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RECOMMENDATION ERA-REC-122 OF THE EUROPEAN UNION AGENCY FOR RAILWAYS

on

*the technical specification for interoperability relating to the
subsystem 'telematics applications for passenger services' of the
Union rail system*

THE EXECUTIVE DIRECTOR

HAVING REGARD TO Regulation (EU) 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, hereafter referred to as the 'Agency Regulation', in particular Articles 4 and 19 thereof,

HAVING REGARD TO [Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system (Recast), hereafter referred to as the 'Interoperability Directive', in particular Article 5 thereof,]

HAVING REGARD TO COMMISSION DELEGATED DECISION (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specifications for interoperability, in particular Article 13 and Article 14 thereof,

Whereas

1. The Article 3 (3) of Commission Regulation (EU) No 454/2011 of 5 May 2011 concerning a technical specification for interoperability relating to telematics applications for passengers (TAP TSI) requires the chapter 4 of the Annex to be amended for closing the open points of listed in annex II.
2. The article 14 of the Commission delegated decision (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specifications for interoperability requests the revision of the Regulation (EU) No 454/2011 ('TAP TSI') shall be revised in order to:
 - a. the geographical scope of the TAP TSI shall be the geographical scope of the TAF TSI,
 - b. where appropriate, the TAP TSI shall take into account the essential requirement 'Accessibility' as defined in Annex III, point 1.6 of Directive (EU) 2016/797,
 - c. shall take into account the revision of the TSI PRM, in particular as regards the Inventories of Assets and, where appropriate, the industry-driven Full Service Model initiative,
 - d. shall define the share of the tasks related to the management of centralised data structures to take into account the new tasks and responsibilities of the Agency and the governance body established by the sector with a view to accelerate the TAP TSI implementation,
 - e. shall aim to facilitate the emergence of through-ticketing, integrated ticketing and multi-modal travel information and reservation systems,
 - f. shall allow the Agency to assess the compliance of the IT tools deployed by the European rail sector with the TSI requirements.
3. In accordance with Article 5 of the Agency Regulation and with Article 3 (3) of Commission Regulation (EU) No 454/2011, a working party has been established for making a proposal for a recommendation as regards the modification of the chapter 4 and other modifications required to meet the 'specific objectives' listed above of the TSI in annex to Commission Regulation (EU) No 454/2011. This working party has completed its work in December 2019, and as a result, the Agency has finalised the revision of the TAP TSI.

HAS ADOPTED the following recommendation:

1. The TAP TSI in Annex I to Commission Regulation (EU) No 454/2011 should be replaced by the document as set out in Annex I of this recommendation.
2. The list of open points in Annex II to Commission Regulation (EU) No 454/2011 should be replaced by the document as set out in Annex II of this recommendation;
3. The list of technical documents in Annex III to Commission Regulation (EU) No 454/2011 should be replaced by the document as set out in Annex III of this recommendation.

4. The list of technical documents for retail architecture and governance in Annex V to Commission Regulation (EU) No 454/2011 should be replaced by the document as set out in Annex V of this recommendation.
5. The tasks to be undertaken by the TAF/TAP National Contact Point (NCP) in Annex VI to Commission Regulation (EU) No 454/2011 should be replaced by the document as set out in Annex VI of this recommendation.

This recommendation is addressed to the European Commission.

Valenciennes, 10/January/2020

Josef DOPPELBAUER
Executive Director

Annex:

- Annex I – revised TAP TSI
- Annex II: revised list of open points
- Annex III: revised list of technical documents
- Annex V: revised list of technical documents for retail architecture and governance
- Annex VI: revised tasks to be undertaken by the TAF/TAP National Contact Point (NCP)

ANNEX I

1. INTRODUCTION

1.1. Technical scope

This Technical Specification for Interoperability (hereinafter referred to as the TSI) concerns the element 'applications for passenger services' of the subsystem "telematics applications" of the Union rail system referred to in Annex II to Directive (EU) 2016/797.

The TSI shall apply to the subsystem 'telematics applications' of the rail system in the European Union as defined in Section 2.6(a) of Annex II to Directive (EU) 2016/797.

1.2. Geographical scope

The TSI shall apply to the following networks:

- The Union rail system network as defined in Annex I, Section 1 of Directive (EU) 2016/797;
- The TSI shall not apply to the cases referred to in Article 1(3) of Directive (EU) 2016/797
- This TSI shall neither apply to infrastructures and vehicles which a Member State has excluded from the scope of the measures implementing the Directive (EU) 2016/797 in accordance with Article 1(4) thereof.

1.3. Content of this TSI

The content of this TSI is in accordance with Article 4 of Directive (EU) 2016/797.

This TSI also comprises, in Chapter 4, the operating and maintenance rules specific to the technical and geographical scope.

2. DEFINITION OF THE SUBSYSTEM/SCOPE

2.1. Subsystem

This TSI covers:

- (a) the functional subsystem "Telematics applications for passenger services";
- (b) the part of the maintenance subsystem relating to the telematics applications for passenger services (i.e. methods of use, management, updating and maintenance of databases, software and data communication protocols etc).

It includes the provision of information on the following aspects:

- (a) systems providing passengers with information before and during the journey;
- (b) reservation and payment systems;
- (c) luggage management;
- (a) issuing of tickets via ticket offices or ticket selling machines or telephone or internet, or any other widely available information technology, and on board trains;
- (d) management of connections between trains and with other modes of transport.

2.1.1. Providing passengers with information before and during the journey

Annex II to Regulation (EC) No 1371/2007 on rail passengers' rights and obligations lists the minimum information to be provided to passengers by railway undertakings and/or by ticket vendors.

2.1.2. *Reservation and payment systems*

Information will be exchanged between the reservation and ticketing systems, and the payment systems of the different ticket vendors and railway undertakings in order to enable the passenger to pay for the above tickets, reservations and supplements for the journey and service chosen by the passenger.

2.1.3. *Luggage management*

Information will be provided to the passenger relating to the complaints procedures in the event of registered luggage being lost during the journey. Moreover, passengers will be provided with information about sending or picking up registered luggage.

2.1.4. *Issuing of tickets via ticket offices or ticket selling machines or telephone or internet or any other widely available information technology*

Information will be provided between railway undertakings and ticket vendors in order to enable the latter to issue, where available, tickets, through tickets, and supplements, and to make reservations.

2.1.5. *Management of connections between trains and with other modes of transport*

A standard is proposed for the provision of information to and exchange of information with other modes of transport.

3. ESSENTIAL REQUIREMENTS

3.1. Compliance with the essential requirements

In accordance with Article 3(1) of Directive (EU) 2016/797, the Union rail system, subsystems and interoperability constituents must meet the essential requirements set out in general terms in Annex III to the Directive.

Within the scope of the present TSI, fulfilment of relevant essential requirements quoted in Chapter 3 of this TSI will be ensured for the subsystem by compliance with the specifications described in Chapter 4: Characterisation of the subsystem.

3.2. Aspects relating to general requirements

The relevance of the general requirements to the telematics applications subsystem for passengers is determined as follows:

3.2.1. *Safety*

The safety-related essential requirements that apply to the telematics applications subsystem for passengers are the following: essential requirements 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5 of Annex III to Directive (EU) 2016/797. These essential requirements are not relevant to the telematics applications subsystem.

3.2.2. *Reliability and availability*

The essential requirement 1.2 of Annex III to Directive (EU) 2016/797 is met by the following chapters:

- Chapter 4.2.19: Various reference files and databases,
- Chapter 4.2.21: Networking and communication.

3.2.3. *Health*

Essential requirements 1.3.1 and 1.3.2 of Annex III to Directive (EU) 2016/797 are not relevant to the telematics applications subsystem.

3.2.4. *Environmental protection*

Essential requirements 1.4.1, 1.4.2, 1.4.3, 1.4.4 and 1.4.5 of Annex III to Directive (EU) 2016/797 are not relevant to the telematics applications subsystem.

3.2.5. *Technical compatibility*

Essential requirement 1.5 of Annex III to Directive (EU) 2016/797 is not relevant to the telematics applications subsystem.

3.2.6. *Accessibility*

Essential requirement 1.6 of Annex III to Directive (EU) 2016/797 is met by the following chapters:

- Chapter 4.2.6 - Handling of information concerning carriage and assistance of persons with reduced mobility (PRM)

3.3. Aspects relating specifically to the telematics applications for the passenger services subsystem

The relevance of the general requirements to the telematics applications for the passenger services subsystem is determined as follows:

3.3.1. *Technical compatibility*

Essential requirement 2.7.1 of Annex III to Directive (EU) 2016/797 is met in particular by the following chapters:

- Chapter 4.2.19: Various reference files and databases,
- Chapter 4.2.21: Networking and communication.

3.3.2. *Reliability and availability*

Essential requirement 2.7.2 of Annex III to Directive (EU) 2016/797 is met in particular by the following chapters:

- Chapter 4.2.19: Various reference files and databases,
- Chapter 4.2.21: Networking and communication.

However, this essential requirement, especially the method of use to guarantee the efficiency of these telematics applications and the quality of the service, is the foundation for the complete TSI and is not restricted only to the chapters mentioned above.

3.3.3. *Health*

Regarding essential requirement 2.7.3 of Annex III to Directive (EU) 2016/797, this TSI does not specify any requirements in addition to existing national and European rules related to minimum rules on ergonomics and health protection of an interface between these telematics applications and users.

3.3.4. *Safety*

Essential requirement 2.7.4 of Annex III to Directive (EU) 2016/797 is met by the following chapters:

- Chapter 4.2.19: Various reference files and databases,
- Chapter 4.2.21: Networking and communication.

3.3.5. *Accessibility*

Essential requirement 2.7.5 of Annex III to Directive (EU) 2016/797 is met by the following chapters:

- Chapter 4.2.6 - Handling of information concerning carriage and assistance of persons with reduced mobility (PRM)

4. CHARACTERISATION OF THE SUBSYSTEM

4.1. Introduction

Taking all the applicable essential requirements into account, the telematics application for passenger services subsystem is characterised by the following basic parameters which are described in the following sections.

In light of the essential requirements in Chapter 3 (Essential requirements), the functional and technical specifications of the subsystem cover the following parameters:

- 4.2.1: Exchange of timetable data,
- 4.2.2: Exchange of tariff data,
- 4.2.3: Handling of information on contact details of the railway undertaking,
- 4.2.4 to 4.2.9: Handling of information concerning conditions of carriage, carriage of registered luggage, carriage and assistance of persons with reduced mobility (PRM), carriage of bicycles, carriage of cars,
- 4.2.4: Handling of information concerning conditions of carriage
- 4.2.5: Handling of information concerning carriage of registered luggage,
- 4.2.6: Handling of information concerning carriage and assistance of persons with reduced mobility (PRM),
- 4.2.7: Handling of information concerning carriage of bicycles
- 4.2.8: Handling of information concerning carriage of cars,
- 4.2.9: Handling of availability/reservation,
- 4.2.10: Handling of security elements for product distribution,
- 4.2.11: Delivery of the product to the customer after its purchase (fulfilment),
- 4.2.12: Handling of information provision in the station area
- 4.2.13: Handling of information provision in the vehicle area,
- 4.2.14: Path request,
- 4.2.15: Train Preparation,
- 4.2.16: Train running information and forecast,
- 4.2.17: Service disruption information,
- 4.2.18: Quality for data and information,
- 4.2.19: The Main Reference Data, Various Reference Files and Databases,
- 4.2.20: Electronic Transmission of documents, Networking and Communication,
- 4.2.21: Management of connection with other modes of transport.

The detailed data specifications are defined:

- for basic parameters 4.2.1 to 4.2.11 in the Technical Documents listed in Annex III;
- for basic parameters 4.2.14 to 4.2.17 in the Data Catalogue defined in the technical document ERA-TD-105 'TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' of TAF TSI Appendix I.

In addition, for basic parameters 4.2.14 to 4.2.17, other existing standards may be used for the same purpose if there is a specific agreement between the parties involved to allow the use of these standards.

General remarks on the RU/IM message structure

The messages are structured into two data sets:

- Control data: defined through the mandatory message header of the messages of the catalogue.
- Information data: defined by the mandatory/optional content of each message and mandatory/optional data set in the catalogue.

If a message or a data element is defined as optional in this Regulation, the involved parties decide on using it. The application of these messages and data elements must be part of a contractual agreement. If in the data catalogue optional elements are mandatory under certain conditions this has to be specified in the data catalogue.

4.2. Functional and technical specifications of the subsystem

4.2.1. Exchange of timetable data

This basic parameter lays down how the railway undertaking and station manager shall perform the exchange of timetable data.

This basic parameter shall ensure that timetables comprising the data elements defined below shall be made available. This basic parameter shall further ensure that each railway undertaking and station manager shall provide accurate and up-to-date timetable data.

The provisions of this basic parameter shall apply to the passenger services of the railway undertaking.

This basic parameter shall have the following process:

4.2.1.1. The railway undertaking makes available its own timetable data to other railway undertakings and to third parties

The railway undertaking shall make available all of its timetable data for which the railway undertaking is responsible as sole or joint carrier and which are related to transport services which are available for purchase by the public by guaranteeing access to all railway undertakings, to third parties and to public bodies. The railway undertaking shall ensure that the timetable data are accurate and up-to-date. The timetable data shall be kept available at least for twelve months after such data have expired.

Where a railway undertaking operates a transport service for which it is one of the Joint carriers, the railway undertaking shall ensure, together with all the other Joint carriers, that its part of the timetable are accurate and up-to-date.

The main content of the timetable data shall be:

- Basic principles of train variants
- Representation of a train,
- Different possible ways of representing days of operation,
- Train category / service mode.
- Transport service relationships
- Coach groups attached to trains,
- Joining to, splitting from,

- Through connections (connecting to),
- Through connections (change of service number).
- Details of transport services, including public arrival, public departure and passing times
- Stops with traffic restrictions,
- Overnight trains,
- Crossing of time zones,
- Pricing regime and reservation details,
- Information provider,
- Reservation provider,
- Service facilities,
- Accessibility of the train (including scheduled existence of priority seats, wheelchair spaces, universal sleeping compartments – see PRM TSI 4.2.4) – see section 4.2.6.1
- Service extras,
- Connecting - Timing between transport services by using the timetable data delivered by the station manager according to chapter 4.2.1.2.,
- Station list.

For those transport services over which the railway undertaking has sole control, the annual timetable shall be made available at least two months before that timetable comes into force. For the remaining transport services, the railway undertaking shall make the timetable available as soon as possible.

The railway undertaking shall make available any changes to the annual timetable in a series of timetable updates at least seven days before those changes take effect. This obligation shall apply only if the change is known to the railway undertaking seven or more days in advance of it taking effect.

The above process and the information used therefor shall comply with the technical document(s):

- B.4 (see Annex III).

4.2.1.2. The station manager makes available its own timetable data to railway undertakings, public bodies and to third parties

The station manager shall make available all of its timetable data for all station he is responsible for by guaranteeing access to all railway undertakings, to third parties and to public bodies. The station manager shall ensure that the timetable data are accurate and up-to-date. The timetable data shall be kept available at least for twelve months after such data have expired.

The main content of the timetable data shall be:

- Connecting - Timing within the station (default minimum connection time),
- Connecting - Timing between different locations (e.g. parts of the station, platforms) within the station, if appropriate,
- Connecting - Timing between the station and stations in the neighbourhood, if appropriate

The annual timetable shall be made available at least two months before that timetable comes into force.

The station manager shall make available any changes to the annual timetable by update of the reference file for the coding of locations at least seven days before those changes take effect. This obligation shall apply only if the change is known to the station manager seven or more days in advance of it taking effect.

An entity defined by the Member state or by default the station manager, should design a neutral process involving RU's and IM's in order to seek consensus for the definition of the relevant connection timing. In case of disputes it is referred an entity defined by the member state, which could be the the National enforcement body.

The above process and the information used therefor shall comply with the technical document(s):

- reference file of the coding of locations

This process shall be performed for the first time not later than 12 months after this TSI enters into force.

4.2.2. Exchange of tariff data

This basic parameter lays down how the railway undertaking shall perform the exchange of tariff data.

This basic parameter shall ensure that tariff data in the format defined below shall be made available.

The provisions of this basic parameter shall apply in respect of all passenger tariffs of the railway undertaking for domestic, international and foreign sales.

This basic parameter shall have following process:

4.2.2.1. *The railway undertaking makes available its own tariffs to other railway undertakings, authorised public bodies and third parties*

Without prejudice to passenger rights and in accordance with distribution agreements, each railway undertaking shall make available its tariffs (including fare tables) by guaranteeing access to railway undertakings to which it grants authorisation to sell, third parties to which it grants authorisation to sell, and to authorised public bodies. The railway undertaking shall ensure that the tariff data are accurate and up-to-date.

Where a railway undertaking operates a transport service for which it is one of the joint carriers, the railway undertaking shall ensure, together with all the other joint carriers, that the tariff data are accurate and up-to-date.

The main content of tariff data intended for international or foreign sales shall be as defined in Annex IV.

Tariff data intended for international or foreign sales shall be made available at least as far in advance as provided for in Annex IV.

The above process and the information used for it shall be compliant with data intended for international or foreign sales with the technical document(s):

- B.1 (see Annex III),
- B.2 (see Annex III),
- B.3 (see Annex III).

Tariff data intended for domestic sales shall be made available to railway undertakings and to third parties which are authorised to sell, and also to authorised public bodies, at least as long in advance as it is the case for tariff data intended for international or foreign sales.

The above process and the information used for it in respect of tariff data intended for domestic sales shall comply with at least one of the following technical document(s), standards or any format fully compatible and interoperable with those standards or technical documents: :

- B.1 (see Annex III),
- B.2 (see Annex III),
- B.3 (see Annex III).

- CEN/TS 16614-3:2015 and subsequent versions.

4.2.3. *Handling of information on contact details of the railway undertaking*

This basic parameter lays down how the railway undertaking shall provide information about its official website from which customers can obtain accurate information.

The provisions of this basic parameter shall apply to all railway undertakings.

This basic parameter shall have following process:

4.2.3.1. *The railway undertaking makes available a dataset of its contact details*

The railway undertaking shall make available to other railway undertakings, to the Agency, to third parties and to public bodies a dataset that includes its carrier name, carrier code and its official website. The official website referred to in this basic parameter shall be machine readable and compliant with web content accessibility guidelines. If a railway undertaking operates a joint business unit with (an)other railway undertaking(s), the name of the joint business unit, carrier codes and official website shall be made available to the other railway undertakings.

When a railway undertaking makes its timetable information available to other railway undertakings pursuant to chapter 4.2.1.1, it shall ensure that the carrier name in the timetable delivery has a corresponding carrier name in this dataset. If changes have occurred, the railway undertaking shall update the content of the dataset as soon as possible.

4.2.4. *Handling of information concerning conditions of carriage*

This basic parameter lays down how the railway undertaking shall handle information concerning conditions of carriage.

This basic parameter shall ensure that conditions of carriage are available on the official website of the railway undertaking.

The provisions of this basic parameter shall apply to the passenger services of the railway undertaking.

This basic parameter shall entail the following process:

4.2.4.1. *The railway undertaking publishes information relating to conditions of carriage.*

The railway undertaking shall publish information relating to:

- general conditions of carriage for rail passengers (GCC-CIV/PRR),
- its own conditions of carriage,
- a link to the Regulation (EC) No 1371/2007 of the European Parliament and of the Council of 23 October 2007 on rail passengers' rights and obligations,
- the accepted means of payment,
- sales and after-sales conditions, especially for the exchange and reimbursement of tickets,
- procedures for the submission of complaints

at least on its official website. This website shall comply with web content accessibility guidelines which take into account the needs of people with auditory and/or visual impairment.

This process shall be performed for the first publication not later than six months after this TSI comes into force. Changes to this information shall be published at least 6 days before they enter into force. The railway undertaking shall list the articles which have been changed compared to the previous version. On each such occasion the railway undertaking shall maintain the earlier version of this information on its official website.

4.2.5. *Handling of information concerning carriage of registered luggage*

This basic parameter lays down how the railway undertaking shall ensure the provision of information for the carriage of registered luggage if the service is offered by the railway undertaking. If the service is not offered, the railway undertaking shall provide the information that the service is not offered.

This basic parameter shall ensure that information on the handling of registered luggage shall be available to the passenger.

This basic parameter shall entail the following process:

4.2.5.1. *The railway undertaking publishes conditions for the handling of registered luggage*

The railway undertaking shall publish for the attention of passengers the conditions for the handling of registered luggage where the railway undertaking offers such handling. Where the service is not offered, the railway undertaking shall publish information to that effect. This information shall be published at least on the official website of the railway undertaking. This website shall comply with web content accessibility guidelines which take into account the needs of people with auditory and/or visual impairment.

This process shall be performed for the first publication not later than six months after this TSI comes into force. Changes to this information shall be published at least 6 days before the modification enters into force. The railway undertaking shall list the articles which have been modified compared to the previous version. The railway undertaking shall on each such occasion maintain the previous version of this information on its official website.

4.2.6. *Handling of information concerning carriage and assistance of persons with reduced mobility (PRM)*

This basic parameter lays down how the railway undertaking, ticket vendor, and/or station manager must ensure the provision of information on the carriage and assistance of PRMs.

This basic parameter shall ensure that information on the carriage and assistance of PRMs shall be available to the passenger. If the railway undertaking uses IT communication for the purposes of sending an availability/reservation request for PRM assistance, the system to which it is addressed shall at least be able to handle messages according to the protocol specified in the technical document B.10 (see Annex III). In addition, the system shall issue a confirmation number for the assistance reservation – this is essential in order to provide the customer/passenger with the guarantee and confidence that the assistance will be provided and to establish accountability and responsibility for the provision of assistance. Those messages contain all the information needed in order for the railway undertaking, ticket vendor and/or station manager to issue to the PRM a confirmation number (for each departure and arrival of each journey) to reserve assistance.

The provisions of this basic parameter shall apply as follows: the handling of information concerning the carriage of PRM shall be applied in respect of the passenger services of the railway undertaking.

This basic parameter shall entail the following processes:

4.2.6.1. *The railway undertaking publishes information on the accessibility of rail services and on the conditions of access to rolling stock*

The railway undertaking shall publish the following information:

- the train types/numbers and/or line number (if no train number is available for the public) where PRM facilities are available,
- the types and minimum quantities of PRM facilities in the above trains (such as wheelchair seat, PRM berth, PRM toilet, location of PRM seats) under normal operating conditions,

- the methods of requesting assistance for boarding and disembarking from trains (including PRM notice period, address, email, operating hours and the telephone number of the office(s) for PRM-assistance) according to Article 24 of the Regulation on Passenger Rights,
- the maximum size and weight of wheelchair (including the weight of the PRM) permitted,
- the transport conditions for accompanying persons and/or animals,
- conditions of access to the station building and platforms, including whether the station is classified as accessible for PRMs and whether is staffed for PRM support,

at least on its official website. This website shall be accessible to persons with disabilities.

This process shall be performed for the first publication at the latest six months after this TSI comes into force. Any modifications to this information shall be published at least 6 days before the modification enters into force. The railway undertaking shall list the articles which have been modified compared to the previous version. On each occasion the railway undertaking shall maintain on its official website the previous version of this information.

4.2.6.2. The entity in charge of collecting accessibility data or the station manager publishes information on the accessibility of rail services

The entity in charge of collecting accessibility data or the station manager shall publish the following information:

- conditions of access to the station building and platforms, including whether the station is classified as accessible for PRMs and whether is staffed for PRM support

The above process and the information used for it shall be compliant with the following standard(s):

- For the exchange of accessibility data about the accessibility of a 'stop/station' data, the XML technical standards and protocols based on EN 12896-1:2016 (Transmodel), in particular norm CEN:TS 16614-1:2014 and subsequent versions.

This process shall be performed for the first publication as defined in article 7a (4) of the Commission Regulation (EU) 1300/2014¹ (PRM TSI). Any modifications to this information shall be published at least 6 days before the modification enters into force.

4.2.6.3. If the railway undertaking or ticket vendor uses IT communication for the purposes of sending an availability / reservation request for PRM assistance, such request must comply with the relevant provisions

The requesting distribution system shall send to the system requests for the relevant train availability/reservation in respect of the specified type of assistance.

The main types of requests shall be:

- Availability request,
- Reservation request,
- Partial cancellation request,
- Full cancellation request.

This process shall be performed following a request from a customer transmitted to the system of the railway undertaking or ticket vendor.

¹ Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility (OJ L 356, 12.12.2014, p. 110).

The data elements and the information content of the message used to meet the obligations shall comply:

- either with elements defined in the technical document B.10 (see Annex III), in which case all addressed systems must be able to understand the request and to respond;
- or with otherwise defined standards, in which case the addressed system must be able to understand the request and to reply only if there is a specific agreement with the requesting system.

4.2.6.4. Addressed system sends an availability/reservation response for PRM assistance

If the railway undertaking uses IT communication for the purposes of sending of an availability/reservation response for PRM assistance, it shall abide by the terms and conditions of this process.

If a request for reservation of PRM assistance has been properly formulated according to the process described above, the addressed system shall send to the requesting system an availability/reservation response for the requested assistance type.

The main types of reservation responses shall be:

- Reply about availability,
- Confirmation of reservation request ,
- Confirmation of partial cancellation request,
- Confirmation of complete cancellation request,
- Negative reply.

This process shall be performed in response to an incoming request received by the system to which it is sent according to the process described above.

The data elements and the message information contents used to meet the obligations shall comply:

- either with the elements defined in technical document B.10 (see Annex III),
- or with otherwise defined standards,

according to the protocol used by the requesting system.

4.2.7. Handling of information concerning the carriage of bicycles

This basic parameter lays down how the railway undertaking shall ensure the provision of information concerning the carriage of bicycles.

This basic parameter shall ensure that information for the carriage of bicycles shall be available to the passenger. The attributing system shall be able to handle at least messages according to the protocol specified in technical document B.5 (see Annex III).

The provisions of this basic parameter shall apply as follows: the handling of information concerning the carriage of bicycles shall be applied in respect of the passenger services of the railway undertaking where carriage of bicycles is offered. The provisions of this basic parameter regarding an electronic request/confirmation shall be applied if there is an agreement between the requesting and the attributing parties for the provision of services where such carriage may be reserved or is subject to compulsory reservation.

This basic parameter shall have the following processes:

4.2.7.1. The railway undertaking publishes conditions for handling of bicycles

The railway undertaking shall publish for the attention of passengers the conditions for carriage of bicycles where such carriage is offered by the railway undertaking. This information shall be published

at least on the railway undertaking's official website. This website shall meet web content accessibility guidelines which take into account the needs of people with auditory and/or visual impairment. These conditions shall list at least

- the train types/numbers or line number (if no train number is available for the public) where carriage of bicycles is available including – if available - the types and the number of bikes permitted,
- particular times/periods where carriage of bicycles is permitted,
- the fares for the carriage of bicycles,
- whether a specific reservation for a bicycle storage place in the train is available or required (including bicycle notice period, operating hours, email and/or telephone).

The first publication of these conditions shall take place not later than six months after this TSI comes into force. Changes to this information shall be published at least six days before the change comes into force. The railway undertaking shall list the articles which have been changed compared to the previous version. The railway undertaking shall in all cases maintain the previous version of this information on its official website.

4.2.7.2. A railway undertaking or ticket vendor sends an availability/reservation request for bicycles to the attributing reservation system

The possibility of making a reservation shall be subject to the existence of a commercial agreement between the carrier(s) and distributor(s) involved. Such agreements can include charges, technical and safety standards, specific limitations in terms of trains, origins/destinations, tariffs, sales channels, etc.

If the railway undertaking or ticket vendor uses IT communication for the purposes of sending a request for availability/reservation for the carriage of bicycles, such communication shall conform to the requirements of this process.

Subject to an agreement between the parties involved, the requesting distribution system shall send requests for the specified bicycle carriage to the attributing system concerning the availability/reservation of the train concerned.

The main types of reservation requests shall be:

- Enquiry about availability,
- Reservation request,
- Partial cancellation request,
- Complete cancellation request.

This process shall be performed following a request from a customer sent to the distribution system of the railway undertaking.

The data elements and the information content of the message used to meet the obligations shall be compliant:

- either with the definitions in technical document B.5 (see Annex III), in which case all attributing systems shall be able to understand the request and to answer;
- or with otherwise defined standards, in which case the attributing system shall be able to understand the request and to answer only if a specific agreement has been concluded with the requesting distribution system.

4.2.7.3. *Attributing reservation system sends availability/reservation response for bicycles*

If the railway undertaking uses IT communication for the purposes of sending of an availability/reservation answer for the carriage of bicycles, it shall follow the relevant instructions of this process.

If a request for reservation of bicycle spaces has been correctly formulated according to the process above described, the attributing system shall send to the requesting distribution system an availability/reservation response for the requested train.

The main types of reservation responses shall be:

- Reply about availability,
- Confirmation of reservation request,
- Confirmation of partial cancellation request,
- Confirmation of complete cancellation request,
- Negative reply.

This process shall be performed in response to an incoming request arriving at the attributing system according to the process described above.

The data elements and the information content of the message used to meet the obligations shall comply:

- either with information contained in technical document B.5 (see Annex III),
- or with otherwise defined standards,

according to the protocol used by the requesting attributing system.

4.2.8. *Handling of information concerning the carriage of cars*

This basic parameter lays down how the railway undertaking shall ensure the provision of information for the carriage of cars/motorcycles (in the following, the word 'cars' includes motorcycles) if it is offered by the railway undertaking.

This basic parameter shall ensure that information on the carriage of cars shall be available to the passenger. The attributing system shall be able to handle at least messages according to the protocol specified in technical document B.5 (see Annex III).

The provisions of this basic parameter shall apply as follows: the handling of information concerning the carriage of cars shall be applied in respect of the passenger services of the railway undertaking where carriage of cars is offered. The provisions of this basic parameter regarding electronic request/confirmation shall apply if there is an agreement between the requesting and the attributing parties for services where such carriage may be reserved or is subject to mandatory reservation.

This basic parameter shall apply as follows:

4.2.8.1. *The railway undertaking publishes conditions for the handling of cars*

The railway undertaking shall communicate to the passenger the conditions for carriage of cars where this is offered by the railway undertaking. This information shall be published at least at the railway undertaking's official website. This website shall comply with web content accessibility guidelines which take into account the needs of people with auditory and/or visual impairment.

These conditions shall list at least:

- the train types/numbers on which carrying of cars is available,
- particular times/periods where carrying of cars is available,

- the standard fares for carrying of cars (incl. fares for accommodation of passengers, where accommodation is offered by the railway undertaking),
- specific address and time for loading of cars on to the train,
- specific address and arrival time of the train at the station of destination,
- size, weight and other limitations for the transport of cars.

The first publication shall take place at the latest six months after this TSI comes into force. Changes to this information shall be published at least six days before they enter into force. The railway undertaking shall list the articles which have been amended. The railway undertaking shall on each occasion keep the previous version of this information on its official website.

4.2.8.2. The railway undertaking or ticket vendor sends an availability/reservation request for cars to the reservation system

The possibility of making a reservation shall be subject to the existence of a commercial agreement between the carrier(s) and distributor(s) involved. Such agreements may include charges, technical and security standards, specific limitations in terms of trains, Origins/Destinations, tariffs, sales channels, etc.

If the railway undertaking or ticket vendor uses IT communication for the purpose of sending availability/reservation requests for the carriage of cars, such communication shall comply with the provisions governing this process.

Subject to an agreement between the parties involved, the requesting distribution system shall send to the attributing system for the relevant train availability/reservation requests for the specified carriage of cars.

The main types of reservation requests shall be:

- Availability request,
- Reservation request,
- Partial cancellation request,
- Complete cancellation request.

This process shall be performed following a request transmitted by a customer to the distribution system of the railway undertaking.

The data elements and the information content of the message used to meet the obligations shall be compliant:

- either with elements defined in technical document B.5 (see Annex III), in which case all attributing systems shall be able to understand the request and to reply;
- or with otherwise defined standards, in which case the attributing system shall be able to understand the request and to answer only if there is a specific agreement with the requesting distribution system.

4.2.8.3. Attributing reservation system sends availability/reservation response for cars

If the railway undertaking uses IT communication for the purpose of sending availability/reservation responses for the carriage of cars, it shall adhere to the rules laid down in respect of this process.

If a request for reservation of cars has been properly formulated according to the process described above, the attributing system shall send an availability/reservation response for the requested train to the requesting distribution system.

The main types of reservation responses shall be:

- Reply about availability,
- Confirmation of reservation request,
- Confirmation of partial cancellation request,
- Confirmation of complete cancellation request,
- Negative reply.

This process shall be performed in response to an incoming request arriving at the attributing system according to the process described above.

The data elements and the information content of the message used to meet the obligations shall comply:

- either with elements defined in technical document B.5 (see Annex III),
- or with otherwise defined standards,

according to the protocol used by the requesting distribution system.

4.2.9. *Handling of availability/reservation*

This basic parameter lays down the manner in which the railway undertakings shall deal with reservations for the accommodation of passengers. All of the various types of accommodation (such as seats, couchettes, sleepers, priority seats, wheelchair spaces, universal sleeping compartments (see PRM TSI section 4.2.4)) will be designated hereinafter as "places", unless more specific information is needed. Reservations for the carriage of bicycles, cars and for assistance of PRM, are described in separate basic parameters in separate chapters.

Reservation of places may simply concern the booking of accommodation, in addition to the transport contract, or may be part of a combined transaction which includes both accommodation and a transport contract.

This basic parameter shall ensure that the issuing and attributing railway undertakings shall exchange appropriate availability and reservation information. The attributing system shall be able to handle at least messages according to the protocol specified in the technical document B.5 (see Annex III).

The provisions of this basic parameter shall be applied if an agreement between the requesting and the attributing parties exists in respect of services which may be reserved or are subject to mandatory reservation.

This basic parameter shall involve the following processes:

4.2.9.1. *The railway undertaking or ticket vendor sends an availability/reservation request to the attributing reservation system*

The possibility of making a reservation shall be subject to the existence of a commercial agreement between the involved carrier(s) and distributor(s). Such agreements can include charges, technical and safety standards, specific limitations in terms of trains, origins/destinations, tariffs, sales channels, etc.

Subject to an agreement between the parties involved, the requesting distribution system shall send requests to the attributing system in respect of the relevant train availability/reservation for the specified accommodation type.

The main types of reservation requests are:

- Enquiry about availability,
- Reservation request,
- Request for partial cancellation,
- Request for complete cancellation.

This process shall be performed following a request from a customer transmitted to the distribution system of the railway undertaking.

The data elements and the information contained in the message used to meet the obligations shall comply:

- either with the elements set out in technical document B.5 (see Annex III), in which case all attributing systems shall be able to understand the request and to reply;
- or with otherwise defined standards, in which case the attributing system shall be able to understand the request and to answer only if there is a specific agreement with the requesting distribution system.

4.2.9.2. Attributing reservation system sends availability/ reservation response

If a request for reservation of places has been validly formulated according to the process described above, the attributing system shall send an availability/reservation response for the requested train to the requesting distribution system.

The main types of reservation responses shall be:

- Reply about availability,
- Confirmation of reservation request,
- Confirmation of partial cancellation request,
- Confirmation of complete cancellation request,
- Replacement proposal,
- Negative reply.

This process shall be performed in response to an incoming request arriving at the attributing system according to the process described above.

The data elements and the message information contents used to meet the obligations shall be compliant:

- either with elements defined in technical document B.5 (see Annex III),
- or with otherwise defined standards,

according to the protocol used by the requesting distribution system.

4.2.10. Handling of security elements for product distribution

This basic parameter specifies the manner in which the attributing railway undertaking shall generate security elements for the distribution of its products.

This basic parameter must ensure that railway undertakings and passengers shall, at the appropriate time, obtain from the attributing railway undertaking the security information and references needed for the various ticket types.

This basic parameter shall entail the following processes:

4.2.10.1. Attributing system creates security element for electronic delivery

If a railway undertaking or ticket vendor issues CIV compliant ticket/reservation, the staff of the rail ticket office/agency/retailer or the distribution system of the railway undertaking shall generate the security information to be inserted in the ticket/reservation.

This process shall be performed as soon as the booking status and sales transaction data have been successfully sent to the distribution system of the agreed railway undertakings.

The above process and the information used for it shall comply with:

- the technical document B.5
- The technical document B.12 for the security elements.

To check the authenticity of the security elements by the TCO, a public key infrastructure (PKI) has to be used by the railway undertakings and ticket vendors creating those security elements for electronic delivery.

4.2.10.2. Attributing system creates a file reference for the railway undertaking for electronic delivery

If a railway undertaking or ticket vendor issues CIV compliant ticket/reservation, the staff of rail ticket office/agency/retailer or the distribution system of the railway undertaking shall produce a dossier reference to retrieve the ticket/reservation and shall enter all information concerning the ticket into its own distribution system.

This process shall be performed as soon as the booking status and sales transaction data have been successfully sent to the distribution system of the agreed railway undertakings.

The above process and the information used for it shall be compliant with:

- the technical document B.5.

4.2.10.3. Attributing system creates a dossier reference for the passenger for electronic delivery

If a railway undertaking or ticket vendor issues a CIV compliant ticket/reservation, the staff of the rail ticket office/agency/retailer or the distribution system of the railway undertaking shall generate a dossier reference and shall enter it on the ticket/reservation.

This process shall be performed as soon as the booking status and sales transaction data have been successfully sent to the distribution system of the agreed railway undertakings.

The above process and the information used for it shall be compliant with:

- TAP TSI technical document B.5 - message "2.14.6.2 – Retrieve security features for existing booking".

4.2.11. Delivery of the product to the customer after its purchase (fulfilment)

This basic parameter sets out all the possible direct and indirect fulfilment methods which are linked to the ticket and/or reservation and to the kind of media (e.g. paper).

This basic parameter shall ensure that the issuer or ticket vendor shall issue tickets according to standards that ensure interoperability between railway undertakings. For the purposes of issuing tickets for international and foreign sales, railway undertakings shall use at least one of the fulfilment types listed in Chapter 4.2.11.1 Fulfilment - direct - for international and foreign sales and in Chapter 4.2.11.2 Fulfilment – indirect - for international and foreign sales. For the purposes of issuing tickets for domestic sales, railway undertakings shall use at least one of the fulfilment methods listed in chapter 4.2.11.3 Fulfilment – direct – domestic sales and in Chapter 4.2.11.4 Fulfilment – indirect – domestic sales.

4.2.11.1. Fulfilment - direct - for international and foreign sales

This process shall be an alternative to process 4.2.11.2 Fulfilment - indirect- for international and foreign sales.

The railway undertakings shall at least accept tickets according to the definition in technical document B.11 (see Annex III), except where the ticket is not appropriate for the journey being undertaken, where the railway undertaking has reasonable grounds to suspect fraud and where the ticket is not being used in accordance with the conditions of carriage according to Chapter 4.2.4.

The main types of issued tickets are specified in technical document B.11 of Annex III:

- Ticket and reservation,

- Ticket only,
- Reservation only,
- Supplements,
- Upgrade,
- Change of itinerary,
- Boarding pass,
- Ticket only or ticket and reservation for Special fares in conjunction with national railcards,
- Ticket only or ticket and reservation for Group ticket,
- International rail passes of various kinds,
- Accompanied vehicle coupon,
- Travel voucher for compensation.

The above process and the information used for it shall be compliant with the technical document(s):

- B.11 (see Annex III).
- B.12 (see Annex III)

4.2.11.2. Fulfilment - indirect - for international and foreign sales

This process shall be an alternative to process 4.2.11.1 Fulfilment - direct - for international and foreign sales

If the railway undertaking makes sales using indirect fulfilment on one of the following methods, it must use the following standards:

- CIV compliant electronic delivery (Ticket On Departure, Manifest On List),
- CIV compliant A4 ticket via electronic delivery for visual inspection by barcode readers,
- CIV compliant flexible ticket via electronic delivery for visual inspection by barcode readers.

The main types of above issued tickets shall be:

- Non-Reservation ticket (travel only),
- Non-Reservation ticket + reservation (travel and reservation),
- Non-Reservation ticket + supplement (travel and supplement),
- Non-Reservation ticket + reservation + supplement (travel, reservation and supplement),
- Integrated-Reservation ticket (travel and reservation).

The above process and the information used for it shall be compliant with the following technical document(s):

- B.5 (see Annex III)
- B.11 (see Annex III),
- B.12 (see Annex III),

4.2.11.3. Fulfilment – direct – domestic sales

This process shall be an alternative to process 4.2.11.4 Fulfilment - indirect- for domestic sales.

If the railway undertaking makes sales using direct fulfilment on one of the following methods, it must use the following standards:

- Rail combined ticket 2 (RCT2) and Rail Credit card size ticket (RCCST)

The above process and the information used for it shall be compliant with the following technical document(s):

- B.11 (see Annex III),
- B.12 (see Annex III),
- or with otherwise defined standards

4.2.11.4. Fulfilment – indirect – domestic sales

This process shall be an alternative to process 4.2.11.3 Fulfilment - direct - for domestic sales

If the railway undertaking makes sales using indirect fulfilment on one of the following methods, it must use the following standards:

- electronic delivery (Ticket On Departure, Manifest On List),
- A4 ticket via electronic delivery for visual inspection by barcode readers,
- flexible ticket via electronic delivery for visual inspection by barcode readers.

The main types of above issued tickets shall be:

- Non-Reservation ticket (travel only),
- Non-Reservation ticket + reservation (travel and reservation),
- Non-Reservation ticket + supplement (travel and supplement),
- Non-Reservation ticket + reservation + supplement (travel, reservation and supplement),
- Integrated-Reservation ticket (travel and reservation).

The above process and the information used for it shall be compliant with the following technical document(s):

- B.5 (see Annex III)
- B.11 (see Annex III),
- B.12 (see Annex III),

4.2.12. Handling of ticket control and ticket state modification data

This basic parameter specifies the manner in which the ticket control organization shall exchange ticket control information with the issuing railway undertaking or ticket vendor.

This basic parameter shall ensure that the ticket control organisation shall provide ticket control data or ticket state changes various ticket types, specified in chapter 4.2.11 according to standards that ensure interoperability between ticket control organisations, railway undertakings and ticket vendors.

This is an open point (see Annex II).

4.2.13. Handling of information provision in the station area

This basic parameter lays down how the station manager shall provide the customer with train running information within the station area.

The provisions shall apply only if there has been a renewal, major upgrade or new installation of voice announcements and/or display systems.

The provisions of this basic parameter shall apply at least in respect of stations at which trains performing international service stop.

This basic parameter shall entail the following processes:

4.2.13.1. Station manager informs customers with in the station

With regard to information on train departures, station managers shall provide the following departure information on trains to customers in stations:

- Train type and/or number,
- Station(s) of destination
- And, where appropriate, intermediate station stop(s),
- Platform or track,
- Scheduled Departure time.

In the event of deviation from this information for departing trains, station managers shall provide, in stations, at least the following train information:

- Train type and/or number,
- Station(s) of destination
- Scheduled Departure time,
- Deviation from plan.

As regards information on terminating trains, the station manager shall provide at least the following train information:

- Station(s) of origin,
- Arrival time at the terminating station,
- Train type and/or number,
- Arrival platform or track.

In the case of deviation for terminating trains, the station manager shall provide at least the following information for such trains:

- Train type and/or number,
- Station(s) of origin
- Scheduled arrival time,
- Deviation from plan.

Deviations from plan comprise:

- delays,
- Change of track or platform,
- Full or partial cancellation of train,
- Train rerouting.

The station manager decides according to agreements with the railway undertakings and/or infrastructure managers on:

- The type of information system (display and/or voice announcement),
- The point in time when the information is provided,

- The location within the station where the information system will be installed.

In accordance with a contractual agreement, information about deviations shall be delivered by railway undertakings and/or infrastructure managers in due time to the station manager.

4.2.14. Handling of information provision in the vehicle area

This basic parameter lays down how the railway undertaking shall provide train running information within the vehicle area.

The provisions shall apply to new or renewed or upgraded rolling stock, if information systems (voice announcements and/or displays) are renewed or installed.

The provisions of this basic parameter shall apply to at least all those trains performing international service.

This basic parameter shall have the following processes:

4.2.14.1. The railway undertaking informs passengers in the train

The railway undertakings shall provide information to passengers in the train:

- At station of departure and major intermediate station stops:
 - Train type and/or number,
 - Final destination(s),
 - Where practicable, intermediate station stops,
 - delay,
 - Reasons for delay, if known.
- Before arrival at all intermediate station stops:
 - Next station stop (station name).
- Before arrival at major intermediate station and destination station:
 - Next station stop (station name),
 - Planned arrival time,
 - Estimated arrival time and/or other Delay information,
 - Next main connecting services (at the discretion of the railway undertaking).

The railway undertaking decides on:

- The type of information system (Display and /or voice announcements),
- The point in time when the information will be provided,
- The location within a train where the information devices will be installed.

4.2.15. Path Request

4.2.15.1. Preliminary remarks

The Path defines the requested, accepted and actual data to be stored concerning the path and the characteristics of the train for each segment of that path. The following description presents the information which must be available to the Infrastructure Manager and/or the Allocation Body (AB). This information must be updated whenever a change occurs.

The information of the annual path therefore needs to allow the retrieval of the data for short term amendments.

Path Request on short notice

Due to exceptions during the train running or due to transport demands on a short time basis, a railway undertaking or an Applicant must have the possibility to get an ad hoc path on the network.

These requirements are valid for all Short Notice Path Requests and related messages. No minimum time frame is specified at European level. The network statement may specify minimum time frames.

Path Request on short notice does not include Traffic Management issues. The time limit between Short Term paths and Traffic Management path changes is subject to Local Agreements and may be indicated in the network statement.

Requirements considering the responsibilities of a RU/Applicant/IM during the path request and allocation processes are not part of this regulation. Relevant information is given within the Commission Regulation 2019/773 (OPE TSI).

The RU/Applicant acting in the role of the ResponsibleApplicant must provide the IM/AB with all necessary data concerning when and where a train is required to run together with the physical characteristics in so far as they interact with the infrastructure..

Each IM/AB is responsible for the suitability of a path on their infrastructure, and the RU/Applicant is obliged to check the train characteristics against the values given in the details of its contracted path.

4.2.15.2. Path Request message

The RU/Applicant assuming the role of ResponsibleApplicant shall send the 'Path Request message' to the IM/AB in order to request a path.

The definition of the mandatory structure of this message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.3. Path Details message

The IM/AB acting as PlanningIM shall send the 'Path Details message' to the requesting RU/Applicant in response to its Path request.

The definition of the mandatory structure of Path Details message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.4. Path Confirmed message

The requesting RU/Applicant assuming the role of ResponsibleApplicant shall send the 'Path Confirmed message' to book /confirm the path proposed by the IM/AB.

The definition of the mandatory structure of Path Confirmed message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.5. Path Details Refused message

The requesting RU/Applicant assuming the role of ResponsibleApplicant shall send the 'Path Details Refused message' to the relevant IM/AB to reject its proposed Path Details.

The definition of the mandatory structure of Path Details Refused message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.6. *Path Cancelled message*

The RU/Applicant assuming the role of ResponsibleApplicant (in planning phase) or assuming the role of ResponsibleRU (in operation) shall send the 'Path Cancelled message' to the relevant IM/AB to cancel all or part of a path that has been booked.

The definition of the mandatory structure of Path Cancelled message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.7. *"Path Not Available" message*

The IM/AB assuming the role PlanningIM (in planning phase) or in the role ResponsibleIM (in operation) sends shall send the 'Path Not Available message' to the contracted RU/Applicant in the event that the RU/Applicant's booked path is no longer available.

The IM must inform the RU as soon as it has the knowledge that a train path is not available. The 'Path Not Available message' can be send at any time between the moment the train path is contracted and the departure of the train. A cause of this message may be e.g. an interruption on the path.

'Path Not Available message' means the path or a part of the path cannot be used and no longer exists.

If an alternative path is available, together with this message or as soon as that path is known the IM must send without any further request from the RU an alternative proposal. This is done with the 'Path Details message' related to this 'Path Not Available message'. If an alternative proposal is not possible, the IM must inform the RU immediately.

The definition of the mandatory structure of Path Not Available message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.15.8. *'Receipt Confirmation' message*

The recipient of each message shall send the 'Receipt Confirmation message' to the originator of the related message in order to acknowledge that its legacy system has received the message within a specified time interval.

The definition of the mandatory structure of Receipt Confirmation message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.16. *Train preparation*

This basic parameter describes the messages which must be exchanged during the train preparation phase until the start of the train.

Train preparation includes compatibility check between the train and the route. This check is done by the RU on basis of information provided by concerned IMs on infrastructure description and infrastructure restrictions.

4.2.16.1. *"Train ready" message*

The railway undertaking shall send a "train ready" message to the infrastructure manager every time a train is ready to start after train preparation, unless under national rules the infrastructure manager accepts the timetable as a "train ready" message. In the latter case, the railway undertaking shall inform the infrastructure manager and, if applicable, the station manager if the train is not ready as soon as possible.

The definition of the mandatory structure of Train Ready message and the elements to be followed are described in the document TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.17. *Train running information and Train running forecast*

This basic parameter lays down the train running information and train running forecast. It must prescribe how the dialogue between infrastructure manager and railway undertaking, as well as between railway undertaking and station manager, are to be maintained in order to exchange train running information and train running forecasts.

This basic parameter lays down how the infrastructure manager must, at the appropriate time, send train running information to the railway undertaking and the subsequent neighbouring infrastructure manager involved in the operation of the train.

The train running information serves to provide details of the current status of the train at contractually agreed reporting points.

The train running forecast is used to provide information about the estimated time at contractually agreed forecast points. This message shall be sent from the infrastructure manager to the railway undertaking and the neighbouring infrastructure manager involved in the run. The information about the train running forecast shall be delivered to the station manager in due time by the railway undertakings and/or infrastructure managers according to a contractual agreement.

Contractual agreements shall specify Reporting Points for the train's movement.

This information exchange between RUs and IMs always takes place between the IM in charge and the RU, who has booked the path on which the train is actually running.

For the purpose of dealing with passengers' complaints, the train Running Information data:

- Train identification (train number) and Train ID,
- reporting location,
- actual date/time,
- delay
- delay cause, if any

shall be kept available by the Infrastructure manager for Railway Undertakings and Authorised Public Bodies for at least twelve months after the service train termination.

4.2.17.1. *Train running forecast message*

This message must be issued by the IM to the RU, who is running the train, for handover points, interchange points, stations, train destination and other agreed reporting points as described in Chapter 4.2.16.1..

In addition, the message must be issued by the IM to the RU for other reporting points according the RU/IM contracts (e.g. for handling point or station).

A train running forecast can also be sent before the train starts running. For additional delays occurring between two Reporting Points, a threshold has to be contractually defined between the railway undertaking and the infrastructure manager to which an initial or a new forecast has to be sent. If the extend of the delay is not known, the infrastructure manager has to send a 'service disruption message' (see chapter 4.2.18 service disruption information).

The train running forecast message must give the forecast time for agreed forecast points.

Information on the train running forecast, and if relevant on the train delay cause (see section 4.2.17.2), shall be delivered by the railway undertakings and/or infrastructure managers in due time to the station manager under a contractual agreement.

The infrastructure manager shall send this message to the next neighbouring infrastructure manager involved in the train run.

The definition of the mandatory structure of Train Running Forecast message and the elements to be followed are described in the document 'TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.17.2. Train running information message and Train Delay Cause message

The 'Train Running Information message' must be issued by the IM to the RU running the train upon:

- Departure from departure point, arrival at destination,
- Arrival and departure at handover points, interchange points and at agreed reporting points based on contract (e.g. stations and handling points).

As soon as a cause of delay is known (first assumption), and in case of update on the cause of delay, it should be provided by the IM to the RU running the train by the separate Train Delay Cause Message.

Information on the train delay cause shall be delivered by the railway undertakings and/or infrastructure managers in due time to the station manager under a contractual agreement.

The definition of the mandatory structure of Train Running Information message and Train Delay Cause Message and the elements to be followed are described in the document 'TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.18. Service disruption information

4.2.18.1. General remarks

This basic parameter lays down how service disruption information is handled between the railway undertaking and the infrastructure manager.

When the RU learns about a service disruption during the train running operation for which it is responsible, it must immediately inform the IM concerned (this may be done orally by the RU). If train running is interrupted, the infrastructure manager shall send a 'train running interruption' message to the contracted RU and the next neighbouring IM involved in the train run.

If the length of the delay is known, the infrastructure manager shall send a 'train running forecast' message.

4.2.18.2. Train Running Interruption message

If train running is interrupted, the IM issues this message to the next neighbouring IM involved in the train run and to the ResponsibleRU.

The definition of the mandatory structure of Train Running Interruption message and the elements to be followed are described in the document 'TAF TSI — Annex D.2: Appendix F — TAF TSI Data and Message Model' listed in Appendix I of the TAF TSI.

4.2.19. *The quality of the data and information used in this TSI*

4.2.19.1. *The requirements*

In order to meet the requirements of this TSI, the following shall be applied as regards data and information quality throughout the whole TSI:

All those to whom this TSI is addressed shall be responsible for making available up-to-date, coherent, accurate and complete data at the appropriate time and in the appropriate format to other railway undertakings, or to infrastructure managers, or to a third party. Each actor addressed by this TSI shall be responsible for publishing up-to-date, coherent, accurate and complete information at the appropriate time and in the appropriate content to the customers (passengers), or to other railway undertakings, or to infrastructure managers, or to a third party.

Where data or information are used in order to meet the requirements of several basic parameters of this TSI at the same time, the actors to whom this TSI is addressed shall ensure that the data or information shared between those basic parameters is used in a coherent manner (e.g. coherence i) between timetable and tariff information or ii) between tariff and reservation information shall be ensured).

Where information or data are provided by several actors addressed by this TSI, the actors shall together ensure that the parts of the common data or information provided are up-to-date, coherent, accurate, complete and compatible (example: deliveries of timetable information for railway undertaking A and railway undertaking B must be coherent in order to ensure that they match at the border, etc).

Where reference data or reference information is used in order to meet the requirements of this TSI, the actors addressed by this TSI shall guarantee the coherence between the reference data or reference information and the data or information used in the basic parameters of this TSI (examples: coherence i) between location reference codes and train running information or ii) between railway undertaking reference codes and fulfilment shall be ensured, etc).

The quality of data or information provided by the actors for the purposes of this TSI shall be such that it enables the actors to whom this TSI is addressed to issue tickets as set out in Article 10 of the Regulation on Rail Passengers' Rights and Obligations.

The quality of data or information provided by the actors for the purposes of this TSI shall achieve a level which makes it possible for the actors addressed by this TSI to provide the information as set out in Article 10 and in Annex II of the Regulation on Rail Passengers' Rights and Obligations.

4.2.20. *Various reference files and databases*

4.2.20.1. *Reference files*

For the operation of passenger trains on the European network, the following reference files must be available and accessible to all service providers (infrastructure managers, railway undertakings, authorised third parties and station managers). The data must represent the actual status at all times.

The European Railway Agency will centrally store and maintain unique codes for the following reference data:

- reference file of the coding for all infrastructure managers, railway undertakings, station managers, service provider companies,
- reference file(s) of the coding of locations (primary and subsidiary) used for Retail communications and for RU/IM communications,

The Agency will save a copy of the Reference File for the Locations Codes, Retail location codes and Company Codes. On individual request and without prejudice to intellectual property rights, this data shall be available for public consultation

- reference file for European reservation systems,
- reference file of codes for timetable exchange purposes,
- reference file of codes for tariff exchange purposes,
- message-dataset catalogue,
- passenger Code List,
- any other files and code lists that are needed for the use of the technical document(s) in the annexes.

Where a reference file is in common use with the TAF TSI, its development and use shall be as close as possible to the implemented TAF TSI in order to achieve optimum synergies.

4.2.20.2. Additional requirements concerning databases

Every system (Database) must be able to support a clearly defined system and data accessibility and/availability rules by enforcing the data consistency.

4.2.21. Electronic transmission of documents

The description in Chapter 4.2.21 – Networking and communication – presents the communication network to be used for data exchange. This network and the described security handling allow any type of network transmission, such as e-mail, file transfer (Ftp, Http), etc. The parties involved in the information exchange can then decide on the type to choose, thereby ensuring the electronic transmission of documents, for example, via FTP.

4.2.22. Networking and communication

4.2.22.1. General architecture

The aim of the IT architecture is to exchange information in secure trusted environment among all rail actors in the Single European Railway Area (SERA).

Over time this subsystem will see the growth and interaction of a large and complex telematics rail interoperability community with thousands of participating actors (railway undertakings, infrastructure managers, third parties such as retailers and public authorities etc.), which will compete and/or cooperate in serving the market's needs.

The network and communication infrastructure supporting such a rail interoperability community will be based on a common 'Information Exchange Architecture', known and adopted by all those participating in it.

The proposed 'Information Exchange Architecture':

- is designed to reconcile heterogeneous information models by semantically transforming the data that are exchanged between the systems and by reconciling the differences in business processes and application-level protocols,
- has a minimal impact on the existing IT architectures implemented by each actor,
- safeguards IT investments already made.

The Information Exchange Architecture is based on continuous IT industry mainstream standards which ensure the relevant level of cybersecurity according to the identified risks. The interaction between all players must guarantee the overall integrity and consistency of the rail interoperability providing a set of centralised services.

Architectural concept implementation, e.g. peer-to-peer communication, is based on technical standards for the common interface described in the technical document ERA-TD-104 104 'Annex D.2: Appendix E – Common Interface' listed in Appendix I.

4.2.22.2. *Network and Security*

The network shall ensure the necessary level for security, redundancy, traffic control, statistics tools, bandwidth growth, user accessibility and efficient management.

'Network' in this context means the method and philosophy of communication and does not refer to the physical network.

The network shall ensure the necessary level for cybersecurity.

Rail interoperability is based on a common 'Information Exchange Architecture', known and adopted by all participants, thus encouraging and lowering barriers for new entrants, especially customers.

To achieve a high level of security, all messages must be self-contained, which means that the information in the message is secured and the receiver can verify the authenticity of the message. This may be solved by using an encryption and signing scheme similar to email encryption.

4.2.22.3. *Protocols*

Only protocols belonging to the Internet Protocol Suite (commonly known as TCP/IP, UDP/IP etc) may be used for developments.

4.2.22.4. *Encryption*

Either asymmetric or symmetric encryption can be used for data transmission and storage, depending on the business requirements. For this purpose a public key infrastructure (PKI) is to be implemented.

The encryption is based on technical standards for the common Interface described in the technical document 'TAF TSI - Annex D.2: Appendix E — Common Interface' listed in Appendix I.

4.2.22.5. *Central repository*

The central repository must be able to handle:

- metadata - structured data describing the content of messages,
- Public Key Infrastructure (PKI),
- Certification Authority (CA),

The management of the central repository should be under the responsibility of a non-commercial co-European organisation.

- list of electronic addresses where the actors addressed by this TSI allow other actors to obtain information or data according to the provisions of this TSI,
- encryption,
- authentication,
- directory (phonebook) - it contains all necessary information on those participating in exchanging messages and data.

Where the Central Repository is in use in conjunction with the TAF TSI, development and changes shall be performed as closely as possible to the implemented TAF TSI in order to achieve optimum synergies.

4.2.22.6. *Common interface for RU/IM communication*

Compliance to the TSI, with respect to data exchange, means the exchange of mandatory TAP RU/IM data catalogue elements (XSD) according to the provisions of TAP TSI chapter 4.2.

This can use the Common Interface specifications including the use of XSD without any specific agreement between the involved parties. The CI specifications should be regularly adapted to take new communication technologies into account.

And combination of any communication technologies is possible if there is a specific agreement between the involved parties as long it is aligned with the CI specifications.

The common interface is mandatory for each actor in order to join the rail interoperability community.

An interface compliant with the technical document 'TAF TSI — Annex D.2: Appendix E — Common Interface' of TAF TSI Appendix I has to be used.

A common interface has to be able to handle:

- message formatting of outgoing messages according to the metadata,
- signing and encryption of outgoing messages,
- addressing of outgoing messages,
- authenticity verification of incoming messages,
- decryption of incoming messages,
- conformity checks of incoming messages according to the metadata,
- handling the single common access to the various databases.

Each instance of the common interface will have access to all the data required according to the TSI within each railway undertaking, infrastructure manager, etc, whether the relevant databases are central or individual. Based on the results of verification of the authenticity of incoming messages, a minimum level of message acknowledgement can be implemented:

(i) positive: send ACK;

(ii) negative: send NACK.

The common interface uses the information in the Central Repository in order to manage the above tasks.

If an actor implements a local 'mirror' of the Central Repository, that actor must then - by its own means - ensure that the local 'mirror' is an accurate and up to date copy of the Central Repository.

Where the Common Interface is in common use with the TAF TSI, the development and changes shall take place as closely as possible to the implemented TAF TSI, in order to achieve optimum synergies.

4.2.23. *Management of connection with other modes of transport*

In order to manage the connection with other modes of transport, the following standard should be applied for the provision of information to and exchange of information with other modes of transport:

- For the exchange of timetable information between railway undertakings and other modes of transport: norms EN 12896 ("Transmodel") and CEN/TS 16614-2:2014 (NeTEx); and subsequent versions; or any machine-readable format fully compatible and interoperable with those standards or technical documents..
- For the exchange of specific timetable data, the XML technical standards and protocols based on Transmodel, in particular norm EN 15531 ("SIRI") for the exchange of real-time timetables ; norm CEN/TS 16614-1:2014 and EN 28701 (IFOPT) for the exchange of "stop/station" data; and subsequent versions; or any machine-readable format fully compatible and interoperable with those standards or technical documents.
- For the exchange of tariff data between railway undertakings and other modes of transport: The technical standard CEN/TS 16614-3:2015 and subsequent versions or any machine-readable

format fully compatible and interoperable with those standards or technical documents should be used..

4.3. Functional and technical specifications of the interfaces

From the standpoint of technical compatibility, the interfaces of the subsystem 'telematics applications for passenger services' with the other subsystems are as described in the following paragraphs.

4.3.1. Interfaces with the Rolling Stock Subsystem

Table 1 : Interfaces with the Rolling Stock subsystem

| Interface | Reference Telematics Applications for passengers TSI | Reference Conventional Rail Rolling Stock TSI's |
|------------------------------|--|--|
| Board device display | 4.2.13 Handling of information provision in vehicle area | 4.2.5 Customer information (PRM) |
| Automatic voice announcement | 4.2.13 Handling of information provision in vehicle area | 4.2.5 Customer information (PRM) 4.2.5.2 Audible communication system |

4.3.2. Interfaces with the Telematics Applications for Freight Subsystem

Table 2 : Interfaces with the Telematics Applications for Freight subsystem

| Interface | Reference Telematics Applications for passengers TSI | Reference Conventional Rail Telematics Applications for Freight TSI |
|---------------------------------------|--|---|
| Train ready | 4.2.16.1 "Train ready" message | 4.2.3.3 Train ready message |
| Train running forecast | 4.2.17.1 Train running forecast message "Train running forecast" message | 4.2.4.2 Train running forecast message |
| Train running information | 4.2.17.2 Train running information message and Train Delay Cause message | 4.2.4.3 Train running information |
| Train running interrupted to RU | 4.2.18.2 Train Running Interruption message | 4.2.5.2 Train running interrupted |
| Handling of short term timetable data | 4.2.15 Path Request | 4.2.2 Path Request |
| Common Interface | 4.2.22.6 Common interface for RU/IM communication | 4.2.14.7. Common interface for RU/IM communication |
| Central Repository | 4.2.22.5. Central repository | 4.2.11.6 Central repository |
| Reference Files | 4.2.20.1 Reference files | 4.2.10.1 Reference files |

4.4. Operating rules

In the light of the Essential Requirements in Chapter 3, the operating rules specific to the subsystem concerned by this TSI are as follows:

4.4.1. Data quality

For the purposes of data quality assurance, the originator of any TSI message will be responsible for the correctness of the data content of the message at the time when the message is sent. Where the source data for data quality assurance purposes are available from the databases provided as part of the TSI, the data contained within those databases must be used for data quality assurance.

Where the source data for data quality assurance purposes is not supplied by the databases provided as part of this TSI, the originator of the message must carry out the data quality assurance check from their own resources.

Data quality assurance will include comparison with data from databases provided as part of this TSI as described above, plus - where applicable - logic checks to assure the timeliness and continuity of data and messages.

Data are of high quality if they are fit for their intended uses, which means that they:

- are error-free: accessible, accurate, timely, complete, consistent with other sources, etc.,
- possess the desired features: relevant, comprehensive, proper level of detail, easy-to-read, easy-to-interpret, etc.

The main characteristics of data quality are:

- accuracy,
- completeness,
- consistency,
- timeliness.

Accuracy:

The information (data) required needs to be captured as economically as possible. This is only feasible if the Primary Data only are recorded, if possible, on one single occasion. Therefore, the Primary Data should be introduced into the system as close as possible to its source, so that they can be fully integrated into any subsequent processing operation.

Completeness:

Before sending out messages, the completeness and syntax must be checked using the Metadata. This also avoids unnecessary information traffic on the network.

All incoming messages must also be checked for completeness using the Metadata.

Consistency:

Business rules must be implemented in order to guarantee consistency. Double entry should be avoided and the owner of the data should be clearly identified.

The type of implementation of these business rules depends on their complexity. For simple rules, database constraints and triggers are sufficient. In the case of more complex rules, which require data from various tables, validation procedures must be implemented which check the consistency of the data version before interface data are generated and the new data version becomes operational. It must be ensured that transferred data are validated against the defined business rules.

Timeliness:

Providing information right on time is important. Insofar as the trigger for data storage or for message sending is event driven directly from the IT system, timeliness is not a problem if the system is designed properly and according the needs of the business processes. However, in most cases, the sending of a message is initiated by an operator or is at least based on additional input from an operator. To fulfil the timeliness requirements, the data must be updated as soon as possible, also in order to guarantee that the actual data content of the messages is current when these messages are sent out automatically by the system.

The response time for enquiries must be addressed for the various applications and user types within the detailed IT specifications. All data updates and exchanges shall be carried out as soon as possible.

Data quality metrics

The detailed IT specifications shall define appropriate percentages for:

- the completeness of data (percent of data fields having values entered into them) and the consistency of data (percent of matching values across tables/files/records).
- the timeliness of data (percent of data available within a specified threshold time frame).
- the required accuracy (percent of stored values that are correct when compared to the actual value).

4.4.2. *Operating the central repository*

The functions of the Central Repository are defined in Chapter 4.2.21.6. Central repository. For the purpose of data quality assurance, the entity operating the Central Repository shall be responsible for the updating and quality of the Metadata and the directory, and also for the administration of the access control. The quality of the Metadata in terms of completeness, consistency, timeliness and accuracy shall enable appropriate functioning for the purposes of this TSI.

4.5. **Maintenance rules**

In the light of the Essential Requirements in Chapter 3, the maintenance rules specific to the subsystem concerned by this TSI are as follows:

The quality of the transport service must be guaranteed, even if the data were corrupted or if the data processing equipment were to suffer a complete or partial breakdown. It is therefore advisable to install duplex systems or computers with a particularly high degree of reliability, and for which uninterrupted operation during maintenance is ensured.

The maintenance aspects of the various databases are mentioned in Chapter 4.2.19.2 - Additional requirements on the databases, points 10 and 21.

4.6. **Professional qualifications**

The professional qualifications of the staff required to operate and maintain the subsystem and for implementing the TSI are as follows:

The implementation of this TSI does not require a complete new system in terms of hardware and software with new staff. Achieving the requirements of the TSI results only in those changes, upgrades or functional enlargements of the operation which are already being made by the existing staff. Therefore, there are no requirements in addition to the existing national and European rules on professional qualifications.

If necessary, add-on training of staff should not consist solely of showing them how to operate equipment. Staff members must know and understand the specific role they have to play in the overall transportation process. Staff must, in particular, be aware of the requirement to maintain a high level of working performance, since this is decisive for the reliability of the information which is to be processed at a later stage.

The professional qualifications needed for the composition and operation of trains are defined in the TSI for Operation and Traffic Management.

4.7. **Health and safety conditions**

The health and safety conditions of staff required for the operation and maintenance of the subsystem concerned and for the implementation of the TSI are as follows:

There are no requirements in addition to existing national and Union health and safety rules.

4.8. Registers of authorised types of vehicles and of infrastructure

Pursuant to Article 48(1) of Directive (EU) 2016/797, the Agency shall set up and keep a register of types of vehicles authorised for placing on the market. Pursuant to Article 49(1) of Directive (EU) 2016/797, each Member State shall ensure that a register of infrastructure is published.

Due to the annual updating and publication of these registers they cannot be used for the Telematics Applications subsystem for passengers. Therefore, this TSI has nothing to do with these registers.

5. INTEROPERABILITY CONSTITUENTS

5.1. Definition

According to Article 2(7) of Directive (EU) 2016/797, "interoperability constituents" means any elementary component, group of components, subassembly or complete assembly of equipment incorporated or intended to be incorporated into a subsystem, upon which the interoperability of the rail system depends directly or indirectly. The concept of a "constituent" covers both tangible objects and intangible objects such as software'.

5.2. List of constituents

The interoperability constituents are covered by the relevant provisions of Directive (EU) 2016/797.

No interoperability constituents are determined as far as the subsystem 'Telematics applications for passengers' is concerned.

Only standard IT equipment is needed in order to fulfil the requirements of this TSI, without any specific aspects for interoperability in the railway environment. This is valid both for hardware components and for the standard software used, such as the operating system and databases. The application software is individual to each user and can be adapted and improved according to the individual's actual functionality and needs. The proposed 'application integration architecture' assumes that applications might not have the same internal information model. Application integration is defined as the process of making independently designed application systems work together.

5.3. Constituents' performances and specifications

See Chapter 5.2, not relevant for the TSI Telematics Applications for passenger services.

6. ASSESSMENT OF CONFORMITY AND/OR SUITABILITY FOR USE OF THE CONSTITUENTS AND VERIFICATION OF THE SUBSYSTEM

6.1. Interoperability constituents

6.1.1. Assessment procedures

Not relevant for the TSI Telematics Applications for passenger services.

6.1.2. Module

Not relevant for the TSI Telematics Applications for passenger services.

6.2. Subsystem Telematics Applications for passenger services

According to Annex II to Directive (EU) 2016/797, the subsystems are broken down into structural and operational areas. The conformity assessment is obligatory for TSIs in the structural area. The subsystem Telematics Applications for passenger services belongs to the functional area and this TSI does not determine any modules for conformity assessment.

6.2.1. Assessment of compliance of IT tools

Project in charge of IT tools deployed by the European rail sector may request the Agency to assess the compliance of those against the TSI requirements with reference to Art. 64 2(d) of regulation (EU) 2016/769.

The application for such request shall at least contain the following information:

(1) Use Case document including:

- TAP TSI function covered
- Reference to TAP TSI chapter
- List and documentation of functions and messages (including their sequence) to be tested
- Description of IT System, which uses TAP messages or data sets
- Description of communication interface of IT System
- Information if request is for milestone of an EU funded project
- TAP TSI release version number

(2) TAP TSI data set

(3) TAP TSI messages

The Agency performs TAP TSI compliance test and issues compliance assessment report to the applicant. The Agency will deliver a compliance assessment report within three months after confirming completeness:

- If the Message(s) or dataset carries all mandatory elements from TAP TSI,
- If the Message(s) or dataset complies with the TAP TSI technical documents,
- If the Messages sequence is compliant with TAP TSI.

Other than the TAP TSI datasets or messages can also be delivered for test to determine whether they carry mandatory elements from the TAP TSI. In such case instead of TAP TSI message or data set of the IT System it shall be delivered a message structure description with description of the data elements/fields, mentioning when applicable the applied standard(s) and their version.

7. IMPLEMENTATION

7.1. Introduction

This TSI concerns the subsystem telematics applications for passenger services. This subsystem is functional according to Annex II to Directive (EU) 2016/797. The application of this TSI therefore does not rely on the notion of new, renewed or upgraded subsystem, as is customary in the case of TSIs related to structural subsystems, except where it is specified in the TSI.

The implementation of the TSI is supported by:

- a project governance;
- a deployment master plan;
- development of the system;
- a deployment monitoring process.

(a) Project governance

In order to guarantee the appropriate development of the system the governance structure as described in technical document B.61 (see Annex V) shall be implemented by the actors.

(b) Deployment Master Plan

All actors shall update their existing or develop a new master plan.

The master plan shall include:

1. The identification of the activities necessary to achieve the implementation of the system.
2. A migration plan which includes a set of phases that is conducive to intermediate and verifiable tangible results, from the current framework of stakeholders' information and communication systems to the system itself.
3. A milestone plan.
4. A risk assessment of the crucial phases of the master plan.
5. An assessment of the total lifecycle costs (LCC) associated with the deployment and operation of the system, together with a subsequent investment plan and the relevant cost-benefit analysis.

The drafting of the master plan has to follow the following procedure:

- all actors involved shall update their existing individual master plan and submit them to the Agency. Actors not having a master plan shall submit a new master plan to the Agency. The submission shall take place not later as 12 months after entering into force of this regulation
- The Agency shall collect these individual master plans, compile a consolidated master plan determining the implementation dates for the TAP TSI functions and publish the consolidated master plan on their website.

(c) Development of the system

All actors concerned shall cooperate and develop the retail architecture of the system according to the architecture provisions as described in ERA technical document B.60 (see Annex V).

All actors concerned shall deploy the system following their individual master plan. For actors who have not submitted an individual master plan, the consolidated master plan is binding.

The development is supported by Application Guides published by ERA.

(d) Deployment and operation monitoring process

The monitoring of the deployment and operation is managed by the TAP Implementation Cooperation Group (ICG) for Retail related implementation.

Established and managed by ERA the TAP ICG is composed by:

- the Agency;
- the National Contact Points (see Annex VI);
- the Representatives Bodies;
- other organisations designated by the Agency and having relevant technical and organizational experience.

The ICG is made responsible for:

- assessing the progress of implementation and operation, analysing the deviations from the Master Plan and proposing improvement actions ;
- assisting the NCPs to follow-up the TAP TSI implementation and operation at national level ;
- approving the reports about the TAP TSI implementation and operation;
- reporting to the European Commission and to the TAP/TAF Steering Committee.

The implementation related to RU/IM communications is monitored by the TAF ICG

7.2. Change Management

7.2.1. Change Management Process

Change management procedures shall be designed to ensure that the costs and benefits of change are properly analysed and that changes are implemented in a controlled way. These procedures shall be defined, put in place, supported and managed by the European Railway Agency and shall include:

- the identification of the technical constraints underpinning the change;
- a statement of who takes responsibility for the change implementation procedures;
- the procedure for validating the changes to be implemented;
- the policy for change management, release, migration and roll-out.
- the definition of the responsibilities for the management of the detailed specifications and for both its quality assurance and configuration management.

The Change Control Board (CCB) shall be composed of the European Railway Agency, rail sector representative bodies, a ticket representative body, a passenger representative body and Member States. Such an affiliation of the parties shall ensure a perspective on the changes that are to be made and an overall assessment of their implications. The CCB ultimately shall be brought under the aegis of the European Railway Agency.

7.2.2. Specific Change Management Process for technical documents published by the European Railway Agency

Technical documents quoted in chapter 4 of this TSI (except for the standards which are linked to open issues) and listed in Annex III to this Regulation are technical documents published by the European Railway Agency pursuant to Article 4(8) of Directive (EU) 2016/797.

The change control management for these technical documents shall be established by the European Railway Agency in accordance with the following criteria:

1. The change requests affecting the technical documents are submitted either via the National Safety Authorities (NSA), or via the representative bodies from the railway sector acting on a European level as defined in Article 38(4) of Regulation (EU) 2016/796, or the ticket vendors'

representative, or via the body which originally developed the specifications that were the forerunners of the technical documents.

2. The European Railway Agency shall gather and store the change requests.
3. The European Railway Agency shall present change requests to the dedicated ERA working party, which will evaluate them and prepare a proposal accompanied by an economic evaluation, where appropriate.
4. Afterwards the European Railway Agency shall present the change request and the associated proposal to the change control board that will or will not validate or postpone the change request.
5. If the change request is not validated, the European Railway Agency shall send back to the requester either the reason for the rejection or a request for additional information about the draft change request.
6. If the change request is validated, the technical document shall be amended.
7. If no consensus about the validation of a change request can be reached, the Agency shall submit to the Commission a recommendation to update the documents listed in Appendix III together with the draft new version of the document, the change requests and their economic evaluation and shall make these documents available on their web site.
8. The new version of the technical document and the validated change request shall be made available at the site of the Agency. The Agency will keep the Member States informed via the Committee established in accordance with Article 51(1) of Directive (EU) 2016/797.
9. If a change request would require a change of the legal text of the TAP TSI, the Agency shall send a recommendation to the European Commission to request a revision of the TAP TSI and/or request a technical opinion from the Agency

Where change control management affects elements which are in common use within the TAF TSI, the changes shall be made so as to remain as close as possible to the implemented TAF TSI in order to achieve optimum synergies.

7.3. Specific cases

7.3.1. Introduction

The following special provisions are permitted in the specific cases below:

- (a) "P" cases: permanent cases;
- (b) "T" cases: temporary cases, where it is planned that the target system is reached in the future.

7.3.2. List of specific cases

There are no specific cases indicated for this TSI.

8. GLOSSARY

The definitions in this glossary refer to the use of terms in this TSI.

| Term | Description |
|------------------------------|---|
| Access party | Means either a licensed railway undertaking or, to the extent authorised by each Member State, another party seeking to procure a train path in the working timetable for the operation of railway service on its territory with commercial or public-service intent. Examples of such authorised parties may be public authorities, or any other party having an access contract or an international group of such parties, which is also known as an applicant group or access party group |
| Accessibility data | Accessibility data consists of the information related to the accessibility of passenger railway stations that needs to be collected, maintained and exchanged, that is to say, of a description of the characteristics and equipment of the passenger railway stations. |
| Allocation body (AB) | Body responsible for path allocation, which is independent in its legal form, organisation and decision-making from any railway undertaking (Directive 2012/34/EU). |
| Arrival date/time, actual | Means the actual date (And time) of arrival of means of transport |
| Applicant | means a railway undertaking or an international grouping of railway undertakings or other persons or legal entities, such as competent authorities under Regulation (EC) No 1370/2007 and shippers, freight forwarders and combined transport operators, with a public-service or commercial interest in procuring infrastructure capacity (Directive 2012/34/EU). For Allocation body: see IM definition. The applicant can take the roles and the assigned tasks and responsibilities of LeadRU (Lead railway undertaking) and/or ResponsibleApplicant and/or ResponsibleRU depending on specific network statement. |
| Arrival date/time, estimated | Means the date (And time) of arrival of means of transport based on the current forecast |
| Arrival date/time, planned | Means the date (And time) of arrival of means of transport in the timetable |
| Arrival delay, expected | Means the time difference between the arrival date/time Estimated and the arrival date/time Planned |
| Arrival delay, actual | Means the time difference between the arrival date/time actual and the arrival date/time Planned |
| At the discretion of | Means that the railway undertaking can decide based on its experience and its needs |
| Attributing system | Means an electronic system hosting the catalogue of transport services for which a transport service provider authorises distributors to issue travel documents |
| Contributor | Means a company managing an attributing system. May be a carrier |

| Term | Description |
|--------------------------------|--|
| Authorised Public Body | Means a public authority having a statutory obligation or right to provide members of the public with travel information and also refers to the public authority which is responsible for the enforcement of Regulation (EC) No 1371/2007 pursuant to Art. 30 (1) of the Regulation |
| Availability | Means the information (transport service, type of offer, tariff, other service) that can actually be obtained by a passenger at a given point in time, for a specific train. Not to be confused with offer, indicating that a (transport service, type of offer, tariff, other service) is offered in the initial planning, but could be sold out and is therefore not obtainable by a passenger at a given time point, for a specific train |
| Basic parameter | Means any regulatory, technical or operational condition which is critical to interoperability and requires a decision in accordance with the procedure laid down in Article 21(2) before any development of draft TSIs by the joint representative body |
| Booking (selling) | Means the selling of a ticket with or without a reservation |
| Carrier | Means the contractual railway undertaking with whom the passenger has concluded a transport contract or a series of successive railway undertakings which are liable on the basis of such a contract |
| Carrier, Joint | Means a carrier linked by a co-operation agreement to one or more other carriers for the operation of a transport service |
| Carrier, Sole | Means a carrier that operates a transport service independently of other carriers |
| Channel | Means the method (such as ticket office machine, on-train media, public web services, telesales, mobile ticketing) by which a service (information, ticket sale, ticket refund, response to complaints etc) is provided to the passenger by a railway undertaking |
| Coach ID | Means the unique identification number of a coach |
| Commission | Means the European Commission |
| COTS-product | Means commercial off-the-shelf products |
| Customer | Means a person who intends to buy, is buying, or has bought a railway product for him/herself or for other person(s). May therefore be different from passenger (see passenger) |
| Decryption | Means the converting of encrypted data back into their original form |
| Delay | Means the time difference between the time the passenger was scheduled to arrive according to the published timetable and the time of his/her actual or expected arrival |
| Delta deviation | Means the operational "lateness or earliness" in relation to the booked scheduled time |
| Departure date/time, actual | Means the actual date (And time) of departure of means of transport |
| Departure date/time, estimated | Means the date (And time) of departure of means of transport based on current forecast |

| Term | Description |
|------------------------------------|--|
| Departure date/time, planned | Means the date (And time) of departure of means of transport in the timetable |
| Directive (EU) 2016/797 | Means Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union |
| Departure delay, actual | Means the time difference between the actual departure date/time and the Planned departure date/time |
| Departure delay, expected | Means the time difference from the departure date/time |
| Display | Means any dynamic visual device located either in Stations or on the inside / outside of trains for the purpose of informing passengers |
| Distributor | Means an undertaking providing legal and technical capacity to issuers to sell rail products or to provide on line-facilities to customers to buy rail products. Besides, the distributor can offer services to issuers by assembling O-Ds carried out by different carriers into complete journeys as required by the traveller. The distributor may be a carrier |
| Domestic journey | Means a passenger journey by rail whereby a passenger does not cross a border of a Member State |
| Domestic rail passenger service | Means a rail passenger service which does not cross a border of a Member State |
| Encryption | Means the encoding of data |
| ETA | Means the Estimated time of arrival (of the train at the station) |
| ETH | Means the Estimated time of Handover (of a train from one infrastructure manager to another) |
| ETI | Means the Estimated time of Interchange (of the train from one railway undertaking to another) |
| European Union Agency for Railways | Means the Agency established pursuant to Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 establishing a European Union Agency for Railways |
| Fare | Means a charge to be paid for transportation or service |
| Forecast | Means the best estimate of an event (e.g. arrival, departure or passing time of a train) |
| Forecast point | Means a target point for which the forecast is generated. It may relate to arrival, departure, passage or handover |
| Foreign rail passenger service | Means a rail passenger service which was purchased by the passenger in a country, but is performed in a country different from the country of purchase |
| Foreign sale | Means the sale of a train ticket by an issuer which is not (one of) the carrier(s) operating the train where the ticket will be used. The issuer is located in a country different from the country of the carrier(s) |
| Fulfilment | Means the process which delivers the Product to the customer after its purchase |

| Term | Description |
|--------------------------------------|--|
| General Conditions of Carriage | Means the conditions of the carrier in the form of general conditions or tariffs legally in force in each Member State and which have become, through the conclusion of the contract of carriage, an integral part of it |
| Global price train | Means a train that a passenger can board only having purchased a global price ticket |
| Handover point | Means the point where the responsibility changes from one infrastructure manager to another |
| IM | Means any body or undertaking that is responsible in particular for establishing and maintaining railway infrastructure. This may also include the management of infrastructure control and safety systems. The functions of the infrastructure manager on a corridor or part of a corridor may be allocated to different bodies or undertakings |
| Infrastructure manager (IM) | See IM |
| IRT | Integrated Reservation Tickets – Means a kind of train ticket restricted to a specific train on a specific date/time. A IRT ticket can only be sold by means of an on-line transaction between the sales terminal and the attributing system where the relevant train is hosted |
| Interchange between Carriers | Means the transfer of control from one railway undertaking to another for practical operational, safety and liability reasons. Examples are: <ul style="list-style-type: none"> – successive railway undertakings, – trains with substitute carriers, – the transfer of information between different railway undertakings |
| Interchange point | Location of train's journey or of a path where the transfer of responsibility for the whole train wagons of a train goes from one ResponsibleRU to another ResponsibleRU takes place. |
| Intermediate point | Location which defines a the start or end point of a train's journey section or path between its start (origin) or end (destination) point. This may be e. g. an interchange, handover or handling point. |
| International rail passenger service | Means a rail passenger service which crosses a border of at least one Member State |
| International journey | Means a passenger journey by rail crossing the border of at least one Member State |
| International sale | Means the sale of a train ticket for an international journey |
| Interoperability constituent | Means any elementary component, group of components, subassembly or complete assembly of equipment incorporated or intended to be incorporated into a subsystem upon which the interoperability of the Trans-European rail system directly or indirectly depends. The concept of a constituent covers both tangible objects and intangible objects, such as software |

| Term | Description |
|------------------|--|
| Issuer | Means an undertaking selling the ticket and receiving payment. May be a carrier and/or a distributor. The issuer is the undertaking indicated on the ticket with its code and possibly its logo |
| Journey | Means the movement of a passenger (or several passengers travelling together) from a location A to a location B |
| Journey planner | Means an IT system able to propose journey solutions A journey solution is a set of one or more commercial transport services answering at least the question “How can I go from location A to location B at a given departure/arrival date And time?”. The question could contain more complex additional criteria, such as “in the fastest way”, “in the cheapest way”, with no changes”, etc. The passenger can build the journey solutions by him/herself, consulting different information sources, or the solution can be offered to him/her by a journey Planner |
| Keeper | Means the person who, being the owner of a vehicle or having the right to use it, exploits such vehicle economically in a permanent manner as a means of transport and is registered as such in the Rolling Stock Register. |
| Loco ID | Means the unique identification number of a traction unit |
| Make available | Means the publishing of information or data where access control may be applied |
| Manifest on list | Means a fulfilment method where the customer makes its purchase in advance (e.g. at home) and receives only a confirmation, usually with a reference code. The undertaking performing this kind of sale provides the TCO with a list of all passengers (and reference codes) admitted on the specific train. The passenger simply manifests his/her desire to be admitted on the train before/after departure at the TCO. TCO checks whether the passenger is allowed to embark/stay on the train |
| Market price | See Global price |
| Metadata | This term simply means data about data. It describes data, software services, and other components contained in the enterprise information systems. Examples of the types of Metadata include standard data definitions, location and routing information, and synchronisation management for distributing shared data |
| Notified bodies | Means the bodies which are responsible for assessing the conformity or suitability for use of the Interoperability Constituents or for appraising the EC procedure for verification of the subsystems |
| NRT train | Means a train that a passenger can board having bought a NRT ticket, in the case of international or foreign sales |

| Term | Description |
|------------------------------------|---|
| NRT | Non integrated reservation tickets – This is a way of selling train tickets meant for international or foreign sales, where the issuer can produce the ticket locally, without any on-line transaction with an attributing system. The NRT tickets are always open tickets, i.e. the contract of carriage is valid on any NRT train serving the route marked on the ticket, within a defined validity period. To issue a NRT ticket the issuer needs a list of OD's ("series") and one or more tables of prices corresponding to distance ranges. Reservations can (in some cases must) be purchased together with the ticket |
| Offer | See availability |
| Official website | Means the company's public website where commercial information is released to the customer. The website shall be machine readable by respecting web content accessibility guidelines |
| One stop shop | An international partnership between rail infrastructure managers providing a single point of contact for rail customers for the purposes of: ordering specified train paths in international freight traffic, monitoring the movement of the entire train, generally also invoicing track access charges on behalf of infrastructure managers |
| Passenger | Means a person who intends to make, or is making, or has made a journey using the transport services and other services of one or more railway undertakings May be different from customer (see customer) |
| Path | Means the infrastructure capacity needed to run a train between two places over a given time-period (route defined in time and space) |
| Payment | Means the transfer of wealth from one party (such as a customer) to another (such as a distributor). A payment is usually made in exchange for the provision of transport or service |
| Peer-to-Peer | Means a class of systems and applications that employ distributed resources to perform a critical function in a decentralised manner |
| Person with reduced mobility (PRM) | Means any person whose mobility when using transport is reduced due to any physical disability (sensory or locomotory, permanent or temporary), intellectual disability or impairment, or any other cause of disability, or as a result of age, and whose situation needs appropriate attention and adaptation to its particular needs of the service made available to all passengers |
| Platform | Means the area at a station to alight from/board trains |
| Primary data | Means the basic data as reference data input for messages or as the basis for functionality and calculation of derived data |
| PRM | See Person with reduced mobility |

| Term | Description |
|----------------------------------|--|
| Product | Means a type of train with determined types of services (e.g. high speed, bicycle storage places, PRM accommodation, couchette and/or sleeping cars, dining cars, take-away facilities, etc.) which are linked to relevant prices and may be linked to specific conditions |
| Public arrival time | Time when a passenger is allowed to disembark from the train. |
| Public departure time | Time when the access to the train, platform or station will be closed in preparation for departure. A boarding for the passenger has to be allowed until the time given |
| Publish | Means the publishing of information or data where no access control shall be applied |
| Rail system | Means (as in "Union rail system") the structure, as described in Annex I (Directive (EU) 2016/797), composed of lines and fixed installations, of the Union rail system, plus the rolling stock designed to travel on that infrastructure |
| Railway undertaking | <p>Means any public or private undertaking the principal business of which is to provide services for the transport of goods and/or passengers by rail, with a requirement that the undertaking must ensure traction; this also includes undertakings which provide traction only.</p> <p>A RU can assume the roles ResponsibleApplicant and/or ResponsibleRU.</p> |
| Regular vs. Short Term processes | <p>Regular means a process when performed within a period which is equal to or more than seven days</p> <p>Short term means a process when performed within a period which is less than seven days</p> |
| ResponsibleApplicant (RA) | The RA is the applicant/customer and contractor as well as the single point of contact for respective IM (infrastructures manager) in the whole planning process phase. The main task of the role RA is to request the booking of capacity to an IM. The RA does not need to be a Railway Undertaking, it can also be another entity, which is able and permitted to book capacity. |
| ResponsibleIM | The ResponsibleIM (RIM) is the Infrastructure Manager who is the owner of the respective network and responsible for all operational handling of trains and paths on its network. |
| ResponsibleRU (RRU) | <p>The RRU is responsible for the run of the train in operation phase, for the whole journey or a section of the journey. If more than one RRU is involved in operating the train, the responsibility is transferred from one RRU to the next RRU at the interchange point.</p> <p>The RRU is the contact entity for the IM in operation phase for all message exchange.</p> <p>Based on an agreement with ResponsibleApplicant RRU can also task a subcontractor with running the train, the RRU will nevertheless remain the point of contact for the IM in operation phase.</p> |
| Reporting point | Means either passing points used by an infrastructure manager to provide train running information (only) or points where forecasts are generated |

| Term | Description |
|---------------------------|--|
| Repository | Means the storage of data similar to a database and data dictionary; however, it usually encompasses a comprehensive information management system environment. It must include not only descriptions of data structures (i.e. entities and elements), but also Metadata of interest to the enterprise, data screens, reports, programs, and systems |
| Reservation | Means an authorisation on paper or in electronic form giving entitlement to a service (transportation or assistance) subject to a previously confirmed personalised transport arrangement |
| Reservation system | Means a computerised system used to store and retrieve information and conduct transactions related to travel. A reservation system is capable of keeping inventory correct in real time, and is accessible to agents/retailers around the world |
| Retailer | Means a person or an undertaking that sells to the customer a ticket without or with a reservation for a rail service. A retailer can be a railway undertaking (agent) or an accredited travel agent |
| Route | Means the geographical line to be taken from a starting point to a point of destination |
| Route section | Means a part of a route |
| RU | See Railway undertaking |
| Selling | See Booking |
| Service | See Transport service |
| Service Disruption | Means the unplanned stop of a train during operation, without any information regarding the continuation of the journey |
| Service provider | Means the responsible entity providing any services linked to the transport of passengers |
| Shall | Means that the definition is an absolute requirement of the specification |
| Short Term processes | See Regular vs. Short Term processes |
| Short notice path request | Means the individual request for a path according to Article 23 of Directive 2001/14/EC due to additional transport demands or operational needs |

| Term | Description |
|--|---|
| Stakeholders | <p>Means any person or organisation with a reasoned interest in train service delivery e.g.:</p> <ul style="list-style-type: none"> – Railway undertaking, – Locomotive provider, – Coach provider, – Driver / train crew provider, – Infrastructure manager (IM), – Fleet manager, – Ferry boat operator, – Worker – Ticket vendor – – passenger |
| Station | Means a railway location where a passenger train can start, stop or end |
| Station manager | Means an organisational entity in a Member State, which has been made responsible by the member state for the management of a railway station and which may be the infrastructure manager |
| Substitute carrier | Means a railway undertaking, which has not concluded a transport contract with the passenger, but to whom the railway undertaking that is party to the contract has entrusted, in whole or in part, the performance of the transport by rail |
| Tariff | Means a specific set of fares available on a given train, on a given day for a given O-D leg of the journey. Tariffs may be grouped in different categories (such as public fares, Group fares etc) |
| TCO | Means Ticket Controlling Organisation. This is an organisation empowered to inspect passenger tickets. Mostly a carrier. If necessary, the TCO is to deliver security certificates for the International Rail Ticket for Home Printing (IRTHP) to the distributors or to deliver ticket control data / ticket status modifications to the ticket issuer |
| Technical Document | Means any technical document published by the European Railway Agency pursuant to Article 5(8) of Directive (EU) 2016/797 |
| Technical Specification for Interoperability | Means a specification adopted in accordance with Directive (EU) 2016/797 and defined in Article 2(11) of such directive by which each subsystem or part subsystem is covered in order to meet the Essential Requirements and ensure the interoperability of the rail system |
| TETA | See train Estimated time of arrival |
| Third party | Means any public or private undertaking, which is not a railway undertaking or infrastructure manager and provides services ancillary to, or in connection with, the services/transport services |
| Through ticket | Means a ticket or tickets representing a transport contract for successive railway services operated by one or more railway undertakings |

| Term | Description |
|---------------------------------|---|
| Ticket | Means a material or immaterial registration entitling a passenger to contractually use one or more commercial transport services offered by one or more railway undertakings |
| Ticket On departure | Means a fulfilment method where the customer makes its purchase in advance (e.g. at home) and collects the ticket in the departure Station, at a ticket counter or vending machine |
| Ticket vendor | Means any retailer of rail transport services concluding transport contracts and selling tickets on behalf of a railway undertaking or for its own account |
| Timetable | Means the list of commercial transport services offered by a railway undertaking during a given time interval |
| TOD | See Ticket On Departure |
| Tour Operator | Means an organiser or retailer, other than a railway undertaking, within the meaning of Article 2, points (2) and (3) of Directive 90/314/EEC |
| Train | Definition of OPE TSI : A train is defined as (a) traction unit(s) with or without coupled railway vehicles with train data available operating between two or more defined points. |
| Train Estimated time of Arrival | Means the Estimated time of arrival of a train at a specific point, e.g. handover point, interchange point, train destination |
| Train path | see path |
| Train running interrupted | Means that the continuation of the train is unknown based on local circumstances at the time and in the opinion of the parties involved. If the Delay is known, the infrastructure manager sends a train running forecast message |
| Transport contract | Means a contract of carriage for consideration or free of charge between a railway undertaking or a ticket vendor and the passenger for the provision of one or more transport services |
| Transport mode | Means a generic type of vehicle capable of transporting passengers (train, plane, bus, etc.) |
| Transport service | Means a commercial transport service or transport service under public service contract linking two or more locations, offered by a railway undertaking according to a published timetable. A transport service is normally performed with a specific transport mode |
| Transport service provider | Means any private or public company authorised to transport people in domestic or international passenger traffic. A "transport service provider" accepts travel documents issued by the accredited sales points of its distributors. It plays the role of the contractual carrier with which the passenger has entered into a contract of carriage. Execution of the transport service may be entrusted, in part or in full, to a substitute carrier |
| TSI | See Technical Specification for Interoperability |
| Union rail network | Means the rail network as described in Annex 1 to Directive (EU) 2016/797 |

ANNEX II – LIST OF OPEN POINTS

In accordance with Article 5(6) of Directive (EU) 2016/797, the following open points are identified.

| Section | Open points |
|----------------|--|
| 4.2.12 | Standard for European exchange of ticket control and ticket status modification data |

ANNEX III – LIST OF TECHNICAL DOCUMENTS REFERENCED IN THIS TSI

| Reference | Label |
|------------------|---|
| B.1. | Computer generation and exchange of tariff data meant for international or foreign sales – NRT tickets |
| B.2. | Computer generation and exchange of tariff data meant for international and foreign sales – Integrated Reservation Tickets (IRT) |
| B.3. | Computer generation and exchange of data meant for international or foreign sales – Special offers |
| B.4. | Implementation guide for EDIFACT messages covering timetable data exchange |
| B.5. | Electronic reservation of seats/berths and electronic production of travel documents - Exchange of messages |
| B.6. | Standard numerical coding for railway undertakings, infrastructure managers and other companies involved in rail-transport chains |
| B.7. | Standard numerical coding of locations |
| B.10 | Electronic reservation of assistance for persons with reduced mobility - Exchange of messages |
| B.11 | Layout for electronically issued rail passenger tickets |
| B.12 | Digital security elements for rail passenger ticketing |

ANNEX IV – LIST OF TARIFFS MEANT FOR INTERNATIONAL OR FOREIGN SALES

C.1. NRT Tariffs

The main content of NRT tariff data shall be:

- Series,
- Products,
- Services,
- Carrier codes,
- Fare tables,
- Station list.

NRT tariffs shall be made available in advance according to their sales conditions.

C.2. IRT Tariffs

The main content of SCIC-IRT tariff data shall be:

- tariffs,
- tariff ranges,
- Cards used with market prices,
- Exclusion types,
- Sales conditions,
- After sales conditions,
- Fare tables,
- Station/zone list.

IRT tariffs shall be made available in advance according to its sales conditions.

C.3. Special Tariffs

The main content of the special tariff data shall be:

- The offer and its conditions,
- Fares,
- Supplements,
- Authorisations,
- Number of passengers/accompanying passengers and their categories,
- Reduction types,
- Exclusion types,
- Sales conditions,
- After-sales conditions,
- Reservation fees,
- Series,
- Trains including their categories and facilities.

Special tariffs shall be made available in advance according to its sales conditions.

ANNEX V – List of technical documents for retail architecture and governance

| Reference | Label |
|-------------|-------------------------|
| B.60 (V1.0) | TAP Retail Architecture |
| B.61 (V1.0) | TAP Governance |

ANNEX VI - Tasks to be undertaken by the TAF/TAP National Contact Point (NCP)

- (1) Act as point of contact between ERA, and railway actors (Infrastructure Managers, Railway Undertakings, Wagon Keepers, Station Managers, Ticket Vendors and relevant associations) in the Member State in order to ensure that the railway actors are engaged with TAF and TAP and are aware of general developments and decisions of the Steering Committee.
- (2) Communicate the TAF/TAP TSI implementation and operation concerns and views of the railway actors in the Member State to the TAF/TAP Steering Committee after analysis by the Implementation Cooperation Group. Support the railway players in solving those concerns and views.
- (3) Liaise with the Member State Railway Interoperability and Safety Committee (RISC) member ensuring that the RISC member is briefed on national issues relating to TAF/TAP prior to each RISC meeting and ensuring that RISC decisions relating to TAF/TAP are communicated appropriately to affected railway actors.
- (4) The Member State ensures that all licensed Railway Undertakings and other railway actors (Infrastructure Managers, Railway Undertakings, Wagon Keepers, Station Managers, Ticket Vendors) are contacted and provided with NCP details and advised to make contact with the NCP if contact is not already established.
- (5) To the extent that railway actors in the Member State are known, make them aware of their obligations under the TAF and TAP regulations and that they must comply with them (regarding TAP/TAF TSI implementation and operation).
- (6) Liaise with the Member State to ensure that an entity is appointed to be responsible for populating the Central Reference Files Database with primary location codes. The identity of the appointed entity shall be reported to DG MOVE for appropriate distribution.
- (7) Facilitate information sharing between the Member State railway actors (Infrastructure Managers, Railway Undertakings, Wagon Keepers, Station Managers, Ticket Vendors and relevant associations) in the Member State.