anymore valid.

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:

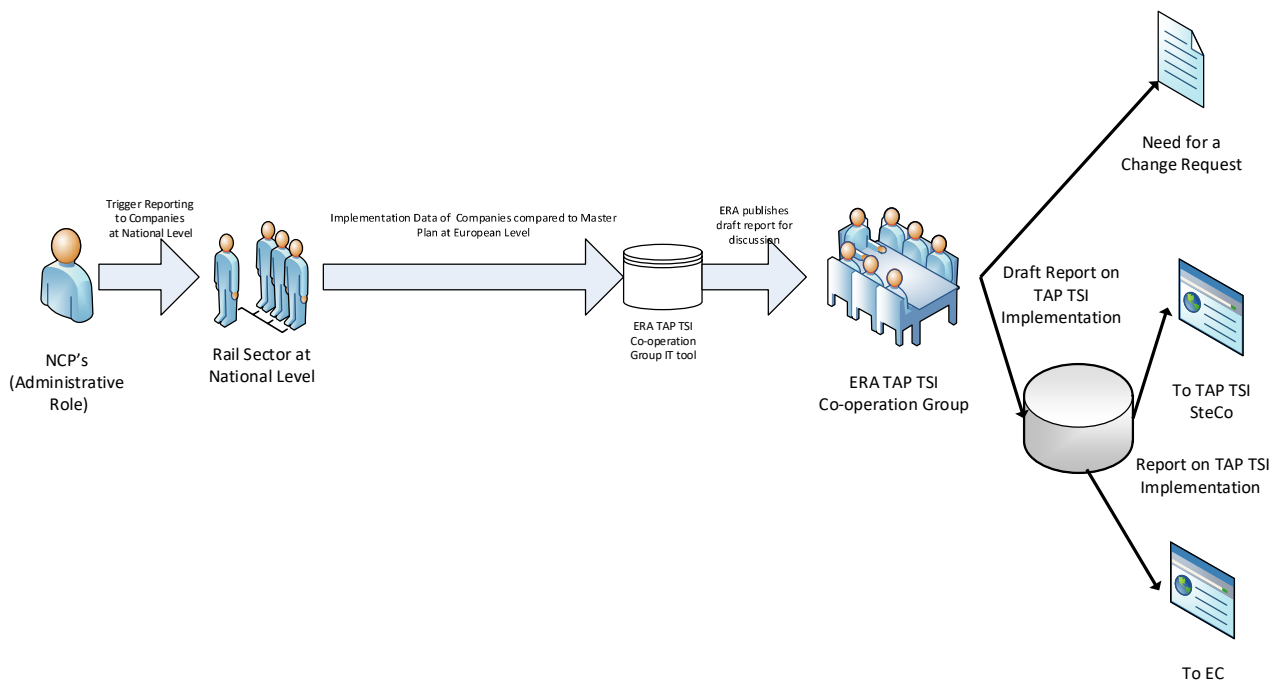


Figure 1: ERA TAP TSI Implementation Cooperation Group process for retail basic parameters.

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 close 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 ETTSA and ECTAA. They will compile a report based on the data received from their members.

TAP retail functions will be monitored first twice a year to better compile progress of implementation but after a year of monitoring this decision will be revised.

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.

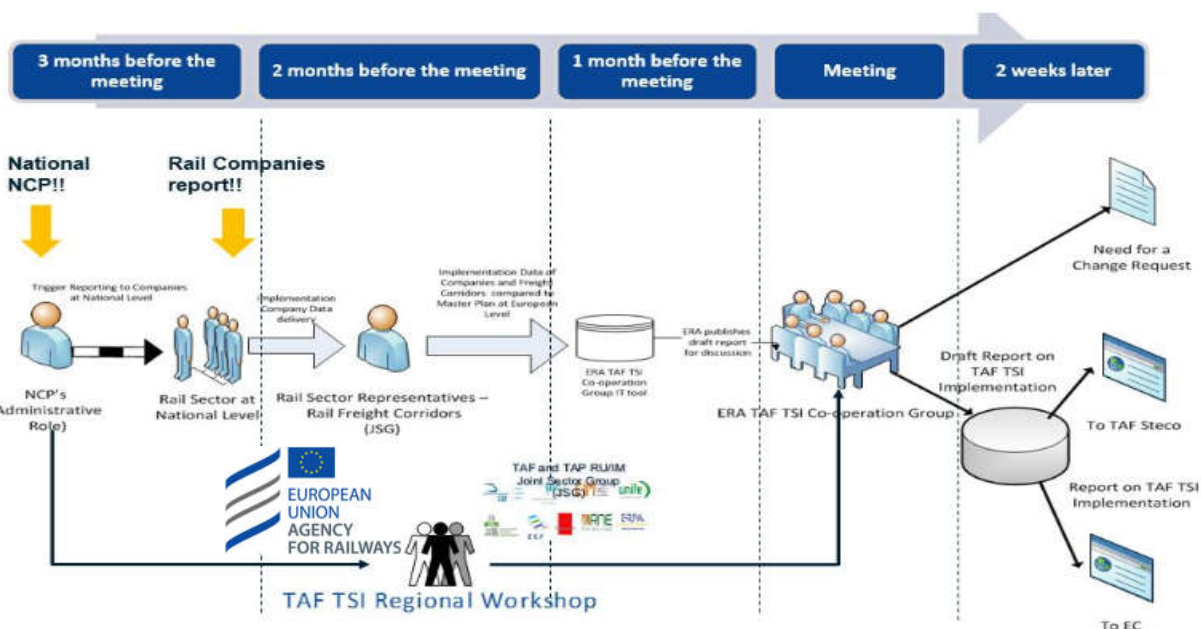


Figure 2: ERA TAF TSI Implementation Cooperation Group process for RU/IM basic parameters.

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 NCPs will trigger the reporting exercise keeping up to date the list of companies stored in the JSG reporting tool taking part in the reporting exercise. This task is performed 1 month before the campaign starts. Then, the JSG will deliver 3 months in advance of the TAP TSI co-operation group an e-mail contacting all the companies of the reporting list and launching the reporting. The reporting is provided as electronic form on the JSG tool. The companies have 1 month to report. Once the reporting is concluded, the tool is close and the JSG will elaborate an implementation report with the sector’s view over 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. Both reports should be made available for the members of the TAF TSI Implementation Cooperation Group at least 2 weeks before the meeting for discussion within the mirror groups. The content of the Agency report is discussed and amended during the meeting giving two additional weeks for further remarks. Once the allegation period is concluded, the report is delivered by the Agency to the European Commission and to the TAF TSI Steering Committee. Thereby, this reporting about the TAF TSI basic parameters is not in the scope of the current report about the TAP TSI implementation progress.

TAP TSI RU/IM functions were monitored until 2018 twice a year to better compile progress of implementation. Since 2019 only one report per year will be delivered.

2.2.5 Further steps after the reporting

After the reporting of the progress for the TAP TSI implementation further steps have to 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 multimodal environment.

The Agency delivers the reports also to the Member States through 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 2022 was 288** 48 companies replied and 15 were added with the figures from the previous campaign 2021.

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.

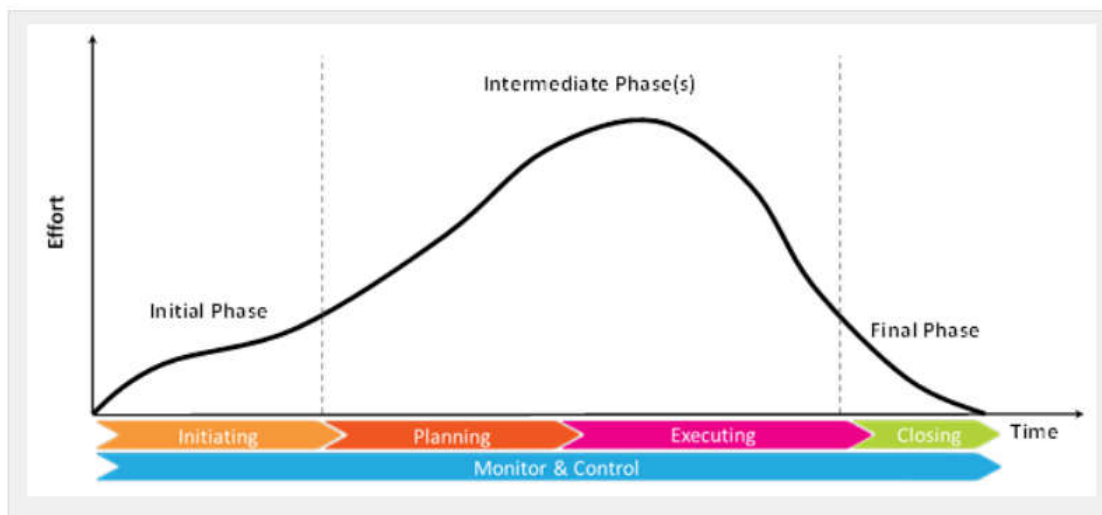


Figure 3: PM² project lifecycle.

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)

<i>Milestone</i>	<i>Planned date</i>	<i>Actual date</i>	<i>Degree of fulfilment</i>
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 4: TAP TSI Master Plan for the retail functions.

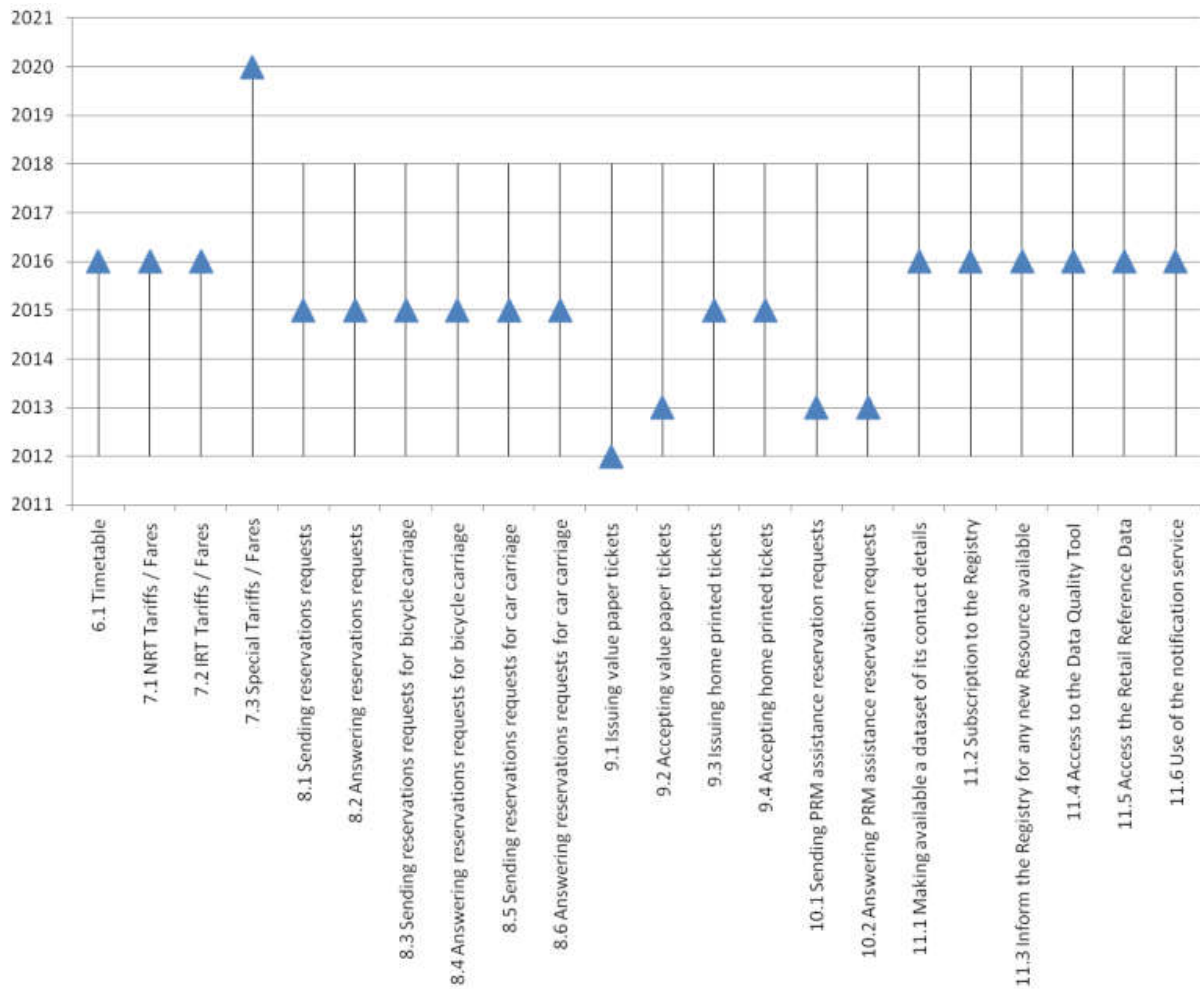


Figure 4: TAP TSI Master Plan for the retail functions

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 (12 October 2022). The calendar for the data collection and analysis has been agreed in last meeting and it was done as follows:

#	Step	Date
1	ERA will send the request to update PM's	30.09.2022
	Meeting TAP TSI ICG	12.10.2022
2	Update TAP TSI RU/TV PM list	04.11.2022

3	CSG send the questionnaire to ERA	N/A
4	ERA/JSG/CSG/ETTSA triggers reporting session	14.11.2022
5	Opening JSG/CSG tool for reporting	14.11.2022 - 09.12.2022
6	Analysing data for report	January 2023
7	Preparing JSG/CSG report	February 2023
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	08.03.2023
11	Publishing implementation report	t.b.c.

Table 7: Reporting schedule for TAP TSI basic parameters (9th reporting)

In the meeting of the TAP TSI co-operation group on 12 October 2022 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 9th reporting session.

The reporting has been executed using the survey tool EU Survey. The questionnaire has been published in English and as well in Spanish, Hungarian, Italian and German. Unfortunately, due to a technical error the publication on further languages was prepared, but not done finally.

It has been further agreed not to collect the market shares of the railway undertakings, because of the uncertainty and the significant reduction of travelling due to the COVID-19 crisis, the marked shares for 2022 are still not reliable and the existing market shares from 2019 were taken.

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

1. Some undertakings have reported their data as well for undertakings belonging to the same group. Therefore the data delivered from DB AG have been copied to 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
2. Some undertakings reported to use equivalent UIC leaflets to fulfil some basic parameters. In these cases it has been assumed, that the ERA technical documents have been fulfilled.

The reporting campaign was held in November/December 2022 **41** companies reported to the report. The results of the reporting have been presented in the TAP TSI co-operation group meeting on 9 March 2022.

Since the previous reporting 22% of the invited RUs have answered. No weighting factor based on passenger-km at European level coming from the NCPs and EC data has been used.

Because of the Covid-19 pandemic situation it was not possible to get for 2022 reliable market share figures of the individual contributing rail actors per member state. Therefore, the data from the previous report have been used.

The report reflects the state of play for the implementation of the TAP TSI end of 12/2022.

The content of the report has been compiled based on the input of the implementation reports for the TAP TSI basic parameters for retail and for RU/IM (4)(5), see Figure 5: Sources of the reporting chapters.

1.	Executive summary	}	ERA
2.	Introduction		
3.	Context	}	ERA
4.	Analysis		
4.1	Implementation of the regulatory functions	}	From CSG report
4.2	Implementation of the functions according to the original consolidated TAP TSI Master Plan		
4.2.1	Process for the questionnaire		
4.2.2	Results of the reporting for the TAP TSI retail basic parameters to be implemented by railway undertakings		
4.2.2.1	Sending reservation requests from agreed RU's and agreed 3rd parties in B5 format		
4.2.2.2	Answering reservation requests from agreed RU's and agreed 3rd parties in B5 format		
4.2.2.3	Sending reservation requests for bicycle carriage to agreed RU's in B5 format		
4.2.2.4	Answering reservation requests for bicycle carriage from agreed RU's and agreed 3rd parties in B5 format		
4.2.2.5	Sending reservation requests for car carriage to agreed RU's in B5 format		
4.2.2.6	Answering reservation requests for car carriage from agreed RU's and agreed 3rd parties in B5 format		
4.2.2.7	Issuing value paper tickets for international and foreign sales in B6 format		
4.2.2.8	Accepting value paper tickets for international and foreign sales in B6 format		
4.2.2.9	Issuing home printed tickets for international and foreign sales in B7 format		
4.2.2.10	Accepting home printed tickets for international and foreign sales in B7 format		
4.2.2.11	Sending PRM assistance reservation requests via IT communication to agreed RU's, IM's and SM's in B10 format		
4.2.2.12	Answering PRM assistance reservation requests via IT-communication from agreed RU's and agreed 3rd parties in B10 format		
4.2.2.13	NRT tariffs/fares		
4.2.2.14	IRT tariffs/fares		
4.2.2.15	Special tariffs/fares		
4.2.2.16	Timetables		
4.2.2.17	Common sector tools		
4.2.2.18	Delivery of timetable data, tariff data to TSGA		
4.2.2.19	Registration at TSGA		
4.2.2.20	Subscription for timetable data, tariff data, public keys at TSGA		
4.2.3	Results of the reporting for the TAP TSI retail basic parameters to be implemented by ticket vendors		
4.2.4	Results of the reporting for the TAP TSI RU/IM basic parameters to be implemented by railway undertakings		
4.3	Publication of the conditions of carriage and access conditions	}	ERA
4.4	Evolution of TAP TSI regulatory functions at European level		
4.5	Evolution of TAP TSI retail functions at Member state level		
4.6	Analysis of problems		
5	Conclusions		
6	Recommendation / actions to be taken		

Figure 5: Sources of the reporting chapters

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.

The following diagram shows the answer rate of the questionnaire.

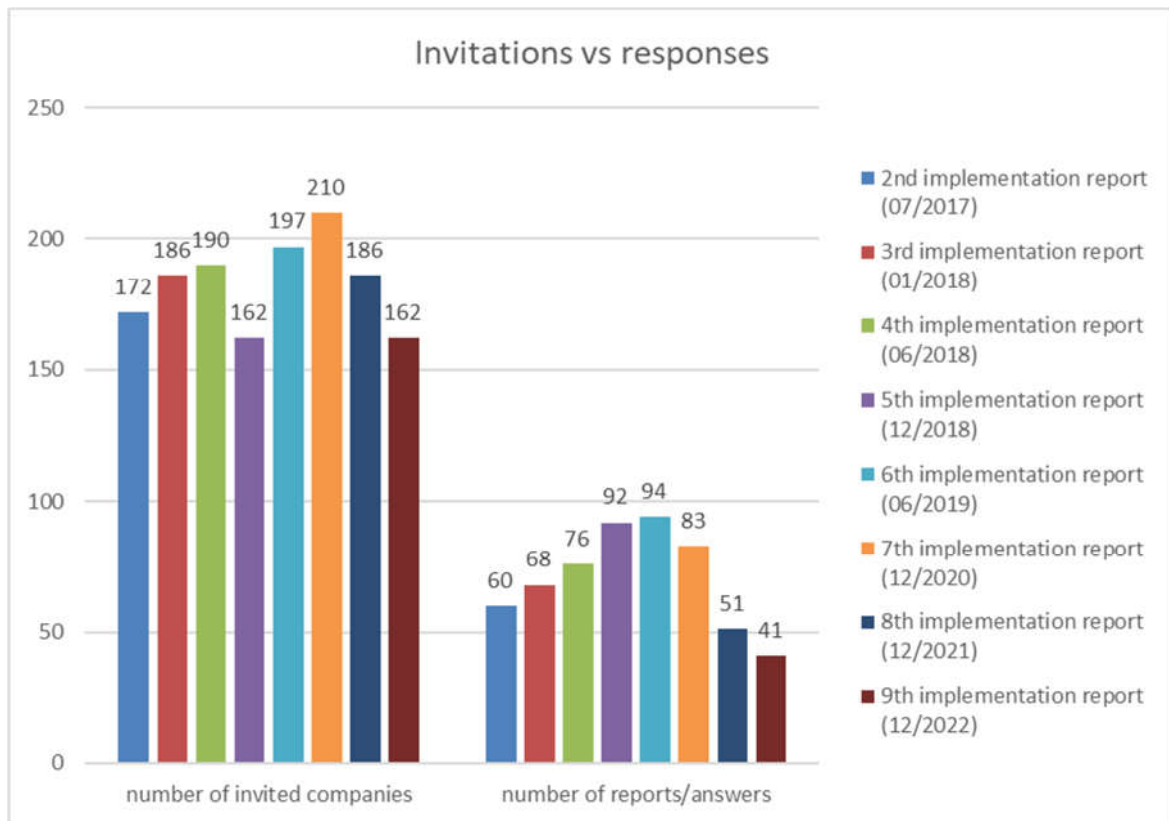


Figure 6: Number of invitations and responses per implementation report

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

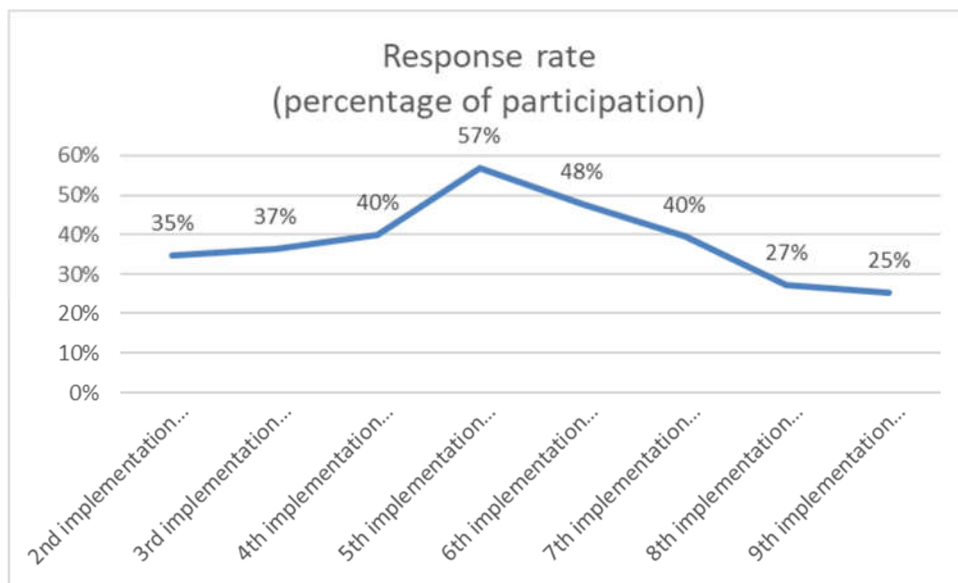


Figure 7: Evolution of response rate vs invited companies

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 9th report the response rate has been further reduced to 25% even the number of companies contacted

for the report, has not been significantly increased. However, the overall number of responses and overall answer rate should be improved by focusing on the member states which did not provide any feedback on invitation or did not provide any contact data for existing RUs, which are obliged to TAP implementation.

The following diagram shows the distribution of answers concerning the request. The RUs from 20 countries (19 member states plus Switzerland plus one company reporting for whole EU) have submitted their responses to the implementation progress of the TAP TSI retail basic parameters.

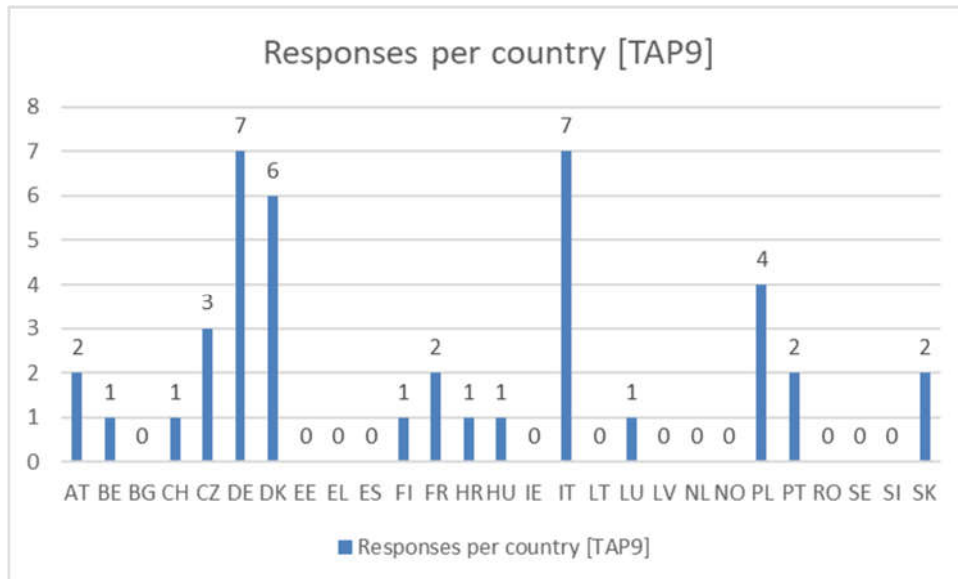


Figure 8: Number of responses per country

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

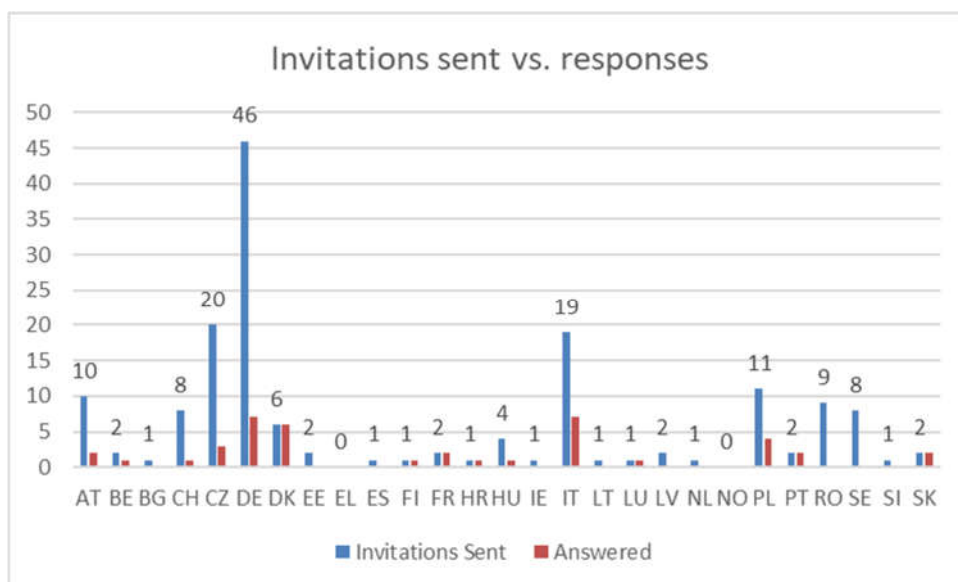


Figure 9 - Invitations and responses per country

In Figure 10 - Distribution per country the colours follow the responses, showing the evolution between this and the previous campaign, in particular in red colour are showed the Member States where a reply hasn't been given.

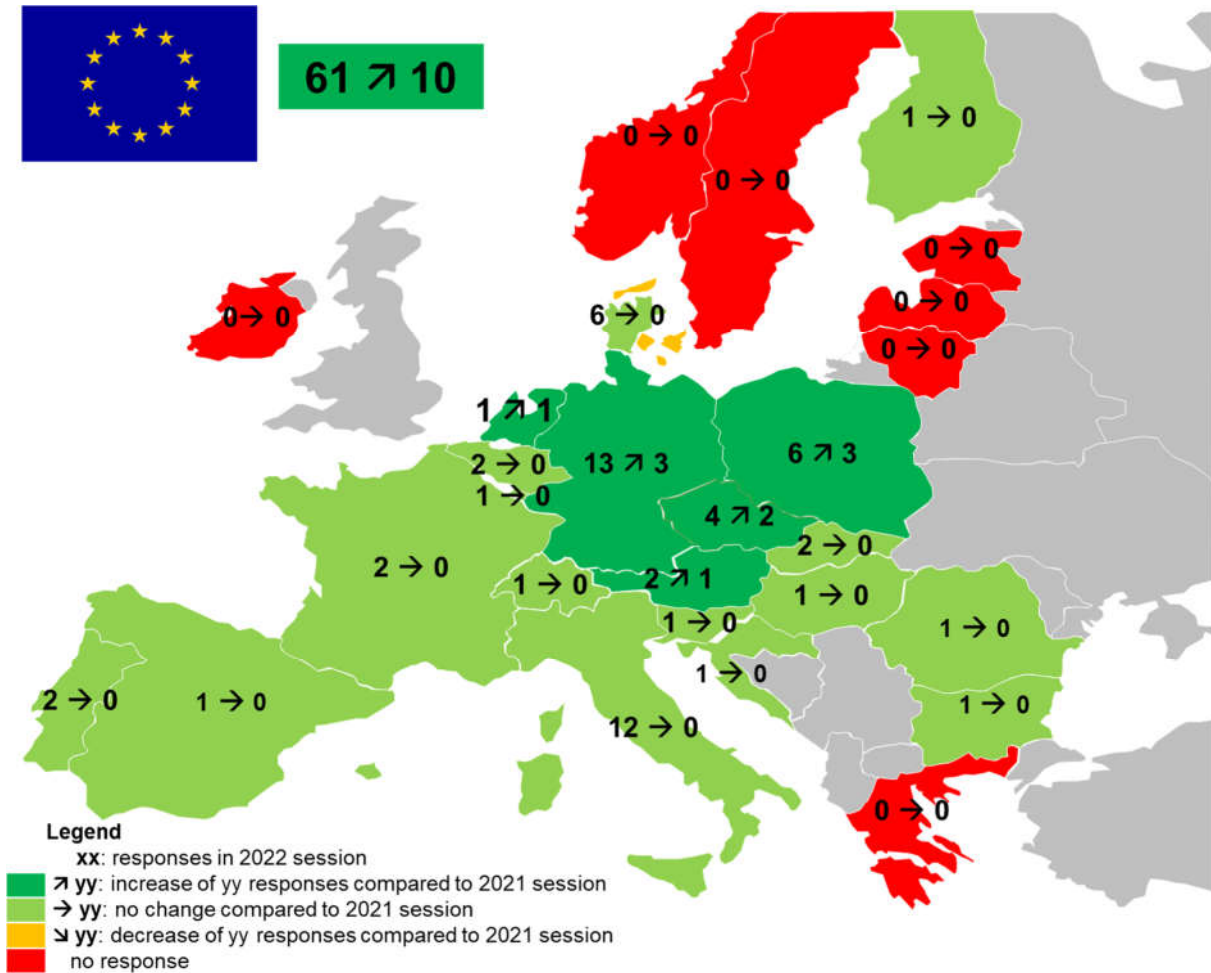


Figure 10 - Distribution per country

In Table 8: Rate of no subject to implementation per function with a colour code the rate of “subject to implementation” among the 63 replying companies is indicated.

<i>Function</i>	<i>Subject to implementation</i>
Ticketing - Direct fulfilment for international and foreign sales in B6 format	43%
Ticketing - Indirect fulfilment for international and foreign sales in B6 or B7 format or other formats	41%
Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (direct fulfilment)	45%
Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (indirect fulfilment)	35%
Ticketing - Accepting home printed tickets for international and foreign sales in B7 format	35%
Reservation - Sending PRM assistance reservation requests to agreed RUs, IMs, SMs in B10 format or other standards	57%
Reservation - Answering PRM assistance reservation requests to agreed RUs, IMs, SMs in B10 format or other standards	59%
Reservation - Sending requests to agreed RUs in B5 format or other standards	47%
Reservation - Answering reservation requests from agreed RUs/TVs in B5 format or other standards	45%
Reservation - Sending requests for bicycle carriage to agreed RUs in B5 format or other standards	41%
Reservation-Answering reservation requests for bicycle carriage from agreed RUs/TVs in B5 format or other standards	36%
Reservation - Sending requests for car carriage to agreed RUs in B5 format or other standards	29%
Reservation - Answering reservation requests for car carriage from agreed RUs/TVs in B5 format or other standards	22%
Timetable data: Timetable made available in B4 format to other RUs, PAs, 3rd Parties	61%
Tariff data: NRT Tariffs/Fares for international and foreign sales in B1 format to PAs, authorised RUs and 3rd Parties	41%
Tariff data: IRT Tariffs/Fares for international and foreign sales in B2 format to PAs, authorised RUs and 3rd Parties	33%
Tariff data: Special Tariffs/Fares for international and foreign sales in B3 format to PAs, authorised RUs and 3rd Parties	35%
More than 70% subject to implementation	
Between 50% and 70% subject to implementation	
Between 40% and 50% subject to implementation	
Less than 40% subject to implementation	

Table 8: Rate of no subject to implementation per function

5 Implementation monitoring of TAP TSI functions

5.1.1 Ticketing

Set of functions to be reported

- › Direct fulfilment for international and foreign sales in B6 format;
- › Indirect fulfilment for international and foreign sales in B6 or B7 format or other formats;
- › Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (direct fulfilment);
- › Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (indirect fulfilment);
- › Accepting home printed tickets for international and foreign sales in B7 format.

5.1.2 Direct fulfilment for international and foreign sales in B6 format

The Target Implementation Milestone for realisation of the fulfilment for international and foreign sales in B6 format according to the TAP TSI Masterplan was 2012.

Figure 11 - Direct fulfilment – Function application indicates:

- › - the companies not subject to implement the function, based on the number of responses (39)
- › - the companies subject to implement the function, based on the number of responses (22).

For the companies subject to implement the function it is reported the use of technical documents, other standards or both; showing the number of responses. The same understanding applies for the following diagrams.

The main reason of not applying the function is:

- › the company is not issuing international tickets.

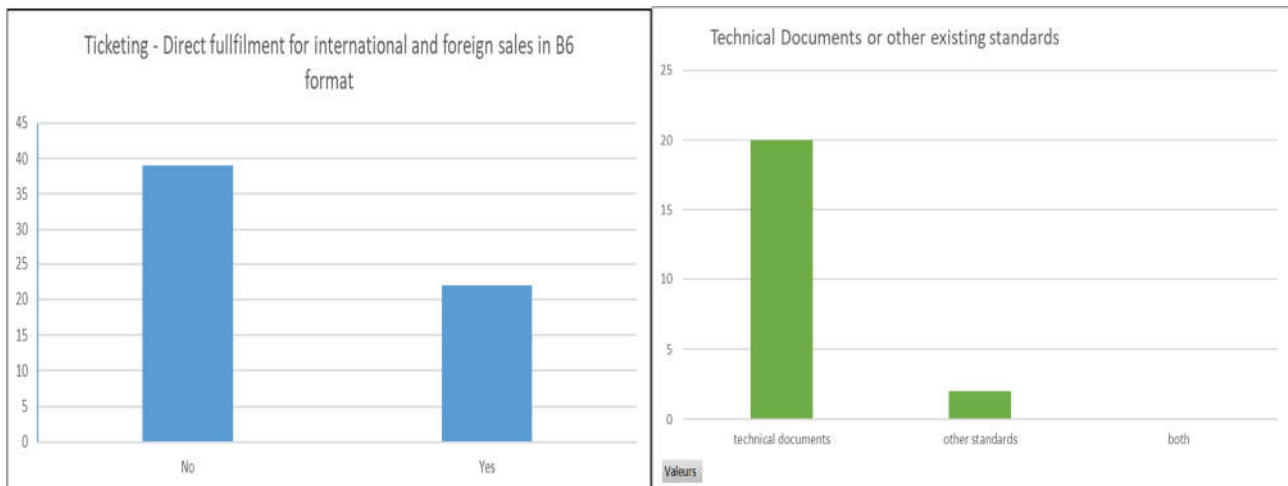


Figure 11 - Direct fulfilment – Function application

Figure 12 Direct fulfilment – Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

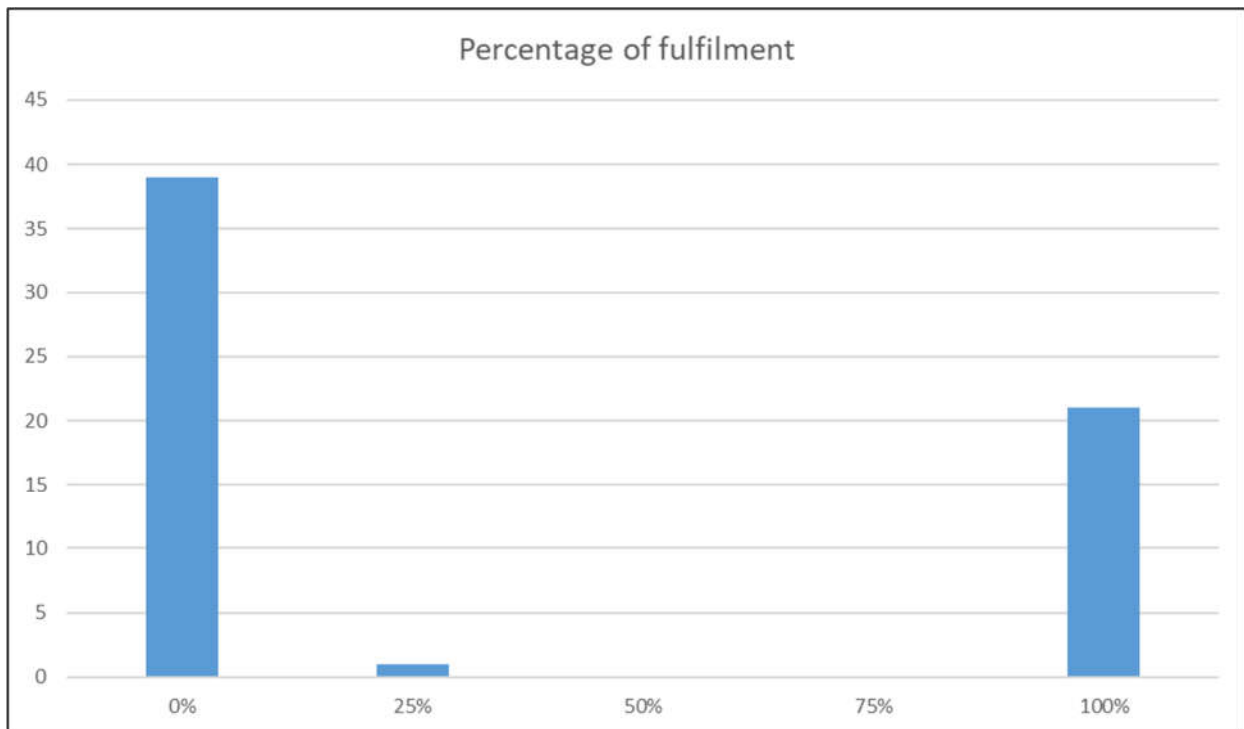


Figure 12 Direct fulfilment – Level of fulfilment

5.1.3 Indirect fulfilment for international and foreign sales in B6 or B7 format OR OTHER FORMATS

The Target Implementation Milestone for realisation of the indirect fulfilment for international and foreign sales in B6 or B7 format or other formats according to the TAP TSI Masterplan was 2015.

Figure 13 Indirect fulfilment - Function application indicates:

- › - the companies not subject to implement the function, based on the number of responses (39)
- › - the companies subject to implement the function, based on the number of responses (22).

For the companies subject to implement the function it is reported the use of technical documents, other standards or both; showing the number of responses. The same understanding applies for the following diagrams.

The main reason of not applying the function is:

- › the company is not issuing international tickets.

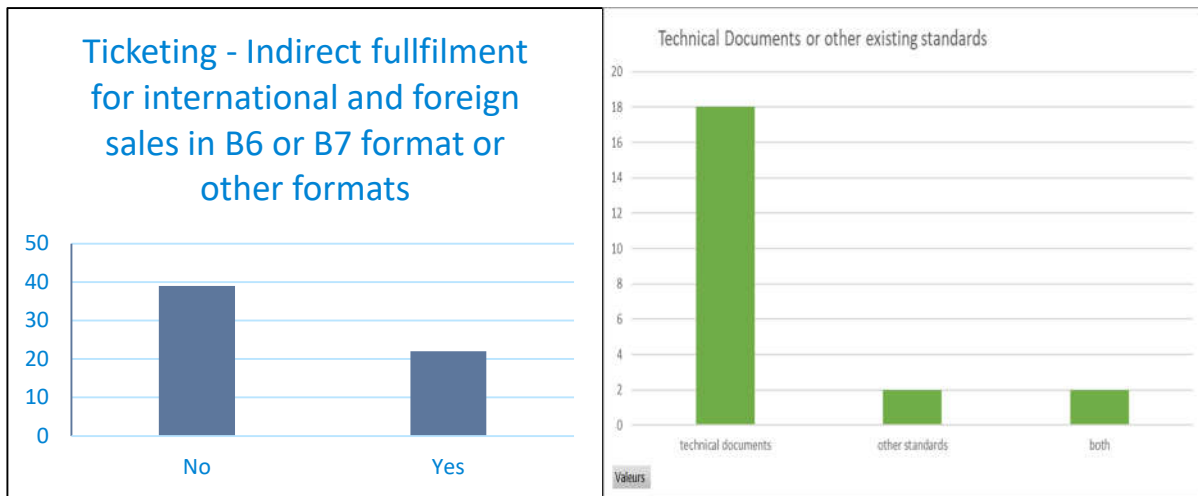


Figure 13 Indirect fulfilment - Function application

Figure 14 Indirect fulfilment - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

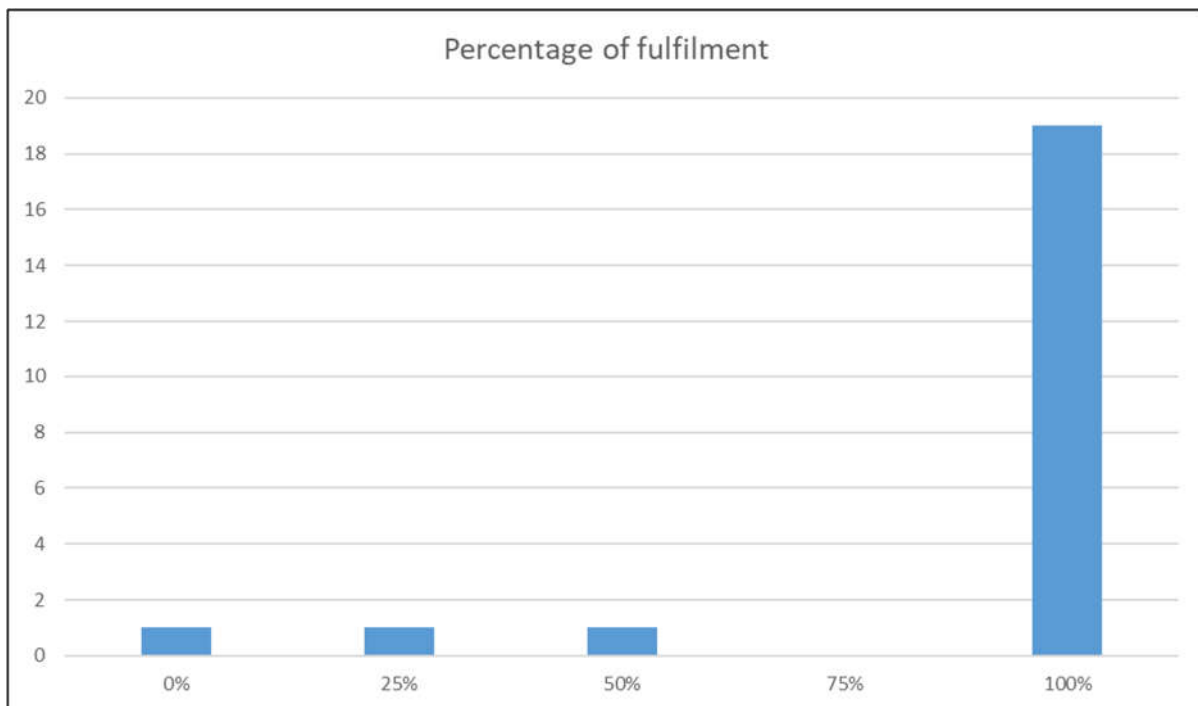


Figure 14 Indirect fulfilment - Level of fulfilment

5.1.4 Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (direct fulfilment)

The Target Implementation Milestone for realisation of the Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (direct fulfilment) according to the TAP TSI Masterplan was 2013.

Figure 15 Direct Fulfilment – Function application indicates:

- > the companies not subject to implement the function, based on the number of responses (37)
- > the companies subject to implement the function, based on the number of responses (24).

For the companies subject to implement the function it is reported the use of technical documents, other standards or both; showing the number of responses. The same understanding applies for the following diagrams.

The main reason of not applying the function is:

- › the company is not issuing international tickets.

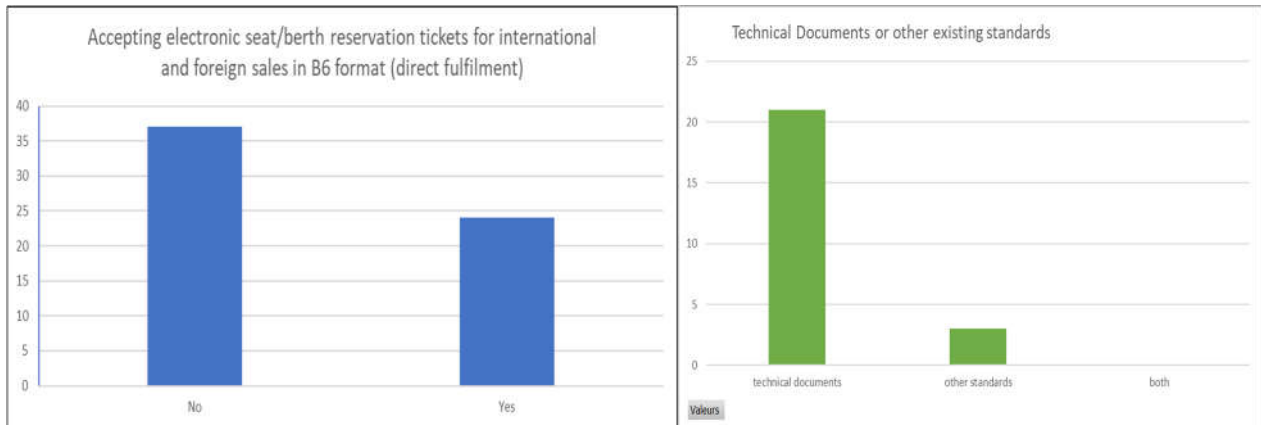


Figure 15 Direct Fulfilment – Function application

Figure 16 Direct fulfilment - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values

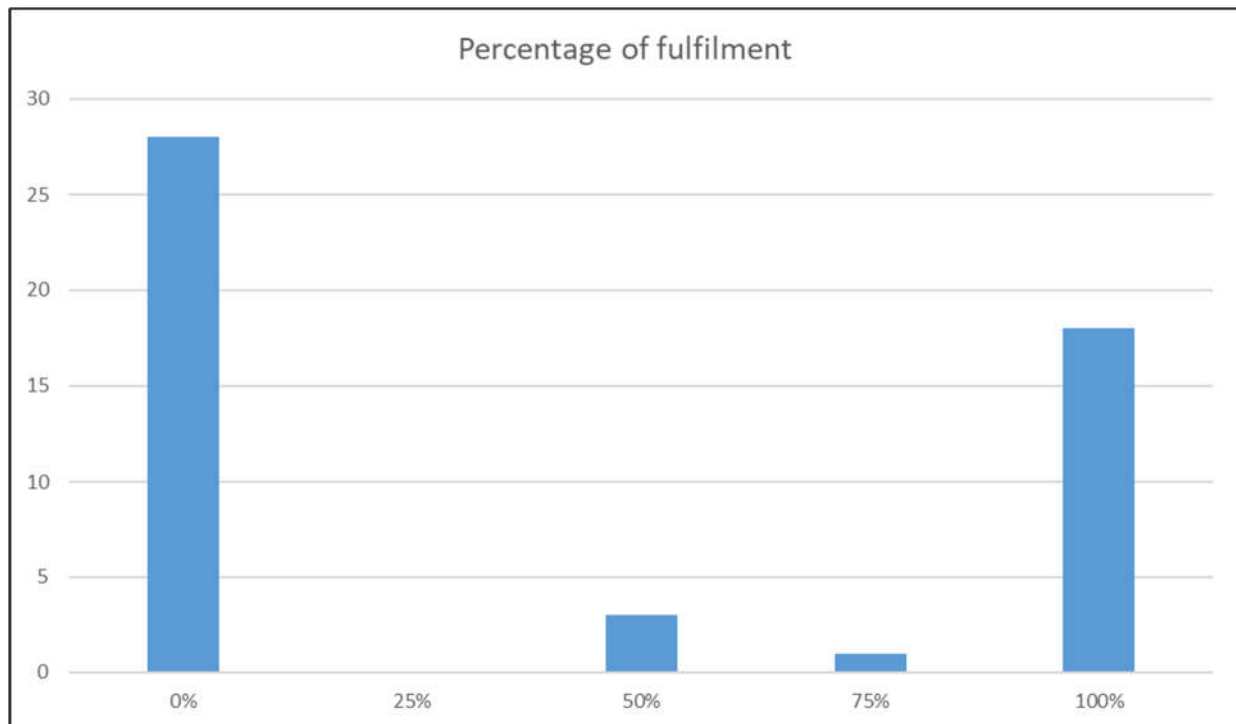


Figure 16 Direct fulfilment - Level of fulfilment

5.1.5 Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (indirect fulfilment)

The Target Implementation Milestone for realisation of the Accepting electronic seat/berth reservation tickets for international and foreign sales in B6 format (indirect fulfilment) according to the TAP TSI Masterplan was 2013.

Figure 17 Indirect Fulfilment – Function application indicates:

- › the companies not subject to implement the function, based on the number of responses (49)
- › the companies subject to implement the function, based on the number of responses (12).

For the companies subject to implement the function it is reported the use of technical documents, other standards or both; showing the number of responses. The same understanding applies for the following diagrams.

The main reason of not applying the function is:

- › the company is not issuing international tickets.

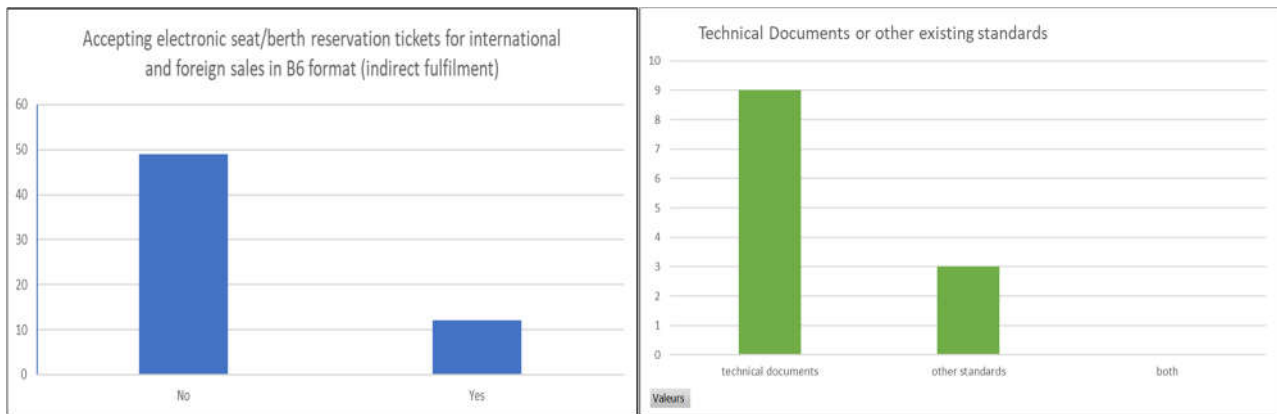


Figure 17 Indirect Fulfilment – Function application

Figure 18 Indirect fulfilment - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

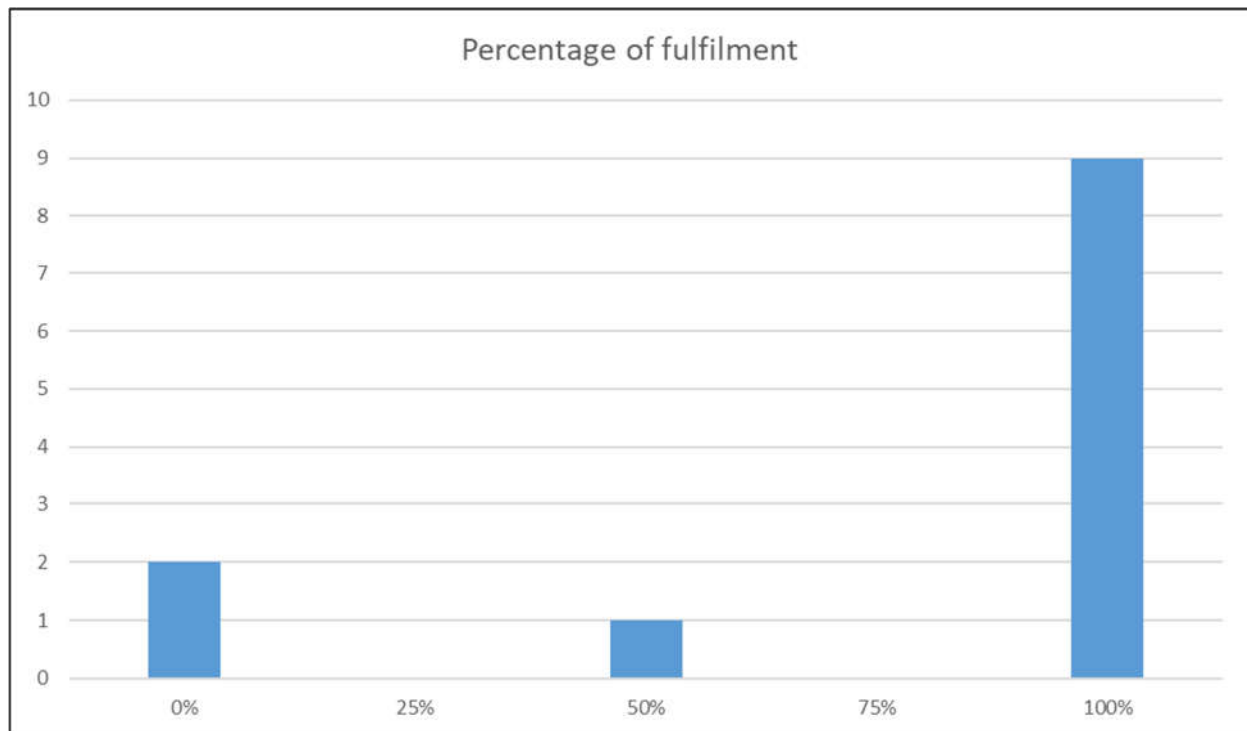


Figure 18 Indirect fulfilment - Level of fulfilment

5.1.6 Accepting home printed tickets for international and foreign sales in B7 format

The Target Implementation Milestone for realisation of the Accepting home printed tickets for international and foreign sales in B7 format according to the TAP TSI Masterplan was 2015.

Figure 19 Accepting home printed tickets - Function application indicates the companies subject and not to implementing the function in terms of number of responses.

13 European companies replying to the campaign declare to be subject to implement the function. In addition, for the companies subject to implement the function it is reported the use of technical documents, other standards or both.

The main reasons of not applying the function is that the company is:

- › company is not accepting/issuing international tickets.



Figure 19 Accepting home printed tickets - Function application

Figure 20 Accepting home printed tickets - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

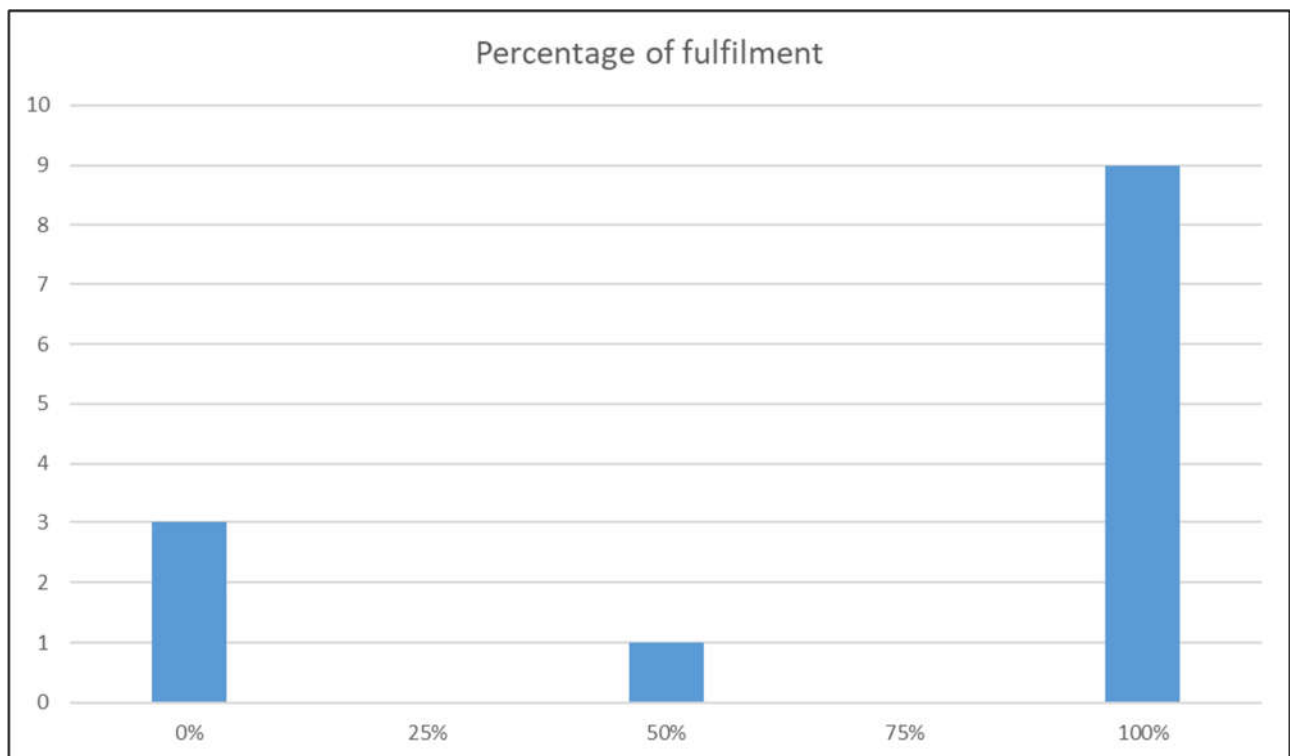


Figure 20 Accepting home printed tickets - Level of fulfilment

5.2 Reservation

Set of functions to be reported

- › Sending PRM assistance reservation requests to agreed RUs, IMs and SMs in B10 format or other standards
- › Answering PRM assistance reservation requests to agreed RUs, IMs and SMs in B10 format or other standards
- › Sending reservations requests to agreed RUs in B5 format or other standards
- › Answering reservation requests from agreed RUs/TVs in B5 format or other standards
- › Sending reservation requests for bicycle carriage to agreed RUs/TVs in B5 format or other standards
- › Answering reservation requests for bicycle carriage from agreed RUs in B5 format or other standards
- › Sending reservation requests for car carriage to agreed RUs in B5 format or other standards
- › Answering reservation requests for car carriage from agreed RUs/TVs in B5 format or other standards

5.2.1 Sending PRM assistance reservation requests in B10 format or other standards

The Target Implementation Milestone for realisation of the Sending PRM assistance reservation requests to agreed RUs, IMs and SMs in B10 format according to the TAP TSI Masterplan was 2013.

Picture 17 indicates the companies subject (32) and not (29) to implementing the function in terms of number of responses.

Companies subject to implementation use mainly TD B.10 (19) than other standards (13)

The main reasons of not applying the function are:

- › PRM reservation is not made through IT systems (email, sms, telephone)
- › the service is supplied to another company.

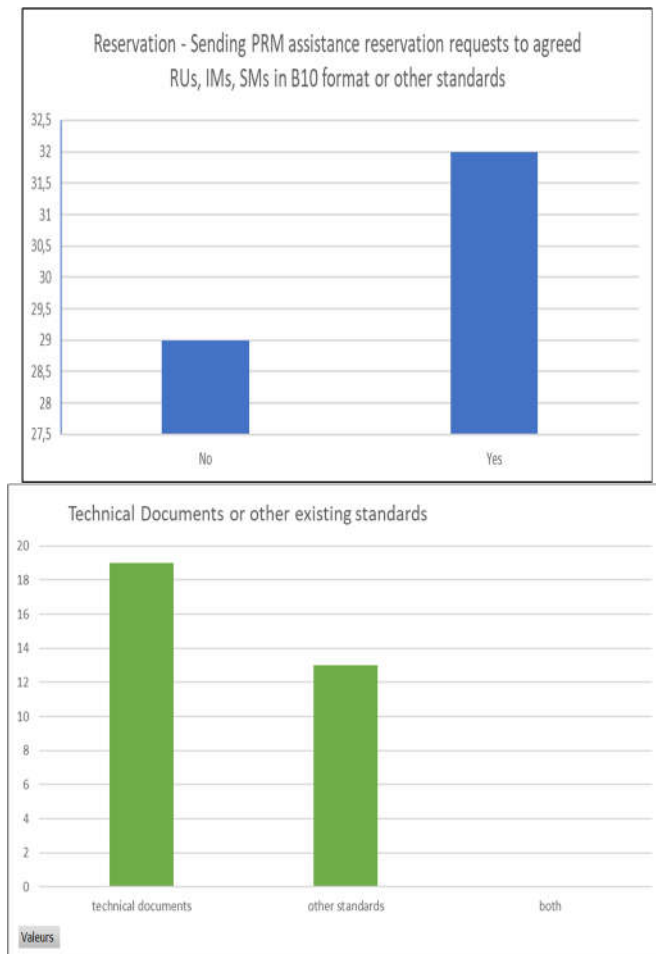


Figure 21 Sending PRM assistance reservation requests - Function application

Figure 22 Sending PRM assistance reservation requests - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function.

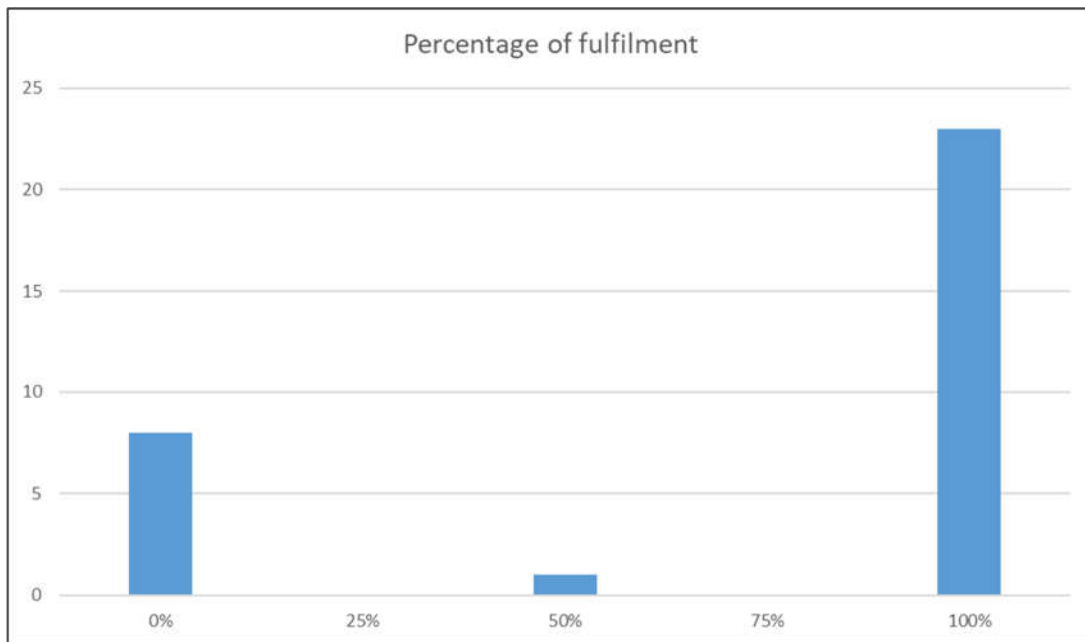


Figure 22 Sending PRM assistance reservation requests - Level of fulfilment

5.2.2 Answering PRM assistance reservation requests in B10 format or other standards

The Target Implementation Milestone for realisation of the Answering PRM assistance reservation requests to agreed RUs, IMs and SMs in B10 format according to the TAP TSI Masterplan was 2013.

Figure 23 Answering PRM assistance reservation requests - Function application indicates the companies subject (37) and not (24) to implement the function in terms of number of responses.

Companies subject to implementation use TD B.10 (19), other standards (17) or both (1).

The main reasons of not applying the function are:

- › PRM reservation is not made through IT systems (email, sms, telephone)
- › the service is supplied to another company.

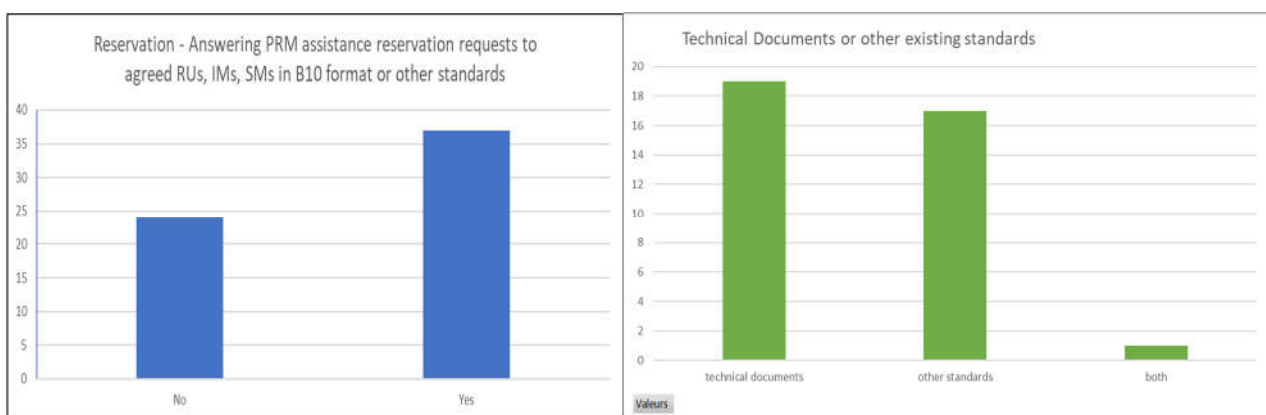


Figure 23 Answering PRM assistance reservation requests - Function application

Figure 24 Answering PRM assistance reservation requests - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

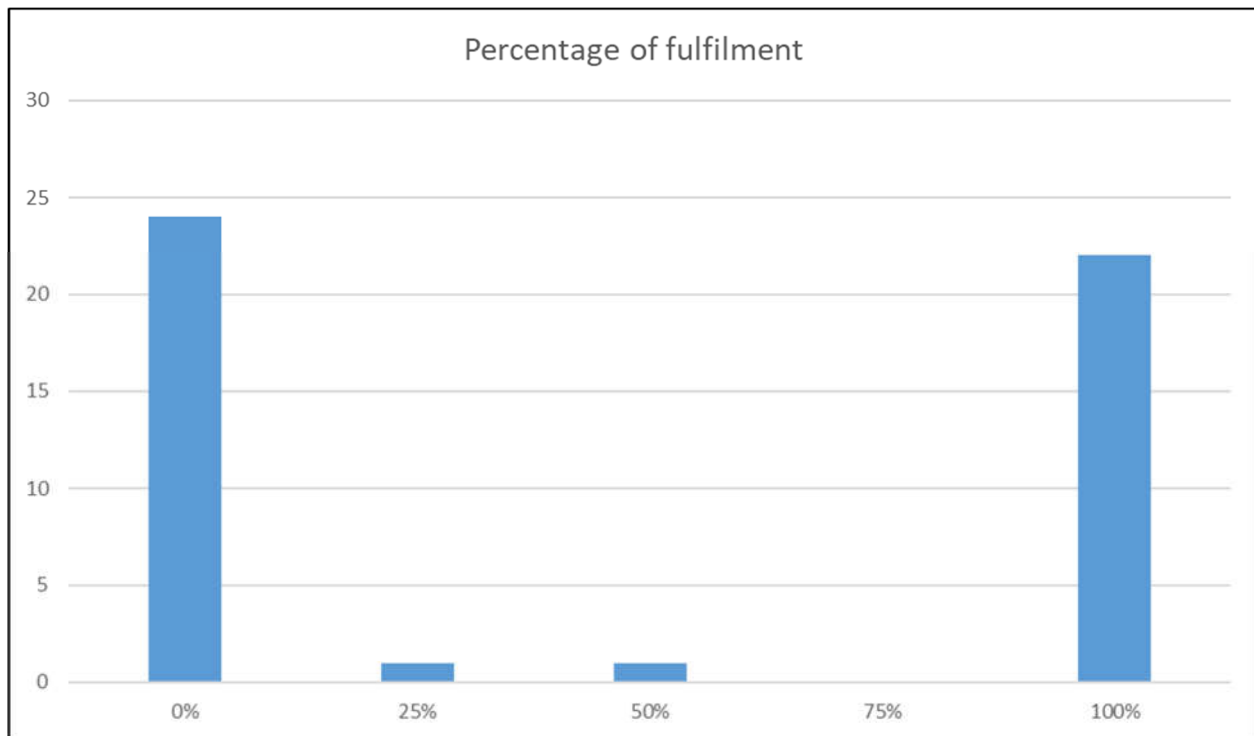


Figure 24 Answering PRM assistance reservation requests - Level of fulfilment

5.2.3 Sending reservations requests in B5 format or other standards

The Target Implementation Milestone for realisation of the Sending reservations requests to agreed RUs in B5 format according to the TAP TSI Masterplan was 2015.

Figure 25 Sending reservations requests - Function application indicates the companies subject (25) and not (36) to implement the function in terms of number of responses.

Companies subject to implementation use main TD B.5 (19 only and 3 with other standards and 3 with both).

The main reason for not applying the function is:

- › no seats reservation is provided (e.g. regional trains).

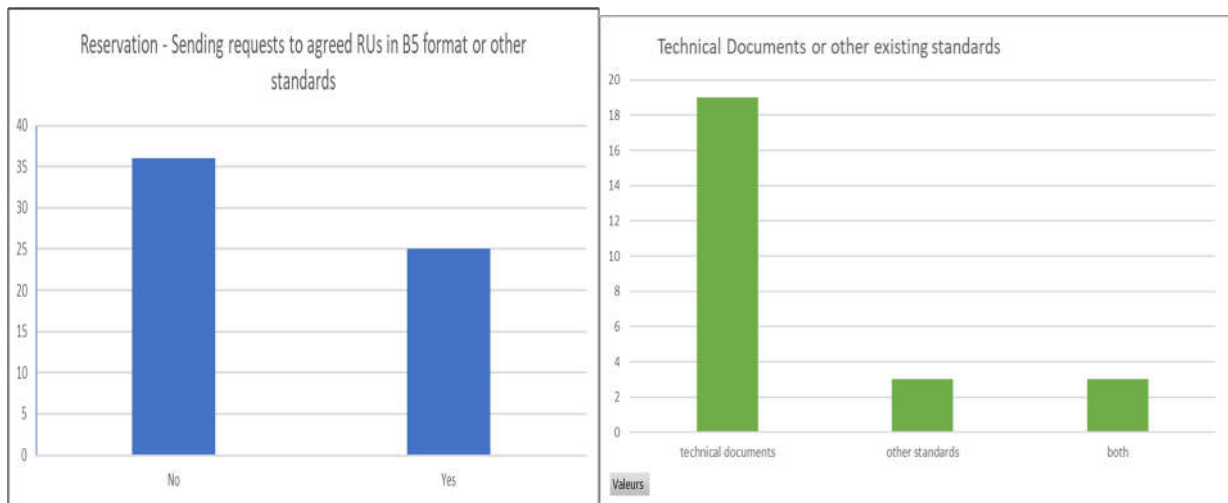


Figure 25 Sending reservations requests - Function application

Figure 26 Sending reservations requests - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

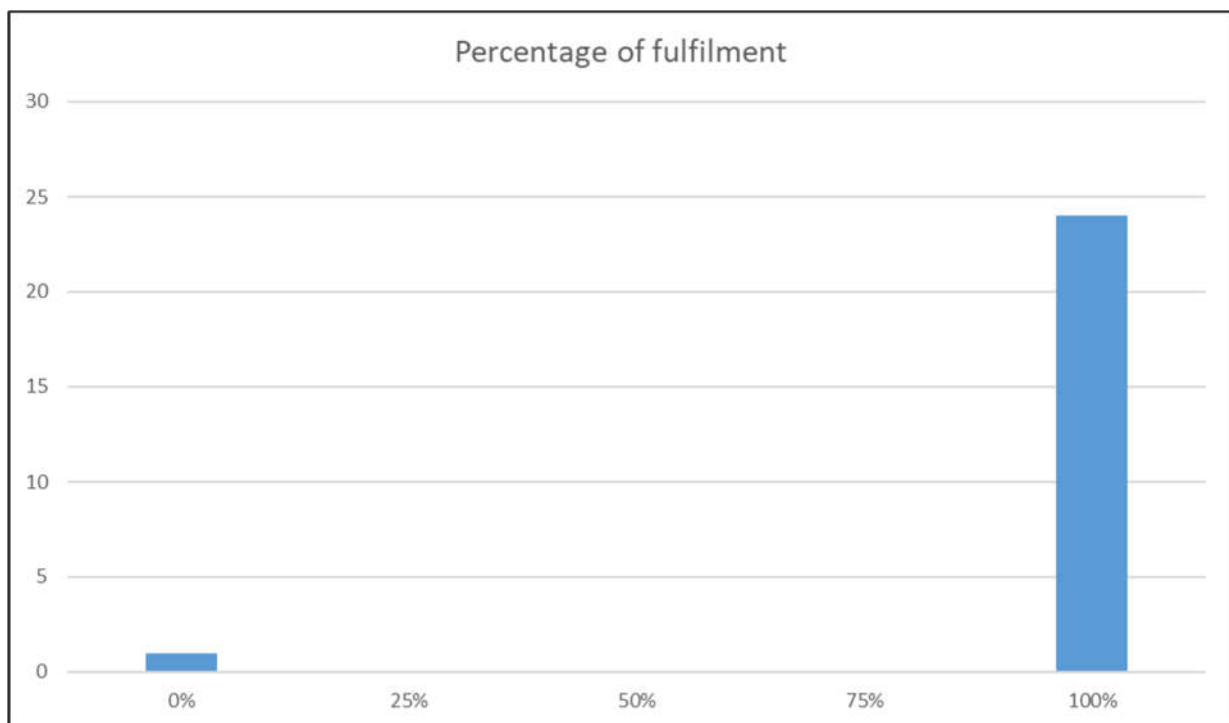


Figure 26 Sending reservations requests - Level of fulfilment

5.2.4 Answering reservation requests in B5 format or other standards

The Target Implementation Milestone for realisation of the Answering reservations requests to agreed RUs in B5 format according to the TAP TSI Masterplan was 2015.

Figure 27 Answering reservations requests - Function application indicates the companies subject (34) and not (27) to implement the function in absolute terms (number of responses).

Companies subject to implementation use TD B.5 (19), other standards (12) or both (3).

The main reason of not applying the function is:

- › no seats reservation is provided (e.g. regional trains).

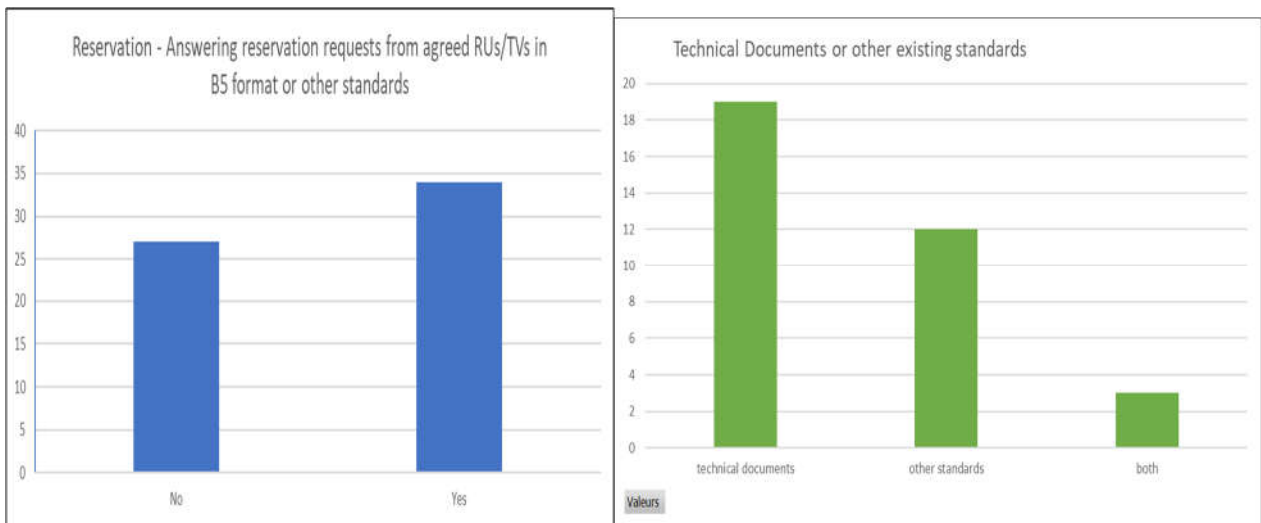


Figure 27 Answering reservations requests - Function application

Figure 28 Answering reservations requests - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

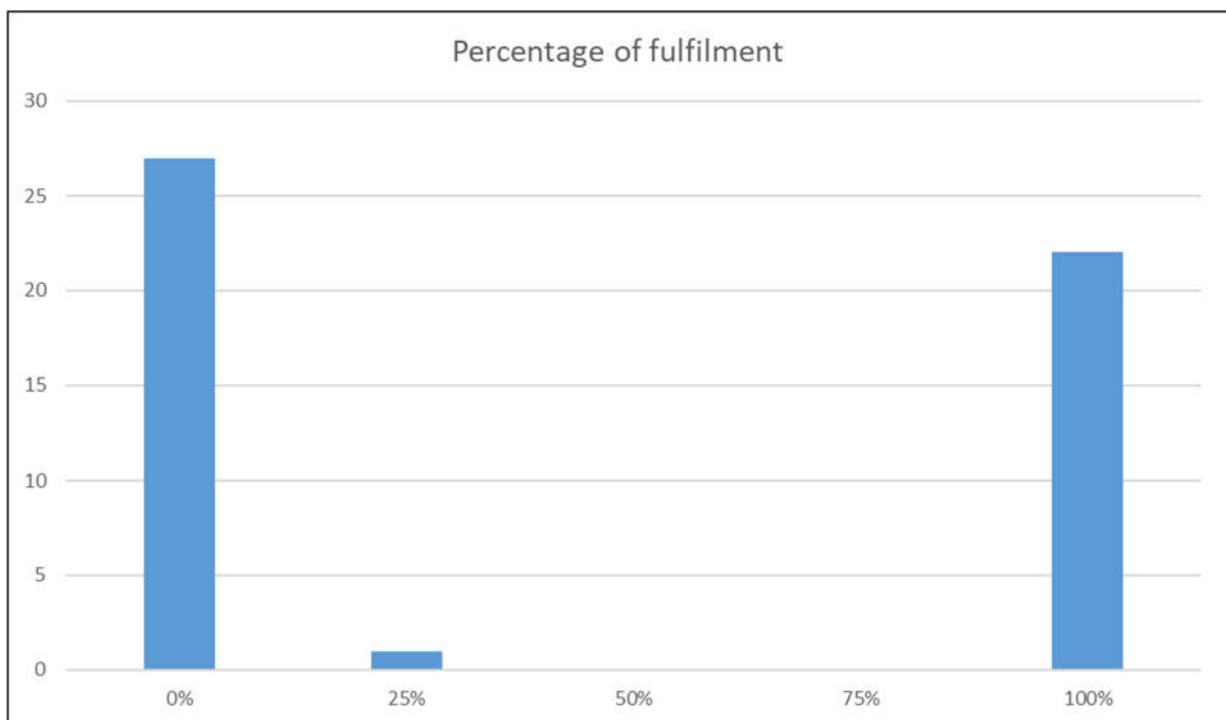


Figure 28 Answering reservations requests - Level of fulfilment

5.2.5 reservation requests for bicycle carriage in B5 format or other standards

The Target Implementation Milestone for realisation of the Sending reservation requests for bicycle carriage to agreed RUs in B5 format according to the TAP TSI Masterplan was 2015.

Picture 25 indicates the companies subject (21) and not (40) to implement the function in absolute terms (number of responses).

Companies subject to implementation use TD B.5 (18), other standards (2) or both (1).

The main reasons of not applying the function are

- > the service of booking the bicycle transport is not offered
- > national regional tools are used.

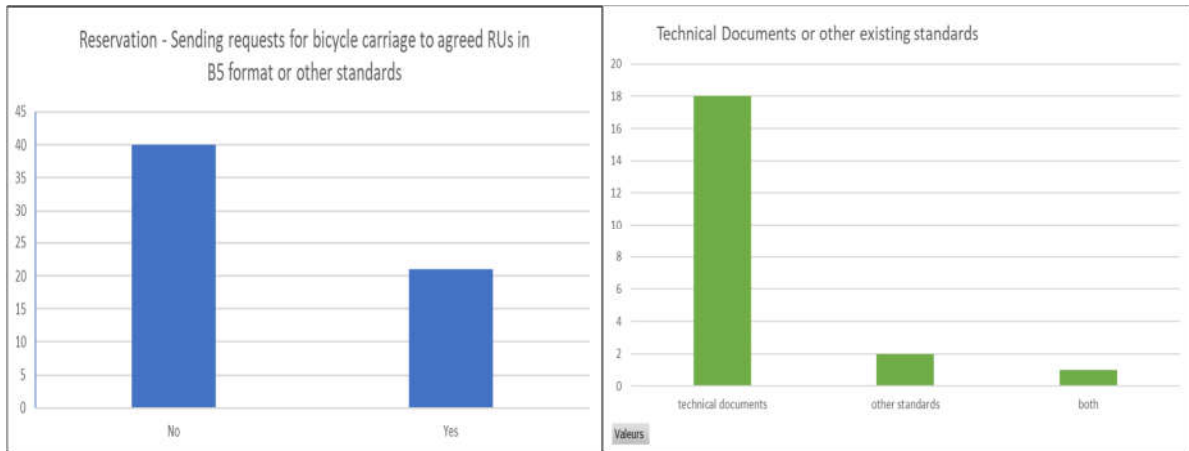


Figure 29 Sending reservation requests for bicycle carriage - Function application

Figure 30 Sending reservation requests for bicycle carriage - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

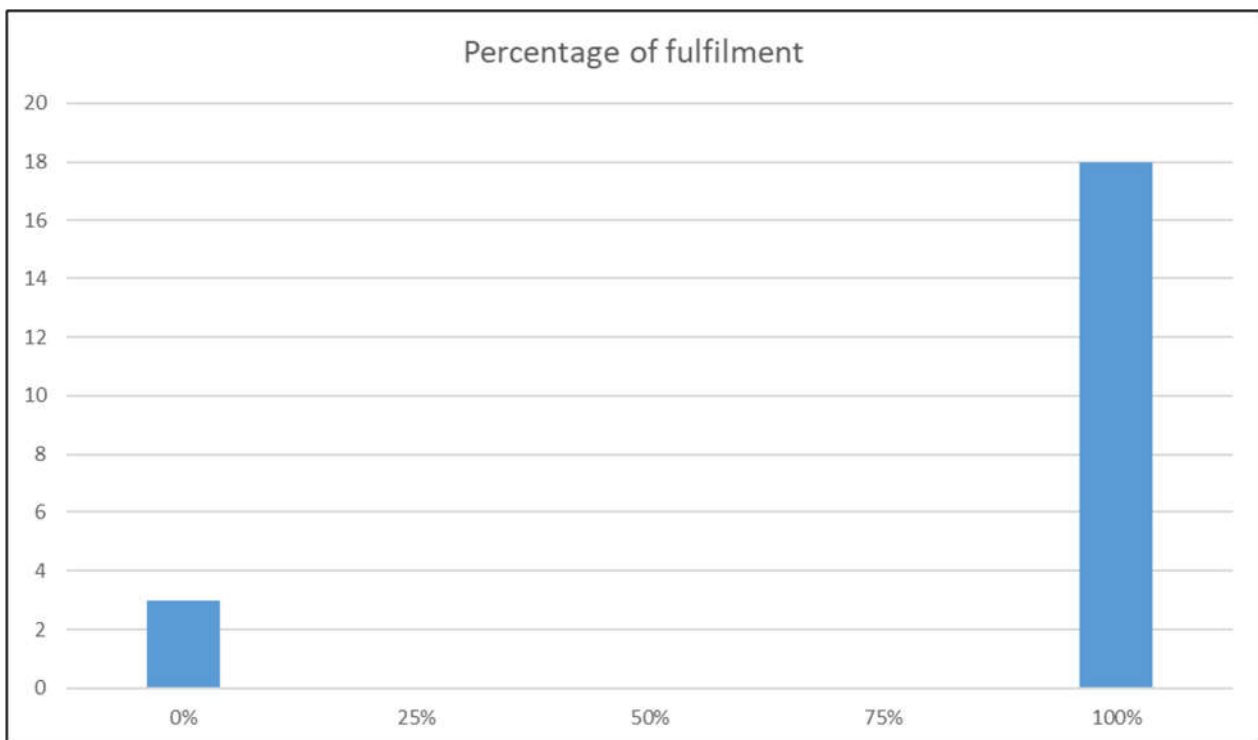


Figure 30 Sending reservation requests for bicycle carriage - Level of fulfilment

5.2.6 Answering reservation requests for bicycle carriage in B5 format or other standards

The Target Implementation Milestone for realisation of the Answering reservation requests for bicycle carriage from agreed RUs/TVs in B5 format according to the TAP TSI Masterplan was 2015.

Picture 27 indicates the companies subject (28) and not (33) to implement the function in absolute terms (number of responses).

Companies subject to implementation use TD B.5 (17), other standards (9) or both (2).

The main reasons of not applying the function are

- › the service of booking the bicycle transport is not offered
- › national regional tools are used.

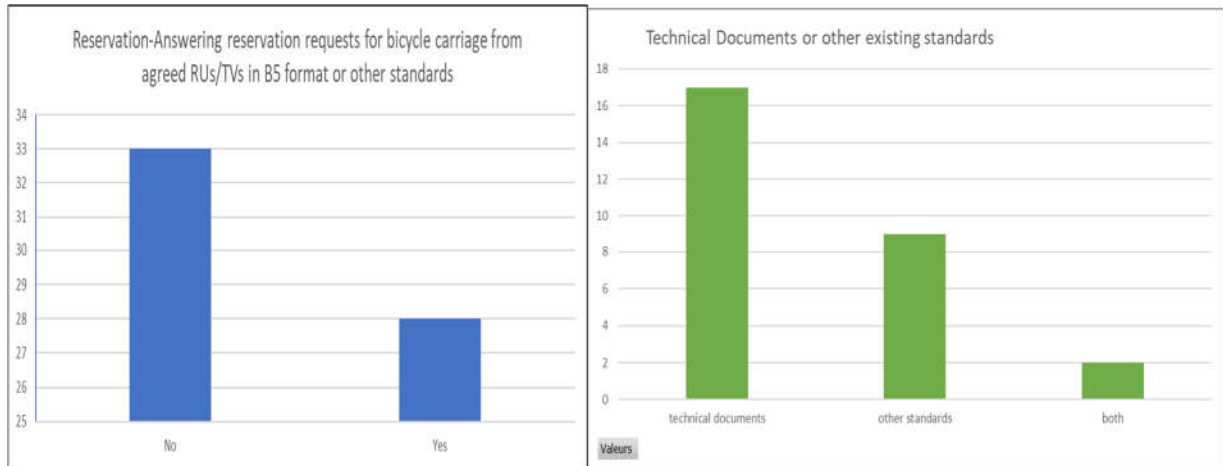


Figure 31 Answering reservation requests for bicycle carriage - Function application

Figure 32 Answering reservation requests for bicycle carriage - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

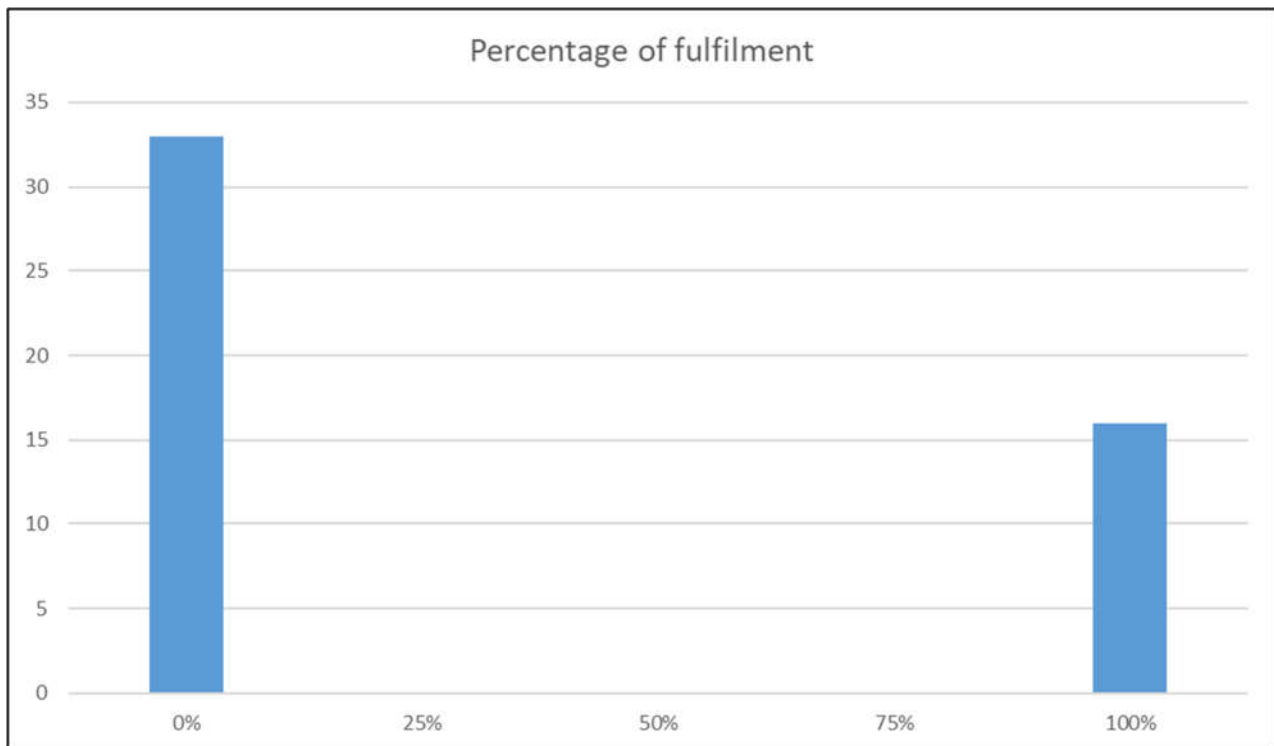


Figure 32 Answering reservation requests for bicycle carriage - Level of fulfilment

5.2.7 Sending reservation requests for car carriage in B5 format or other standards

The Target Implementation Milestone for realisation of the Sending reservation requests for car carriage to agreed RUs in B5 format according to the TAP TSI Masterplan was 2015.

Figure 33 Sending reservation requests for car carriage - Function application indicates the companies subject (14) and not (47) to implementing the function in absolute terms (number of responses).

Companies subject to implementation use TD B.5 (13 only and 1 for both).

The main reasons of not applying the function is:

- › there is no car carriage in place.

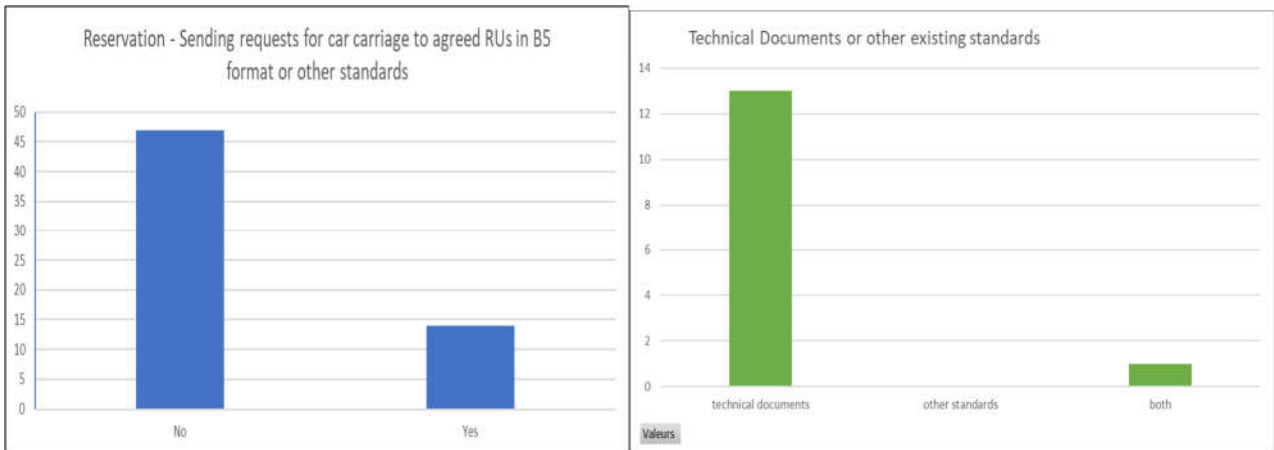


Figure 33 Sending reservation requests for car carriage - Function application

Figure 34 Sending reservation requests for car carriage - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

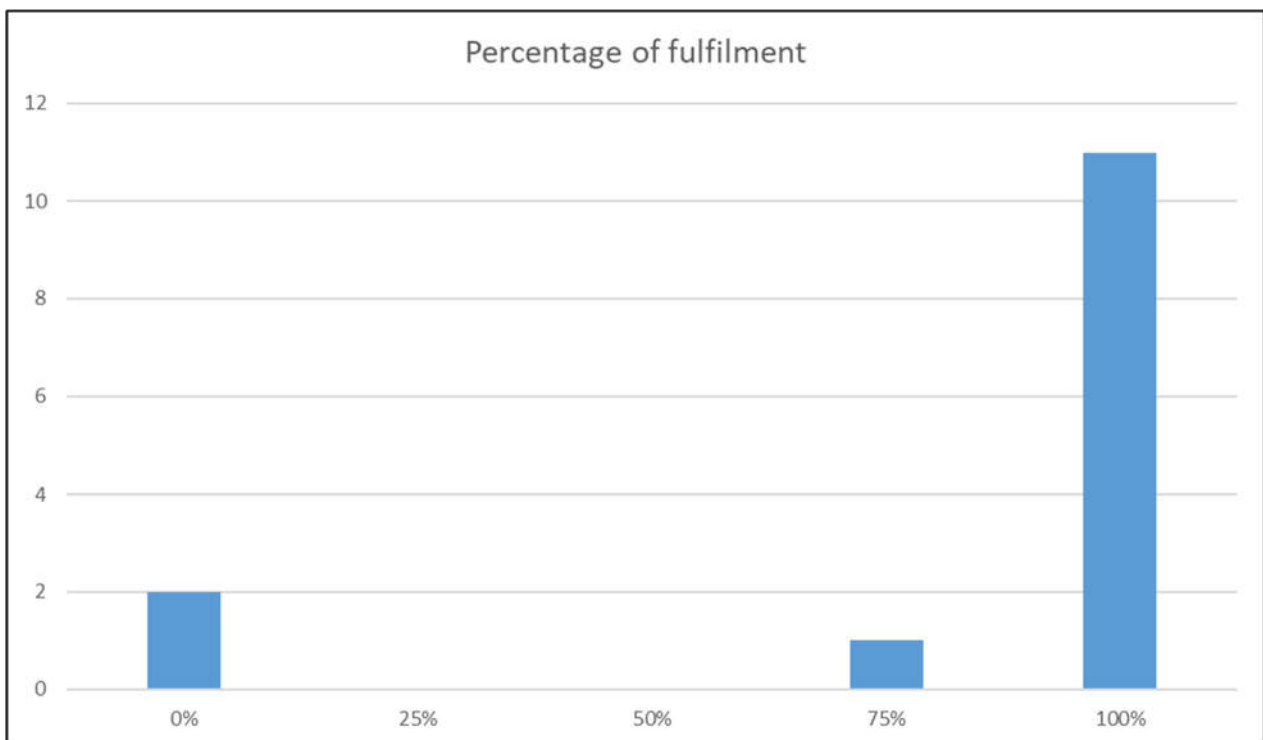


Figure 34 Sending reservation requests for car carriage - Level of fulfilment

5.2.8 Answering reservation requests for car carriage in B5 format or other standards

The Target Implementation Milestone for realisation of the Answering reservation requests for car carriage from agreed RUs/TVs in B5 format according to the TAP TSI Masterplan was 2015.

Figure 35 Answering reservation requests for car carriage - Function application indicates the companies subject (23) and not (38) to implement the function in absolute terms (number of responses).

Companies subject to implementation use TD B.5 (12), other standards (9) or both (2).

The main reasons of not applying the function is:

- › there is no car carriage in place.

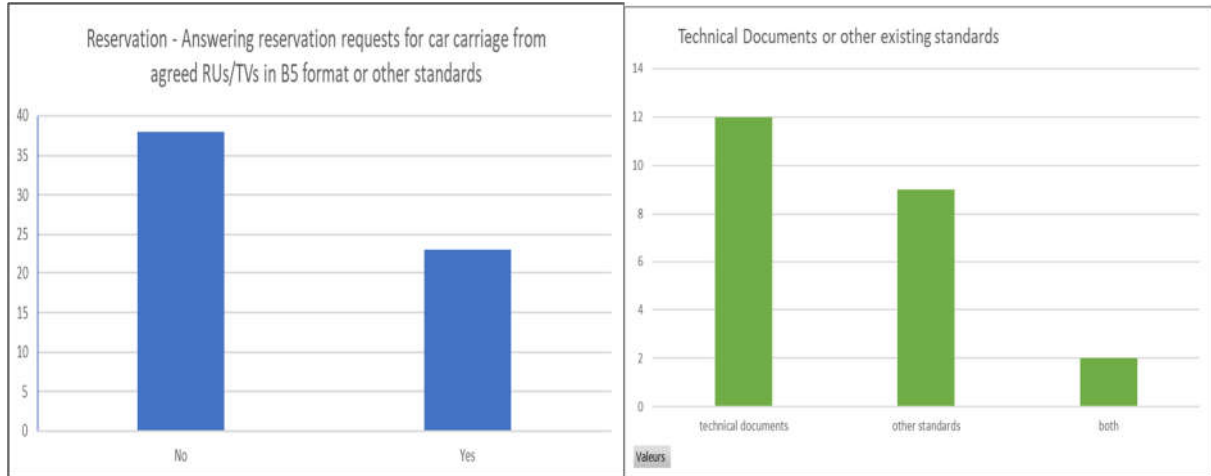


Figure 35 Answering reservation requests for car carriage - Function application

Figure 36 Answering reservation requests for car carriage - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

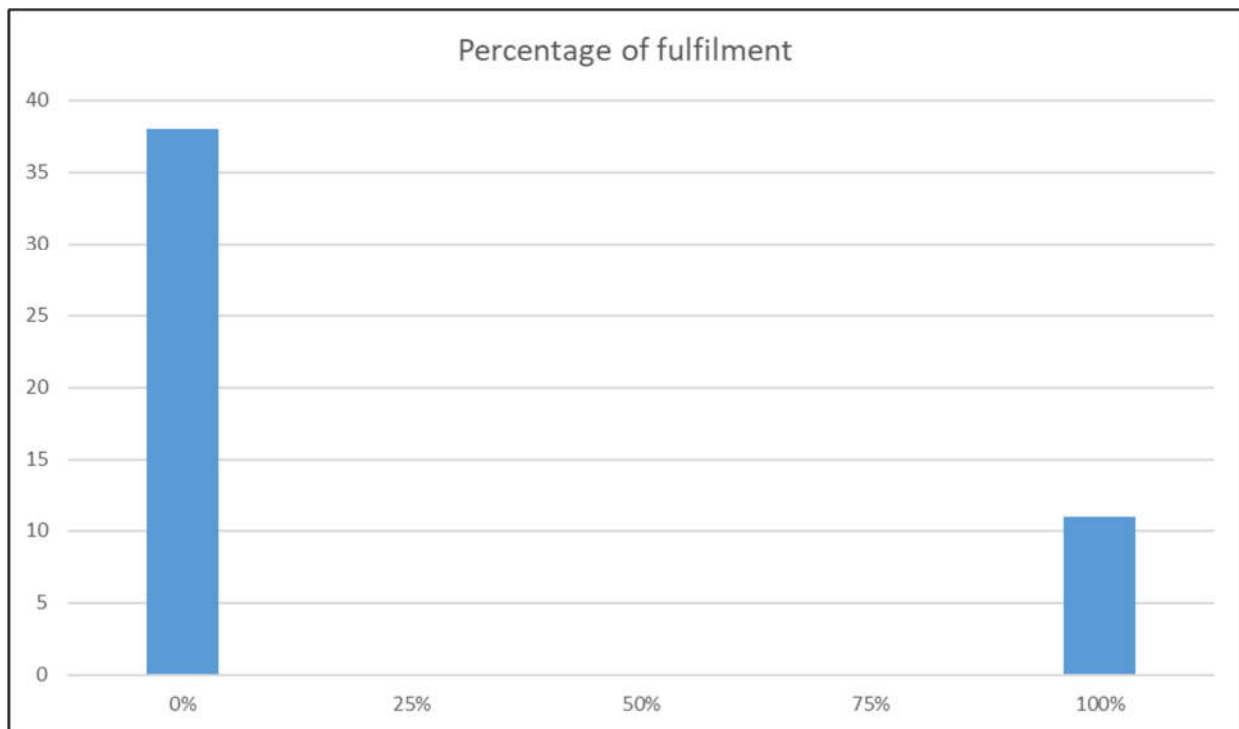


Figure 36 Answering reservation requests for car carriage - Level of fulfilment

5.3 TIMETABLE

Set of functions to be reported

- › Timetable made available in B4 format to other RUs, Public Authorities, 3rd Parties

5.3.1 TIMETABLE (B4 format)

The Target Implementation Milestone for realisation of the Timetable made available to other RUs, Public Authorities, Third Parties in B4 format according to the TAP TSI Masterplan was 2016.

Figure 37 Timetable - Function application indicates the companies subject (39) and not (22) to implementing the function in absolute terms (number of responses).

Companies subject to implementation use TD B.4 (29) or other standards (10).

The main reasons of not applying the function are:

- › use of Merits
- › in some Member States the IMs make available the timetable to the RUs.

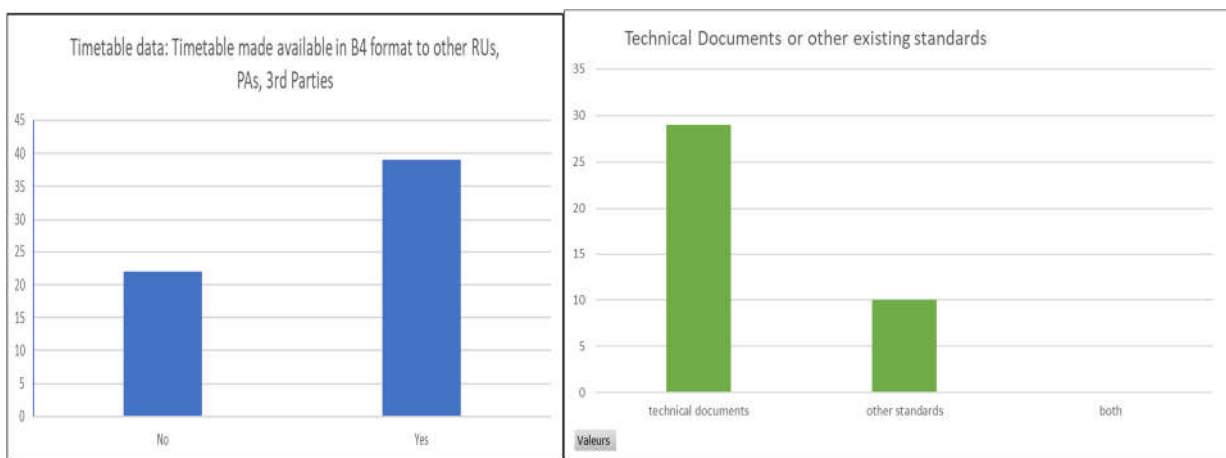


Figure 37 Timetable - Function application

Figure 38 Timetable - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

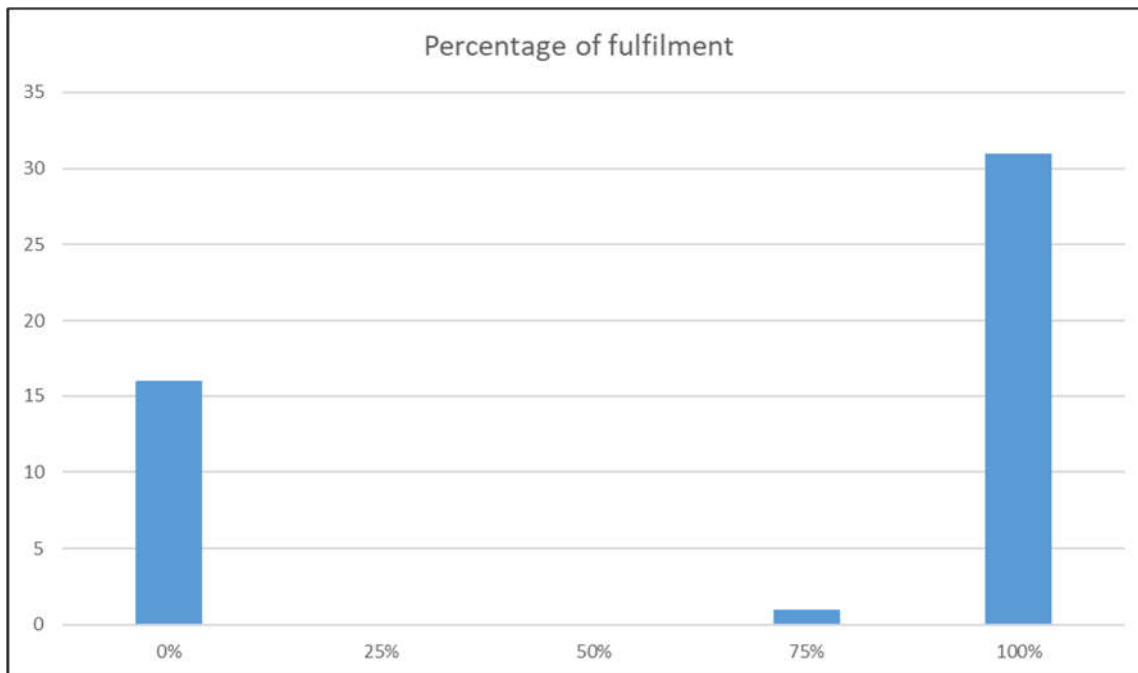


Figure 38 Timetable - Level of fulfilment

5.4 TARIFF

Set of functions to be reported

- › NRT Tariffs/fares for international and foreign sales to public authorities, authorised RUs and third parties in B1 format
- › IRT Tariffs/fares for international and foreign sales to public authorities, authorised RUs and third parties in B2 format
- › Special Tariffs/fares for international and foreign sales to public authorities, authorised RUs and third parties in B3 format

5.4.1 NRT TARIFFS/FARES (B1 format)

The Target Implementation Milestone for realisation of the NRT Tariffs/Fares for international and foreign sales to Public Authorities, authorized RUs and Third Parties in B1 format according to the TAP TSI Masterplan was 2016.

Figure 39 NRT Tariff/Fares - Function application indicates the companies subject (22) and not (39) to implement the function in absolute terms (number of responses).

Companies subject to implementation use mainly TD B.1 (20) and (2) with other standards.

The main reason of not applying the function is

- › RU belongs to local/regional company, not exporting tariff to RUs not based in the same member state.

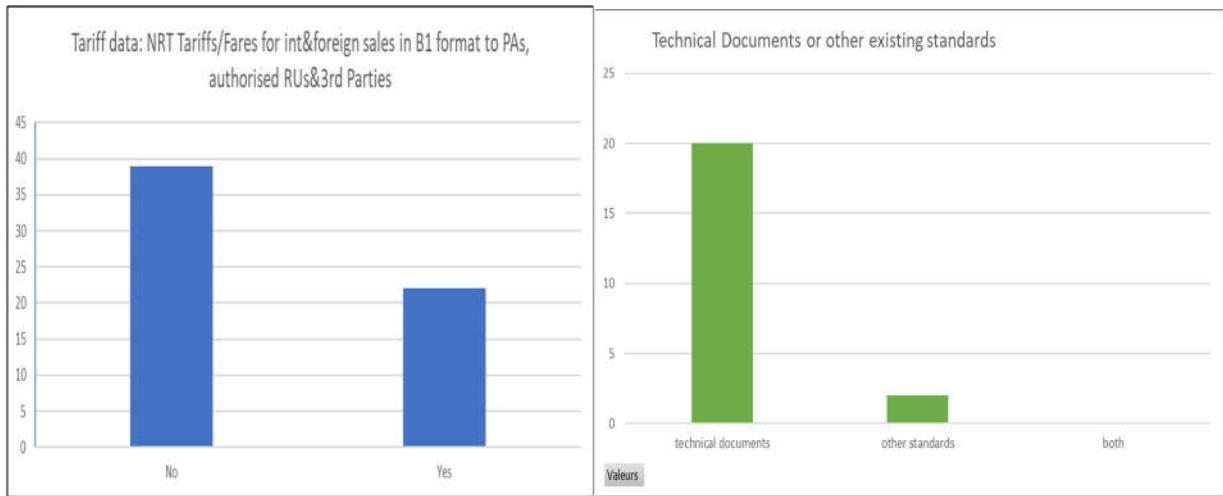


Figure 39 NRT Tariff/Fares - Function application

Figure 40 NRT Tariffs/Fares - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

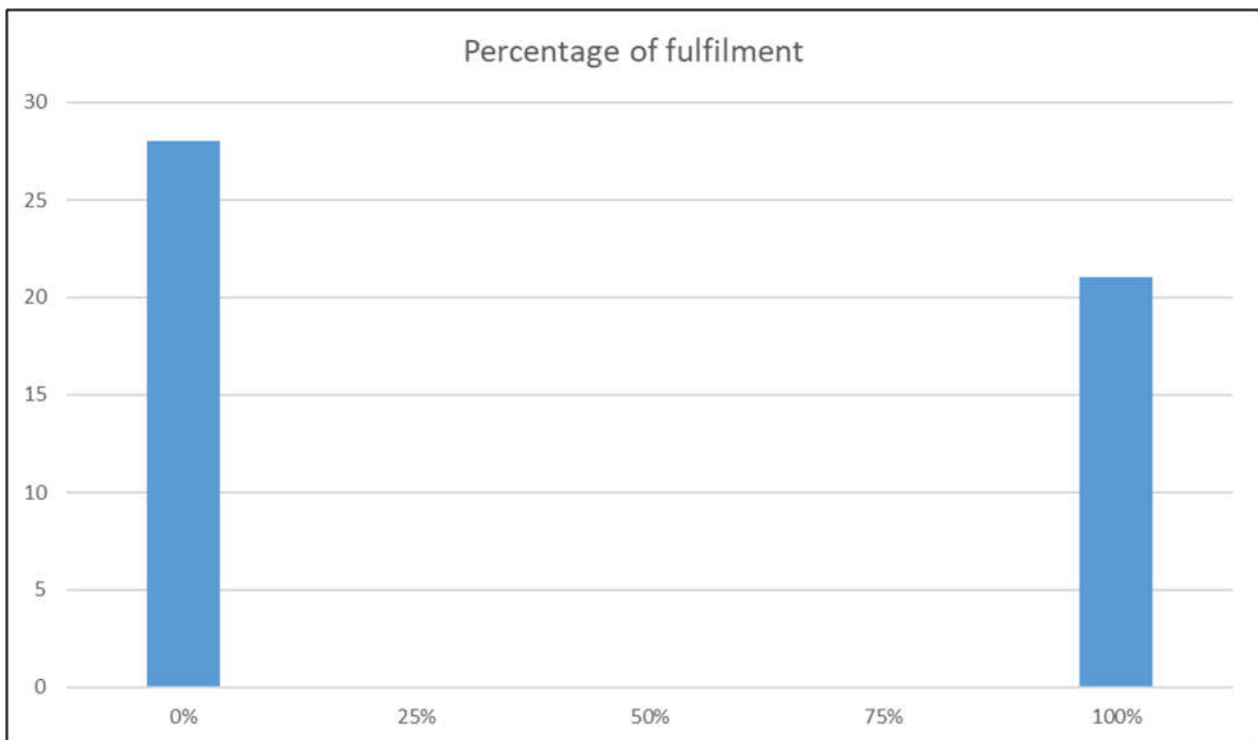


Figure 40 NRT Tariffs/Fares - Level of fulfilment

5.4.2 IRT TARIFFS/FARES (B2 format)

The Target Implementation Milestone for realisation of the IRT Tariffs/Fares for international and foreign sales to public authorities, authorized RUs and Third Parties in B2 format according to the TAP TSI Masterplan was 2016.

Figure 41 IRT Tariff/Fares - Function application indicates the companies subject (16) and not (45) to implement the function in absolute terms (number of responses).

Companies subject to implementation use TD B.2 (8) or other standards (8).

The main reasons of not applying the function are

- > RU belongs to local/regional company, not exporting tariff to RUs not based in the same member state
- > not offering IRT fares.

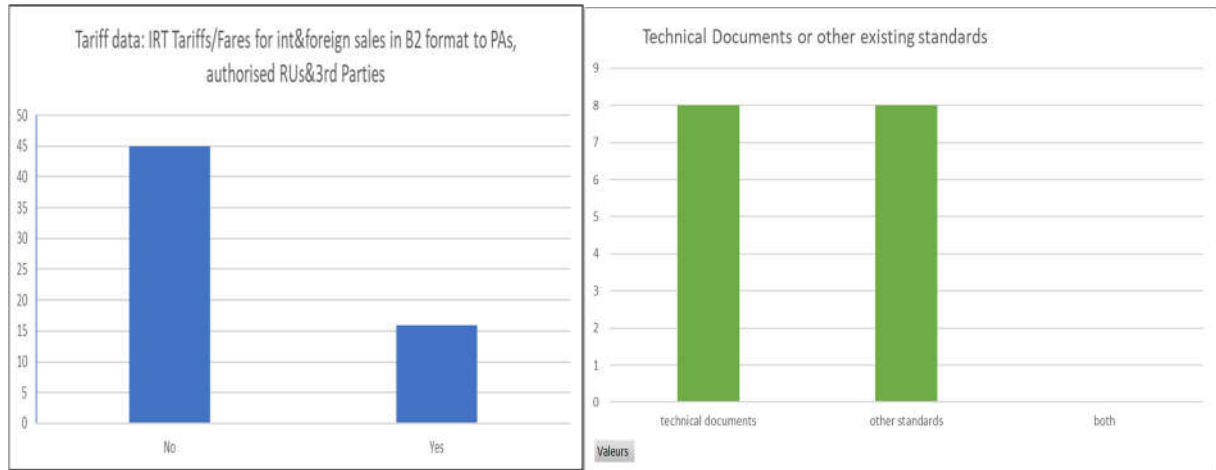


Figure 41 IRT Tariff/Fares - Function application

Figure 42 IRT Tariffs/Fares - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

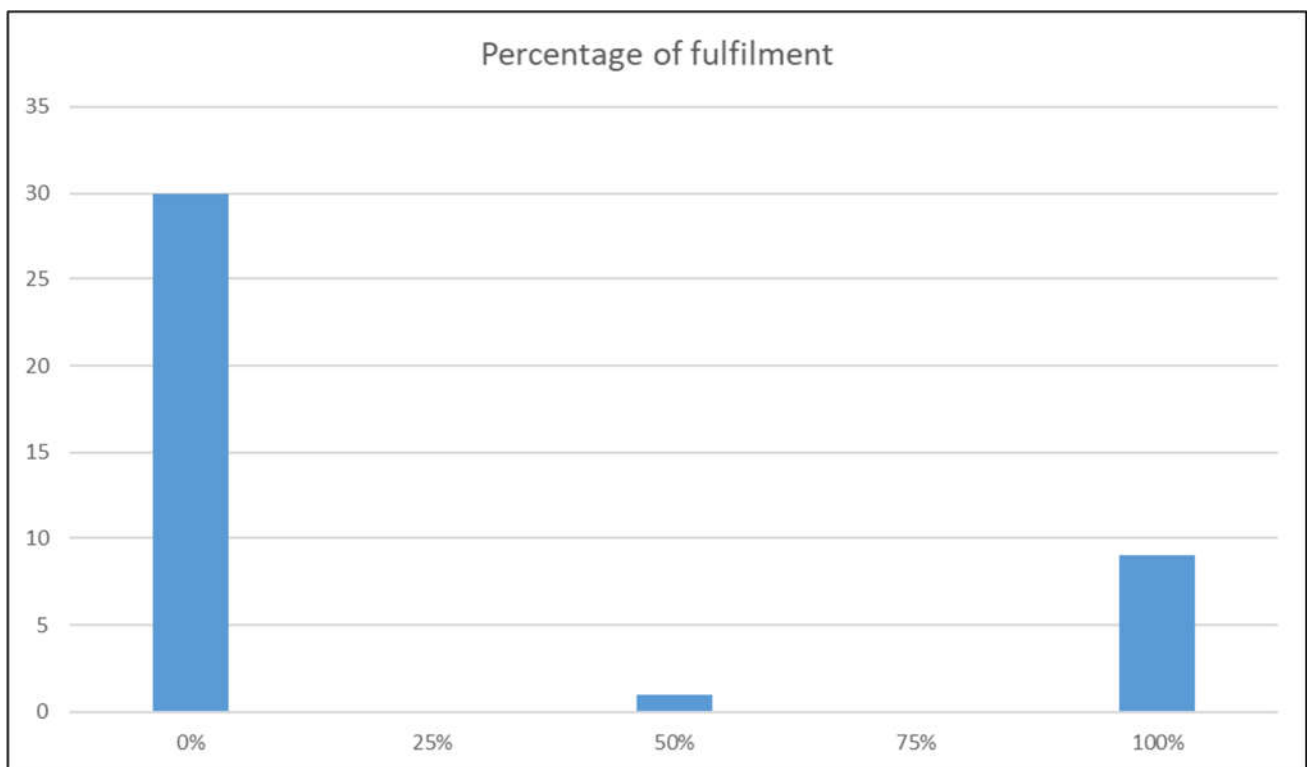


Figure 42 IRT Tariffs/Fares - Level of fulfilment

5.4.3 SPECIAL TARIFFS/FARES (B3 format)

The Target Implementation Milestone for realisation of the Special Tariffs/Fares for international and foreign sales to public authorities, authorized RUs and Third Parties in B3 format according to the TAP TSI Masterplan is 2020.

Figure 43 Special Tariff/Fares - Function application indicates the companies subject (17) and not (44) to implementing the function in absolute terms (number of responses).

Companies subject to implementation use TD B.3 (13) or other standards (4).

The main reasons of not applying the function are:

- > the product is not provided
- > tariff exchange takes place only with RUs based in the same member state.

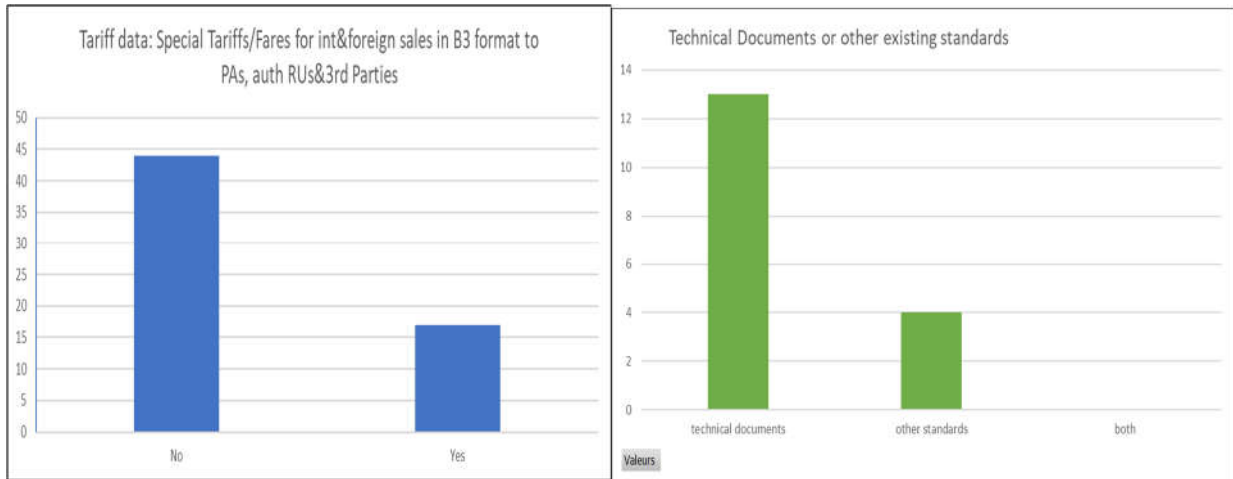


Figure 43 Special Tariff/Fares - Function application

Figure 44 Special Tariffs/Fares - Level of fulfilment indicates the distributions of the RUs (level of fulfilment) subject to implement the function in numerical values.

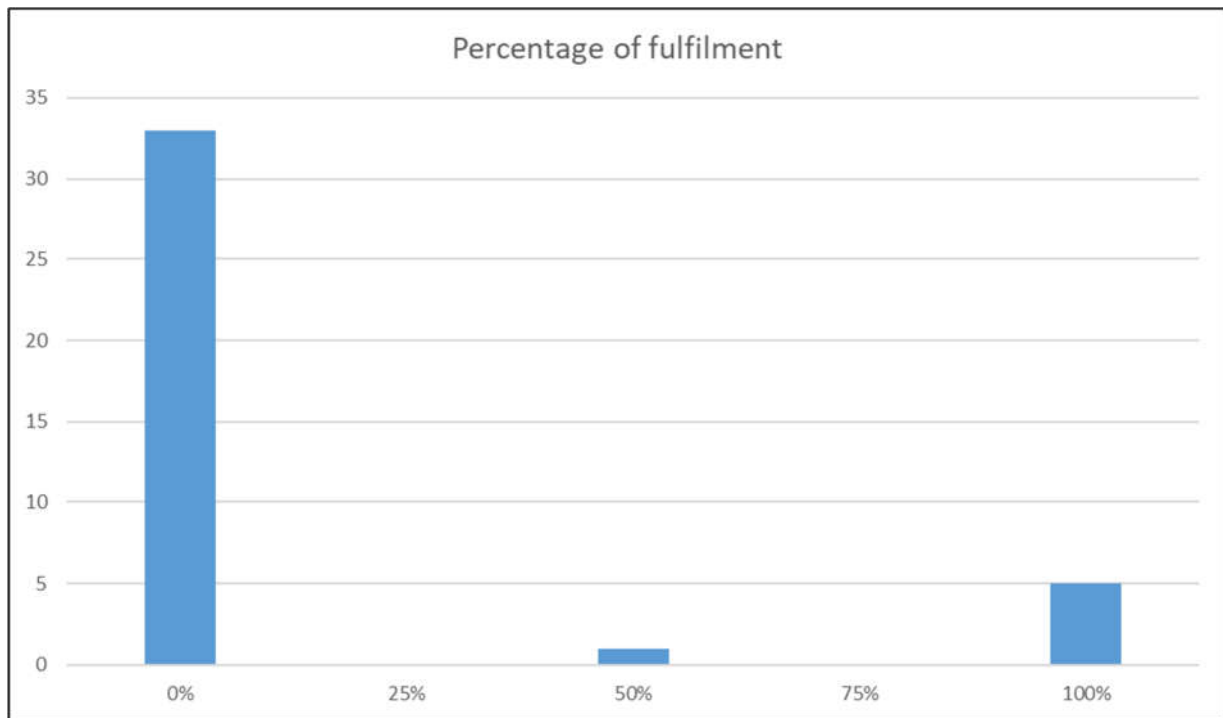


Figure 44 Special Tariffs/Fares - Level of fulfilment

5.5 REASONS CAUSING DELAY IN IMPLEMENTATION

Companies were obligated to declare, in a dedicated answer for each function, the reasons occurred to cause the shifting of the final deliver over the Masterplan end date. It was possible to choose freely all the reasons applied or indicate others. In total 6 reasons are mentioned distributed according to Figure 45 Reasons causing implementation delay in absolute numerical terms.

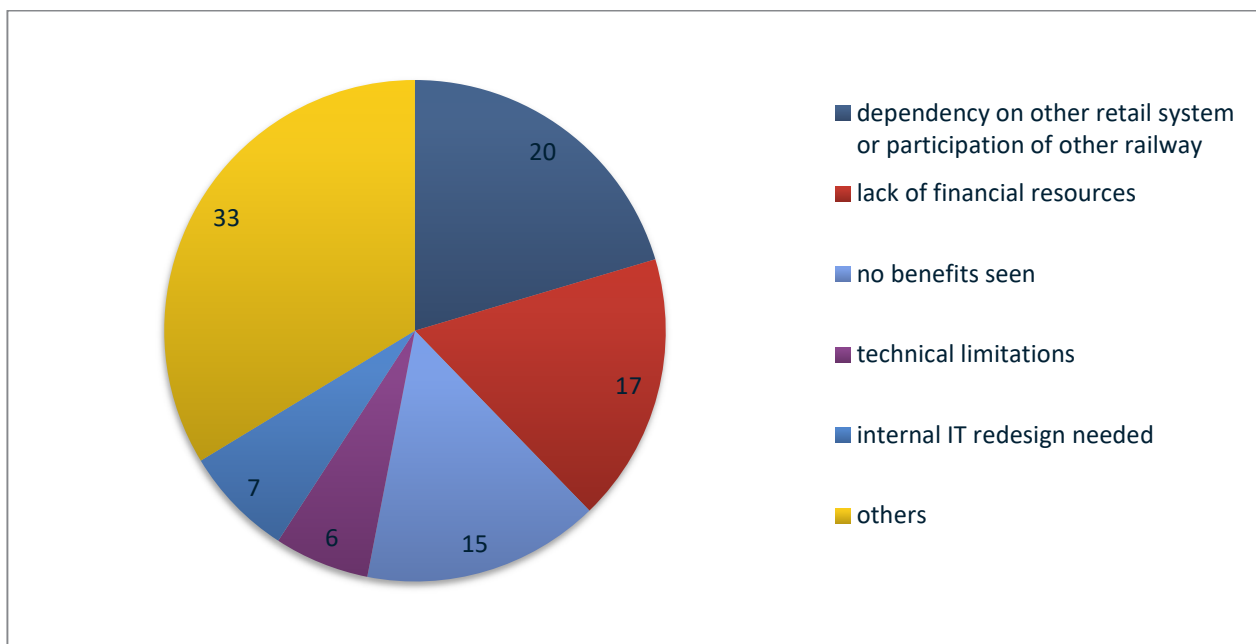


Figure 45 Reasons causing implementation delay

The functions which have reported the greatest number of reasons in absolute terms are:

- › Timetable made available in B4 format to other RUs, public authorities, 3rd Parties.
- › Accepting home printed tickets for international and foreign sales in B7 format.
- › Special Tariffs/Fares for international and foreign sales in B3 format to PAs, authorised RUs and 3rd Parties.

The main reasons are:

- › Other reasons.
- › Dependency on other retail system or participation of other railway.
- › Lack of financial resources.
- › No benefits seen.
- › Internal IT redesign needed.
- › Technical limitations.

5.6 TAP TSI architecture

5.6.1 Membership registration

The membership registration in the TAP registry maintained by the TSGA is described in TD B.60 chapter 10.2.1.

Figure 46 Membership registration indicates the companies having (20) and not (41) registered their membership (either as Licensee, as Member or as data provider) – in absolute terms (number of responses).

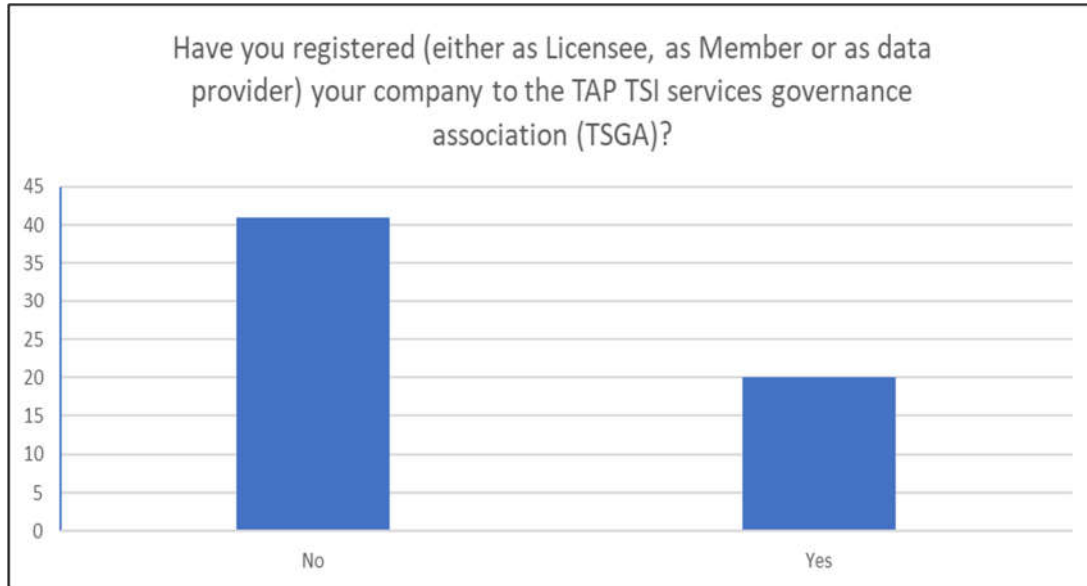


Figure 46 Membership registration

5.6.2 Resource registration

The resource registration in the TAP registry maintained by the TSGA is described in TD B.60 chapter 10.2.2.

Figure 47 Resource registration indicates the companies having (22) and not (39) registered their resources (timetable data, tariff data) to the TAP TSI registry to inform other actors for the provision of new or updated data sets (timetable, tariff data) – in absolute terms (number of responses).

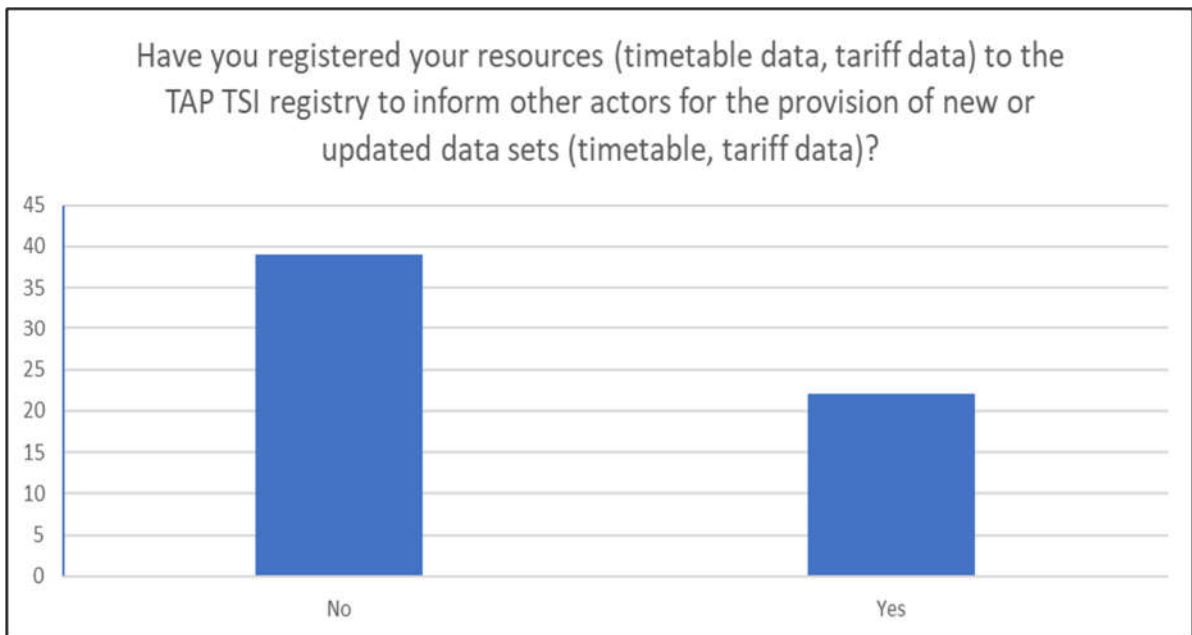


Figure 47 Resource registration

5.6.3 Subscription to a resource

The subscription to a resource registered in the TAP registry maintained by the TSGA is described in TD B.60 chapter 10.2.3.

Figure 48 Resource subscription indicates the companies having (23) and not (38) subscribed their company to the TAP registry to obtain reference data (company codes, location codes), timetable data and tariff data from other railway undertakings through TSGA – in absolute terms (number of responses).

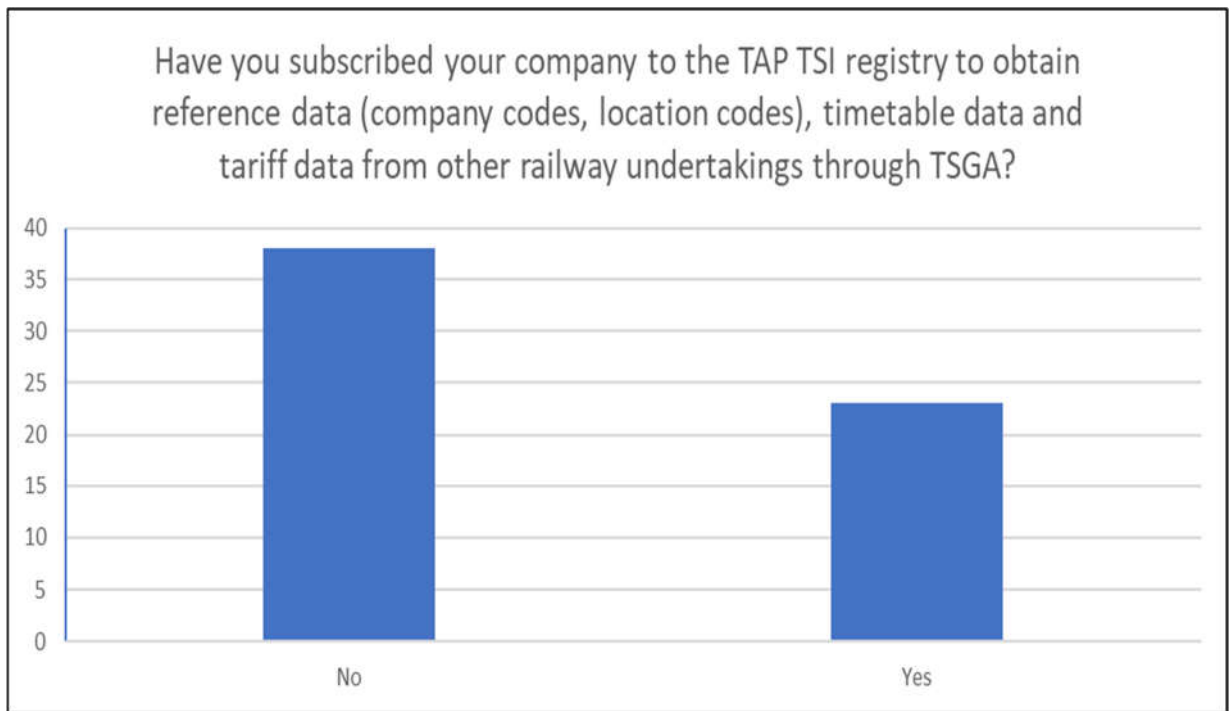


Figure 48 Resource subscription

5.7 Migration plan for alphanumeric company codes

The Company Code has currently a format on 4 numerical digits. From 01/01/2026 alphanumeric codes on 4 letters/pictures will be allocated by ERA for companies established in the EU.

Figure 49 Companies with migration plan indicates the companies having (11) and not (50) established the migration plan of their IT system to be compliant with alphanumeric company codes latest from 01/01/2026.

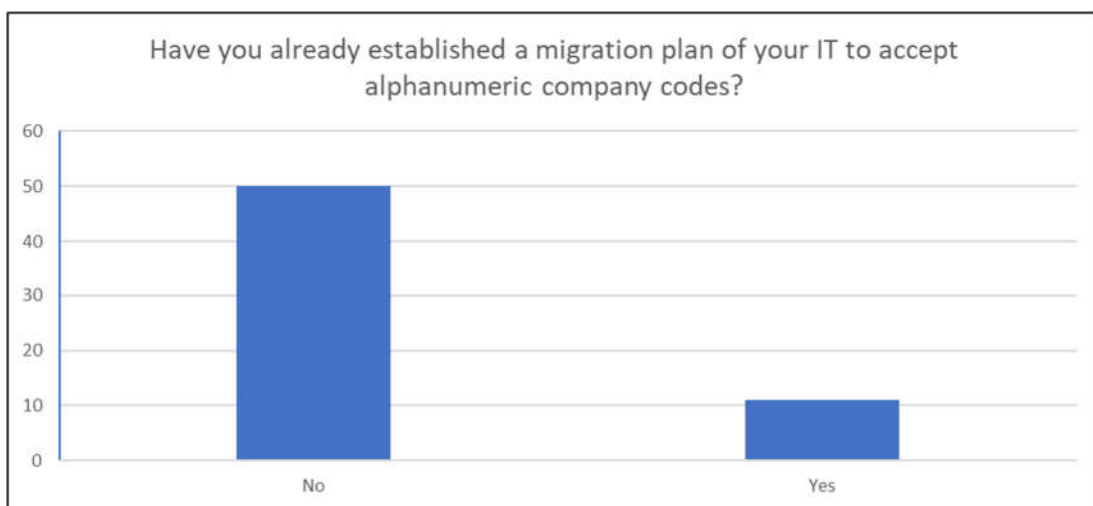
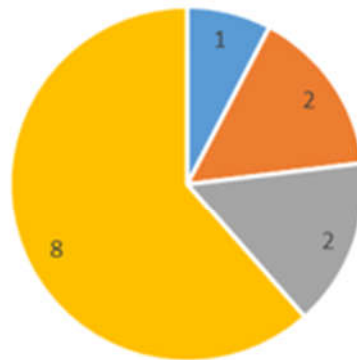


Figure 49 Companies with migration plan

The 4 reasons for not yet started are distributed according to Figure 50 Reasons having not yet started in absolute numerical terms.

The main reason is the internal IT redesign needed.



■ lack of financial resources ■ no benefits seen ■ others ■ internal IT redesign needed

Figure 50 Reasons having not yet started

5.8 TOOLS

In the reporting, 24 companies declare to use one or several common tools.

Figure 51 usage of sector tools indicates the distribution:

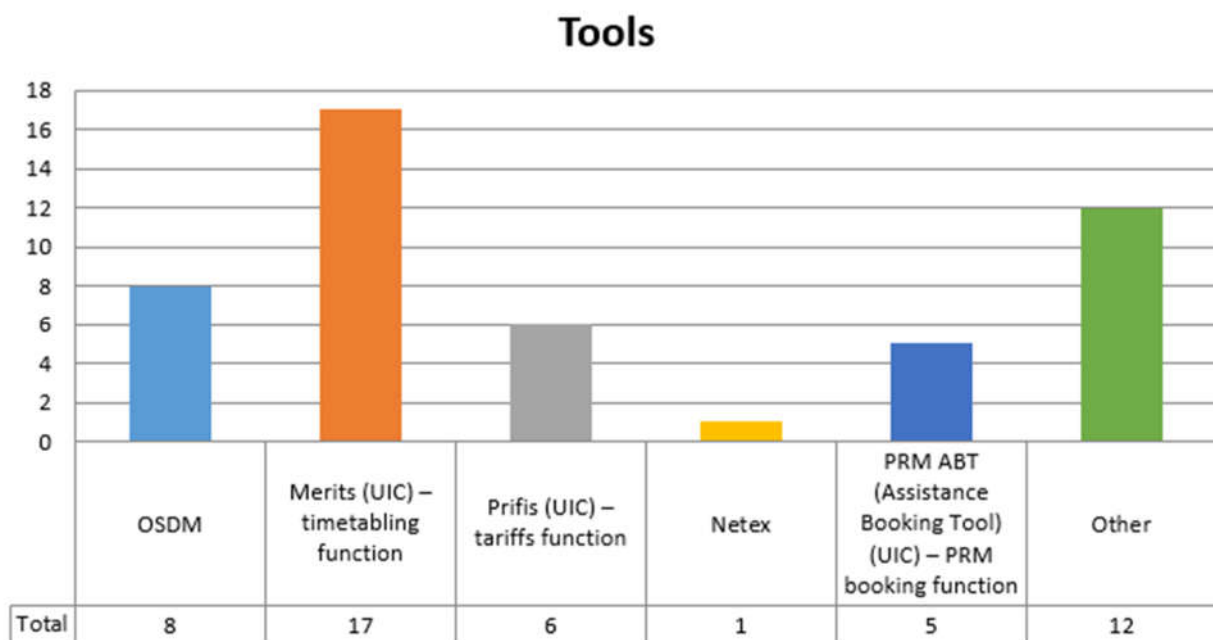


Figure 51 usage of sector tools

5.9 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
- Train Running Information
- Train running interruption message
- Train running forecast

The TAF TSI RU/IM reporting session followed the same schedule as presented in Table 7: Reporting schedule for TAP TSI basic parameters (9th reporting). Overall 38 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.

5.9.1.1 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 52 - Common Reference Files - Company Codes (CC)) is indicating the existence and use of company codes as part of the Common Reference Files for IMs, RUs-F and Wks. 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.

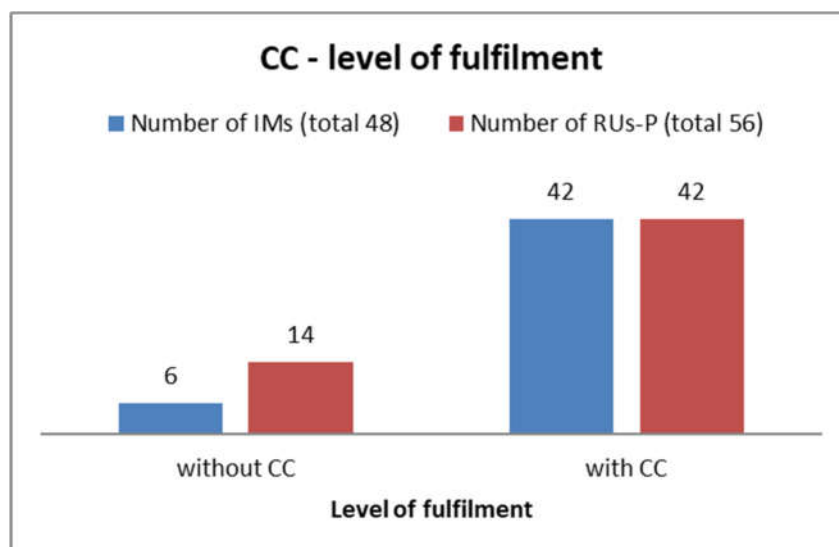


Figure 52 - Common Reference Files - Company Codes (CC)

According to Figure 53 - Evolution of responses and implementation for Company Codes, the number of companies with CCs has increased for IMs and RUs-P, while participation has decreased.

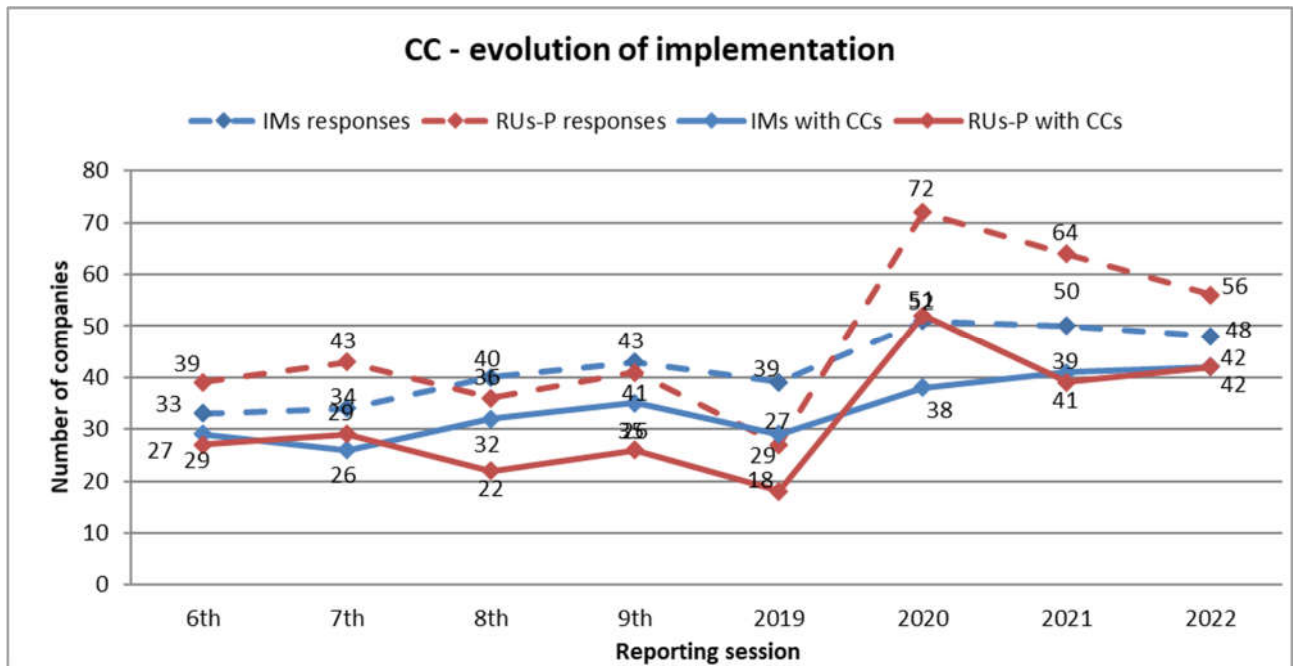


Figure 53 - Evolution of responses and implementation for Company Codes

The legal provisions of the TAF TSI require the use of alphanumeric CCs from 01.01.2026.

Figure 54 - Alphanumeric Company Codes (CC) below shows the current status of ability of companies processing alphanumeric CCs in their IT applications.

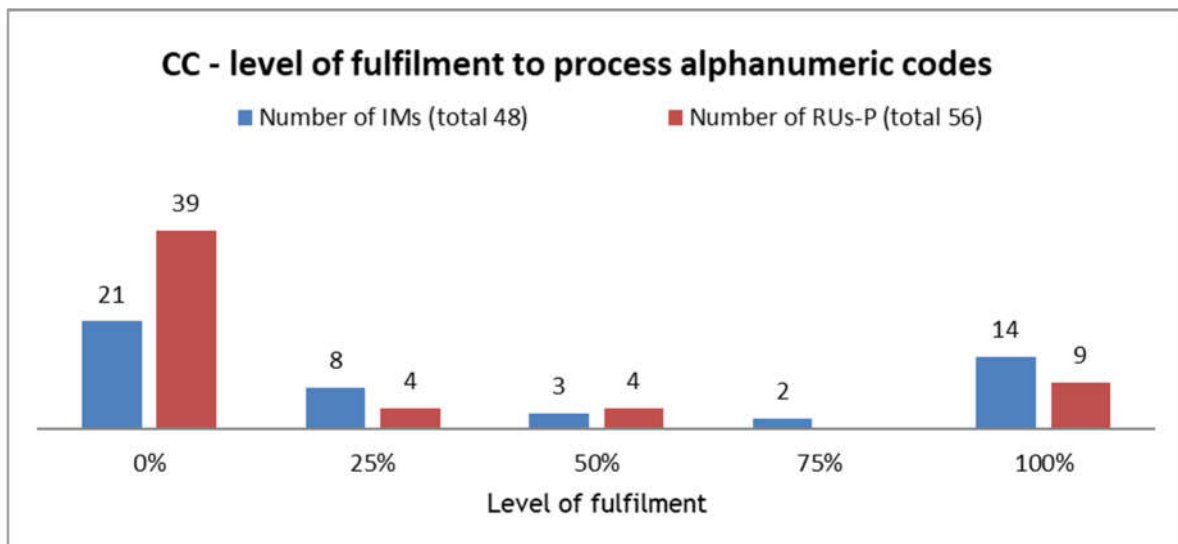


Figure 54 - Alphanumeric Company Codes (CC)

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

Diagram 13 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 24 IMs and 10 RUs-P.

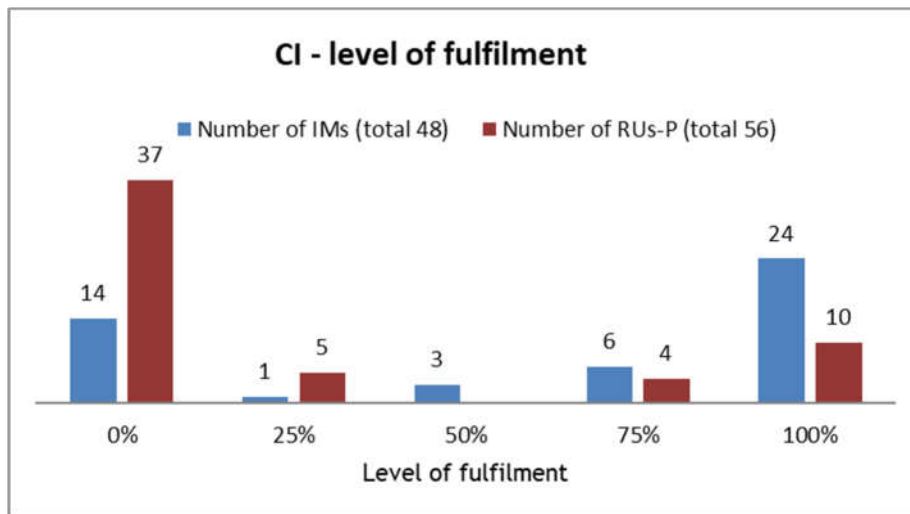


Figure 55 - Common Reference Files – Common Interface (CI)

Figure 56 - 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 both types of companies up to December 2022.

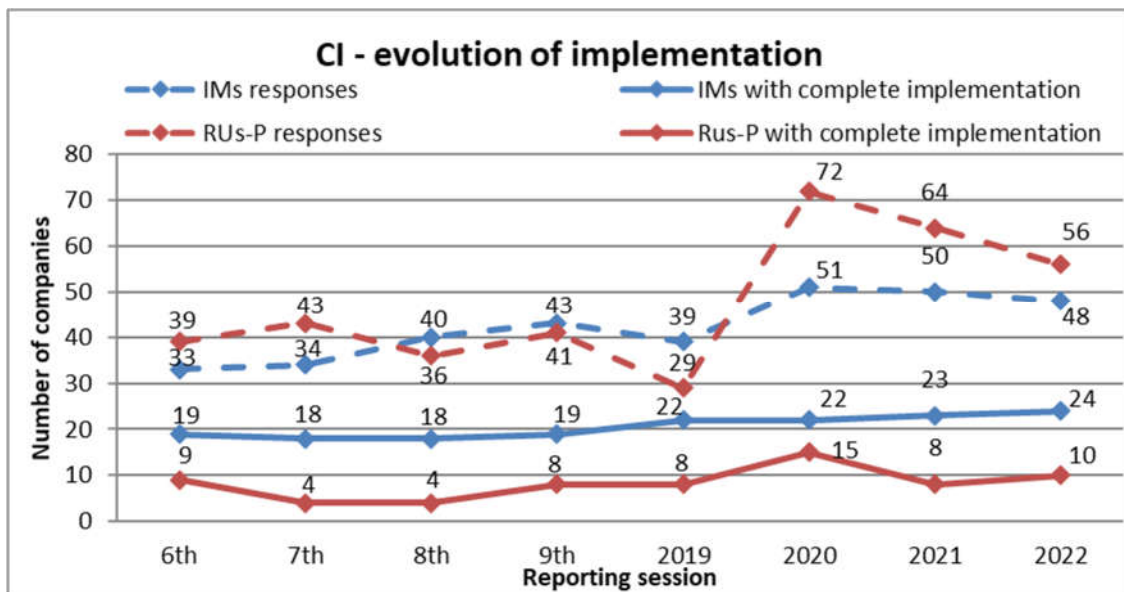


Figure 56 - Evolution of responses and implementation for Common Interface

5.9.1.2 Path Request (IMs and RUs-P)

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 17 shows 12 IMs and 10 RUs-P with 100% implementation of the PR message.

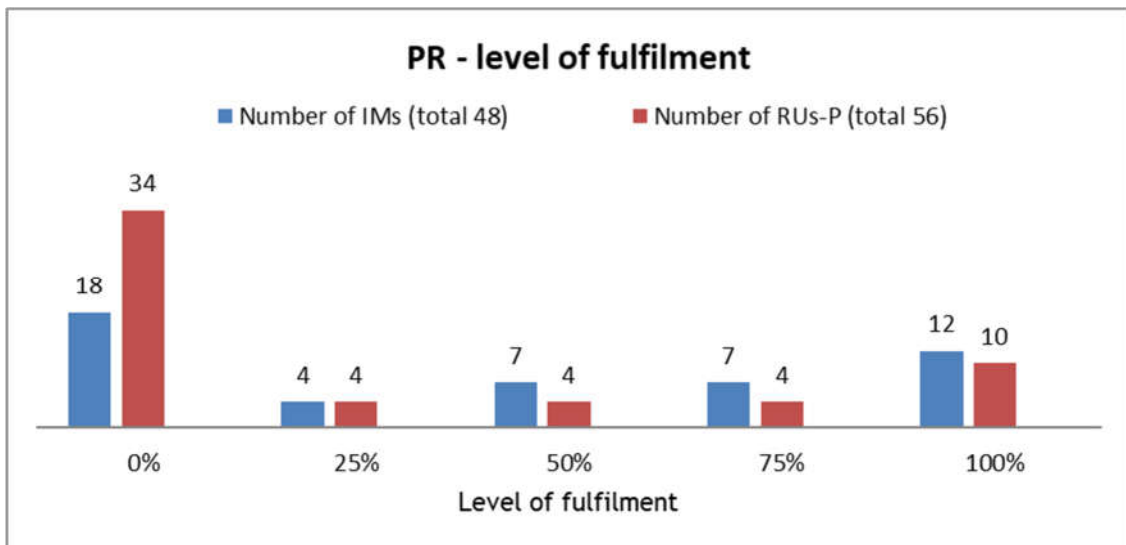


Figure 57 - Path Request (PR)

The number of IMs and RUs-P having introduced PR messages was stable or has increased according to Figure 58 - Evolution of responses and implementation for Path Request.

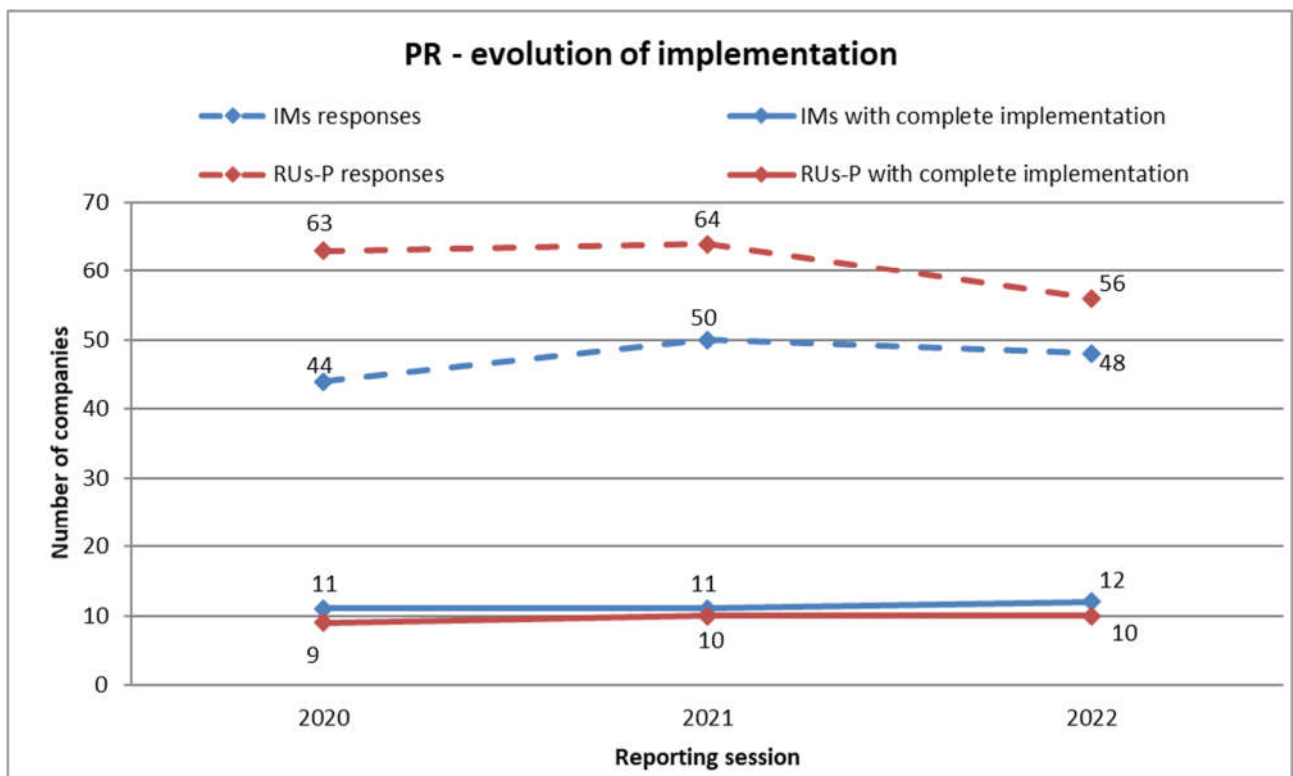


Figure 58 - Evolution of responses and implementation for Path Request

5.9.2 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 Figure 59 - Path Details (PD) shows 15 IMs and 10 RUs-P with 100% implementation of the PD message.

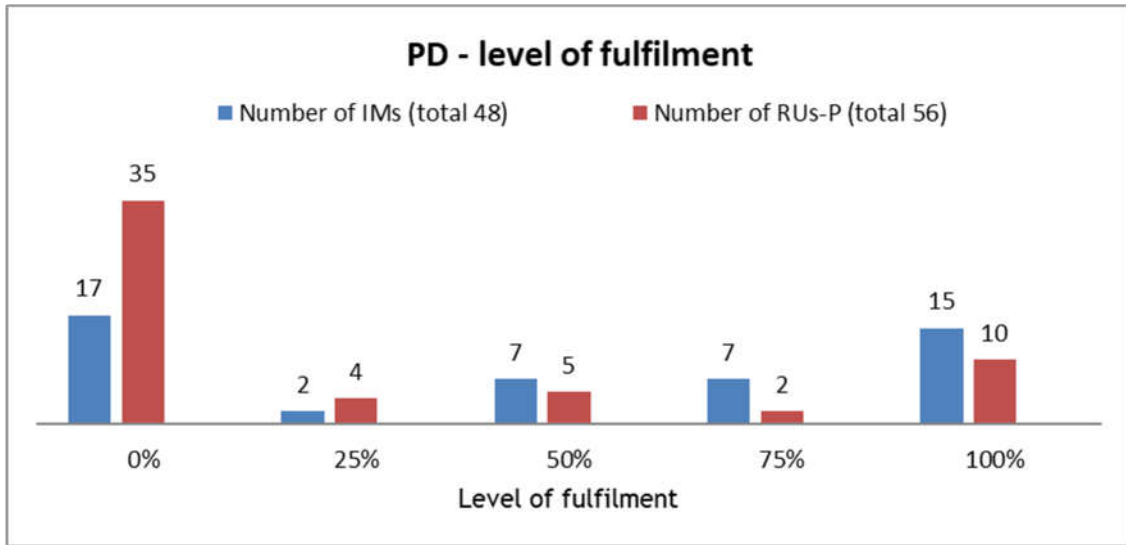


Figure 59 - Path Details (PD)

The number of IMs and RUs-P having introduced PD messages was stable or has increased according to Figure 60 - Evolution of responses and implementation for Path Details.

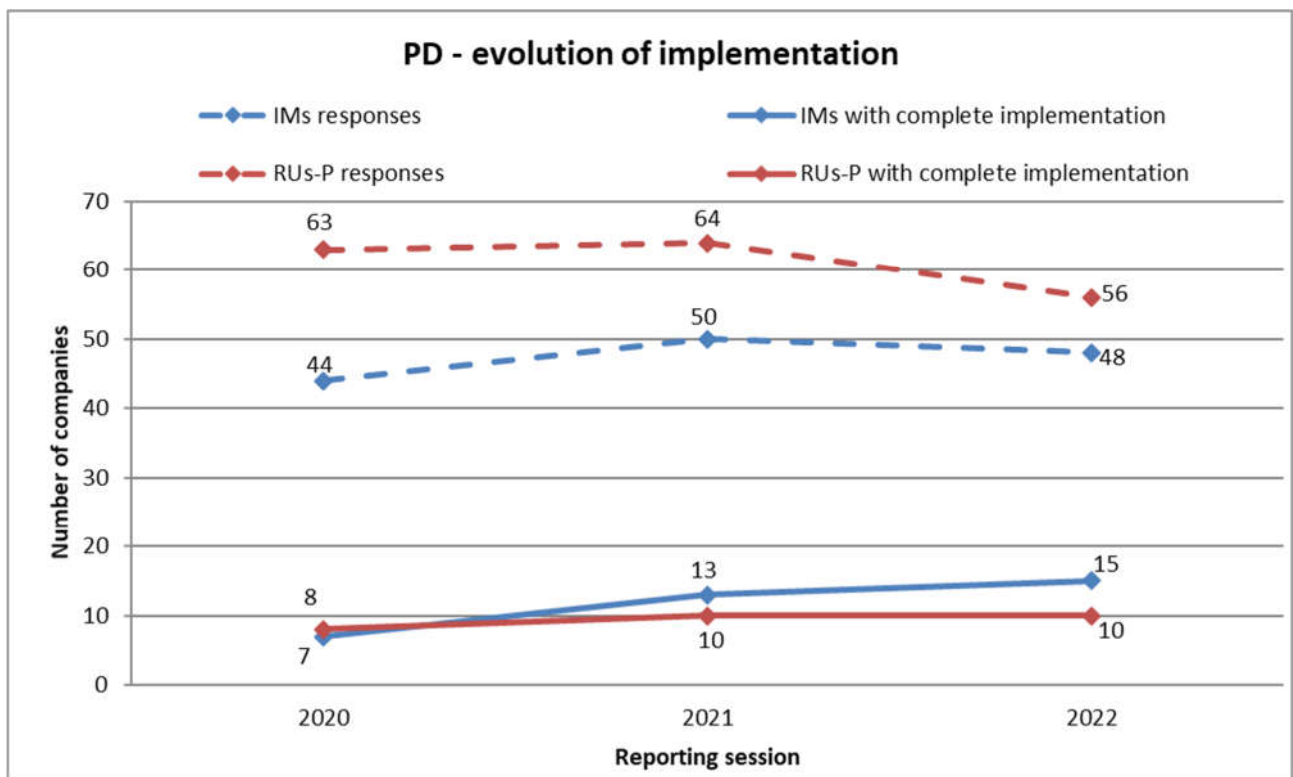


Figure 60 - Evolution of responses and implementation for Path Details

5.9.2.1 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 TAF/TAP message, which is like the previous reporting period (Figure 61 - Train Ready (TR)). Companies using other means of implementation in accordance with the TSIs remain out of consideration.

Regardless of the different participation in the 2021 survey, the share of TAF/TAP messages for TR implementation remains quite similar.

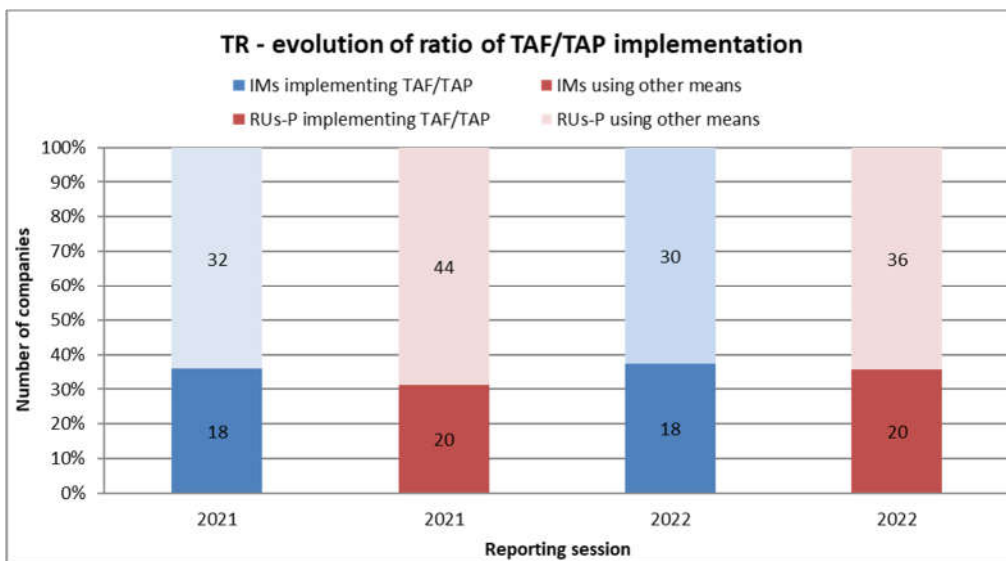


Figure 61 - Train Ready (TR)

The level of fulfilment of Figure 62 - Train Ready (TR) shows 7 IMs and 8 RUs-P with 100% implementation of the TR message.

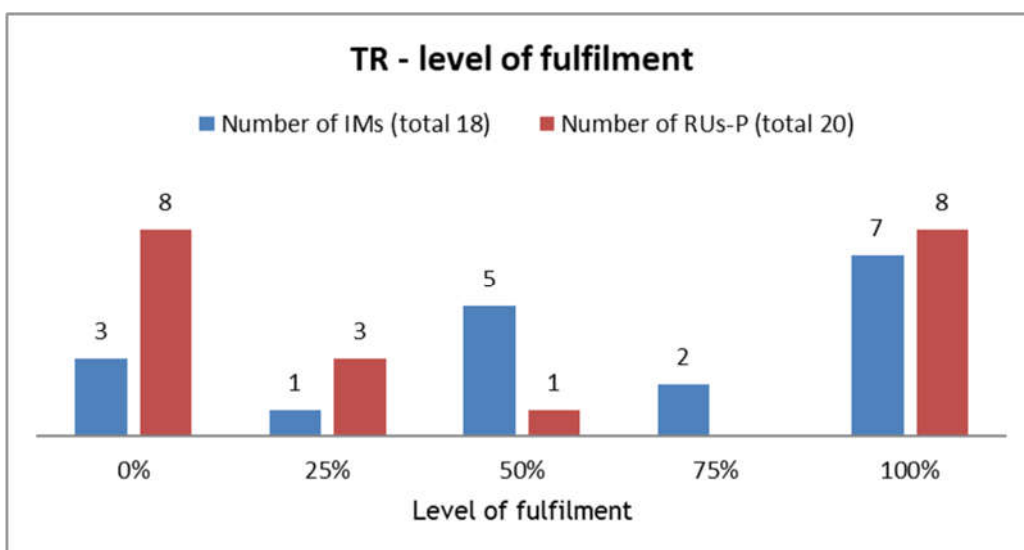


Figure 62 - Train Ready (TR)

The development of complete implementation and the number of responses per company type of the TAF/TAP message TR since 2019, when it was reported for the first time, is shown in Figure 63 - Evolution of

responses and implementation for Train Ready. There is a negative evolution of TR in production for IMs and RUs-P since the last reporting period.

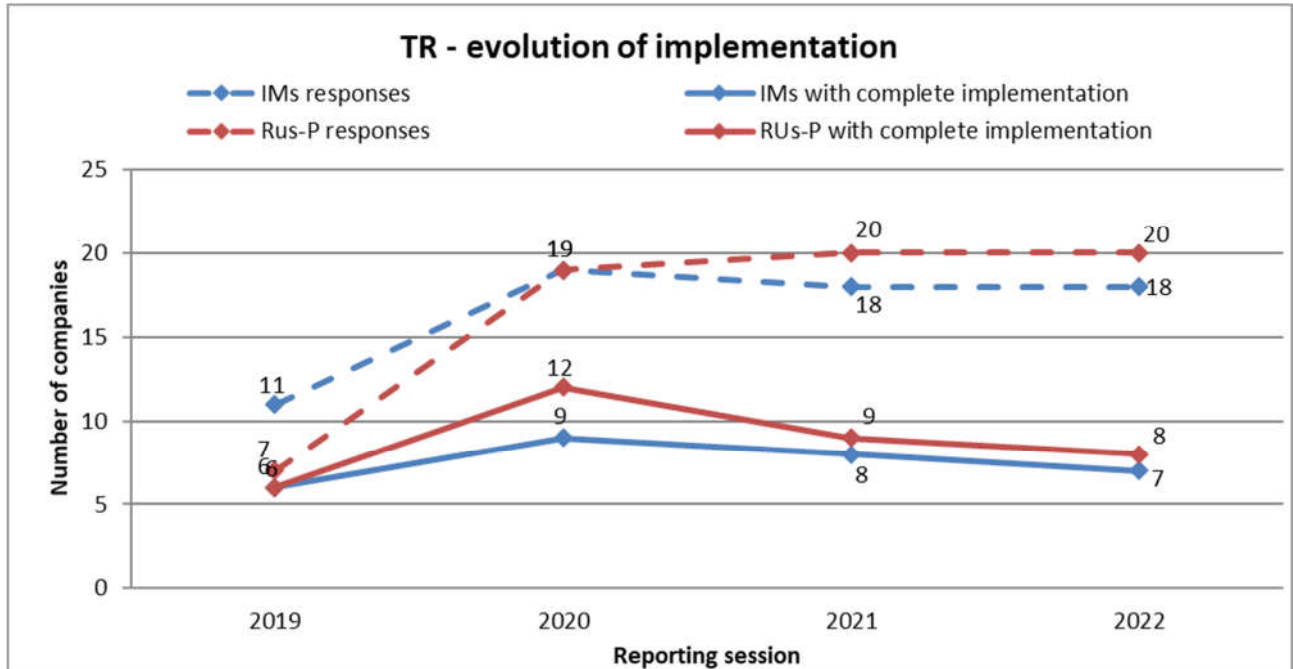


Figure 63 - Evolution of responses and implementation for Train Ready

5.9.2.2 Train Running Information (IMs and RUs-P)

The Target Implementation Milestone for realisation of the Train Running Information message (TRI) according to the TAP TSI Masterplan was end of 2018. This monitoring concerns only one aspect of the TAP 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. TAP messages sent or received by Common Interface are counted as 100 % fulfilment.

In total, 75 companies declared to use TIS according to their feedback to the service, out of which 29 have not yet implemented the TRI message completely.

Figure 64 - Train Running Information (TRI) indicates 22 IMs and 11 RUs-P with 100 % level of fulfilment.

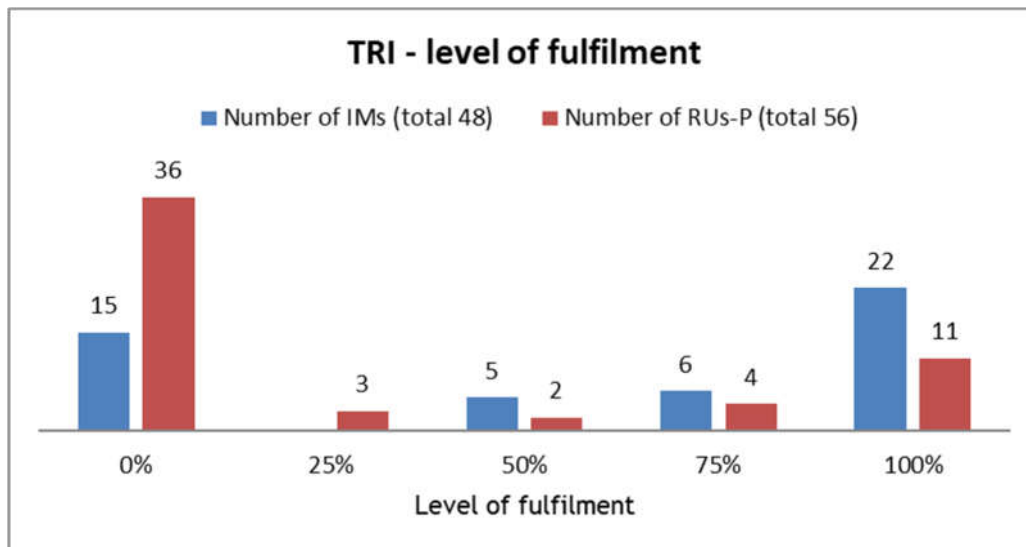


Figure 64 - Train Running Information (TRI)

Regarding Figure 65 - Evolution of responses and implementation for Train Running Information, participation and implementation for IMs as well as for RUs-P went down.

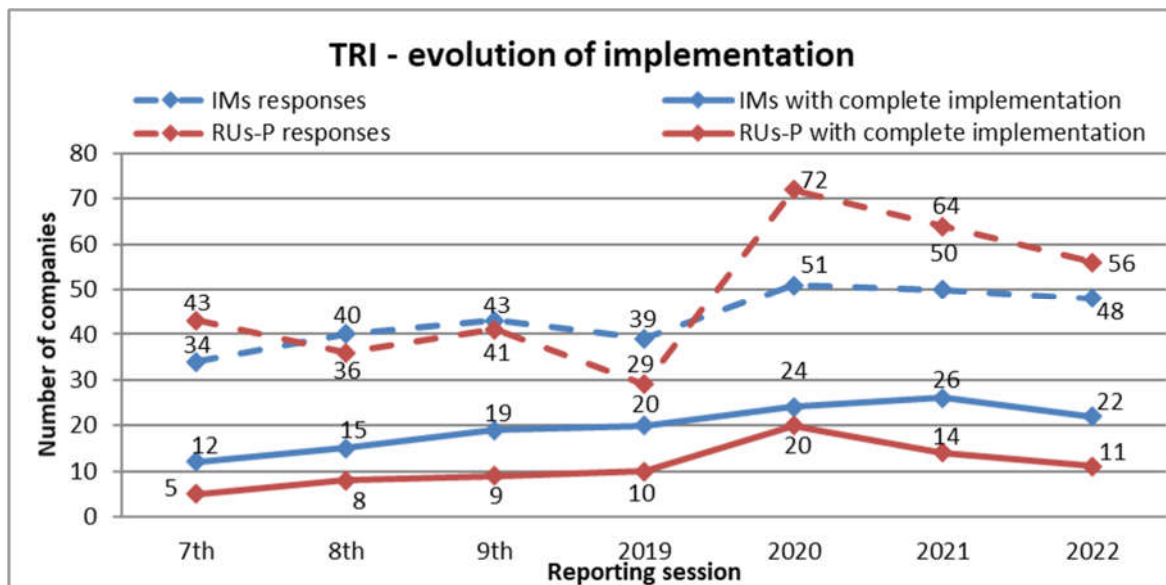


Figure 65 - Evolution of responses and implementation for Train Running Information

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

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

The level of fulfilment of Figure 66 - Train Running Interruption Message (TRIM) shows 13 IMs and 5 RUs-P with complete implementation of the TRIM message. However, most companies have not yet started implementation.

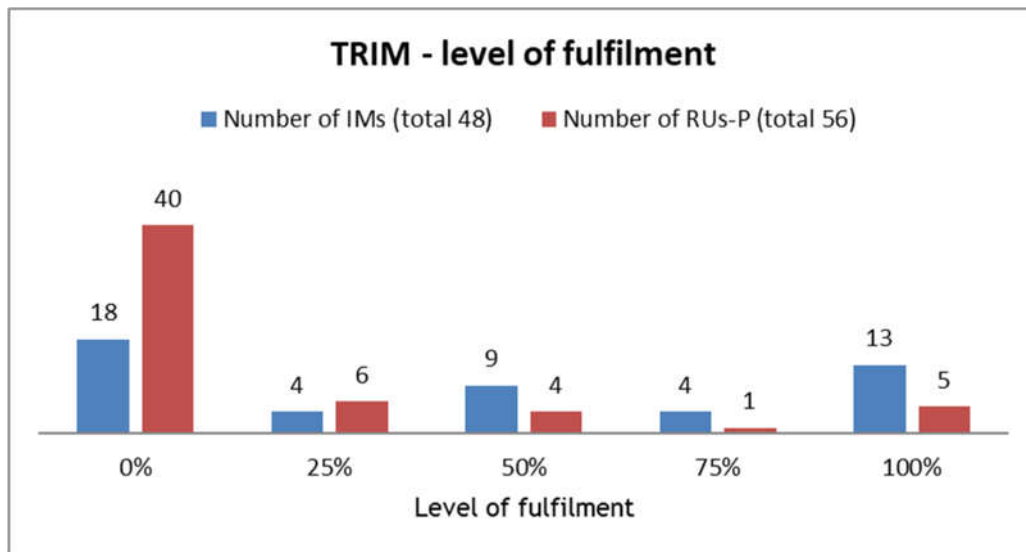


Figure 66 - Train Running Interruption Message (TRIM)

Figure 67 - Evolution of responses and implementation for Train Running Interruption Message indicates a negative evolution of implementation for TRIM at a relative low level compared to the number of participating companies.

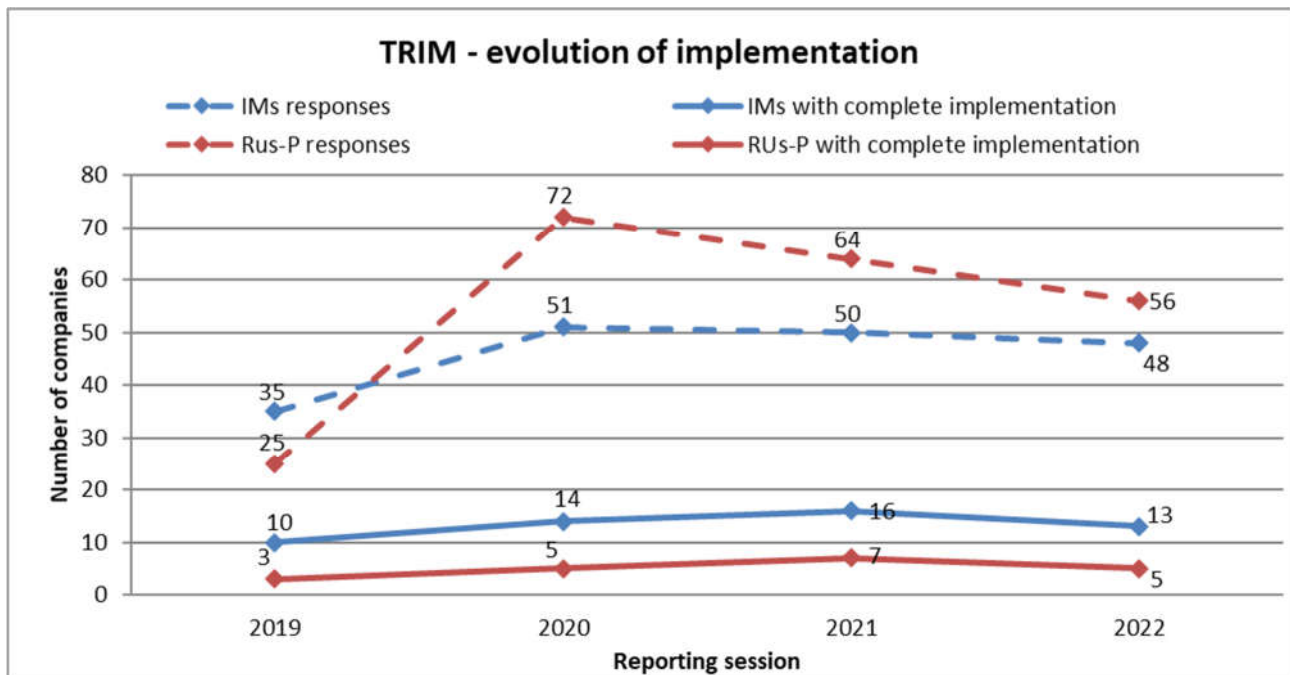


Figure 67 - Evolution of responses and implementation for Train Running Interruption Message

5.9.2.4 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 2022 by 14 IMs and 5 RUs-P.

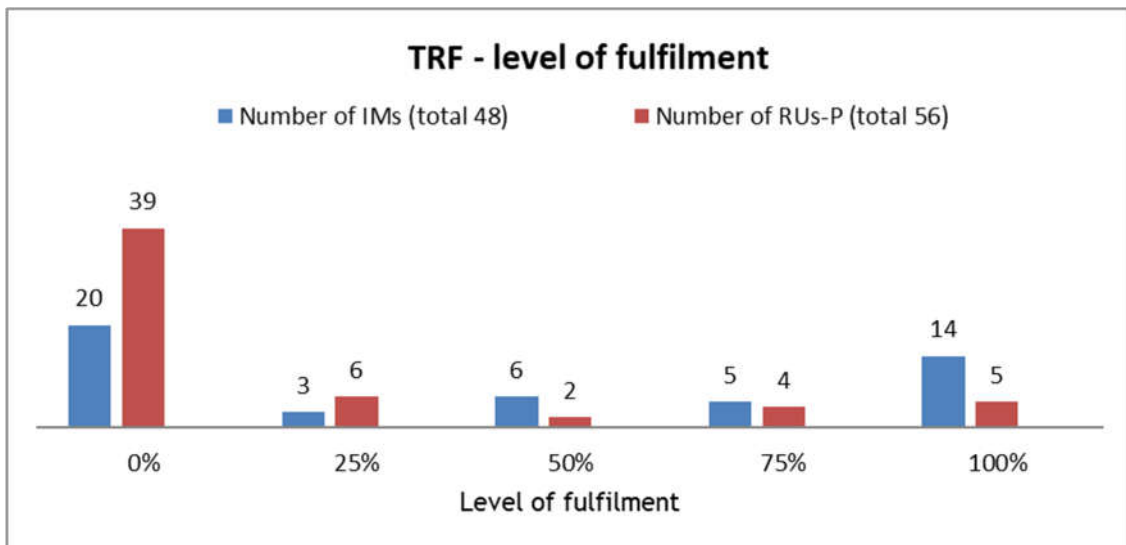


Figure 68 - Train Running Forecast (TRF)

Following a lower participation of RUs-P, complete implementation of the TRF function also shows a lower level than the previous year. Evolution of TRF for IMs shows at least a stable evolution.

5.10 Publication of the conditions of carriage and access conditions

Not elaborated for this report.

5.11 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%

The implementation of the TAP TSI regulatory functions setup of the governance and the regulatory functions (retail reference database, registry, data quality tool) has been achieved by TSGA since 2019.

5.12 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.

6 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.

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:

- Only 22 undertakings delivering their data (e.g. timetable data) to TSGA, where 39 undertakings do not deliver those data to TSGA.

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. 19 using TAP TSI standards, 3 with other standards and 3 with both sending seat reservation requests and the same amount of companies 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, 19 companies are using TAP Standards , other standards are used by 17 companies and one company used both for 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.
- A further progress for these basic parameters is therefore difficult to predict.
- The main issues for the undertakings to implement the reservation functions are:
 - o No benefits seen

This is mainly caused by the fact, that many undertakings operate only on local lines and have no reservation system in place or operate trains where a reservation for seats, bikes or cars is possible.

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. 22 railway undertakings are accepting tickets in value paper tickets in B6 format. For home printed tickets in B7 format 22 railway undertakings are issuing and 24 railway undertakings are accepting those tickets.
- The main issues for the undertakings to implement the ticketing functions are:
 - o The company is not issuing international tickets.

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 20 railway undertakings and 8 railway undertakings for IRT-tariff data.
- The implementation of the tariff data exchange according to the technical document B.3 by 13 railway undertakings 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.
- The main issues for the undertakings to implement the tariff data functions are:
 - o RU belongs to local/regional company, not exporting tariff to RUs not based in the same member state
 - o not offering IRT fares.
 - o The product is not provided
- For the exchange of special tariff data small and medium size railway undertakings see not benefit for the implementation.

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: 29 railway companies have implemented in with the TAP TSI technical document B.4, 10 with other standards, 12 have not yet implemented and 3 are in pilot testing phase.
- The main issues for the undertakings to implement the ticketing functions are:
 - o use of Merits
 - o in some Member States the IMs make available the timetable to the RUs.

Based on the comments in the answers submitted by the participants the following conclusions can be made for the improvement of the survey in 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.

7 Recommendation / actions to be taken

7.1 Functions to be reported in the next report

During the TAP TSI Implementation Cooperation Group meeting held on 10 March 2021, it was agreed to report in 2021 about the same functions as reported in 2020.

7.2 Calendar for next reporting

In the frame of the TAP TSI Implementation Cooperation Group meeting held on 9 March 2023, it was agreed the following schedule to report about the implementation of TAP TSI functions: 13.11.2023 - 10.12.2023

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

Figure 69: Reporting Schedule for the 2023 Reporting

7.3 ERA recommendations for next reporting

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

Table 10: Proposed actions for TAP TSI implementation

Who	Action	When
NCPs	The availability of the regulatory services, provided by TSGA, shall be communicated to the railway undertakings.	October 2023
NCP, ERA	Addressing the ticket vendors not organised in the European organisations ECTAA, EU Travel Tech. The NCPs should elaborate how the ticket vendors in their country can be discovered to be included in the survey..	October 2023
NCPs, ERA	It should be checked if a translation of the questionnaire based on EU-survey may improve the response rate. The translation shall be	October 2023

	provided by the NCP's, if they consider the translation as useful for an improved response rate.	
NCPs DE, NO, EL, NL	It should be checked how to secure contact data from few countries which didn't deliver any contact data of their RUs.	October 2023
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.	October 2023