RAIL FREIGHT CORRIDOR 6
IMPLEMENTATION PLAN
TT 2015/2016

RAIL FREIGHT CORRIDOR 6
SPAIN - FRANCE - ITALY
SLOVENIA - HUNGARY
MEDITERRANEAN CORRIDOR

MODIFICATIONS AND UPDATINGS

Evolution Index	Date	Modification / comments	Written by
V0	2 April 2013	First version / Gathering of each chapter	RFF/Task Force
V1	9 April 2013	Update of chapter 1, 3 and 5	RFF/Task Force
V2	12 April 2013	Update following / MB Decision	RFF/Task Force
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V10Nov 2013	6 November 2013	AG / Executive Board / European Commission Comments CIDs and Basic elements of TMS	PMO
V9Dec 2013	9 December 2013	Executive Board Comments for Approval	PMO
V16Jan 2014	16 January 2014	ERTMS Update	PMO
V20Mar 2014	20 March 2014	Terminals list and maps update	PMO
V18Dec 2014	18 December 2014	Extension of the Corridor and general updates	PMO
V9Jan2015	9 January 2015	Executive Boards Comments	PMO

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1 Introduction

Regulation (EU) 913/2010, adopted by the European Parliament and the Council on 22 September 2010, entered into force on 9th November 2010, enacting the establishment of international rail corridors for a European rail network for competitive freight, with the overall purpose of increasing international rail freight attractiveness and efficiency. The Annex to the Regulation has been replaced by the text of Annex II to the Regulation (EU) 1316/2013.

A list of 9 initial corridors is annexed to Regulation, providing their respective latest implementation date (2013 and 2015). Rail Freight Corridors are going to reconcile various types of existing corridors, such as ERTMS- and RNE-corridors (Art. 4(b)). They are also expected to be integrated in the TEN-T Network, in the framework of the new concept of Core Transport Network introduced by the EC proposal "on Union guidelines for the development of the Trans-European Transport Network" of 24th October 2011 which has pre-identified 10 core network corridors for the financing period 2014-2020.

The establishment of international rail corridors for a European rail network can be considered as the most suitable method to meet specific needs in identified segments of the freight market on which freight trains can run under high service quality standards and easily pass from one national network to another thanks to the respect of interoperability requirements.

The creation of an European rail freight market is also an essential factor in making progress towards sustainable mobility and its opening, from 1 January 2007, achieved the aim of stimulating competition, making it possible for new operators to enter rail network.

Nevertheless, it seems that market mechanisms are not ensuring a sufficient range of quality of rail freight traffic, so the Rail Freight Corridors Regulation is addressing the need of additional procedures to strengthen cooperation on international capacity allocation thus optimizing the use of the network and improving its reliability.

Coordination among infrastructure managers on investment and on the management of capacities and traffic has to be optimized in order to provide consistency and continuity along the corridors. In that regard specific measures need to be adopted for removing bottlenecks and overcoming cross-border difficulties.

Rail freight services are more and more requiring a high quality and sufficiently financed railway infrastructure, so Rail Freight Corridors are aimed to improve traffic conditions in terms of reliability and punctuality, even in case of disturbance.

The establishment of Rail Freight Corridors has the general objective of improving the conditions for international rail freight by reinforcing cooperation at all levels, and especially among Infrastructure Managers.

The main targets are, increasing the infrastructure capacity and performance in order to meet market demand both quantitatively and qualitatively;

- ✓ improving the quality of the service in order to meet customer needs.

Specific objectives can be summarized as follows:

1) increasing the rail competitiveness and market share on the European Transport Market;

2) increasing the modal shift from road towards rail in order to achieve environmental benefits (in terms of reduction of gas emissions and of roads and highways congestion);

3) planning a corridor approach to infrastructure investment, with the aim to overcome cross-border difficulties and to remove bottlenecks;

4) developing intermodal freight terminals;

5) promoting interoperability along the network as defined in Directive 2008/57/EC and its following amendments;

6) coordinating the development of the network, in particular as regards the integration of the international corridors for rail freight into the existing and the future TEN-T corridors;

7) ensuring efficient capacity allocation, through a corridor-oriented One-Stop-Shop applying smooth, flexible and transparent processes for assuring reliable train paths to rail freight undertakings;

8) optimizing the quality of the service and the capacity of the freight corridors, by means of strategies and tools aimed to improve punctuality and to monitor results through performance monitoring and satisfaction surveys;

9) minimising the overall network recovery time through definition of priority rules and optimal coordination of traffic management.

Among the nine initial corridors envisaged by EU Regulation 913/2010, Rail Freight Corridor n. 6 Almeria-Valencia / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milan-Verona-Padua / Venice-Trieste / Koper-Ljubljana-Budapest-Zahony, the ("Mediterranean Corridor") is the most interconnected corridor in Europe, since it is crossed by 6 other freight corridors (1,2,3,4,5,7). In line with the Regulation (EU) 1316/2013 Rail Freight Corridor 6 has been extended as follows: Almeria-Valencia / Algeciras / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padua / Venice-Trieste / Koper- Ljubljana-Budapest-Zahony. Given its nature of transversal corridor, it will be particularly affected by the need of finding adequate inter-corridors standardized interfaces and procedures to be proposed to applicants and to be agreed among infrastructure managers and allocation bodies.

The Rail Freight Corridor 6 is expected to become a major European freight corridor, linking South-Western and Eastern EU countries: in fact it represents a key access gateway to Ukraine and therefore has a high potential in diverting part of the Europe-Asia traffic flows which presently are ensured by the ship mode. Therefore the traffic development along RFC 6 has to be interpreted also in terms of significant potential increase in the rail market share and consequent reduction of environmental externalities in terms of reduction of gas emissions and reduction of roads and highways congestion.

The following specific targets were fixed for RFC 6:

- ✓ ensuring the best integration between Rail Freight Corridor 6 and ERTMS corridor D Valencia-Lyon-Ljubljana-Budapest;
- ✓ ensuring the best integration between Rail Freight Corridor 6 and the established Mediterranean Core Network Corridor as identified in the EC proposal "Union guidelines for the development of the trans-European transport network" of 19th October 2011;
- ✓ setting out an appropriate Rail Freight Corridor 6 Management Board, taking into account the governance of Corridor D and its organizational structure;
- ✓ improving the interoperability all along Rail Freight Corridor 6, with particular reference to the operational rules which presently represent an obstacle to cross-border traffic;
- ✓ promoting a multi-modal concept for traffic flows along the corridor;
- ✓ drawing an efficient and market-oriented Implementation Plan designed to meet the needs of potential customers;
- ✓ cooperating with the other Rail Freight Corridor Management Boards in order to harmonize tools and procedures;
- ✓ adopting consultation mechanisms ensuring optimal communication with the Railway Undertakings interested in using the corridor and with managers and owners of the terminals;
- ✓ developing an internet based platform as a central and flexible tool for communication, publication and consultation aims;
- ✓ establishing an efficient and effective corridor-oriented One-Stop-Shop

The measures planned to achieve the targets listed above are described in detail in this Implementation Plan which, according to Art. 9 of Regulation (EU) 913/2010, include the following parts:

- ✓ the program of measures necessary for creating the freight corridor;
- ✓ a description of the characteristics of the freight corridor, including bottlenecks;
- ✓ the essential elements of the Transport Market Study referred to in art. 9, paragraph 3 of Reg. 913/2010;
- ✓ the objectives for the freight corridors, in particular in terms of performance of the freight corridor expressed as the quality of the service and the capacity of the freight corridor in accordance with the provisions of Article 19 of Reg. 913/2001;

- ✓ the investment plan referred to in Article 11 of Reg. 913/2010;
- ✓ the measures to implement the provisions of Articles 12 to 19 of Reg. 913/2010.

This document has been prepared by the Task Force and the Permanent Management Office (hereafter PMO) of Rail Freight Corridor 6, with the contribution of experts specifically appointed by the Infrastructure Managers and the Allocation Bodies members of the Management Board of Rail Freight Corridor 6. A detailed task distribution was agreed in order to efficiently prepare the document and a great effort of cooperation was made in order to achieve a common view on the different subjects treated.

The realization of the RFC6 Implementation Plan is benefiting from **EU co-financing** of 730 k€
(On a total amount of co-financing of 1.692 k€ for main corridor activities)

Rail freight corridor 6 carried out a Transport Market study in due time part of which has been included in the implementation plan.

This Implementation Plan is focused on the analysis of the current situation along the countries involved in Rail Freight Corridor 6, aiming at harmonizing the overall approach at corridor level.

The information provided in the Investment Plan of the Rail Freight Corridor 6, as part of the Implementation Plan, and in particular that related to the ERTMS deployment plans, is without prejudice of the competence of Member states regarding planning and funding for rail infrastructure.

2 Characteristics of RFC 6 and governance

The definition and exact description of lines and terminals contained in this Rail Freight Corridor, according to the definition of freight corridor (Article 2.2.a), has been a task developed by the Management Board in cooperation with the relevant Infrastructure Managers, and involving the Advisory Groups.

All Rail Freight Corridor 6 locations included in the Annex II of the Regulation have been adequately incorporated to this Corridor.

The designation of lines is one step more in order to harmonize the TEN-T core network with the rail freight corridors, according to the recent directions provided by the European Commission. Moreover, the designation of a line to a RFC, if also belonging to the TEN-T core network, may improve the chances to receive funding under the TEN-T/CEF or other funding sources.

The selection of railway lines and terminals has been based on current and expected traffic patterns and information provided by the Infrastructure Managers and the results of Transport Market Study. Especially where various alternative options exist, the lines suitability to freight traffic with regard to infrastructure parameters like maximum gradients, permitted train-lengths, axle-loads and loading gauges has been taken into account.

Designated lines, given the important traffic flows that already exist, coincide with those largely used today. Besides the main lines along the principal route outlined in the Regulation 913/2010/EC Almería-Valencia/Algeciras/Madrid-Zaragoza/Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padova/Venezia-Trieste/Koper-Ljubljana-Budapest-Zahony ("Mediterranean Corridor"), the Corridor includes diversionary routes frequently used for re-routing trains in case of disturbance on the principal lines; and connecting lines, sections linking terminals and freight areas to the main lines.

In some cases parallel railway lines have been included in order to provide sufficient capacity in this corridor. Also lines which may not play an important role for long-haul freight traffic today, but may do so in the future are included.

All railway lines with dedicated capacity and expected to hold pre-arranged train paths, have been designated to this corridor. Furthermore, routes which may not be used for pre-arranged train paths, but could become used in case of traffic disturbances, are also designated to this corridor.

This corridor connects with six other corridors 1, 2, 3, 4, 5 and 7, and some of their sections overlap.

Actually RFC 6 has the following connections with other RFCs:

- ✓ in Algeciras-Madrid with Rail Freight Corridor 4 (set up on the 10th November 2013);
- ✓ in Lyon and Ambérieu-en-Bugej with Rail Freight Corridor 2 (set up on the 10th November 2013);
- ✓ in Milano with Rail Freight Corridor 1 (set up on the 10th November 2013);

- ✓ in Verona with Rail Freight Corridor 3 (to be set up by 10th November 2015);
- ✓ in Venice and Koper with Rail Freight Corridor 5 (to be set up by 10 November 2015);
- ✓ in Győr and Budapest with Rail Freight Corridor 7 (set up on the 10th November 2013);
- ✓ in Győr and Budapest with Rail Freight Corridor 9 (to be set up by the 10th November 2020);

Coordination with existing ERTMS Corridor D and RNE Corridors 6 and 8 has been necessary in the process of lines selection.

When it comes to terminals, all terminals along designated lines have been designated to the corridor as well, except if a terminal does not have any relevance for the traffic in the corridor.

Each Port along the corridor has been considered as a single terminal, even in the case that they hold in their facilities more than one rail intermodal or freight yard.

The railway lines of this Corridor connect terminals of relevance to rail freight traffic along the principal route, especially:

- ✓ marshalling yards;
- ✓ major rail-connected freight terminals;
- ✓ rail-connected intermodal terminals in seaports, airports and inland waterways.

According to Article 9.1.a of Regulation 913/2010/EC, railway lines and terminals designated to this Corridor are exactly and unambiguously described in this Implementation Plan, by the maps and detailed tables included in this document. The Implementation Plan provides information on the bottlenecks along the Corridor, as well as an overview over existing traffic patterns (both freight and passenger traffic). The Regulation promotes the harmonization of infrastructure with the specific objectives to remove bottlenecks and to harmonize relevant parameters like: train lengths, train gross weights, axle loads and loading gauges. Reference is made to ERTMS and TEN-T corridors, emphasizing that interoperability is an essential feature of the Rail Freight Corridors. The characterization of the Corridor included in this chapter of the Implementation Plan is essential to achieve these goals.

2.1 Rail Freight Corridor 6 characteristics

The length of the Rail Freight corridor 6 is over 7.173 km, according to the table shown below.

	Total LENGHT	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/ FEEDER	UNDER CONSTRUCTION
SPAIN	**3.372**	2.990	240		142
FRANCE	**1.435**	1.435			
ITALY	**861**	636	113	112*	
SLOVENIA	**408**	408			
HUNGARY	**1.097**	878	203	16	
TOTAL	**7.173**	**6.347**	**556**	**128**	**142**

*The extension of RFC 6 in Italy (Torino-Alessandria-Tortona) will be **effective January 2016**.

Rail Freight Corridor 6 principal routes constitute about 87% ~~85~~% of all lines. Section Almeria-Murcia (Spain) is currently under construction. In Spain, Italy and Hungary 556 km of diversionary routes have been included, for train rerouting in case of disturbance. One of these routes is the alternative corridor selected to bypass works under development in the Almeria-Murcia section. Also, 90 terminals have been included in Rail Freight Corridor 6, according to the following distribution:

- ✓ Spain: 36 terminals;
- ✓ France: 25 terminals;
- ✓ Italy: 15 terminals;
- ✓ Slovenia: 5 terminals;
- ✓ Hungary: 9 terminals;

The description of Rail Freight Corridor 6 includes a list of:

- ✓ all railway lines or sections designated to the Corridor, with precise description of beginning and ending points:
- ✓ all the terminals designated to the Corridor.

For designated lines, the description comprises a detailed and systematic definition of all infrastructure parameters relevant for rail freight traffic, including:

a) Type of line : principal, diversionary, and connecting/feeder;

b) Section length, in kilometres;

c) Track gauge: International Standard gauge (1435 mm) or Iberian gauge (1668 mm);

d) Number of tracks: Single or double track;

e) Maximum train length: maximum train length guaranteeing a flawless run along a whole section of the corridor, including traction;

f) Axle load: maximum loading gauge guaranteeing a flawless run along a whole section of the corridor;

g) Load per meter: Maximum load per meter guaranteeing a flawless run along a whole section of the corridor;

h) Train speed: Maximum general speed limit allowed on each line;

i) Loading gauge: maximum dimension for the freight and passenger vehicles especially in the tunnels;

j) Power supply: Type of current and voltage for electrified lines (DC 1.500V, DC 3.000V & AC 25.000V);

k) Signalling and interlocking systems: Type of signalling systems implemented on each line;

l) Gradient: Maximum line gradient in both directions of each line of the corridor (Towards NE – Algeciras-Madrid to Zahony and towards SW Zahony to Madrid-Algeciras);

A series of comprehensive maps of the Corridor according to these relevant parameters is included in chapter 1.1.3 of this document.

A list and a location map of terminals with relevance for traffic flows on the corridor and connected to the designated rail lines have been also included in the Implementation Plan. Accordingly, feeder lines from the corridor main lines to these terminals, and vice versa, have been designated as well.

According to Article 2.2.c of Regulation 913/2010/EC, terminals are defined as those facilities provided along the freight corridor which have been specially arranged to allow either the loading and/or the unloading of goods onto/from freight trains, and the integration of rail services with road, maritime, river and air services, and either the forming or modification of the composition of freight trains; and, where necessary, performing border procedures at borders with European third countries.

Terminals are described in the Corridor Information Document by their characteristics, as listed below.

Some figures may not available for all the terminals. Therefore, a webpage link and contacts of the companies that own or manage the terminals will be provided, in order to facilitate access to further information.

a) Trains per day: daily average number of scheduled freight trains services in and out of the terminal;

b) Business model: Public (Infrastructure Manager, Railway Undertaking, Port Authorities, Local or Regional Authorities,…) or private ownership, direct management or based on a concession or P3 agreement;

c) Main functions: Characterization of the terminal and identification of operations developed in the facilities (traffic regulation, relay station, marshalling yard, inland or seaport intermodal, load/unload handling, border/customs, gauge change facilities, etc);

d) Storage capacity: Total capacity for storage of loading units (TEUs);

e) Handling capacity: Number of loading units handled yearly (TEUs per year);

f) Intermodal traffic: Total number of incoming and outgoing TEUs dispatched per year;

g) Storage utilization: Average storage capacity utilization rate (%);

h) Handling utilization: Average handling capacity utilization rate (%);

This preliminary designation of lines and terminals in Rail Freight Corridor 6 can change overtime due to infrastructure investments in the corridor. Also comments received from the Advisory Groups and Applicants, and results of the Customer Satisfaction Surveys will be taken into account for further modifications.

2.1.1 RFC 6 Line

2.1.1.1 Spain

		SECTION LENGHT	LINE TYPE			TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL TRACTION								AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM							GRADIENT	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	1435 mm	1668 mm		350m	450m	500m	550m	575m	600m	625m	650m	750m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	%towards NE	%towards SW
SPAIN (I)	**ALGECIRAS - CORDOBA**	**300**	X				X	–			X								X			X				X	45/364	GHE16										24	23
	ALGECIRAS - GAUCIN	58	X				X	–			X								X			X				X	45/364	GHE16										22	23
	GAUCIN - RONDA	49	X				X	–			X								X			X				X	45/364	GHE16				X						22	23
	RONDA -BOBADILLA	70	X				X	–			X								X			X				X	45/364	GHE16										24	18
	BOBADILLA - MONTILLA	72	X				X	–			X								X			X				X	45/364	GHE16	X			X						17	17
	MONTILLA - CORDOBA	51	X				X	–			X								X			X				X	45/364	GHE16	X			X						17	17
	CORDOBA - MANZANARES-	**246**	X				X												X			X				X	45/364	GHE16	X			X						13	16
	CORDOBA - ANDUJAR	81	X				X	–				X							X			X				X	45/364	GHE16	X			X						11	12
	ANDUJAR - LINARES	48	X				X	–				X							X			X				X	45/364	GHE16	X			X						5	13
	LINARES - VADOLLANO	9	X				X	X			X								X			X				X	45/364	GHE16	X			X						13	16
	VADOLLANO - SANTA CRUZ DE MUDELA	67	X				X	–			X								X			X				X	45/364	GHE16	X			X						13	16
	SANTA CRUZ DE MUDELA - MANZANARES	42	X				X	X			X								X			X				X	45/364	GHE16	X			X						13	16
	MANZANARES - MADRID	**191**	X				X	X			X								X			X				X	45/364	GHE16	X			X						10	7
	MANZANARES -ALCAZAR DE SAN JUAN	49	X				X	X			X								X			X				X	45/364	GHE16	X			X						6	5
	ALCAZAR DE SAN JUAN - CASTILLEJO	84	X				X	X			X								X			X				X	45/364	GHE16	X			X						10	7
	CASTILLEJO - ARANJUEZ	15	X				X	X			X								X			X				X	45/364	GHE16	X			X						6	5
	ARANJUEZ - MADRID	43	X				X	X			X								X			X				X	45/364	GHE16	X			X						6	5
	MADRID - ZARAGOZA	**333**	X				X	X			X								X			X				X	45/364	GHE16	X			X						17	16
	MADRID VICÁLVARO - GUADALAJARA	44	X				X	X			X								X			X				X	45/364	GHE16	X			X						8	12
	GUADALAJARA - CALATAYUD	186	X				X	X			X								X			X				X	45/364	GHE16	X			X						14	16
	CALATAYUD - RICLA	36	X				X	–			X								X			X				X	45/364	GHE16	X			X						2	10
	RICLA - GRISÉN	34	X				X	X			X								X			X				X	45/364	GHE16	X			X						2	10
	GRISÉN - CASETAS	13	X				X	X			X								X			X				X	45/364	GHE16	X			X						2	10
	CASETAS - ZARAGOZA PLAZA	21	X				X	X			X								X			X				X	45/364	GHE16	X			X						17	16
	ZARAGOZA - TARRAGONA	**583**	X				X	5%			X								X			X				X	45/364	GHE16	X			X						17*	16*
	ZARAGOZA PLAZA - BIF CARTUJA	21	X				X	X			X								X			X				X	45/364	GHE16	X			X						17	16
	BIF CARTUJA - TARDIENTA	61	X				X	–			X								X			X				X	45/364	GHE16	X			X						10	18*
	TARDIENTA - SELGUA	70	X				X	–			X								X			X				X	45/364	GHE16	X			X						17	16*
	SELGUA - LÉRIDA	61	X				X	–			X								X			X				X	45/364	GHE16	X			X						16	18*
	LÉRIDA - PLANA	68	X				X	–			X								X			X				X	45/364	GHE16	X			X						17	17*
	PLANA - REUS	21	X				X	–			X								X			X				X	45/364	GHE16	X			X						3	14*
	REUS - TARRAGONA	18	X				X	X			X								X			X				X	45/364	GHE16	X			X						1	15*
	BIF CARTUJA - SAMPER	72	X				X	–			X								X			X				X	45/364	GHE16	X			X						19*	16
	SAMPER - REUS	155	X				X	–			X								X			X				X	45/364	GHE16	X			X						17*	16
	PLANA - S VICENTE C	36	X				X	–			X								X			X				X	45/364	GHE16	X			X						8	14
	ALMERÍA - MURCIA	**200**	X																																				
	ALMERIA - LORCA	142	X																																				
	LORCA - MURCIA CARGAS	58	X				X	–			X								X			X				X	45/364	GHE16				X						9	16
	ALMERIA - MOREDA	**123**		X			X	–		X									X			X				X	45/364	GHE16				X						28	22
	ALMERIA - HUENEJAR DÓLAR	78		X			X	–		X									X			X				X	45/364	GHE16	X			X						28	7
	HUENAJAR DÓLAR - MOREDA	45		X			X	–		X									X			X				X	45/364	GHE16				X						22	22
	MOREDA - LINARES	**117**		X			X	–			X								X			X				X	45/364	GHE16				X						23	23
	MOREDA - LINARES	117		X			X	–			X								X			X				X	45/364	GHE16				X						23	23

		SECTION LENGHT	LINE TYPE			TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION							AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM						GRADIENT	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	1435 mm	1668 mm		350 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	700 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	P.ZB	EVM	ETCS L1	ETCS L2	%towards NE	%towards SW
SPAIN (II)	**ESCOMBRERAS - MURCIA**	**81**	X				X	**20%**			X								X			X			X	**45/364**	**GHE16**				X								**15**	**16**
	ESCOMBRERAS - EL REGUERÓN	65	X				X	–			X								X			X			X	45/364	GHE16				X								15	16
	EL REGUERÓN - MURCIA CARGAS	16	X				X	X			X								X			X			X	45/364	GHE16				X								4	4
	MURCIA - CHINCHILLA	**158**	X				X	–			X								X			X			X	**45/364**	**GHE16**				X								**13**	**9**
	MURCIA CARGAS - CIEZA	44	X				X	–			X								X			X			X	45/364	GHE16				X								13	7
	CIEZA - HELLIN	63	X				X	–			X								X			X			X	45/364	GHE16				X								12	9
	HELLIN - CHINCHILLA	51	X				X	–			X								X			X			X	45/364	GHE16				X								13	8
	CHINCHILLA - VALENCIA	**181**	X				X	**98%**			X								X			X			X	**45/364**	**GHE16**		X		X								**13**	**14**
	CHINCHILLA - LA ENCINA	79	X				X	X			X								X			X			X	45/364	GHE16		X		X								13	13
	LA ENCINA - JATIVA	48	X				X	X			X								X			X			X	45/364	GHE16		X		X								10	14
	JATIVA - VALENCIA FSL	54	X				X	94%			X								X			X			X	45/364	GHE16		X		X								7	11
	LA ENCINA - ALICANTE	**78**	X				X	–		X									X			X			X	**45/364**	**GHE16**		X		X								**17**	**6**
	LA ENCINA - ALICANTE	78	X				X	–		X									X			X			X	45/364	GHE16		X		X								17	6
	ALICANTE - EL REGUERON	**67**	X				X		X										X			X			X	**45/364**	**GHE16**				X								**12**	**14**
	ALICANTE - EL REGUERON	67	X				X		X										X			X			X	45/364	GHE16				X								12	14
	VALENCIA - CASTELLÓN	**70**	X				X	X			X								X			X			X	**45/364**	**GHE16**		X		X								**11**	**14**
	VALENCIA FSL - SAGUNTO	30	X				X	X			X								X			X			X	45/364	GHE16		X		X								11	12
	SAGUNTO - CASTELLON	40	X				X	X			X								X			X			X	45/364	GHE16		X		X								7	14
	CASTELLON - BIF. CALAFAT	**145**	X				X	X			X								X			X			X	**45/364**	**GHE16**		X		X								**15**	**14**
	CASTELLON - VINAROZ	77	X				X	X			X								X			X			X	45/364	GHE16		X		X								15	14
	VINAROZ - ALDEA	38	X				X	X			X								X			X			X	45/364	GHE16		X		X								13	12
	ALDEA - BIF. CALAFAT	30	X				X	X			X								X			X			X	45/364	GHE16		X		X								11	12
	BIF. CALAFAT - TARRAGONA	**41**	X				X	–			X								X			X			X	**45/364**	**GHE16**		X		X								**12**	**11**
	TARRAGONA - BARCELONA AREA	**78**	X				X	X		X									X			X			X	**45/364**	**GHE16**		X		X								**14**	**13**
	TARRAGONA - S VICENTE C	25	X				X	X		X									X			X			X	45/364	GHE16		X		X								9	6
	S VICENTE C - VILLAFRANCA P	24	X				X	X			X								X			X			X	45/364	GHE16		X		X								14	5
	VILLAFRANCA P - MARTORELL	25	X				X	X			X								X			X			X	45/364	GHE16		X		X								14	13
	MARTORELL - CASTELLBISBAL	4	X				X	X			X								X			X			X	45/364	GHE16		X		X								1	7
	BARCELONA AREA	**51**	X			X	X	X			X								X			X			X	**45/364**	**GHE16**		X		X								**15**	**15**
	CASTELLBISBAL - MOLLET	25	X			X	X	X			X								X			X			X	45/364	GHE16		X		X						X*		15	15
	BARCELONA CAN - RUBI	25	X			X	X	X			X								X			X			X	45/364	GHE16		X		X						X*		15	15
	BARCELONA AREA - FRENCH BORDER CLASSIC LINE	**150**	X					X			X								X			X			X	**45/364**	**GHE16**		X		X								**15**	**15**
	MOLLET - GRANOLLERS	10	X				X	X			X								X			X			X	45/364	GHE16		X		X								12	0
	GRANOLLERS - S CELONI	22	X				X	X			X								X			X			X	45/364	GHE16		X		X								15	14
	S CELONI - MAÇANET M	19	X				X	X			X								X			X			X	45/364	GHE16		X		X								6	12
	MAÇANET M - GERONA	30	X				X	X			X								X			X			X	45/364	GHE16		X		X								10	10
	GERONA - FIGUERAS	41	X			X	X	X			X								X			X			X	45/364	GHE16		X		X								15	15
	FIGUERAS - PORTBOU	26	X				X	X			X								X			X			X	45/364	GHE16		X		X								15	15
	PORTBOU - CERBERE	2	X				X				X								X			X		X		45/364	GHE16	X	X		X	X							0	8
	BARCELONA AREA - INTERNATIONAL SECTION MIXED TRAFFIC HIGH SPEED LINE	**134**	X			X		X									X		X			X			X	**45/364**	**GHE16**			X	X						X		**18**	**18**
	BARCELONA - MOLLET	20	X			X		X									X		X			X			X	45/364	GHE16			X	X						X		18	18
	MOLLET - GERONA	76	X			X		X									X		X			X			X	45/364	GHE16			X	X						X		18	18
	GERONA - FIGUERAS VILAFANT	34	X			X		X									X		X			X			X	45/364	GHE16			X	X						X		18	18
	FIGUERAS VILAFANT - INTERNATIONAL SECTION	4	X			X		X									X		X			X			X	45/364	GHE16			X	X						X		18	18
	INTERNATIONAL SECTION	**44**	X			X		X									X		X			X			X	**45/364**	**GHE16**			X							X		**18**	**18**
	FIGUERAS - PERPIGNAN	44	X			X		X									X		X			X			X	45/364	GHE16			X							X		18	18

NOTES

i and Castelbisbal-Mollet sections, ETCS L1 is only available for standard gauge trains.

e. The broad gauge one (ASFA, DC 3 KV) is managed by ADIF and the standard gauge one (KVB, CD 1'5 KV) is managed by RFF.

uja-Tardienta-Selgua-Lérida-Plana-Reus route, and SW by the Cartuja-Samper-Reus route. Thus, global gradients are considered in this way.

2.1.1.2 France

		SECTION LENGHT	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FIE EDER	TRACK GAUGE	DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION	AXLE LOAD	LOAD PER METRE	TRAIN SPEED	LOADING GAUGE	POWER SUPPLY	SIGNALLING SYSTEM	GRADIENT	
		km				1435 mm / 1000 mm		450 m / 500 m / 550 m / 575 m / 600 m / 625 m / 650 m / 750 m	20,0 T/axle / 21,0 T/axle / 22,5 T/axle	6,4 T/m / 7,2 T/m / 8,0 T/m	< 75 km/h / 75 < v ≤ 90 km/h / 90 < v ≤ 100 km/h / > 100 km/h	UIC Gabarit / Tunnels	DC 1500 V / DC 3000 V / AC 25000 V	ASFA / KVB / BACC / SCMT / PZB / LZB / ETCS L1 / ETCS L2	Backwards NE	Backwards SW
FRANCE	PORTBOU - PERPIGNAN	43	X								X			X	11	14
	PORTBOU - CERBERE	2	X			X* / X*	– *	X	X	X	X	45/364 / 45/364	X	X	5	10
	CERBERE - COLLIOURE	14	X			X	X	X	X	X	X	45/364 / 45/364	X	X	11	14
	COLLIOURE - PERPIGNAN	27	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	INTERNATIONAL SECTION - PERPIGNAN	5	X			X	X	X	X	X	X	45/364 / 45/364	X* / X*	X	0	10
	PERPIGNAN - MONTPELLIER	159	X											X	5	5
	PERPIGNAN - GRUISSAN	51	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	GRUISSAN - NARBONNE	10	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	NARBONNE - MONTPELLIER	97	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	MONTEPELLIER - AVIGNON	141	X							X		45/364 / 45/364		X	8	10
	MONTEPELLIER-NÎMES	50	X			X	X	X	X	X	X	45/364 / 45/364	X	X	4	4
A	NÎMES - VILLENEUVE-LES-AVIGNON (VIA REMOULINS)	38	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	10
	VILLENEUVE-LES-AVIGNON - AVIGNON	5	X			X	X	X	X	X	X	45/364 / 45/364	X	X		
B	NÎMES - TARASCON	27	X			X	X	X	X	X	X	45/364 / 45/364	X	X	6	7
	TARASCON - AVIGNON	22	X			X	X	X	X	X	X	45/364 / 45/364	X	X	8	8
	AVIGNON - LYON	283	X							X		45/364 / 45/364		X	12	11
	VILLENEUVE-LES-AVIGNON - PONT ST ESPRIT	44	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	6
	PONT ST ESPRIT - PEYRAUD	127	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	6
	PEYRAUD - GIVORS	44	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	5
	CHASSE SUR RHÔNE - GIVORS	3	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	7
	CHASSE SUR RHÔNE - LYON (PART DIEU)	25	X			X	X	X	X	X	X	45/364 / 45/364	X	X	12	11
	VENISSIEUX - LYON GUILLOTIERE	4	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	8
	AVIGNON - LIVRON	107	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	LIVRON - VALENCE	17	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	VALENCE-CHASSE SUR RHÔNE	85	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	VALENCE - MONTMELIAN	152	X							X		45/364 / 45/364		X	5	5
	VALENCE - MOIRANS	80	X			X	X	X	X	X	X	45/364 / 45/364	*	X	5	5
	MOIRANS - GRENOBLE	18	X			X	X	X	X	X	X	45/364 / 45/364	* / *	X	5	5
	GRENOBLE - MONTMELIAN	54	X			X	X	X	X	X	X	45/364 / 45/364	*	X	5	5
	MODANE - LYON	231	X							X		45/364 / 45/364		X	30	30
	MODANE - ST. JEAN DE MAURIENNE	28	X			X	X	X	X	X	X	45/364 / 45/364	X	X	30	30
	ST. JEAN DE MAURIENNE - ST PIERRE D'ALBIGNY	23	X			X	X	X	X	X	X	45/364 / 45/364	X	X	18	6
	ST PIERRE D'ALBIGNY - CHAMBERY	48	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	10
	CHAMBERY - CULOZ	36	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	10
	CULOZ - AMBÉRIEU	50	X			X	X	X	X	X	X	45/364 / 45/364	X	X	12	12
	AMBÉRIEU - LYON (PART DIEU)	46	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	8
	MARSEILLE MIRAMAS	136	X							X		45/364 / 45/364		X	13	12
	MARSEILLE ST CHARLES - L'ESTAQUE	10	X			X	X	X	X	X	X			X	5	5
A	L'ESTAQUE - LAVALDUC	56	X			X	X	X	X	X*	X	3,3 / 3,3		X	13	12
	LAVALDUC - MIRAMAS	16	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	5
	LAVALDUC - FOS-VIGUERAT	12	X			X	X	X	X	X	X	45/364 / 45/364	X	X	10	5
B	L'ESTAQUE - MIRAMAS (PAR ROGNAC)	42	X			X	X	X	X	X	X	45/364 / 45/364	X	X	5	5
	MIRAMAS - AVIGNON	111	X							X		45/364 / 45/364		X	11	11
A	MIRAMAS - AVIGNON (PAR CAVAILLON)	65	X			X	X	X	X	X	X	45/364 / 45/364	X	X	8	8
B	MIRAMAS - TARASCON	46	X			X	X	X	X	X	X	45/364 / 45/364	X	X	11	11

NOTES
* Portbou-Cerbere section is formed by one track for each cause. The broad cause one IASFA. DC 3 KV) is managed by ADIF and the standard cause one (KVB . CD 15 KV) is managed by RFF.
* Marseille St Charles - Lavalduc: 9 T/m
* Valence - Modane: Planned AC 25 KV in summer 2014

2.1.1.3 Italy

		SECTION LENGHT	LINE TYPE			MAX. TRAIN LENGHT INCL. TRACTION						AXLE LOAD			LOAD PER METRE			TRAIN SPEED				LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM								GRADIENT	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BEM	BCA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
ITALY	**MODANE-TORINO**	**103**	X					X								X			X				X	45/364			X						X	X				**30**	**28**
	MODANE-CONFINE FRANCESE	4	X					X								X			X			X		45/364			X						X	X				0	28
	CONFINE FRANCESE-TORINO	98	X							X						X			X				X	45/364			X						X	X				30	0
	TORINO-NOVARA	**99**	X							X						X			X				X	45/364			X						X	X				**14**	**13**
	NOVARA-MILANO	**45**	X						X							X			X				X	45/364			X						X	X				**5**	**7**
	MILANO-VERONA	**148**	X								X					X			X				X	80/400			X						X	X				**6**	**10**
	VERONA-PADOVA	**82**	X								X					X			X				X	80/400			X						X	X				**5**	**5**
	VERONA-VICENZA	52	X								X					X			X				X	80/400			X						X	X				5	5
	VICENZA-PADOVA	30	X								X					X			X				X	80/400			X						X	X				5	3
	VICENZA-PORTOGRUARO (by Cittadella)	**113**		X				X								X			X			X		80/400			X						X	X				**6**	**7**
	VICENZA-CASTELFRANCO V.	36		X				X								X			X			X		80/400			X						X	X				6	7
	CASTELFRANCO V.-TREVISO	25		X					X							X			X			X		80/400			X						X	X				1	4
	TREVISO-PORTOGRUARO	53		X					X							X			X			X		80/400			X						X	X				5	4
	PADOVA-BIVIO D'AURISINA	**131**	X						X							X			X			X		80/400			X						X	X				**9**	**10**
	PADOVA-VENEZIA	29	X								X					X			X				X	80/400			X						X	X				3	3
	VENEZIA-PORTOGRUARO	59	X						X							X			X				X	80/400			X				X			X				8	8
	PORTOGRUARO-BIVIO D'AURISINA	43	X							X						X			X			X		80/400			X				X			X				9	10
	BIVIO D'AURISINA-VILLA OPICINA	**15**	X							X						X			X		X			80/400			X			X				X				**15**	**0**
	BIVIO D'AURISINA-TRIESTE	**14**	X							X						X			X		X			80/400			X					X	X					**14**	**1**
	TORINO-TORTONA*	**112**		X					X							X			X			X		32/350			X							X				**6**	**12**
	TORINO-ALESSANDRIA	90		X					X							X			X			X		32/350			X					X	X					6	12
	ALESSANDRIA-TORTONA	22		X					X							X			X		X			45/364			X				X		X					6	4

*Connecting line for dangerous goods.

2.1.1.4 Slovenia

		SECTION LENGHT	LINE TYPE			TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION					AXLE LOAD			LOAD PER METRE	TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM				GRADIENT	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	1435 mm	1668 mm		450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 Tn/Axle	21,0 Tn/Axle	22,5 Tn/Axle	6,4 Tn	7,2 Tn	8,0 Tn	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Gabarito	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVP	BACC	SCMT	PZB	LZM	ETCS L1	ETCS L2	% Ascents ME	% Ascents SV
SLOVENIA	VILLA OPICINA (BORDER)-DIVACA	13	X			X		X				X						X	X	X				99/429			X					X			10	0
	VILLA OPICINA (BORDER)-SEZANA	3	X			X		X				X						X	X	X				99/429			X					X			10	0
	SEZANA- DIVACA	10	X			X		X				X						X	X	X				99/429			X					X			8	0
	KOPER-DIVACA	46	X			X		-		X								X	X	X				90/410			X					X			25	20
	DIVACA-LJUBLJANA	104	X			X		X				X						X	X	X				82/412			X					X			8	12
	LJUBLJANA-HODOS	246	X			X		56%			X*						X	X	X	X				80/401			X					X			10	11
	LJUBLJANA-PRAGERSKO	137	X			X		X			X*						X			X	X			90/410			X					X			9	9
	PRAGERSKO-HODOS	109	X			X		-					X						X	X		X			80/401			X					X			10	11

NOTES
* Ljubljana-Pragersko: Maximun train lenoht 570m

2.1.1.5 Hungary

		SECTION LENGHT	LINE TYPE			TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL TRACTION						AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM					GRADIENT	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	1435 mm	1668 mm		300 m	500 m	550 m	575 m	600 m	625 m	650 m	700 m	20,0 Tn/A	21,0 Tn/A	22,5 Tn/A	6,4 Tn/m	7,2 Tn/m	8,0 Tn/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Gabarits	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ÁSFA	KVB	LVGC	SCMT	PZB	EVM	ETCS L1	ETCS L2	% downh NE	% downh SW
HUNGARY	HODOS-ZALALÖVŐ	20	X			X		–							X			X					X		60/410	80/410			X						X	10,6	10,6
	ZALALÖVŐ-BOBA	75	X			X		–							X			X					X		60/410				X							10,6	10,6
	BOBA-SZÉKESFEHÉRVÁR	115	X			X		–						X				X			X				X	60/410				X						X	11	11
	SZÉKESFEHÉRVÁR-BUDAPEST**	63	X			X		X						X				X		X					X	60/410				X						X	7	7
	BUDAPEST-NYÍREGYHÁZA	270	X			X		X								X		X				X			X	60/410				X						X	7,3	7,3
	NYÍREGYHÁZA-TUZSÉR	58	X			X		X								X		X		X					X	60/410				X						X	3,1	3,1
	TUZSÉR-ZÁHONY	8	X			X		–								X		X		X					X	60/410				X						X	3,1	3,1
	BOBA-CELLDÖMÖLK	8		X		X		X						X				X			X				X	60/410				X						X	6,7	6,7
	CELLDÖMÖLK-GYŐR	70		X		X		–						X				X		X					X	60/410										X	8,5	8,5
	GYŐR-BUDAPEST	125		X		X		X								X		X			X				X	60/410				X						X	8	8
	BUDAPEST(FERENCVÁROS)-SOROKSÁR TERMINAL (BILK)	12			X	X										X	X			X				X		70/400				X						X	11,2	11,2
	BUDAPEST (FERENCVÁROS)-SOROKSÁR ÚJT. KIKÖTŐ	4			X	X			X								X			X				X		70/400										X	5	5
	BUDAPEST-MISKOLC	182	X			X		X								X		X			X				X	60/410				X						X	10	10
	MISKOLC-NYÍREGYHÁZA*	68	X			X		zentr.								X		X			X				X	60/410				X						X	3	3

*Between Mezőzombor-Nyíregyháza (45 km) only 1 track

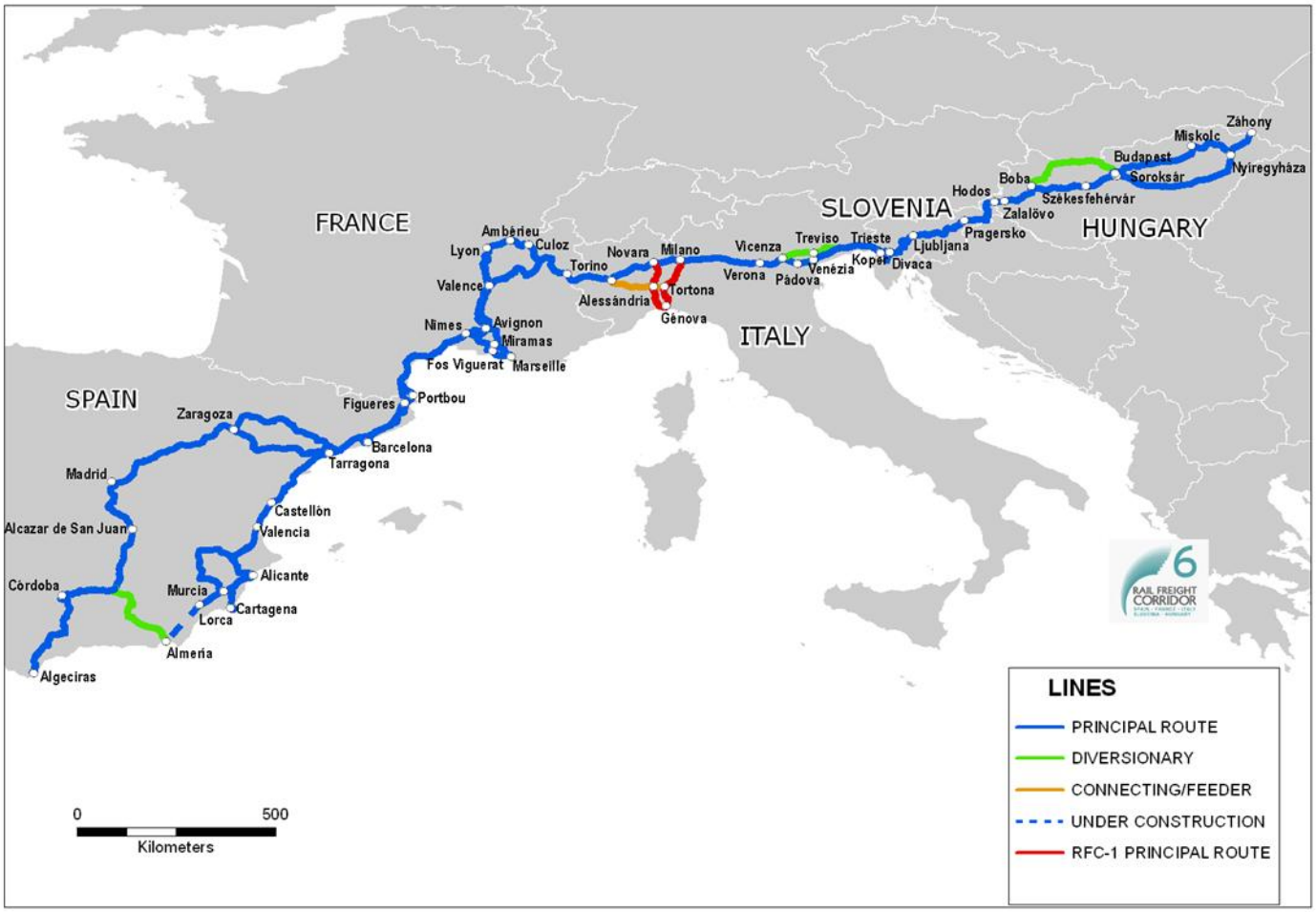
**Székesfehérvár-Budaoestis currentlv under construction, planned for comoletion: 25.08.2013

2.1.2 RFC 6 Terminals

SPAIN	FRANCE	ITALY	SLOVENIA	HUNGARY
Algeciras-Terminal	Aiton	Brescia Terminal Intermodale RFI	Celje tovorna	BILK Kombiterminál Zrt.
Barcelona Can Tunis	Ambérieu	Cervignano Interporto Alpe Adria	Koper harbor	Budapesti Szabadkikötő Logisztikai Zrt.
Barcelona Morrot	Badan	Milano Segrate RFI	Koper tovorna	DELOG Debreceni Logisztikai Központ és Ipari Park Kft.
Castellbisbal	Chasse Sur Rhone	Milano Smistamento FS Logistica	Ljubljanan Moste Kontejnerski terminal	DEPO Logisztikai Központ Kft.
CELSA (Castellbisbal)	Grenoble	Novara Boschetto FS Logistica	Ljubljana-Zalog- marshaling yard	Győr / ÁTI Depo
Córdoba - El Higuerón	Le Boulou (Ambrogio SA)	Novara Terminal CIM		GYSEV Sopron
FORD - FACTORIA, (Silla - Valencia)	Le Teil	Padova Terminal intermodale FS logistica		LOGISZTÁR Kft. / Székesfehérvár
GONVARRI, (Castellbisbal – Barcelona)	Marseille Maritime Arenc	Padova Terminal intermodale Interporto		SZOLNOK Ipari Park és Logisztikai Központ Kft.
GONVAUTO, (Castellbisbal – Barcelona)	Modane	Sito Interporto di Torino		ZÁHONY-PORT Zrt.
Grisen	Narbonne	Torino Orbassano Terminal AFA		
La Llagosta	Perpignan	Torino Orbassano Terminal Intermodale		
Madrid Abroñigal	Port Edouard Herriot	Trieste Campo Marzio - Raccordo autorità portuale		
Martorell	Portes	Venezia Marghera-raccordi portuali		
Murcia Mercancías	PORTES CNR	Verona QE-raccordo ZAI		
Port Bou	Salaise Gie Osiris	Verona QE-terminal Intermodale		
Puerto de ALGECIRAS	SALAISE ITE CNR			
Puerto de ALICANTE	Sibelin			
Puerto de BARCELONA	St Avre la Chambre			
Puerto de CARTAGENA	St Jean de Maurienne			
Puerto de CASTELLÓN	St Rambert d'Albon			
Puerto de TARRAGONA	Valence - Plateforme militaire des Combeaux			
Puerto de VALENCIA	Vénissieux Naviland-Cargo			
Puerto Seco Azuqueca de Henares, (Azuqueca de Henares – Guadalajara)	Vénissieux Novatrans			
Puerto Seco Coslada, (Coslada – Madrid)	VIIA - Bourgneuf Aiton			
REPSOL (Constanti)	VIIA - Le Boulou			
Sagunto				
San Roque - La Línea				
Silla				
SOLVAY (Martorell)				
Tarragona Mercancias				
Terminal Intermodal de Monzón, (Monzón de Rio Cinca – Huesca)				
Terminal Marítima Zaragoza S.L., (Corbera Alta – Zaragoza)				
Valencia Fuente San Luis				
Vicalvaro Mercancías				
Vilamalla				
Zaragoza Plaza				

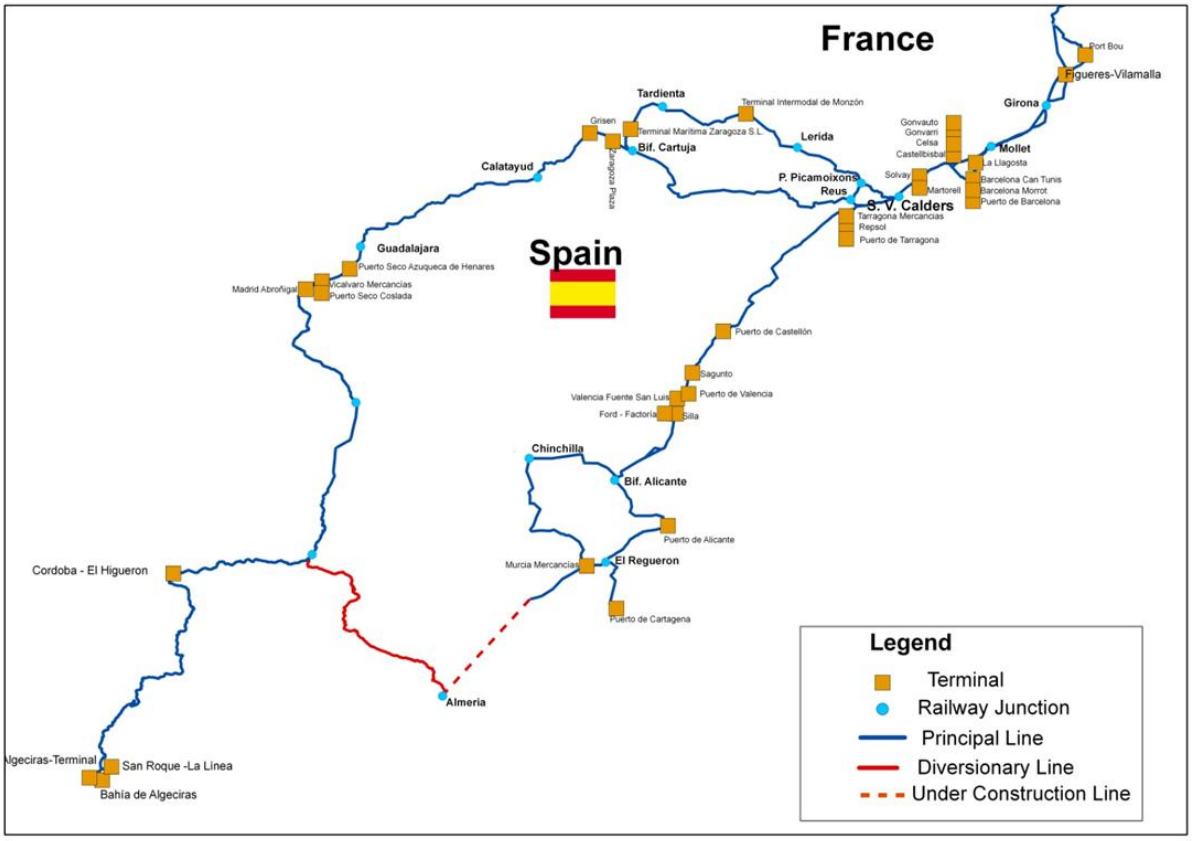
2.1.3 Maps of the Corridor

2.1.3.1 Corridor Lines

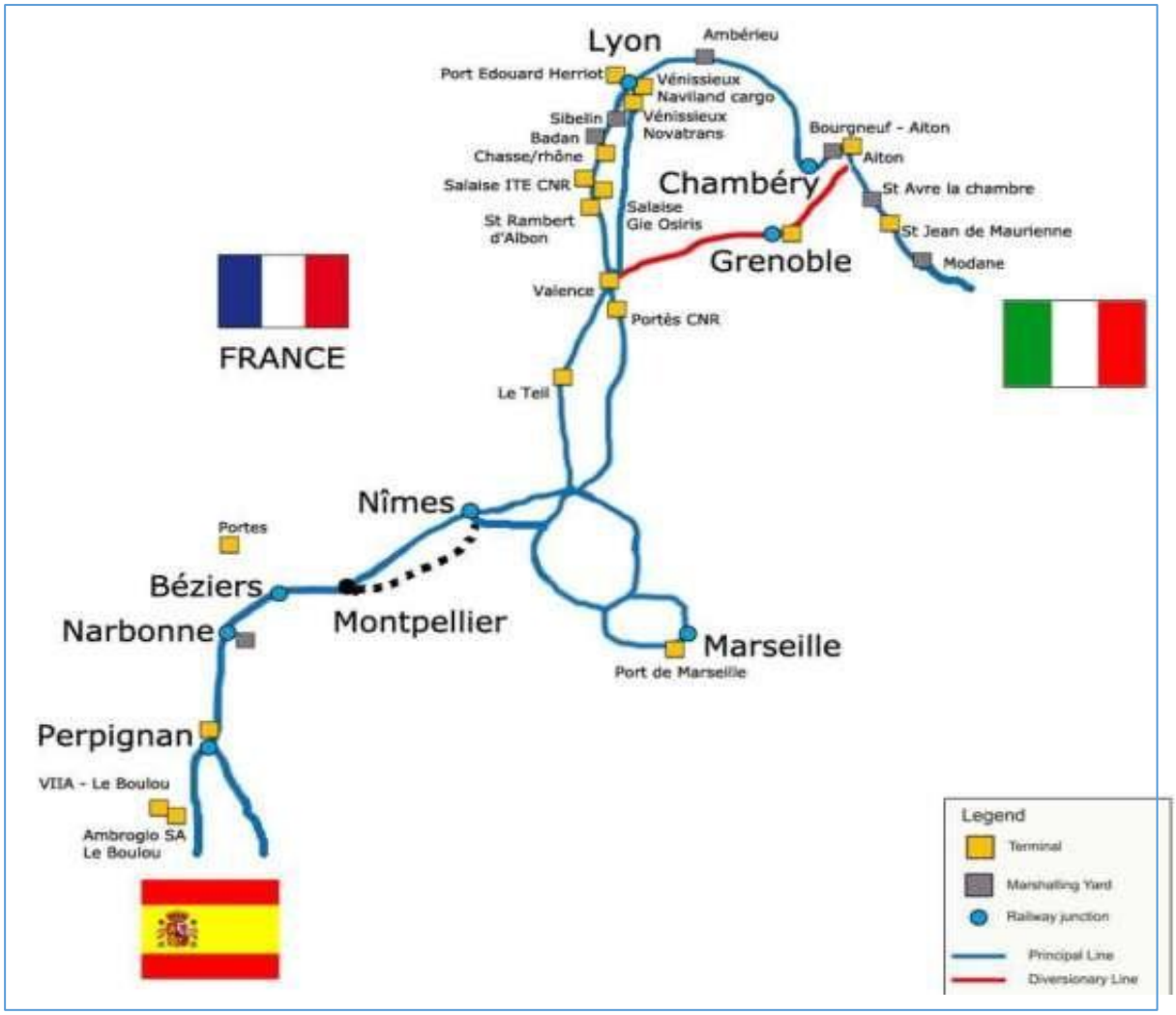


RFC 6 Terminals

2.1.3.1.1 Spain



2.1.3.1.2 France



2.1.3.1.3 Italy


Slovenia
Italy
France
Border
Modane
Torino
Alessandria
Tortona
Novara
Milano
Novara CIM
Novara Boschetto FSL
Milano Segrate RFI
Milano Smistamento FSL
Brescia RFI
Verona
Verona QE
Verona QE - ZAI
Vicenza
Padova
Padova Interporto
Padova FSL
Castelfranco V.
Treviso
Portogruaro
Venezia
Marghera
Cervignano Alpe Adria
Trieste
Trieste C.M.
Bivio Aurisina
Villa Opicina
Torino Orbassano AFA FSL
Torino Orbassano
Interporto di Torino
Legend
Terminal
Railway junction
Principal Line
Diversionary Line
Connecting Line
RFC1 Principal Line

2.1.3.1.4 Slovenia

2.1.3.1.5 Hungary

There is a special terminal just on the border between Hungary and Ukraine, the meeting point of the normal and the broad gauge systems. This is Zahony – the gate in the east-west rail transport.

The Hungarian-Ukrainian border station Zahony, which is located at the junction of the standard and broad gauge railway lines, is the end station of RFC6.

Zahony is, however, supposed to be an end station only at the rail freight corridor to be established based on Regulation (EU) No. 913/2010, it can also serve as a starting point of the east-west rail freight services.

The new Eastern rail freight corridor to be established by inter-governmental negotiations can be the expansion of RFC6, and will connect Europe through Zahony with Khorgas, China's prominently developed, industrial and logistics centre, with Ukrainian, Kasah and Russian connections.

On the following pages, we would like to give an insight into what services and complex logistics solutions provided by MÁV Co. and the Zahony Transhipping Area can facilitate the business of railway operators arriving through RFC6 in order to make a better use of rail transport opportunities to the East. Moreover, there is an initiative by the European

Commission Eastern Partnership extending the TEN-T network into some neighbouring countries. In this case Zahony will have a strong bridge-ahead position and so will play an important role for the benefit of Rail Freight Corridor 6.

The activities of MÁV Co. infrastructure manager in the Zahony area

MÁV Co. is subject to fulfil tasks regarding rail transport at the Hungarian-Ukrainian border crossing, to provide a non-discriminatory access to equipment promoting interoperability between the different gauge systems and to operate these pieces of equipment.

Railway undertakings obtaining an operation license for railway freight forwarding, a safety certificate and a valid network access contract with MÁV Co. are able to run freight trains, all the way to Zahony, and also to Chop border station in Ukraine.
Charges for these services for the timetable year 2013/2014 are as follows:

Services	HUF	EUR
Ensuring staff for shunting (HUF/person/hour)	4.049	13,5
Ensuring traction unit for shunting (HUF/loco/hour)	22.029	73,4
Ensuring staff of IM to weighing (HUF/vehicle)	7.291	24,3
Ensuring access to wagon weighbridges (HUF/wagon)	2.340	7,8
Exchange of axles (HUF/vehicle)	102.960	343,2
Use of bogies (HUF/hour/bogie)	76	0,25
Staff for train acceptance (HUF/person/hour)	3.773	12,6

Calculation is based on the following exchange rate: 1EUR = 300 HUF

Railway undertakings having a valid network access contract with MÁV Co. are supposed to conclude a separate agreement (PGV) in order to request other services provided by MÁV Co. listed below:

- ✓ Technical transferring of freight wagons in border-crossing transport within the framework of PGV;
- ✓ Transferring of goods in border-crossing transport within the framework of PGV;
- ✓ Other services connected to traction in border-crossing transport within the framework of PGV;

With your enquiries regarding PGV and network access contracting please contact:

MÁV Co. Customer Relations and Sales

Address: H-1087 Budapest, Könyves Kálmán krt. 54-60.
Phone: +36 1 511 4595
E-mail: ertekesites.palyavasut@mav.hu
Website: www.mav.hu/szolgaltatasok/palyakapacitas.php

International border traffic services

In Chop goods from standard gauge wagons of railway undertakings can only be transhipped for forwarding if the railway undertaking concerned has a valid commercial contract with Ukrainian Railways (UZ).

If the railway undertaking concerned does not have a commercial contract with UZ, or it intends to transport goods in broad gauge wagons, it is entitled to request the international border traffic services of MÁV Group of Companies within the framework of two separate contracts (PGV with MÁV Co. and contract for transhipment with ZÁHONY-PORT Co.). These services are only provided in the Zahony Transhipping Area.

Charges for transhipment carried out by ZÁHONY-PORT Co. under the transhipment contract may differentiate depending on the characteristics of the goods, the way of packaging, the necessary transhipping technology, as well as the amount and cadence of goods.

With your enquiries regarding transhipment contracting please contact:

ZÁHONY-PORT Co.

Address: H-4625 Zahony, Európa tér 12.
Phone: +36 1 513 3010
E-mail: info@zahony-port.hu
Website: www.zahony-port.hu

MÁV Co. is a member of both SMGS and PGV, which entitles the company group to use broad gauge wagons.

In 2010, the Russian Ministry of Transport authorized the use of the CIM/SMGS consignment note over the whole rail infrastructure of the Russian Federation. UZ is intending to apply the common CIM/SMGS consignment note to these multimodal traffics without restriction so that reconsignment and the creation of a new consignment note are both eliminated. The CIM/SMGS consignment note is also reconsigned as a customs transit document by the Ukrainian customs authorities. The common CIM/SMGS consignment note will thus reduce costs and improve transit times.

Zahony Transhipping Area

The Transhipping Area of Zahony is one of Europe's largest mainland harbours. As a junction of standard gauge (1435 mm) and broad gauge (1520 mm) railway lines Zahony is an important railway station between the East and the West.

The Transhipping Area of Zahony covers a territory of 84 km^2 and consists of Zahony and 10 other settlements. Its standard gauge railway lines are 260 km, while its broad gauge railway lines amount to 140 km. It has a capacity of 140 000 m^2 outdoor and 7500 m^2 indoor bonded warehouses for the warehousing, storing and forwarding of goods to the destination station flowing from non-EU countries on customers" demand. The technology available makes it possible to warehouse, store and process half-made products, raw materials during transhipment. The axle load is 250 kN on broad gauge and 225 kN on standard gauge. The annual transhipment capacity of Zahony area is 18 million tons.

The transhipping area is fully covered with wire and mobile telecommunications infrastructure, in addition, a modern inner telephone system has been established between the transhipping stations. Broadband optical backbone runs above all along the railway lines. Furthermore, fast flow of information is provided with wired or radio network services from the centre of Zahony via the internet towards any part of the world.

Reconstruction of the old main road No. 4 in the Zahony Transhipping Area; an overpass over the railway line No. 100 in order to avoid level crossings; extension of motorway M3 to Zahony area; plans for water routes are to be drawn up for the river Tisza and for rapid railway services; the nearest airport access is within 120 km – all of these factors promote the area to become an intermodal centre.

Most important premises:

- ✓ Zahony 500 Loading Area (exchange of axles, customs warehouse);
- ✓ Zahony Chemical Transhipment Terminal;
- ✓ Eperjeske Marshalling Yard;
- ✓ Eperjeske Transhipment Facility;
- ✓ Komoró Oil Terminal;
- ✓ Komoró Customs Warehouse;
- ✓ Fényeslitke;

Unique Selling Points of Zahony

Zahony area has some unique technical potential, which can only be found here in the surroundings, providing excellent opportunities to our partners.

Eperjeske Transhipment Facility – Slide: bulk goods from open hopper wagons and special open high-sided wagons are unloaded in a fast way by gravity. Spillage is helped by vibrating, spooned and broomed hydraulic-arm-equipment.
120 tons lifting capacity: the technology available makes it possible to move 120-ton goods with one lift.

Chemical transhipment terminal: closed transhipping systems ensure that goods are handled in a safe way and without being lost or intermingled, and that consignment from tank wagons is transhipped in an environmentally friendly way.

ZÁHONY-PORT Co.

ZÁHONY-PORT Co. has an experience of several decades in logistics services. Its main scope of activity is the transhipment of goods from broad gauge wagons arriving from the CIS countries crossing the border stations Chop (Zahony) and Batevo (Eperjeske) to standard gauge wagons. The company, which is 100% MÁV property, has the largest transhipping capacity in the area.

Transhipment and loading services:

- ✓ Transhipment of mass goods;
- ✓ Transhipment of bulk goods;
- ✓ Mechanical moving of goods by cranes;
- ✓ Transhipment of tanked goods;
- ✓ Small-machine loading and unloading;
- ✓ Transhipment of logs and timber;

Other important services:

- ✓ Storing;
- ✓ Warehousing;
- ✓ Customs warehousing;
- ✓ Vehicular moving of broad gauge wagons;
- ✓ Customs agency activities;

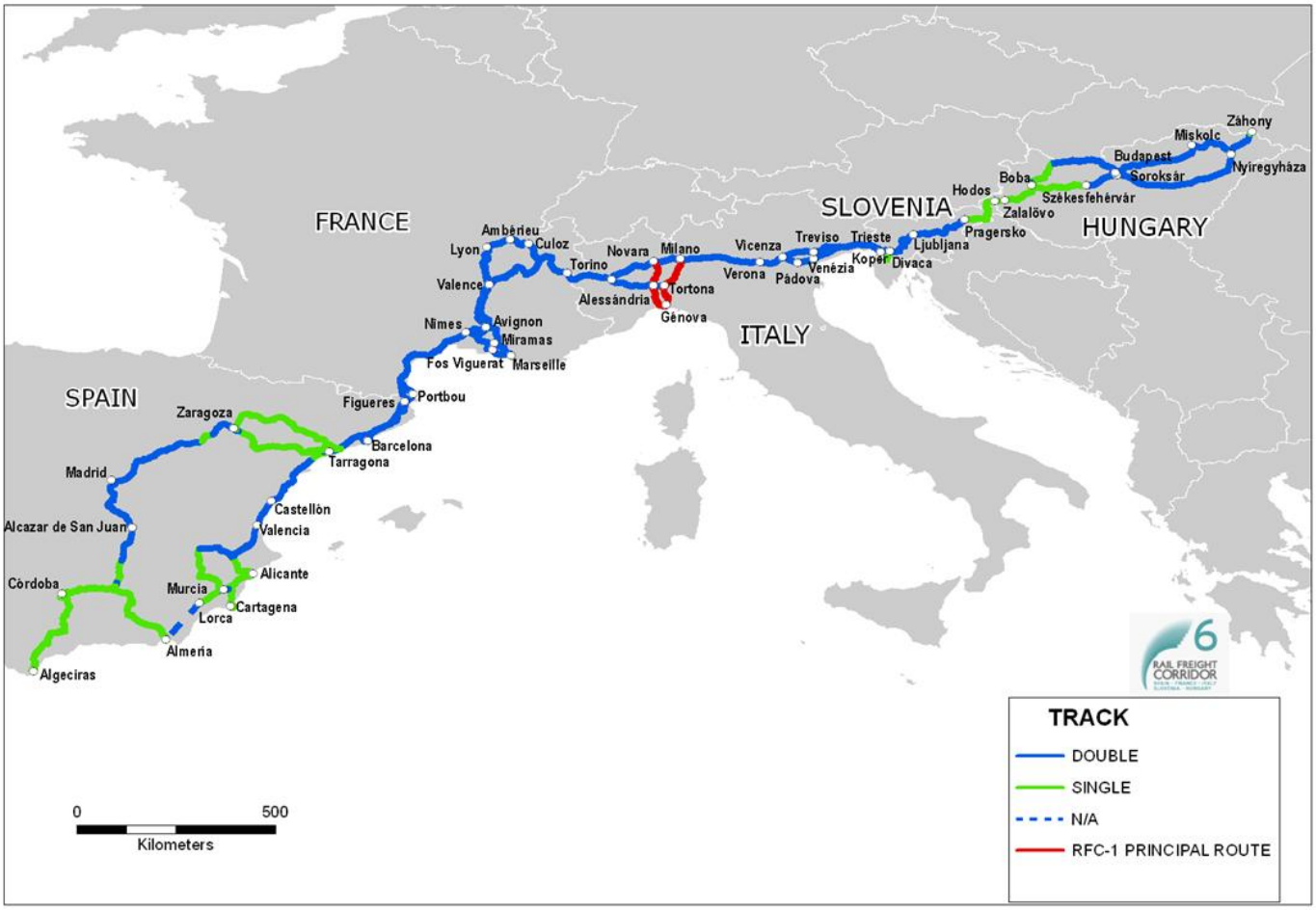
Due to the ongoing development projects, ZÁHONY-PORT Co. had a capacity of transhipping 16 million tons of goods, forwarding 1.5 million wagons, 16 gantry cranes on 4-comb-system crane runway, mobile loaders and 20 tank wagons in 2012. Its containerization capacity is 1300 TEU, which provides services non-stop both for railway and road transport.

Capacity of ZÁHONY-PORT Co.'s premises

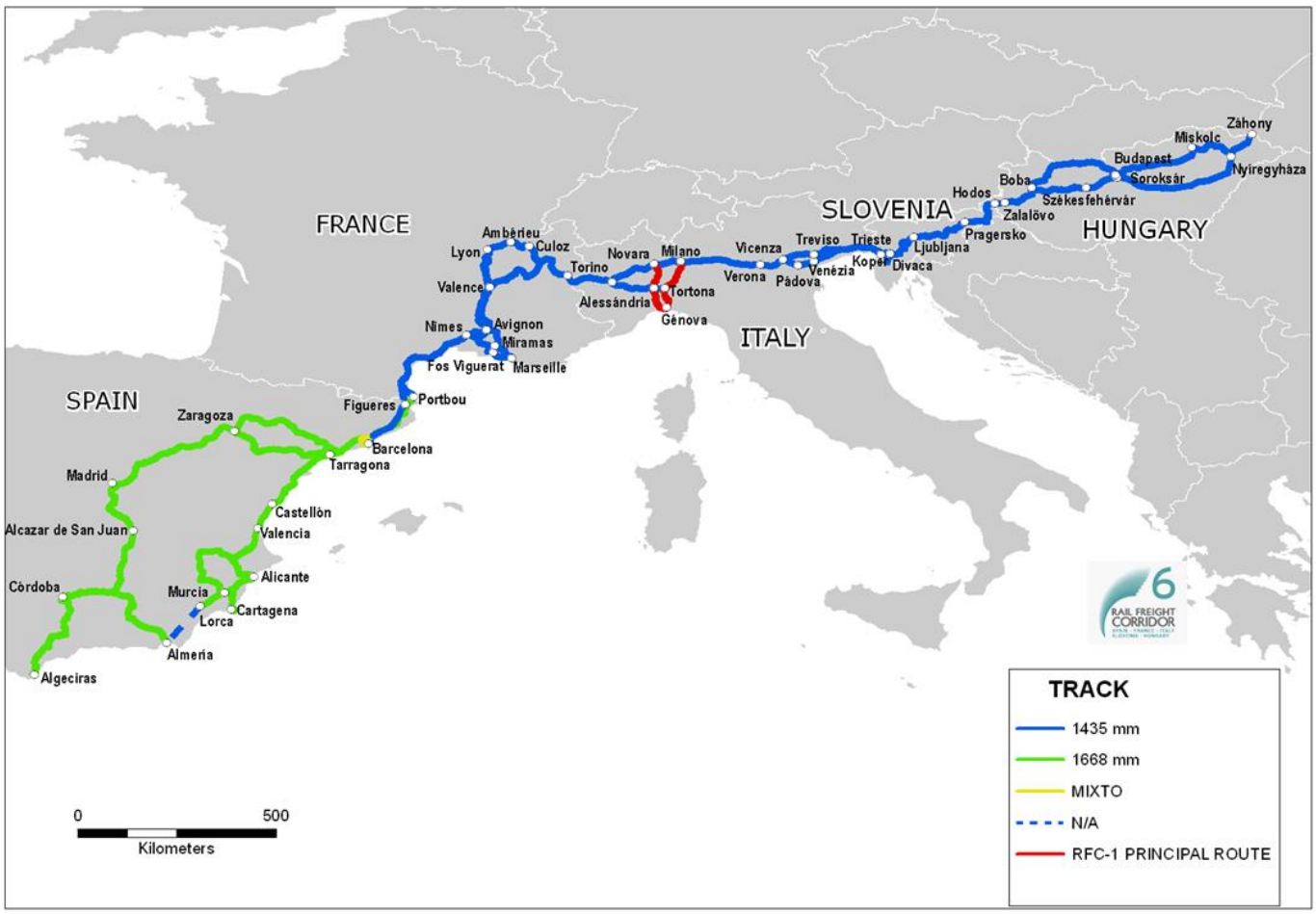
Zahony Chemical Transhipment Terminal	7 200 tons/day
Zahony 500 Loading Area	2 900 tons/day
Eperjeske Transhipment Facility	
Bulk goods in open wagons	18 000 tons/day
Bulk goods in closed wagons	1 800 tons/day
Crane (un)loading	7 000 tons/day 500 TEU/day
Komoró Oil Terminal	7 200 tons/day

2.1.3.2 Characteristics of the corridor

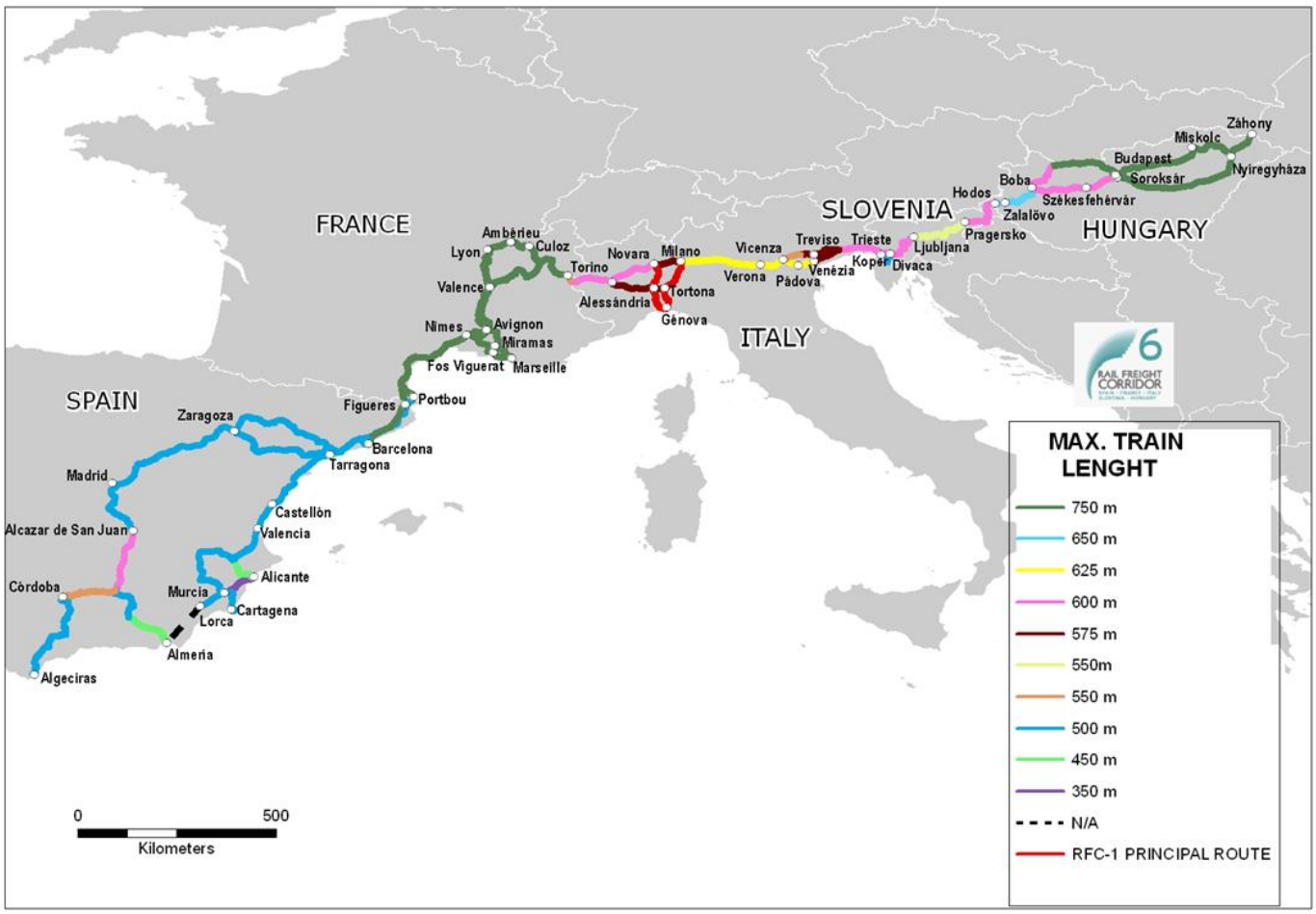
2.1.3.2.1 Double track



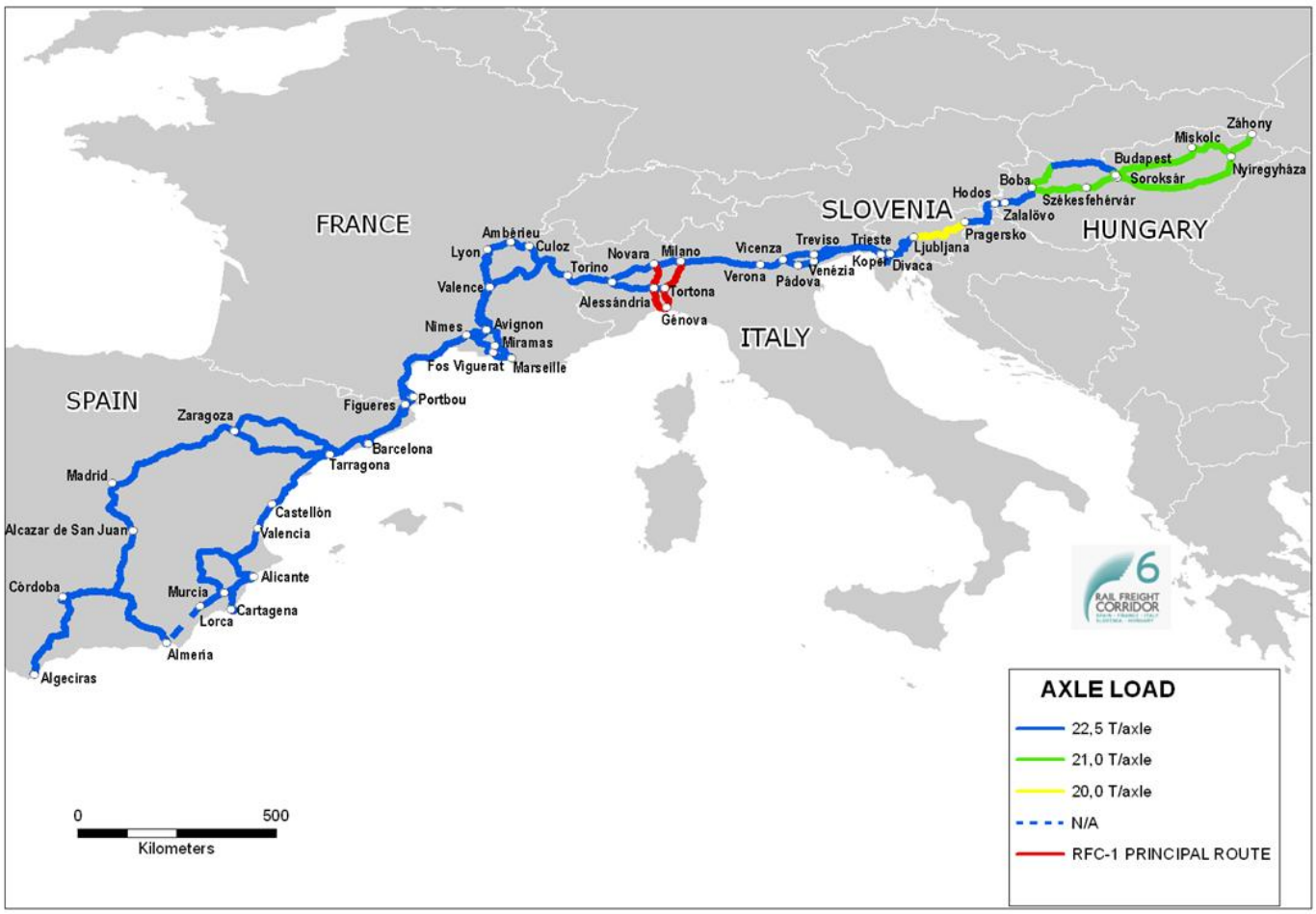
2.1.3.2.2 Track Gauge corridor



2.1.3.2.3 Maximum Train length along the RFC

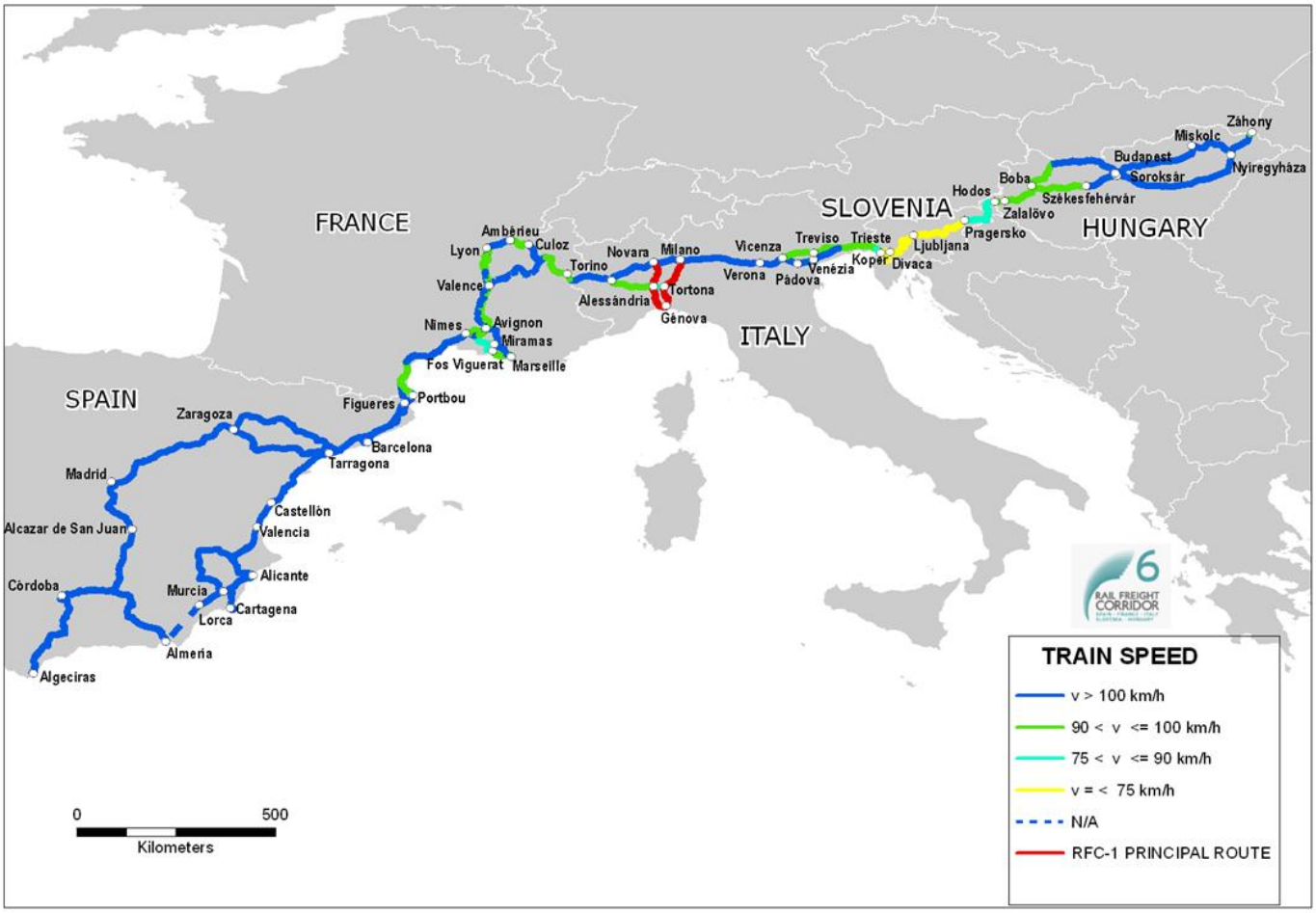


2.1.3.2.4 Axle load

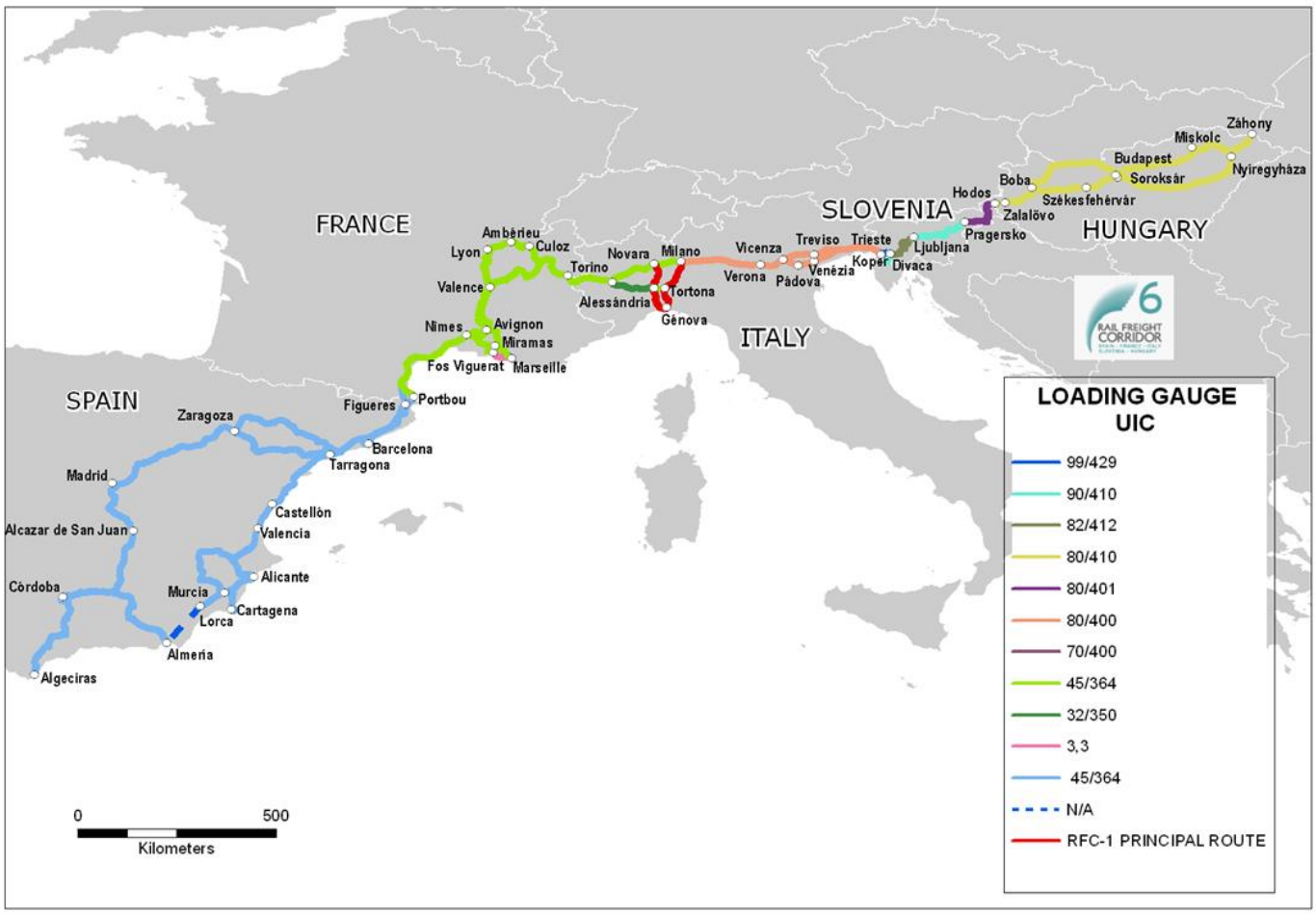


Short term operational measures are provided by IMs of Hungary and Slovenia, prior to the necessary investments and upgrades of the infrastructure, in order reach the same axle load level of all the countries along the corridor (22.5 tons). These measures are listed in the CID Book2.

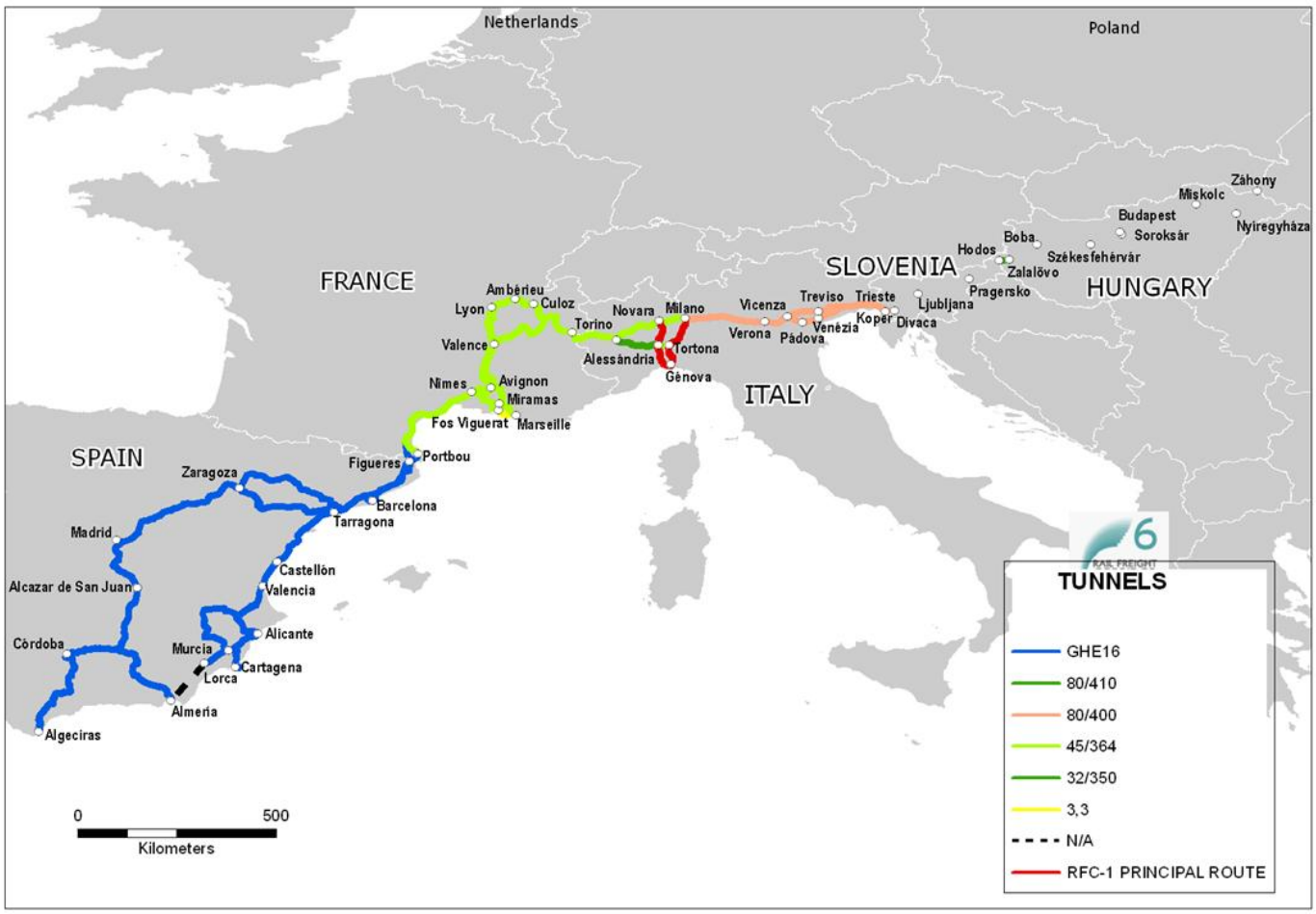
2.1.3.2.5 Train speed



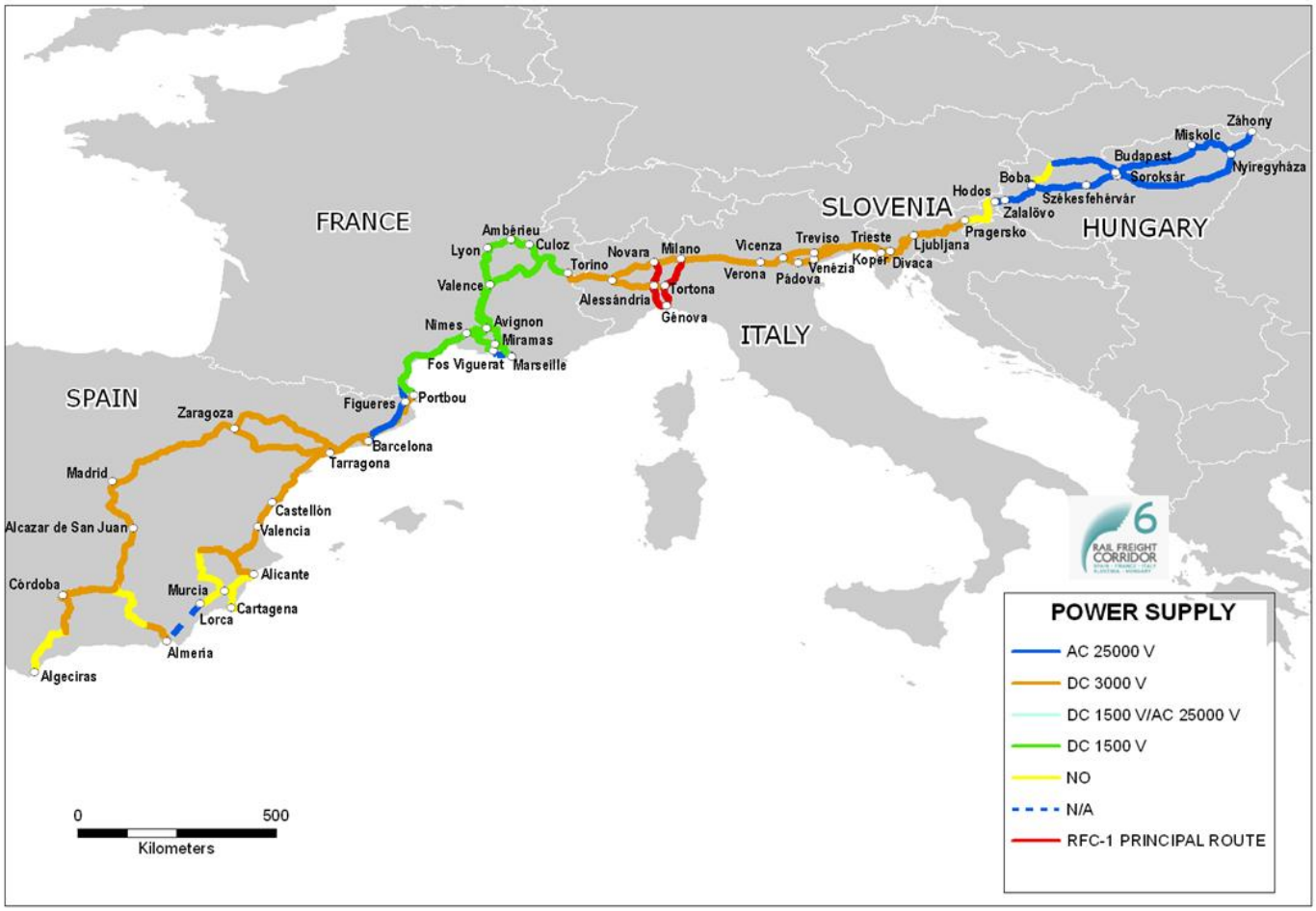
2.1.3.2.6 Loading gauge



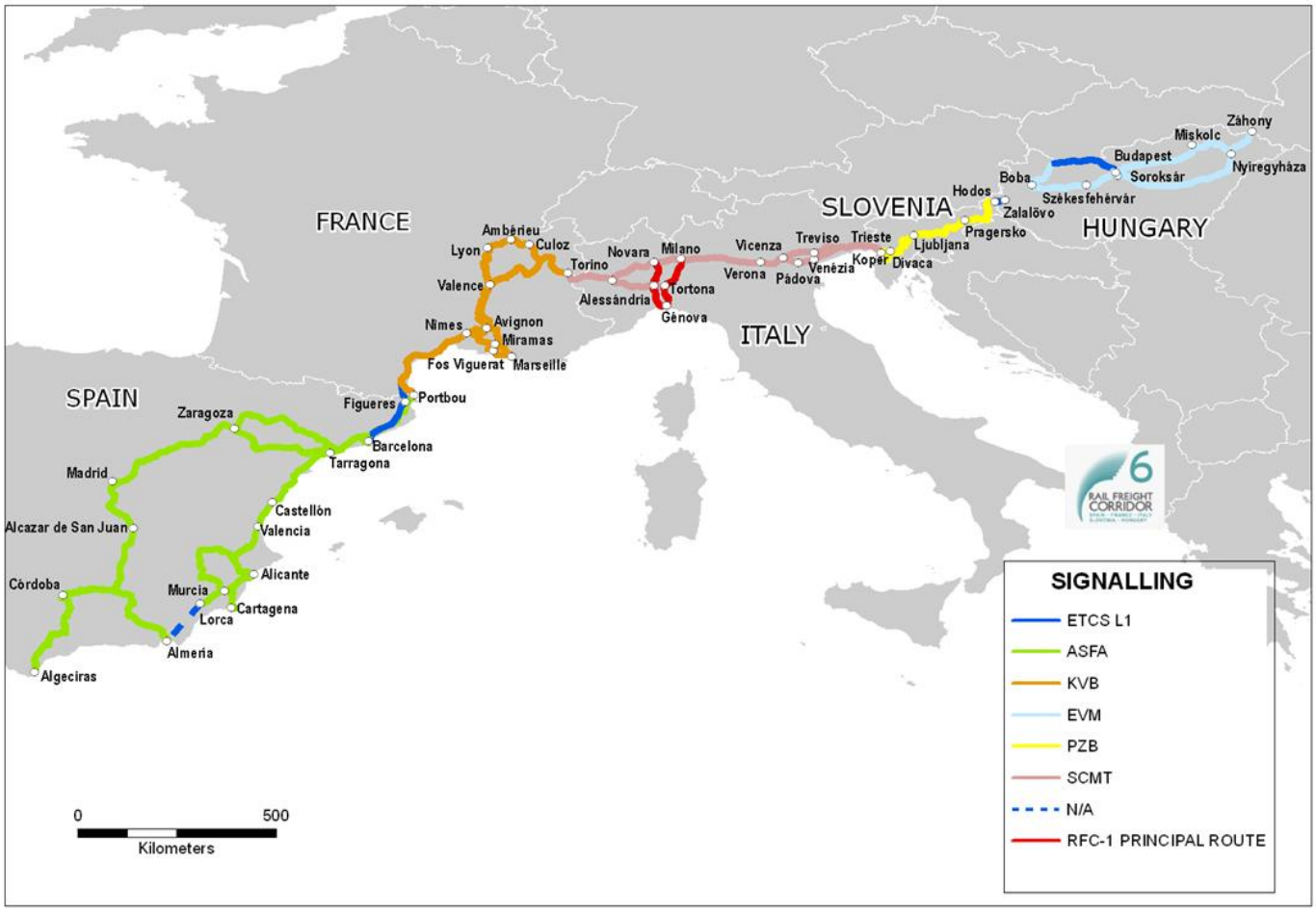
2.1.3.2.7 Loading Gauge Tunnels



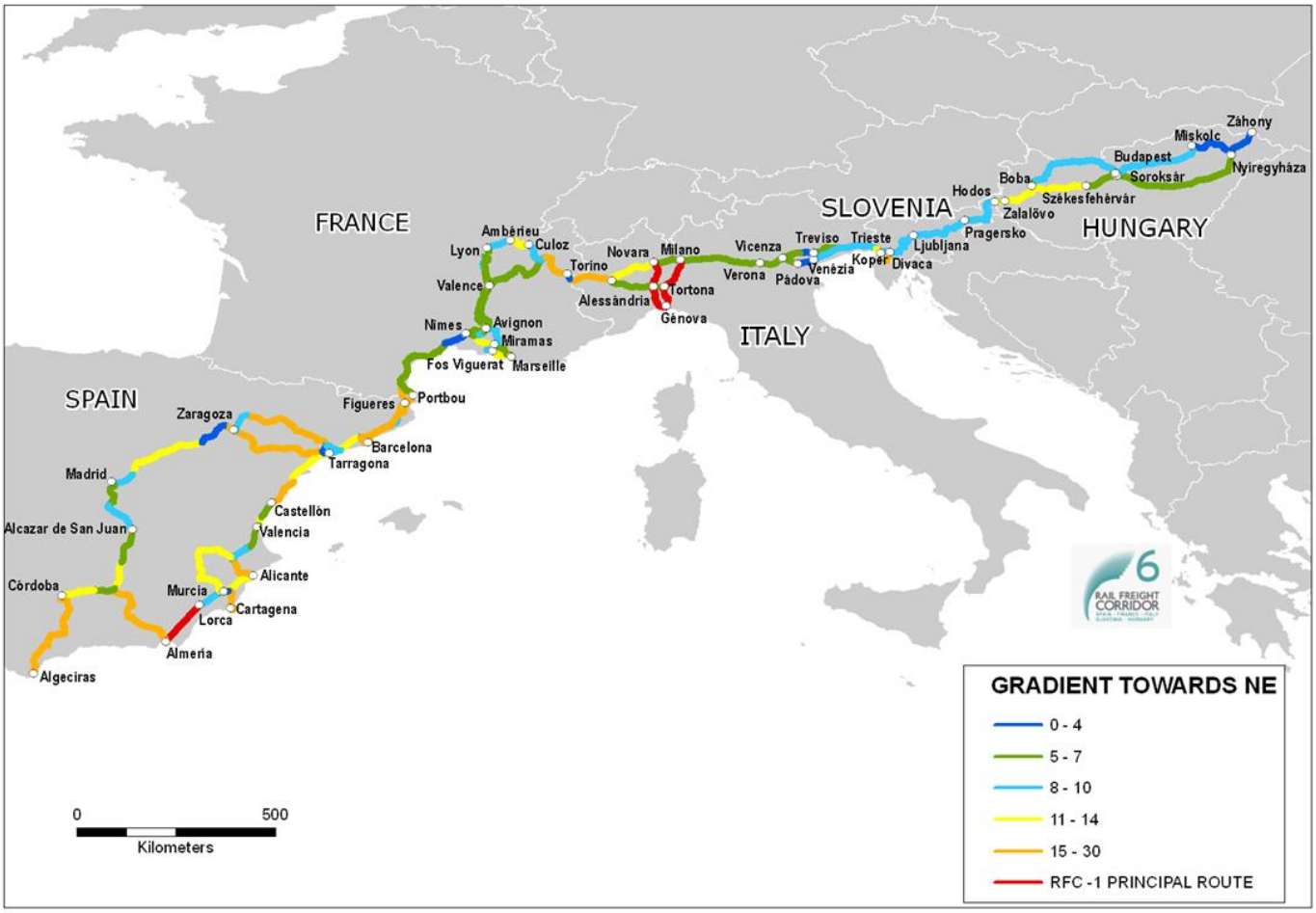
2.1.3.2.8 Power supply



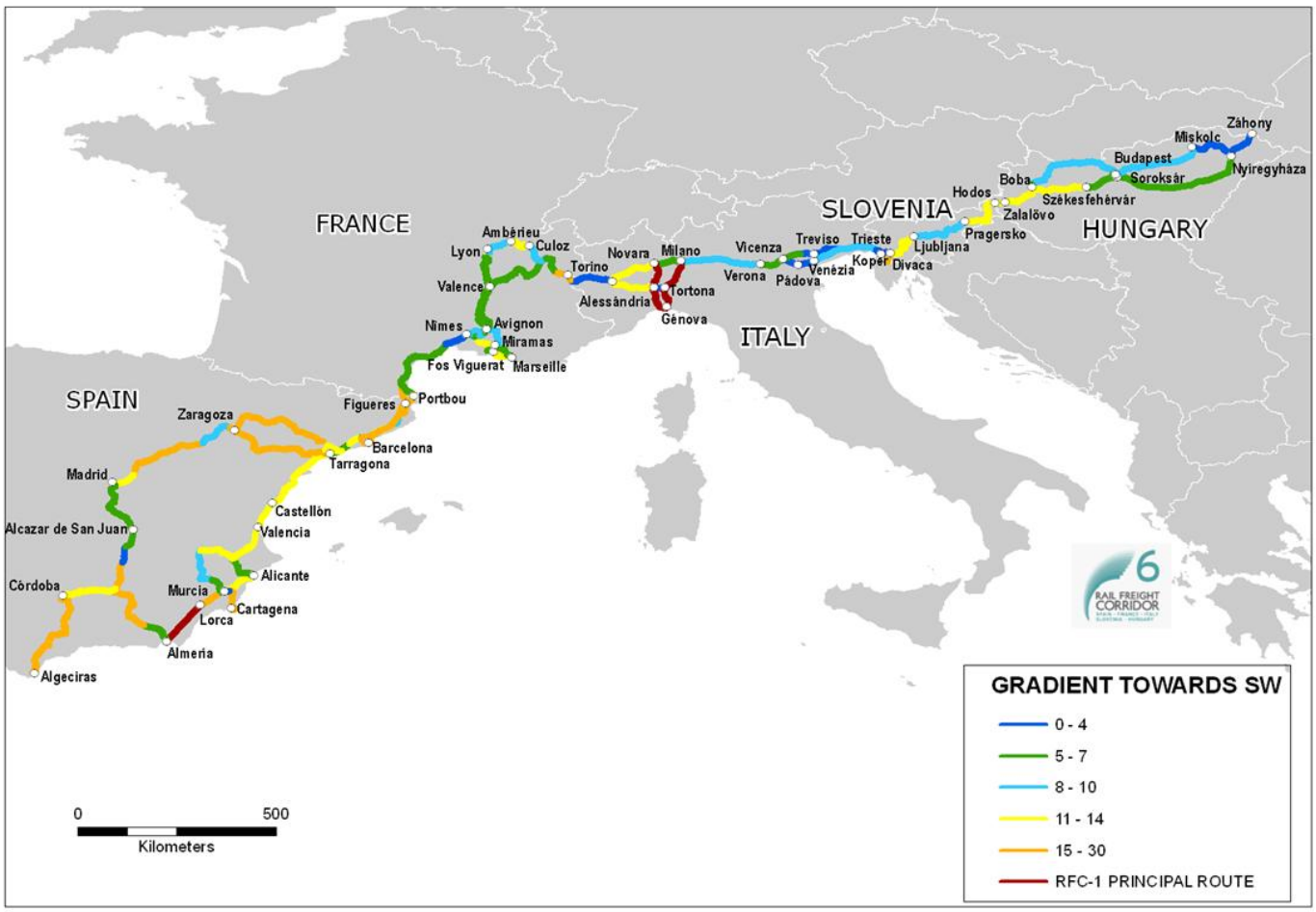
2.1.3.2.9 Signalling System



2.1.3.2.10 Line Gradient N-E



2.1.3.2.11 Line Gradient S-W



2.2 Potential Bottlenecks

This Implementation Plan provides a description of the main infrastructural and capacity bottlenecks identified along the corridor, integrating information given by Infrastructure Managers, from a national approach.

The Management Board is still working on a common view in the task of identifying and defining bottlenecks along the Corridor, based also on the findings of the Transport Market Study.

This analysis can help Member States, Infrastructure Managers and other stakeholders to prioritize key infrastructural and capacity projects, which possibly constitute bottleneck removal actions. Development and implementation of these projects are critical to increase rail services and improve performance of rail freight.

Improving the performance of the bottleneck is a key to improve the performance of the entire system. In the case of bottleneck eliminations there are the details available in the Chapter 5 on Investment Plans, in the section of 5.1.1.1 Benefits of the projects defined country by country.

2.2.1 Spain

2.2.1.1 Track gauge

The lack of standard gauge in most of the Spanish sections of Rail Freight Corridor 6, prevents from dispatching international direct rail freight trains, and forces to car load changing manoeuvres, which penalizes rail transportation competitiveness.

2.2.1.2 Maximum train length

Existing limitations to train length, do not allow in most of the Corridor, the operation of freight trains with the maximum interoperable length 750 m, which penalizes rail transportation competitiveness.

2.2.1.3 Lack of capacity in lines

Congestion scenarios in the following sections have been identified:

Vandellós-Tarragona: Strong limitations to capacity due to the existing single track. This penalizes freight rail transportation, limiting its potential development, increasing travel times due to delays scheduled to allow train crossings, and reducing on-time performance.

Martorell- Castelbisbal: Double track corridor with heavy commuter train traffic. This fact penalizes freight trains, limiting its potential development because the few available windows cannot host competitive paths.

2.2.1.4 Access to Ports and Terminals

Critical investment has been made in Spain in order to provide standard gauge access to some logistics and freight rail facilities along the Corridor. Anyhow, capacity and performance of these links has shown insufficient in order to absorb significant traffic growths, as those expected in the Corridor.

This is the case of the **Access to the Port of Barcelona**, where investment is necessary to facilitate manoeuvres, shorten travel times and increase available paths.

Abroñigal Logistic Terminal is the heart of Madrid´s intermodal traffic, but lacks of capacity in its facilities to absorb the traffic demand. It also presents some restrictions due to limited usable track lengths, reducing rail potential competitiveness in the transport market.

2.2.2 France

2.2.2.1 New line Montpellier-Perpignan

This new line will be the chain to join the Spanish high speed section Barcelona-Figueras and its link with Perpignan with the new bypass project in Nîmes and Montpellier and the lines to Lyon. Studies are foreseen for a mixed use of the line freight/passengers, which will allow avoiding the saturation of the current axe, and holding the increase of trucks traffic in the French motorway A9. It will also allow capacity and speed increases in the rail corridor.

2.2.2.2 Nîmes and Montpellier bypass

The Nîmes/Montpellier bypass is a new section of line between Manduel, to the East of Nîmes, and Lattes, to the West of Montpellier.
Designed for a mixture of high-speed passenger and freight traffic, this mixed line is an extension to the Mediterranean high-speed line opened to service in June 2001. Routed away from the Nîmes and Montpellier urban areas, the new line will double up with the existing Tarascon – Sète line, where traffic has reached levels that preclude all further growth.

The two main objectives are to improve the traffic flow and to expand the high speed network. The Nîmes/Montpellier bypass will be financed through a public-private partnership.

Some of the benefits once the bottleneck is removed are:

- ✓ Speed increase, to a maximum freight speed of 100-120 km/h;
- ✓ Gradient improvement: maximum gradient 1%;
- ✓ 4,80 m loading gauge;
- ✓ Upgrading to 25 Tm axle load;
- ✓ 25 kV electrification;
- ✓ Signalling: implementation of ERTMS;
- ✓ Modal shift, 10 million tons expected to be transferred from road to rail;

2.2.2.3 Relieving Lyon bottlenecks

The railway node of Lyon, one of the most complexes in Europe, suffers from a lack of performance due to old equipments and exploitation modes, a strong traffic mix, and a currently insufficient capacity.

In order to avoid its saturation, and to improve its organization, different projects are being planned to increase capacity and reorganize the traffic, complementing investments in network renewal:

- ✓ capacity studies;
- ✓ increase of the quay capacity in Station de Lyon – Part Dieu;
- ✓ modernization of the signalization in the surroundings of Lyon – Part Dieu;
- ✓ development of the right bank axe;
- ✓ realization of links in Givors;

This project will increase the capacity of the lines and reduce travel times.

As a consequence of the growth of the traffic of passenger trains during recent years, the railroad network of Lyon is in process of saturation in rush hours. The project of bypassing the Lyon conglomeration (CFAL) has to lead to the creation of a new line which will allow the freight trains to avoid transiting Lyon and the station of Part-Dieu.

Some of the benefits once the bottleneck is removed are:

- ✓ Speed increase, to a maximum freight speed of 100-120 km/h;
- ✓ Reduction of travel time, due to the fact that there will be no need to transit through Lyon and Part-Dieu station;
- ✓ Increase of capacity derived from the construction of the new line;

2.2.2.4 New line Lyon – St. Jean de Maurienne

This project is an answer to the States wish for a better balance between modes of transport and to create alternatives to road traffic, given the natural environment which is particularly sensitive in this region. The new infrastructure will also make it possible to add value to manufacturing regions of southern Europe by connecting them to the major North Sea ports. The aims of the Lyon-Turin railway link are to balance out rail and road traffic for transporting freight across Europe, consolidate the competitive status of the countries of southern Europe, and improving passenger transport, at regional, national and international level. The line will be divided into two sections, one with mixed passengers/freight traffic and another with separated lines for each service.

This project will bring general benefits such as:

- ✓ Speed increase, to a maximum freight speed of 100-120 km/h;
- ✓ Reduction of travel time;
- ✓ Increase of capacity;
- ✓ Improvement of traffic reliability;
- ✓ Upgrading of maximum weights;

2.2.2.5 Development of the access tracks to the Marseille Harbor

The rail accesses to the port facilities of Fos and Marseille are penalized by the inadequacy of the infrastructures to the freight exploitation modes in the conditioning of the containers and in the volumes to be handled. On Fos the works concern the automation of the signalization and the creation of a supplementary crossing zone; on Marseille the program includes three independent functional phases, including the reopening of the Mourepiane link, and the update to the high and low gauges in the link Avignon-Mourepiane. This project will increase 60% the tonnage capacity at all Marseille Port facilities.

2.2.2.6 Modernization of the Southern Alpine Valley

The regeneration of the railways through the southern Alpine Valley, the branch that links Valence, Grenoble and Chambéry, is a response to the congested transport infrastructures currently affecting this sector and the growing population.

The first stage of the work affects the Moirans-Romans section. It involves the building of a railway interchange in Moirans (a flyover), the laying of a second track between Saint-Marcellin and Moirans, and the modernization and partial doubling-up of the line between Romans and Saint-Marcellin.

Further work, which will make up stage 2 of the project, will connect the Valence TGV, involving electrification between Gières and Montmélian, and between Valence and Moirans. The electrification and modernization of the line will allow considering the path from Valence to Montmélian as part of the corridor, skipping the bottleneck of Lyon and reducing journey times.

2.2.3 Italy

2.2.3.1 Quadrupling of Treviglio-Brescia line

The existing double track line Treviglio – Brescia is facing a capacity shortage, in particular along the section Rovato – Brescia. A part from already ongoing initiatives to increase the capacity on the existing infrastructure, the actual situation is creating serious barriers to the development of the passenger and freight traffic.

A real step change in terms of capacity can only be achieved with the construction of a new line having full interoperability characteristics.

The quadrupling of the Treviglio-Brescia line is part, as first functional phase, of the new High Speed line Milano-Verona.

The expected benefits are related to the capacity increase and to the reduction of long distance trains travelling times between Milano and Brescia.

The new line will have the following technical characteristics:

- ✓ Maximum speed 300 km/h;
- ✓ Maximum gradient 15 0/00;
- ✓ 25 kV 50 Hz electrification;
- ✓ Signalling: ERTMS level 2;

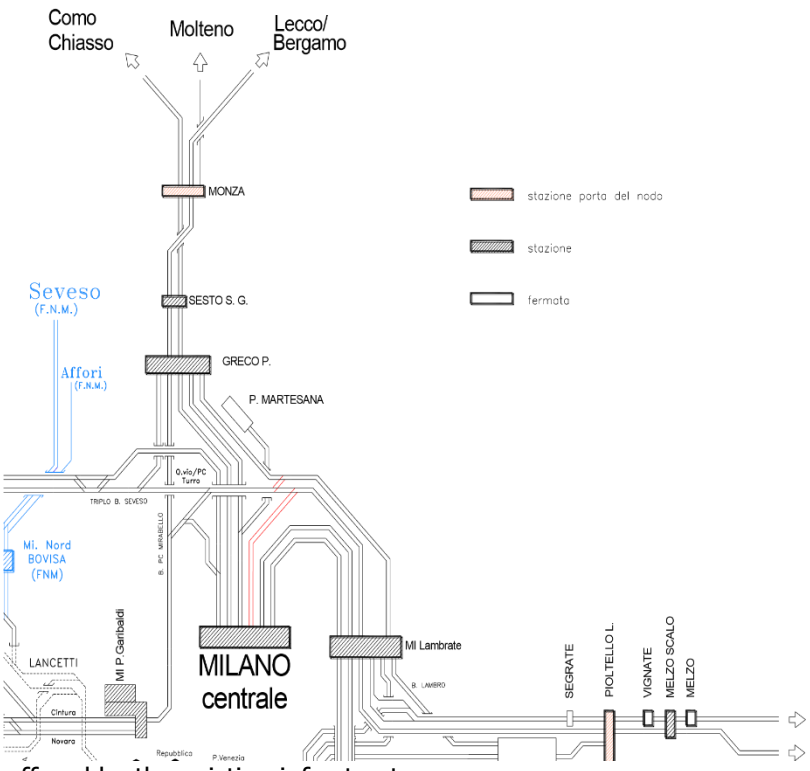
The Brescia railway station will be upgraded in order to have a separation between Regional and Long distance traffic allowing in this way an organization of traffic flows more rational for the benefit of the overall system capacity. The temporal development of this project goes beyond 2015.

2.2.3.2 Development of Milano Node

The node of Milan is characterized by a high promiscuity of rail traffic due to overlapping of metropolitan, regional, long distance and freight traffic.

Such a state of promiscuity, combined with a high volume of traffic, actually prevents the increase of regional traffic of the Milan area and undermines the freight transport development.

Within the framework of the Torino – Padua project , many actions are provided related to the node of Milan, which actually consist of a new traffic management control centre and, between Milano Greco and Monza , a new interlocking system equipped with shorter sections. These interventions will allow a rationalization of traffic management and an

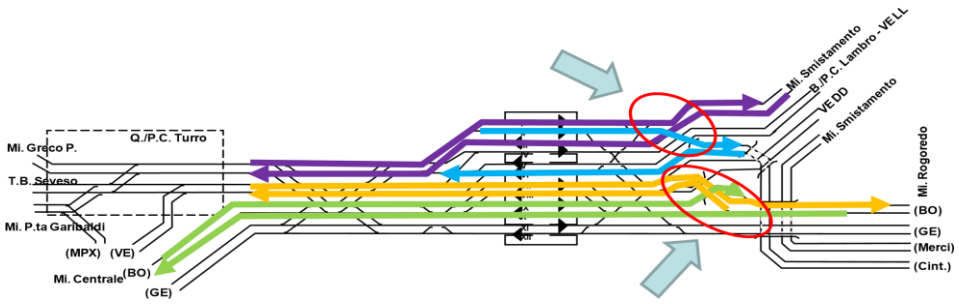


increase in the capacity offered by the existing infrastructure.

2.2.3.3 Milano Lambrate node upgrading

One of the initiatives that are considered to be a priority to strengthen the capacity of Milano Lambrate node regards the specialization of lines by traffic type. A new project has been drafted to separate passenger from freight traffic by limiting as much as possible interference.

Elimination of interferences



With the increase of rail traffic witnessed in recent times along the main lines, stations of old conception as Milano Lambrate have become bottlenecks either for passenger or freight traffic.

2.2.4 Slovenia

2.2.4.1 Lack of capacity in lines:

The rising volume of traffic, with simultaneously increasing demands in terms of quality and quantity, requires a unique, harmonized and generally-valid understanding to be developed as regards available railway-infrastructure capacity.

According to UIC Leaflet 406 single-track is considered as 100% utilized if the percentage of capacity utilization approaches to 85%. For double tracks with mixed traffic is this percentage 75%. Slovenia has capacity problems on the following line sections:

- **Cep. Prešnica – Divača** Utilized capacity of trains in 24 hours is 72 trains while occupancy rate is 93%.
- **Ormož – Ljutomer** Utilized capacity of trains in 24 hours is 34 trains while occupancy rate is 88%.
- **Borovnica – Ljubljana** Utilized capacity of trains in 24 hours is 135 trains while occupancy rate is 77%.

Since a percentage of occupancy is high it is necessary to approach to increasing the permeability of capacity.

2.2.4.2 Axle loads and train weight limits

Category D3 (Load per unit length 7.2 t/m and axle load 22.5 t) is considered as normal category for the Slovenia's rail lines for international transit traffic. Now Slovenia has restrictions on lines **Zidani Most – Pragersko** and **Pragersko – Murska Sobota** where on some sections exist C3 axle load (Load per unit length 7.2 t/m and axle load 20.0 t).

The goal targeted by development projects is to ensure the axle load D4 (8.0 t/m and 22.5 t) on entire RFC corridor 6 sections in Slovenia.

2.2.4.3 Train lengths

Maximum permitted length of freight trains in Slovenia is 700 meters. On particular lines permitted length is extra restricted because of short station tracks. We now have restrictions on the following lines:

- **Sežana border – Ljubljana** maximum permitted length of the train 600 m.
- **Divača – Koper t.** 505 m.
- **Ljubljana – Zidani Most** 570 m.

- **Zidani Most – Pragersko** 600 m.
- **Pragersko – Ormož – Hodoš border** 600 m.

Our goal is to increase the length on all lines in the Rail Freight Corridor 6 to 750m.

2.2.4.4 Traction

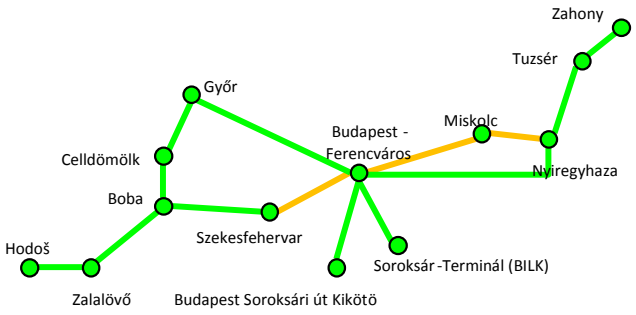
All our rail main lines, except some secondary lines are electrified by a one-way system of a nominal voltage of 3 kV. On line **Pragersko – Ormož – Hodoš** Slovenia needs diesel traction which is an obstacle due to the necessity for changing of locomotives. It is expected to implement electrification on all non-electrified sections of rail lines on the corridor 6 in Slovenia.

2.2.4.5 Tunnel Restrictions

The tunnel restrictions, with regard to the special dimensions of particular wagons in a train in a combined transport are considered with the codification of lines. Now we have on section **Gornje Ležeče – Pivka** because of tunnel restriction codification for combined transport reduced on profile P/C 82/412.

2.2.5 Hungary

As seen in the graph below, the corridor Szekesfehervar – Budapest-Ferencvaros – Miskolc – Nyiregyhaza may be identified as a potential bottleneck in the Hungarian rail network, pending on further and more detailed analysis.



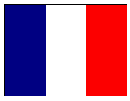
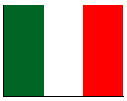
indicated capacity of hub
indicated capacity of line

green = usage less than 50%
yellow = usage between 50% and 90 % red = usage higher than 90 %

3 Measures necessary for creating Rail Freight Corridor 6

3.1 Organizational structures

3.1.1 Executive Board

The Executive Board of Rail Freight Corridor 6 was established through an administrative agreement signed in Brussels on 11th March 2013 by the Ministries of Transport of Spain, France, Italy, Slovenia and Hungary. Through this agreement the involved Ministries decided to take over all the tasks and responsibilities of the Executive Board of the ERTMS Corridor D, as instituted by the letters of intent of 12 December 2006 and 12 April 2007.

The Executive Board is responsible for fulfilling the missions assigned to it according to the Regulation (EU) 913/2010:

The Executive Board of Rail Freight Corridor 6 is chaired by the Ministry of Transport of France.

3.1.2 Management Board

Member	Representative	Deputy
Administrador de Infraestructuras Ferroviarias (ADIF)	Juan Ignacio LEMA	Eduardo MARTINEZ
TP Ferro Concesionaria	Petros Papaghiannakis	Duho MAHIC
Réseau Ferré de France (RFF)	Luc Roger	Eulalie RODRIGUES
Rete Ferroviaria Italiana (RFI)	Stefano CASTRO	Silvia CARLONI
Slovenske železnice-Infrastruktura d. o. o. (SZ)	Bojan KEKEC	Danilo SIRNIK
Javna agencija za železniški promet Republike Slovenije(AŽP)	Benjamin STEINBACHER-PUSNJAK	Zdenko ZEMLJIC
MÁV Hungarian State Railways	Lőrinc CZAKO	Ágnes KEREKES-LENGYELNÉ dr.
VPE – Hungarian Rail Capacity Allocation Office	Réka NÉMETH	Dóra KONDÁSZ

The first step for the setting up of the governance of the Management Board of Rail Freight Corridor 6 was the signature of a Memorandum of Understanding among the 8 (eight) stakeholders involved in Rail Freight Corridor 6: Administrador de Infraestructuras Ferroviarias (ADIF), Réseau Ferré de France (RFF), Rete Ferroviaria Italiana (RFI), Slovenske železnice-Infrastruktura d. o. o.,(SZ), MÁV Hungarian State Railways Private Company Limited by Shares and TP Ferro Concesionaria as Infrastructure Managers concerned and Javna agencija za železniški promet Republike Slovenije (AŽP) and VPE – Hungarian Rail Capacity Allocation Office as relevant Allocation Bodies.

In this MoU, which entered into force on 11th April 2012, the companies mentioned above formalized their commitment to cooperate in order to fulfil the requirements and the aim of the Regulation, to maximize the benefits of cooperation and to agree an appropriate governance structure for the Management Board of RFC 6.

Since Rail Freight Corridor 6 has a principal route which, in its greatest part, coincides with ERTMS corridor D, the migration of Corridor D EEIG towards Rail Freight Corridor 6 appeared to be the most suitable measure to create the governance structure of the Management Board on the basis of the following considerations:

Corridor D EEIG was established on 19th July 2007 by 4 out of the 8 companies concerned by Rail Freight Corridor 6: Administrador de Infraestructuras Ferroviarias (ADIF), Réseau Ferré de France (RFF), Rete Ferroviaria Italiana (RFI), and Slovenske železnice Infrastruktura d. o. o.,(SZ), with the aim to promote amongst its members measures designed to improve interoperability, increase the range of services and implement ERTMS (European Rail Traffic Management System) on the Valencia-Budapest corridor (so called ERTMS corridor D).

Form of an EEIG as legal entity of the Rail Freight Corridor Management Board is suggested by the art. 8(5) of Regulation and by par. 3.3.1 of the Handbook ("The existing EEIGs should continue and extend their missions and their membership, when necessary, if the Rail Freight Corridor involves countries not involved in the ERTMS corridor)".

So Corridor D EEIG, in cooperation with the other 4 stakeholders involved in Rail Freight Corridor 6, carefully evaluated the following governance migration options in terms of costs and benefits:

1. extension of Corridor D EEIG to Corridor 6 EEIG adapting its mission and membership (entrance of 4 new members);

2. establishment of a new EEIG;

The first option resulted to be the best solution for the following reasons:

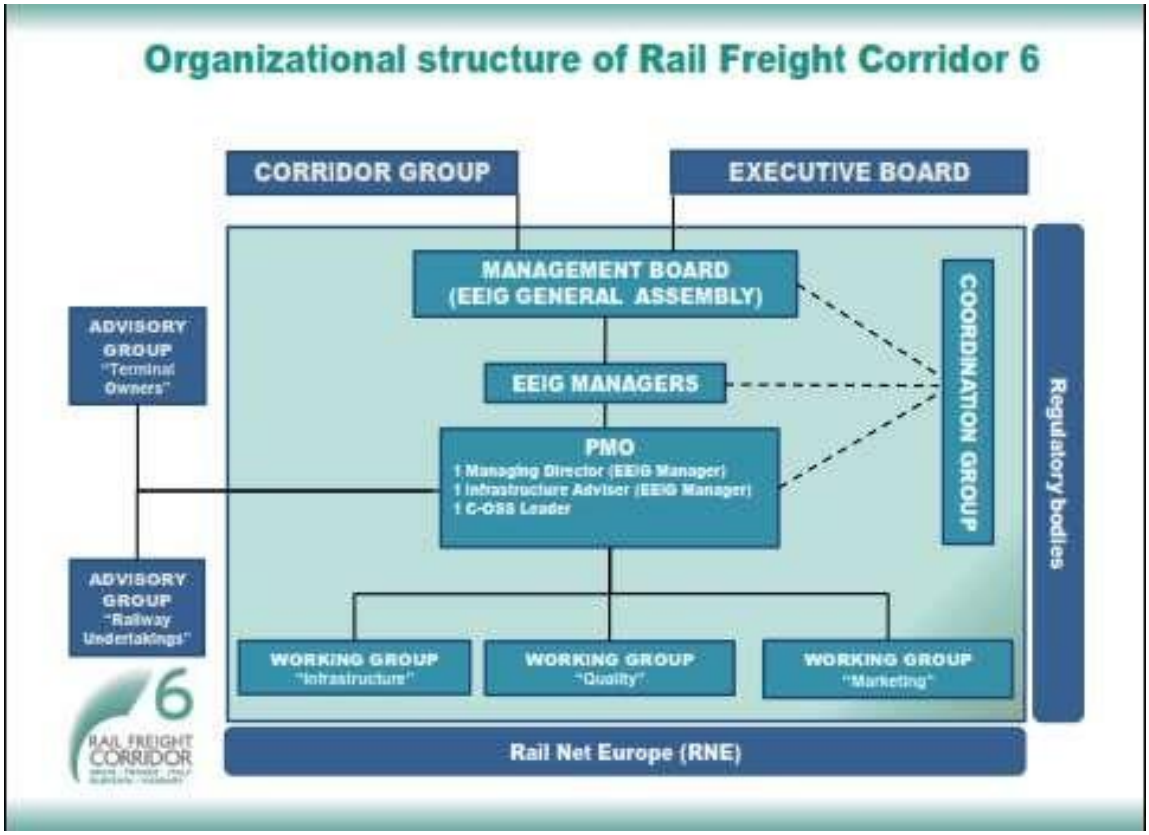
1. it avoids duplication of organizational structures;

2. it ensures continuity on current corridor work;

3. it allows to recover some start-up costs of Corridor D EEIG (estimated at about 21.500 €);

4. it is highly consistent with indications provided by EU documentation: Reg. 913/2010 (par. 10) and Handbook, par. 2.2.1 and 3.3.1;

The extension of Corridor D EEIG to Corridor 6 EEIG was formally approved during the preparatory meeting of the Management Board of Rail Freight Corridor 6 held the 7th June 2012 in Rome and the procedure for migration was launched starting from the revision of the Act of Incorporation, to be adapted in its mission and scope. Many efforts were devoted to harmonize legal requirements concerning the 5 countries involved and a strong cooperation among the partners helped to adopt the proper solutions. The first official meeting of the Management Board of RFC 6 was held in Paris on 21st June 2012. In that occasion the foundations of the governance were laid and the Slovenian Member AZP was firstly appointed as vice chair partner and then in Ljubljana on 5th October as chair: the new object of future Rail Freight Corridor 6 EEIG was confirmed ("acting as Management Board of Rail Freight Corridor 6") and important decisions were taken on voting system (2 votes per country), members contribution (sharing on a country-basis) and organizational principles (creation of the task force, main bodies, mission and composition of the future corridor Permanent Management Office, dedicated OSS).


Organizational structure of Rail Freight Corridor 6
CORRIDOR GROUP
EXECUTIVE BOARD
MANAGEMENT BOARD
(EEIG GENERAL ASSEMBLY)
EEIG MANAGERS
PMO
1 Managing Director (EEIG Manager)
1 Infrastructure Adviser (EEIG Manager)
1 C-OSS Leader
COORDINATION GROUP
Regulatory bodies
ADVISORY GROUP "Terminal Owners"
ADVISORY GROUP "Railway Undertakings"
WORKING GROUP "Infrastructure"
WORKING GROUP "Quality"
WORKING GROUP "Marketing"
Rail Net Europe (RNE)
6
RAIL FREIGHT CORRIDOR

The Management Board approved the Act of Incorporation of future "Rail Freight Corridor 6 EEIG" on 13th December 2012 in Rome and its internal rules on 9th April 2013 in Brussels: legal steps for migration have been started in April 2013. The new EEIG for Rail Freight Corridor 6 has been created in Rome on the December 2014. The new managers of the EEIG have been appointed on the 31st of March 2014 in Rome:

- President: Mr. Segrelles Garcia Jorge Vincente;
- Managing Director - EEIG Manager: Mr Andrea Galluzzi;
- Deputy Managing Director - EEIG Manager: Mr. István Pakozdi;

The Management Board acts as General Assembly of Rail Freight Corridor 6 EEIG. The General Assembly of Rail Freight Corridor 6 EEIG meets regularly, at least twice a year at the headquarters of the EEIG (Milano – via Ernesto Breda 28). The Chairman of the General Assembly is Mr Bojan Kekec.

The EEIG managers are appointed for three year period renewable maximum once. The Managers are tasked with ensuring that operational and technical tasks incumbent upon the EEIG are duly accomplished**,** in accordance with the relevant provisions of the Regulation (EU) 913/2010, with the decisions and guidelines of the General Assembly and with the opinions and decisions of the Executive Board. The President of the EEIG will coordinate the activity of the Managers and ensure the respect of the Act of Incorporation, of the internal Rules and of the Regulation 913/2010. He will not be full time dedicated to the EEIG; he will have an institutional role and is entitled to represent the EEIG in international events and before the European Commission, RNE and other European Institutions. As far as these functions are concerned he can be replaced by the PMO Managing Director.

He will supervise the external relations of the EEIG, in cooperation with the Chairman of, the GA and with the other two Managers, ensuring consistency of different information flows concerning the EEIG (website, publications, press release, leaflets, etc.). As far as these functions are concerned he can be replaced by the PMO Managing Director.

3.1.3 Coordination Group

Member	**Representative**
Administrador de Infraestructuras Ferroviarias (ADIF)	Eduardo Martínez
TP Ferro Concesionaria	Petros Papaghiannakis
Réseau Ferré de France (RFF)	Eulalie Rodrigues
Rete Ferroviaria Italiana (RFI)	Simona Garbuglia
Slovenske železnice-Infrastruktura d. o. o. (SZ)	Danilo Širnik

Javna agencija za železniški promet Republike Slovenije(AŽP)	Benjamin Steinbacher-Pušnjak
MÁV Hungarian State Railways	Ágnes Lengyelné Kerekes dr.
VPE – Hungarian Rail Capacity Allocation Office	László Pósalaki Dóra Kondász

Due to lack of corridor permanent staff, at the very beginning a Task Force for the establishment of RFC 6 was set up during the preparatory meeting of the Management Board of RFC 6, held in Rome the 7th June 2012. The Task Force of RFC 6 was composed of one or two representatives for each Member, under the coordination of the French partner RFF, it ensured the full involvement of all corridor IMs and ABs in the definition of a common vision of the corridor functioning and development. The Task Force was in charge of carrying out some urgent activities up to the creation of a corridor permanent office, such as:

- ✓ Prepare the Implementation Plan of Rail Freight Corridor 6;
- ✓ Adapt the Act of Incorporation of EEIG Corridor D to the needs of Rail Freight Corridor 6 (extension of object, mission, membership);
- ✓ Draw up internal rules and organizational documentation of RFC 6 EEIG;
- ✓ Launch the Transport Market Study, draw up contract for consultancy;
- ✓ Define characteristics of Lines and Terminals of RFC 6;
- ✓ Prepare the Corridor Document;
- ✓ Set up the corridor advisory groups;
- ✓ Elaborate the budget;
- ✓ Design the future RFC 6 website;
- ✓ Define the agreement on Ten-T funding;

Since the establishment of the Task Force, meetings among the members were organized quite often. These meetings used frequently the videoconference system but there were also physical meetings if it was required.

The Task Force distributed the overall activities, prepared the items to be discussed by the Management Board and followed up the decisions taken. An efficient teamwork and a fair distribution of the tasks, allowed the TF to carry out the necessary steps for the establishment of the Rail Freight Corridor 6.

The Task Force became a **Coordination Group** by the end of 2013. In continuity with the Task Force, it will act to support the Management Board members to prepare the General Assembly meetings, in order to ensure that well defined proposals are submitted to the Management Board for decision. In particular, the Coordination Group is expected to carry out the following activities:

- ✓ ensure a high-level general follow-up and coordination of the activities defined by the GA of the EEIG, in cooperation with the Managing Director of the PMO, with the Working Groups and with the Chairman and Vice-Chairman of the GA;
- ✓ contribute to prepare decisions of the GA and to their implementation;
- ✓ advise and supports the PMO;
- ✓ ensure an efficient communication flow between the EEIG (GA, Managers, PMO, Working Groups) and the internal structures of IM/AB Member of the EEIG, acting as contact point between national and corridor level;

3.1.4 Advisory Groups

The kick off meeting for the setting up of the Advisory Groups of Rail Freight Corridor 6 was held in Budapest on 30th November 2012.

The preparation of this meeting was based on a wide involvement of the stakeholders interested in the use of Rail Freight Corridor 6, according to the principles of transparency and equality. A first draft of consultation mechanism was discussed and agreed, mainly based on electronic tools (e-mail and website), on national contact points for operators (in order to facilitate communication and information) and on specific questionnaires to be used for collecting remarks and suggestions from Advisory Groups. This approach responds to the following aims:

- ✓ smooth, flexible and transparent communication flow between Management Board and Advisory Groups;
- ✓ cost-effective system (1-2 physical meetings per year);
- ✓ wide-ranging involvement of Railway Undertakings and Terminals;
- ✓ owners / operators potentially interested to join Advisory Groups, through publication of documents on the corridor website (invitation, presentations, minutes of meeting, etc.);
- ✓ efficient collection of opinions raised by railway operators;
- ✓ direct contacts at local level (the use of national language can be very important for small operators mainly on technical matters);

Eight Railway Undertakings were represented at the meeting, coming from Hungary, Austria, France, Slovenia and Italy; a focus was made on the need of operators to be informed on the progress of Transport Market Study, on traffic rules planned for the implementation of the corridor and on the coordination of infrastructure maintenance.

Ten representatives of Terminal Owners/Managers attended the meeting (6 of which from port authorities), coming from Hungary, Slovenia, Spain, France, and Italy, The issues about coordination of infrastructure investments and harmonization of existing investment studies were raised and discussed. The meeting was very fruitful and constructive; representatives from port authorities praised the initiative and appreciated the results of the meeting.

The follow up of the meeting (sending of minutes, preparation of questionnaires, agenda for next meeting, etc.) was ensured by the task force and by the national contact persons for advisory groups.

In order to facilitate communication with local operators a national contact point is made available for each country concerned by the corridor, in charge of collecting the interests of participation at national level:

Company	Country	Contact name	E-mail	Telephone
ADIF	Spain	Eduardo Martínez	emmart@adif.es	+34 913006195
TPFERRO	SP/FR	Petros Papaghiannakis	ppapaghiannakis@tpferro.com	+34 972678800
RFF	France	Eulalie Rodrigues	eulalie.rodrigues@rff.fr	+33(0)153943503
RFI	Italy	Simona Garbuglia	s.garbuglia@rfi.it	+39 0644103987
SŢ	Slovenia	Danilo Širnik	danilo.sirnik@slo-zeleznice.si	+38 641608951
MÁV Co.	Hungary	Ms. Zita Árvai	arvaiz@mav.hu	+36 15114305

For consultation of applicants likely to use the corridor (art. 10 of Regulation 913/2010), a first draft of the Implementation Plan was submitted to the Advisory Groups of Rail Freight Corridor 6 the 18th of April 2013 in Barcelona and published on corridor D website on 19th April 2013 for collecting remarks up to 30th April 2013.

The third TAG RAG Meeting has been held in Marseille on 29th October 2013. During this meeting the new version of the Implementation plan, together with the COSS, has been presented.

The fourth meeting was held in Milan on the 12th march 2014 to provide a general overview concerning the state of the art of the implementation plan.

The fifth meeting was held in Koper with the aim at presenting the Operational achievements of the Rail Freight Corridor 6 in 2014, to present the Reserve capacity Offer in 2015 and the Time Table Offer 2016.

All RUs and terminal owners/managers which cannot attend physical meetings but are interested in the use of RFC 6 and/or in the activity of the Advisory Groups may be involved by means of public information on www.railfreightcorridor6.eu and direct contact with national contact persons. www.railfreightcorridor6.eu Moreover, the intention is to invite all the operators to each meeting so that new membership may always be possible. The composition of the Advisory Group is thus open and flexible, membership is not fixed, allowing new comers the possibility to join the activity at any time, as recommended by Regulation 913/2010 and by the Handbook ("New membership should always be possible and the composition of the Advisory Groups should be revised from time to time to allow an adjustment of the representation." - Handbook, point 3.4.1)

In order to ensure efficiency to physical meetings**,** attendance may depend on the number of requests ("Since any operator can claim to be interested in the use of the corridor, the number of possible participating in the Advisory Groups

could be too high. Operators of different sizes and with different business models should be represented" - Handbook, point 3.4.1-3.4.2). According to a decision of the Executive Board of RFC 6, terminal owners/managers not giving the information requested by the Management Board will not be accepted into the Advisory Groups and their terminals can be excluded from the corridor

3.1.5 Permanent Management Office (PMO)

A Permanent Management Office (hereafter PMO) for Rail Freight Corridor 6 has been set up in Milan (Italy) in a RFI fenced area during summer 2013 for daily corridor operations, leaded by the Italian partner RFI, to support the implementation of the Rail Freight Corridor 6 and to ensure the functioning of the EEIG. The selection of staff was made by the Management Board on 9th April 2013 among the candidates promoted by the Members, on the basis of specific evaluation criteria. The PMO will be constituted by 3 full time personnel: one Managing Director from RFI (Italy), one Deputy Director-Infrastructure Manager from MAV (Hungary) and one OSS leader from RFF (France). Each Member will be responsible for the contractual relationship with its candidates selected for the PMO; terms and conditions of employment for PMO staff will be defined through specific agreements between the EEIG RFC 6 and the Member promoting the candidate

The internationality of the team is considered as a key requirement to ensure a fair balance of representation among the partners and a corridor oriented perspective overcoming national views.

3.1.5.1 Managing Director: Mr. Andrea GALLUZZI

The PMO is be led by the Managing Director Mr. Andrea Galluzzi; he is a full time manager dedicated to the EEIG and Rail Freight Corridor 6, in charge of the day-to-day management of the technical and operational activities of the EEIG and Rail Freight Corridor 6. The objectives and mission of the Managing Director are defined by the General Assembly of the EEIG.

3.1.5.2 Deputy Director/Infrastructure Adviser: Mr. István PÁKOZDI

In case of necessity he could, upon appropriate authorization by the Managing Director, replace the Managing Director (reporting to the EC, the GA, the EB…).

3.1.5.3 OSS leader: Mr. Pierre CHAUVIN

The OSS leader has the tasks set in the Directive 2001/14/EC and with Regulation (EU) 913/2010. In a second phase, after 2014

3.1.5.4 Administrative Assistant: Mrs Giulia GARGANTINI

One Administrative Assistant joined the permanent office at the end of November 2015 according to the decision of the General Assembly of Rail Freight Corridor 6. In the future additional people can join the permanent office such as one marketing adviser.

3.1.6 Working Groups

The Working Groups are expected to be set up during 2013, coordinated by the staff of the Permanent Management Office. Each Working Group is constituted by experts appointed by the Members of the EEIG and led by one representative of them. They assist the PMO and the Coordination Group in their work.

Three Working Groups will be constituted as follows**:**

3.1.6.1 **WG Infrastructure**

This Working Group carry out the follow up of the activities related to the ERTMS deployment along the corridor, extending the mission and the tasks of the Corridor D WG. It is also in charge of the following tasks:

- ✓ review and update the Investment Plan along the corridor;
- ✓ identify the bottlenecks along the corridor;
- ✓ follow, with the Infrastructure Advisor of the PMO, the Capacity Study and the TMS;
- ✓ cooperate to the draft of Corridor Information Document;
- ✓ update the infrastructure parameters (lines and terminals) constituting the Rail Freight Corridor 6.

Subgroups can be constituted to take care of specific topics such as, for example:

- ✓ Train categories;
- ✓ Change request analysis;
- ✓ National Values;
- ✓ Braking curves;
- ✓ Harmonization of operational rules;

3.1.6.2 **WG Quality**

It assists the C-OSS in the coordination of the path requests and in the construction of the PaPs (Pre-arranged Paths). Moreover, it will be in charge of the following tasks:

- ✓ define the Priority Rules;
- ✓ harmonize national approaches in order to set up a Corridor Model for Traffic Management;
- ✓ take care of Customer Satisfaction Surveys;
- ✓ analyse the outcomes of the Transport Market Study in order to improve the quality of the corridor;
- ✓ promote compatibility between the Performance Schemes along the corridor;
- ✓ propose the corridor objectives;
- ✓ promote coordination of works along the corridor aiming to minimize traffic disruptions.

3.1.6.3 **WG Marketing**

It will have the task to permanently seek for new traffic opportunities along the entire or a portion of the corridor, taking into consideration the opinion of the Advisory Groups and the outcomes of the Transport Market Study. It will be in charge of the development of the RFC6 website and will follow the Corridor Information Document.

According to the future needs, the above mentioned Working Groups may be modified or substituted by others. New Working Groups may also be set up when needed in order to deal with further issues which may arise.

4 Essential elements of the Transport Market Study

4.1 Introduction

This document aims to present the essential elements of the Traffic Market Study regarding railway Corridor 6. First chapter refers to specific thematic areas, with a focus on main parameters that could be considered as fundamental to analyse present and possible future freight market along the Corridor and in its catchment area. Next chapters regards respectively surveys made to analyse behaviours, needs and thoughts of main stakeholders as shippers, intermediaries, railways undertakings and terminal managers, and different activities carried out to define freight market possible evolution in near (2015) and far (2030) future.

4.2 Analysis of the current situation

Present situation is initially evaluated thanks to on-desk analysis of available data and studies, as Eurostat, Etisplus, CAFT or national/bi-national studies. Preliminary elements about macro-economic framework are based on the overall future parametric performance of the economies of countries crossed by Corridor 6 and, more in general, of Europe; although they might provide some preliminary useful information on the evolution of freight traffic flows, a full forecasts of future flows (as well as of flows on rail along Corridor 6) will be part of next phases of the TMS.

The analysis is carried out according to a 2-levels approach:

Socio-economic: this section analyses socio economic indicators and ratios in order to understand macro-economic and social trends affecting the European economy and, as a consequence, transport demand on Corridor 6;

Transport: this section analyses transport indicators and ratios, expression of transport demand, as well as infrastructure and services offered to the market.

The different analysis carried out could refer to different geographical areas:

- ✓ Europe;
- ✓ Catchment area of Corridor 6: NUTS2 zones crossed by Corridor 6 and other zones adjacent to these ones;

4.2.1 The geographic and socio-economic context

Population of countries has been considered as a proxy of goods consumption. With regards to used data, forecasts for Corridor 6 countries at 2030 are positive (+ 7%) whilst European population is supposed to grow of about 4%; disparities among countries crossed by corridor 6 can be shown: Hungary shows negative relative trends (about 3% reduction), whilst Spain, France, Italy and (at lower rates) Slovenia positive ones. As a consequence, according to population trends, overall transport flows might be expected to move toward west.

Past GDP trends, definitely affected by the 2009 credit crunch and subsequent economic downturn, show an increase in wealth of countries crossed by Corridor 6 slightly lower than the average European growth with Spain, Slovenia and Hungary with the best performances. Despite the negative impact of the economic downturn on historical trends, medium term forecasts (in particular at year 2030) can provide a higher level of consistency, neutralizing short term fluctuations: in real terms, the growth of countries crossed by Corridor 6 is in line with the average European growth, but with strong internal disparities: in 2030 on one side, France will growth in absolute terms of more than 33% versus 2012, whilst Italy, Slovenia and Hungary of about 21-23% (base scenario). Considering countries of Corridor 6 only, at year 2030 the expected GDP is about € 6.100billions, growing about 28% both for countries crossed by Corridor 6 and for Europe.

Social and macro-economic framework

	Population[1] (mln)	GDP[1] (bn €)	GDP per capita[1] (th €)	Production value[2] (bn €)	Industry employees[3] (th)
Europe	521,0	13.042,1	25,9	8.627,9	53.332
5 Countries	183,9	4.671,4	25,9	3.224,8	20.180
Spain	46,2	1.063,4	23,0	684,3	5.630
France	65,0	1.996,6	30,7	1.137,5	6.005
Italy	60,6	1.579,7	26,1	1.280,4	6.955
Slovenia	2,1	36,2	17,6	30,2	343[4]
Hungary	10,0	99,8	10,0	92,4	1.247

Source: elaborations on Eurostat data ([1]: 2011, [2]: 2010, [3]: 2008, [4]: 2007)

Macro-economic framework

	Import (bn €)	Export (bn €)	External dep. ratio
Europe	4.440,5	4.357,9	0,50
5 Countries	1.281,8	1.129,7	0,53
Spain	268,5	220,1	0,55
France	512,8	428,2	0,54
Italy	401,4	375,8	0,52
Slovenia	25,5	25,0	0,51
Hungary	73,6	80,7	0,48

Similar growth rates can be assumed for import of goods and the export of goods, as first proxy on expected traffic flows. At present, Total import of goods for countries crossed by Corridor 6 (including flows among these countries) is about €1.300billions, against a total European import of about €4.400bn; on the contrary, total export is about €1.100billions for countries of Corridor 6 against a total European export of about €4.400billions

Source: elaborations on Eurostat data (2011)

With regard to import and export flows, data presented by Eurostat in its yearbook are collected by Member States and are related to arrivals (for import) and dispatches (for export). As a consequence, data are not homogeneous and it is not possible to generate a single import/export matrix. According to Eurostat methodology, data does not cover goods on transit.

In 2010 Italy was the main trade partner for all countries but Spain, as it owns a very central position along the Corridor. At the same time, France is the more consistent trade partner for Spain. These geographical reasons do not apply for Slovenia and Hungary whose 2010-trade flows are mostly addressed to biggest countries.

With regard to total arrivals and dispatches flows, France was the first destination of arrivals from Corridor countries, whereas Italy was the first one in terms of dispatches (even if France covered the second place).

Import of goods (Arrivals) (€ millions, 2010)

To/From	Spain	France	Italy	Slovenia	Hungary	Total of arrivals
Spain		27.033,0	17.023,0	195,0	1.805,0	46.056,0
France	30.351,0		36.106,0	1.336,0	3.349,0	71.142,0
Italy	16.737,0	32.171,0		2.164,0	3.606,0	54.678,0
Slovenia	454,0	1.091,0	3.541,0		805,0	5.891,0
Hungary	830,0	2.446,0	2.847,0	654,0		6.777,0

Source: elaborations on Eurostat data (External and Intra-EU trade – A statistical yearbook – Data 1958-2010)

Export of goods (Dispatches) (€ millions, 2010)

From/To	Spain	France	Italy	Slovenia	Hungary	Total of dispatches
Spain		33.949,0	16.295,0	401,0	901,0	51.546,0
France	29.462,0		31.600,0	1.021,0	2.647,0	64.730,0
Italy	19.595,0	39.237,0		3.590,0	3.075,0	65.497,0
Slovenia	244,0	1.509,0	2.656,0		914,0	5.323,0
Hungary	2.281,0	3.595,0	3.990,0	755,0		10.621,0

Source: elaborations on Eurostat data (External and Intra-EU trade – A statistical yearbook – Data 1958-2010)

4.2.2 The transport market characteristics along the corridor

Total length of highways could be considered as representative of the possibility to use road for medium-long range transports of goods: highway's network is distributed evenly in the Corridor 6 countries, if we consider both toll and free network. Density of relevant roads1 in France, Hungary and Slovenia is more than double the Italian one, while in Spain this data decrease to a very low level; moreover, it is important to note that these data could be affected by different classification of roads at national level. Along Corridor 6, relevant road network is particularly dense in NUTS2 zones of Lombardy, Piemonte and Provence-Alpes-Côte d'Azur.

Corridor 6: length of highways and relevant road

	Lenght of highways* (km)	Density of highways* (km/km²)	Lenght of relevant roads** (km)	Density of relevant roads** (km/km²)
Europe	65.582	0,014	3.507.015	0,721
5 countries	33.765	0,023	1.658.212	1,131
Spain	14.021	0,028	151.396	0,300
France	11.063	0,020	1.030.010	1,883
Italy	6.661	0,022	242.383	0,804
Slovenia	747	0,037	38.178	1,883
Hungary	1.273	0,014	196.245	2,109

Source:* elaborations on Eurostat data (Length of highways, 2009), ** elaboration on Eurostat data (Relevant road, 2009)

Corridor 6: length of tracks

	Length of tracks (km)	Density (km/km²)
Europe	205.920	0,042
5 countries	68.124	0,046
Spain	13.354	0,026
France	29.466	0,054
Italy	16.686	0,055
Slovenia	1.228	0,061
Hungary	7.390	0,079
Corridor 6	6.586*	

Overall railway network density (km of railway lines length/surface area) in 5 Countries is higher than the European average (0,046 km/km2 vs. 0,042 km/km2). At national level, France and Italy have a density of railway network somewhat higher of the European average, while ratio between Slovenia and Europe is 1.5 and between Hungary and Europe is 1.8. In Spain, density of railway network is lower than the European average (ratio 0.6)

Source: elaborations on Eurostat data (Length of tracks, 2009), *data from IM/AB

Railway infrastructure technical characteristics could reveal strength or weaknesses of the Corridor 6, particularly with regards to some specific parameter variation that could be considered as technical constraints for International transports and/or affect overall capacity (trains/day).

Most relevant technical characteristics analysed are:

- ✓ Loading gauge: this parameter varies between different countries, but there are differences also within 3 of the 5 countries: Italy, France and Slovenia;
- ✓ Axle load: this parameters assumes 2 different values along the Corridor; it goes down to its minimum in Slovenia and Hungary;
- ✓ Number of tracks: apart from France where the all part of Corridor 6 has two tracks, in the other 4 Countries sections with a single track have a share between 6% (Italy) to 38% (Spain and Slovenia);
- ✓ Train length: this parameter varies between countries and also within Spain, Italy, Slovenia and Hungary, with ranges from a minimum of 350 meters (2% of lines in Spain) to a maximum of 750 meters in Spain, France and Hungary. In Italy this parameters assumes 4 different values.

Corridor 6: railways network characteristics

	Loading gauge	Axle load (tons)	Number of tracks	Train length (m)
Spain	45/364 (100%)	22,5 (100%)	Single (38%) Double (61%)	350 (2%) 450 (8%) 500 (72%) 750 (11%)
France	3,3 (4%) 45/364 (96%)	22,5 (100%)	Double (100%)	750 (100%)
Italy	45/364 (53%) 80/400 (47%)	22,5 (100%)	Single (6%) Double (94%)	550 (5%) 575 (24%) 600 (36%) 625 (35%)
Slovenia	80/401 (27%) 82/412 (25%) 90/410 (45%) 99/429 (3%)	20,0 (33%) 22,5 (67%)	Single (38%) Double (62%)	500 (11%) 550 (34%) 600 (55%)
Hungary	80/410 (100%)	21,0 (80%) 22,5 (20%)	Single (32%) Double (68%)	600 (24%) 650 (9%) 750 (68%)

Source: data from IM/AB – Percentage share do not consider few missing data. Red text indicates possible technical constraints

Supply overall infrastructure along or nearly Corridor 6, includes also ports and airports but, while ports have direct connections to railway network and/or road network and could guarantee ease of transport to/from inland areas assuming a relevant role in freight mobility along the Corridor 6, airports do not have direct connections with railway lines.

Corridor 6: main freight ports and airports

	Spain	France	Italy	Slovenia	Hungary
Ports	Barcelona	Marseille	Genoa	Koper	Csepel
	Tarragona	Sète	Trieste		
	Valencia		Venice		
Airports	Barcelona	Lyon St-Exupery	Milan Bergamo	Ljiubljana	Budapest
	Malaga	Marseille Provence	Milan Linate		
	Madrid Barajas	Nice	Milan Malpensa		
	Valencia		Turin Caselle		
	Zaragoza		Verona/Brescia		
	Alicante				

4.2.3 Assessment of the market

4.2.3.1 Actual freight market estimation (by O/D)

Actual freight mobility along the Corridor or paths that influence or could do it, the analysis is carried out with regard to different modes of transport:

Road: transports made on road from Origin to Destination;

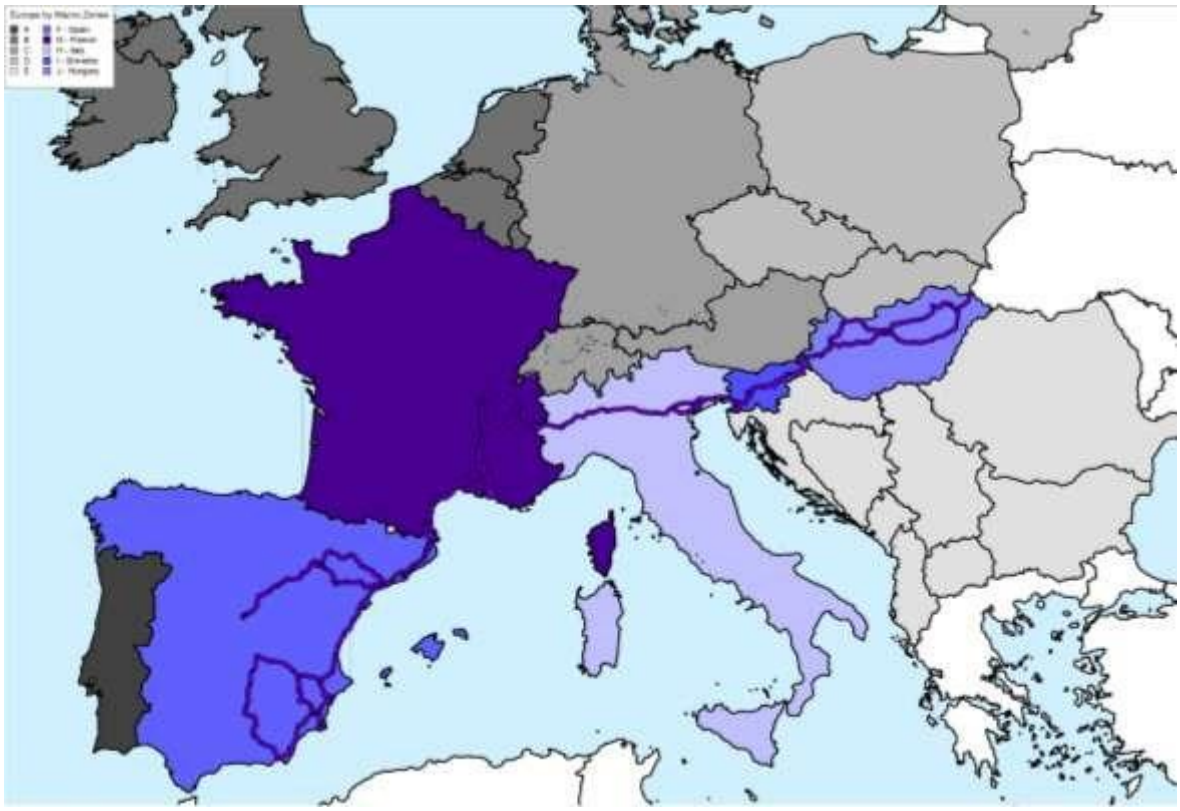
Rail (**Sea-IWW**/**Air**): transports made on Rail (or by Sea-IWW or by Air) from Origin to Destination, with other possible connections made with other modes of transport within
NUTS zone of Origin and/or Destination;

Geographical aggregation:

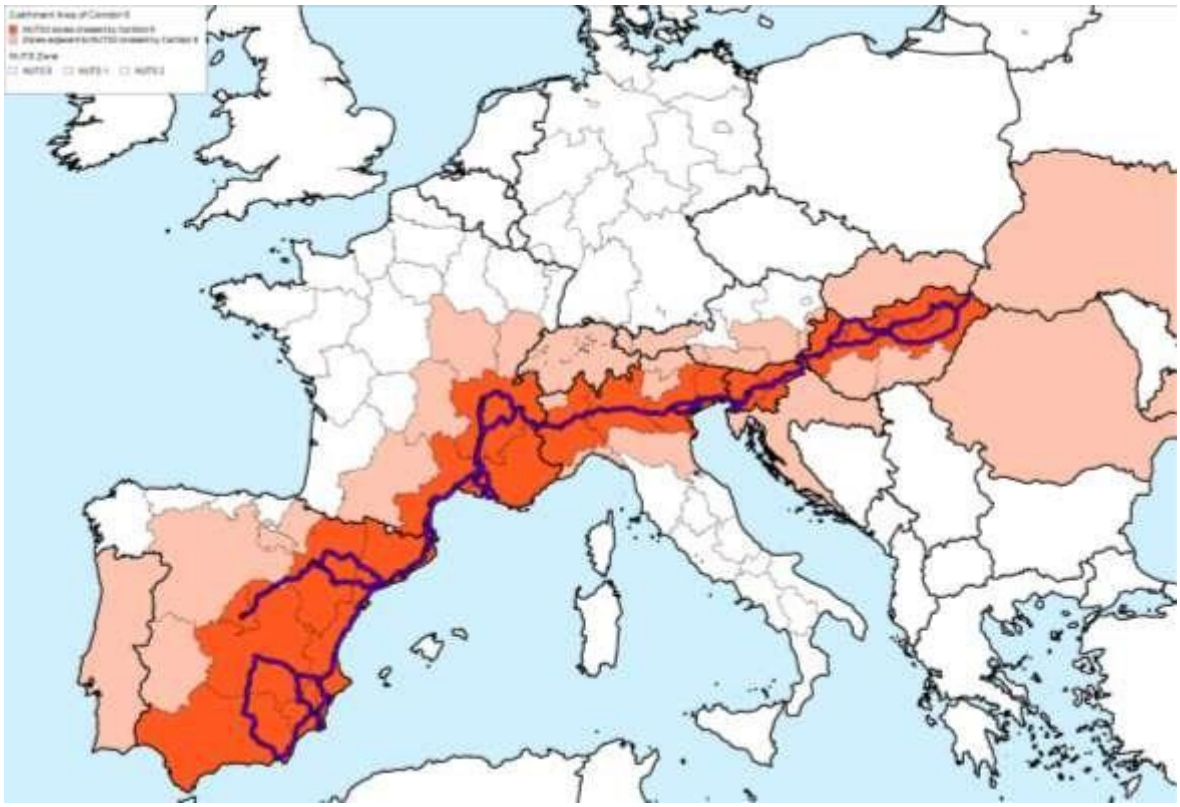
Europe: including the individual Countries of the macro-zones A, B, C, D, E, Spain, France, Italy, Slovenia and Hungary; Countries such as Russia, Turkey, Morocco, etc.. are considered outside areas;

Catchment area of Corridor 6: composed by the NUTS2 zones crossed by the Corridor 6 and the zones adjacent to these ones;

Geographical aggregation: Europe



Geographical aggregation: Catchment area of Corridor 6



Spatial Distribution of flows:
INT-INT: Internal-Internal flows are those with both Origin and Destination within the considered geographical aggregation;

These flows are further divided into:

- ✓ National (INT-INT National): flows with both Origin and Destination in the same Country;
- ✓ International (INT-INT International) flows with Origin and Destination in different Countries;

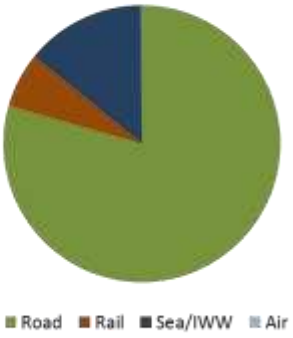
Exchange: transports with Origin (or Destination) within the considered geographical aggregation ("Europe" or "Catchment area of Corridor 6") and Destination (or Origin) outside of it.

4.2.3.2 Transport demand in Europe

The analysis of modal split in freight transport in Europe, reveals the importance of road with 79.5% of market share (15.401 million tons per year); goods transported by Sea or Inland IWW, are double than those shipped by rail (1.246 million tons per year, 6.4% of the total).

Freight flows in Europe by mode of transport (millions of tons)

	Freight flows (mln of tons)	Modal split
Road	15.401	79,5 %
Rail	1.246	6,4 %
Sea/IWW	2.718	14,0 %
Air	11,9	0,1 %
Total	19.377	



Elaboration on Etis and CAFT data

Ratio of flows with Origin and Destination within the same Country, on one side is very high for road (94,2%) and rail transports (74,9%) and on the other side is low for sea/IWW (8,1%) and Air transports (0,3%). With regard to rail transports, 19.6% have origin and Destination in different countries, while 5.6% have Origin or Destination outside Europe.

Freight flows of goods in Europe by O-D links (millions of tons)

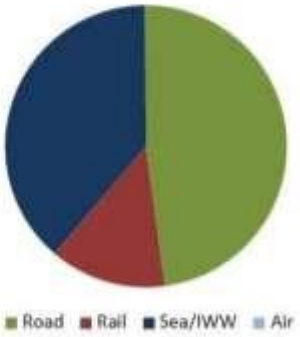
	TOTAL (mln of tons)	INT-INT National (mln of tons)	INT-INT International (mln of tons)	EXCHANGE (mln of tons)
Road	15.401	14.512 (94,2%)	873 (5,7%)	16 (0,1%)
Rail	1.246	933 (74,9%)	244 (19,6%)	69 (5,6%)
Sea/IWW	2.718	220 (8,1%)	706 (26,0%)	1.792 (65,9%)
Air	11,9	0,3 (2,5%)	1,2 (10,1%)	10,4 (87,4%)
Total	19.377	15.665 (80,9%)	1.824 (9,4%)	1.887 (9,7%)

Elaboration on Etis and CAFT data

The analysis of INT-INT International freight flows in Europe, reveals the importance of road transport with 47.8% of market share and of Sea/IWW transport with 38.7%. Regarding freight Exchanges, the analysis shows that Sea/IWW mode is far the most widely used (95%).

INT-INT International freight flows in Europe by mode of transport

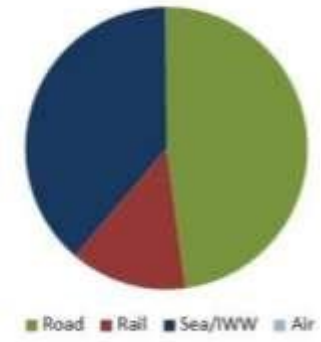
	Freight flows (mln of tons)	Modal split
Road	873	47,8 %
Rail	244	13,4 %
Sea/IWW	706	38,7 %
Air	1,2	0,1 %
Total	1.824	



Elaboration on Etis and CAFT data

Exchange freight flows with Europe by mode of transport

	Freight flows (mln of tons)	Modal split
Road	16	0,8 %
Rail	69	3,7 %
Sea/IWW	1.792	94,9 %
Air	10,4	0,6 %
Total	1.887	

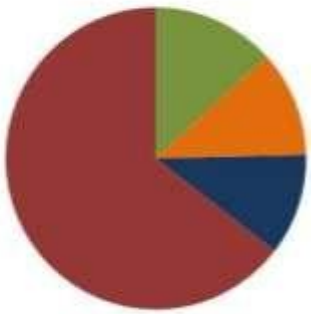


Elaboration on Etis and CAFT data

Those types of goods most transported by road and rail (share higher than 10%), have an important relevance. Concerning "INT-INT international" flows in Europe, 3 types of goods most transported by road are about 35% of the total.

Europe, "INT-INT international": type of goods (NST07) transported by road

	Millions of tons	%
Food products, beverages and tobacco	115,0	13,2
Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel	99,1	11,4
Products of agriculture, hunting, and forestry; fish and other fishing products	94,5	10,9
Other products	561,2	64,5

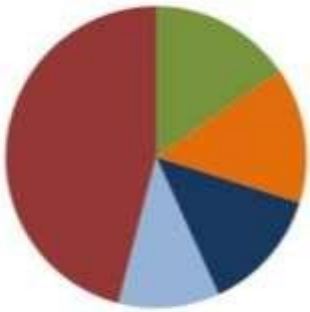


Elaboration on Etis and CAFT data

Concerning "Exchanges" between Europe and other Countries, 4 types of goods most transported by road are about 54% of the total.

Europe, "Exchanges": type of goods (NST07) transported by road

	Millions of tons	%
Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel	2,4	15,3
Products of agriculture, hunting, and forestry; fish and other fishing products	2,3	14,6
Food products, beverages and tobacco	2,1	13,3
Wood and products of wood and cork (except furniture); articles of straw and plaiting materials; pulp, paper and paper products; printed matter and recorded media	1,7	10,9
Other products	7,2	45,9

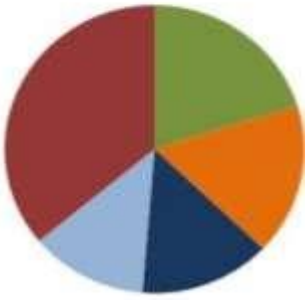


Elaboration on Etis and CAFT data

Concerning "INT-INT international" transports in Europe, 4 types of goods most transported by rail are about 64% of the total.

Europe, "INT-INT international": type of goods (NST1) transported by rail

	Millions of tons	%
Ores and metal waste	49,2	20,1
Crude and manufactured minerals, building material	41,7	17,0
Machinery, transport equipment, manufactured articles and miscellaneous articles	34,7	14,2
Solid mineral fuels	31,1	12,7
Other products	88,2	36,0



Elaboration on Etis data

Concerning "Exchanges" between Europe and other Countries, 5 types of goods most transported by rail are about 73% of the total.

Europe, "Exchanges": type of goods (NST1) transported by road

	Millions of tons	%
Crude and manufactured minerals, building material	12,4	18,8
Solid mineral fuels	12,2	18,5
Ores and metal waste	9,0	13,7
Machinery, transport equipment, manufactured articles and miscellaneous articles	7,5	11,4
Petroleum products	7,3	11,1
Other products	29,8	26,5

Elaboration on Etis data

Road freight O/D matrix reveals that in Europe:

- ✓ Countries of Corridor 6 handled about 35% of total goods transported;
- ✓ national transport's share is always really high compared to International transports: the only zone where International flows are relevant is Slovenia (14%), while in the other zones the International transport's share is between 8% (Hungary) and 1% (zone E);
- ✓ France is the country transporting higher volumes of good than any other, but with a very low share for International trade: total export is about 5% (0,9% to Spain and 0,6% to Italy) and total import is about 6% (0,9% from
- ✓ Spain and 0,6% from Italy);
- ✓ with regard to flows within 5 Countries of Corridor 6, Italy, Slovenia and most of all Hungary have a balanced distribution of International exchanges with the other countries of the Corridor: exports to the other 4 Countries are between 6% and 59% (Hungary), 6% and 62% (Italy), and 2% and 73% (Slovenia), while imports ranges are 12% to 46% (Hungary), 1% to 56% (Italy), 1% to 66% (Slovenia).

Road freight O/D matrix (thousands of tons)

	A	B	C	D	E	ES	FR	IT	SI	HU	Ext	Tot
A	201.277	628	1.069	158	56	8.869	1.904	521	22	20	23	***214.547***
B	761	2.405.679	68.602	9.845	1.072	4.821	47.810	4.649	297	889	524	***2.544.949***
C	1.061	73.520	4.371.560	45.941	3.692	6.027	29.016	22.914	2.731	5.032	2.078	***4.563.572***
D	179	8.593	51.213	1.599.204	1.937	1.312	4.719	5.550	800	5.583	7.423	***1.686.513***
E	37	876	3.598	997	1.013.847	232	790	3.144	1.628	2.045	594	***1.027.788***
ES	10.462	5.634	7.837	2.599	451	***1.457.590***	***19.414***	***3.785***	***144***	***276***	1.063	***1.509.255***
FR	1.821	36.353	27.166	4.214	677	***18.542***	***1.965.921***	***11.607***	***364***	***312***	338	***2.067.315***
IT	552	4.112	23.727	5.247	2.825	***3.609***	***11.631***	***1.461.734***	***2.508***	***1.080***	297	***1.517.322***
SI	1	346	2.933	864	1.420	***94***	***386***	***3.203***	***59.985***	***682***	76	***69.990***
HU	22	617	5.133	4.796	2.476	***205***	***362***	***1.979***	***797***	***179.541***	208	***196.136***
Ext	6	50	693	1.263	427	533	358	50	0	112	46.983	***50.475***
Tot	***216.179***	***2.536.408***	***4.563.531***	***1.675.128***	***1.028.880***	***1.501.834***	***2.082.311***	***1.519.136***	***69.276***	***195.572***	***59.607***	***15.447.862***

Source: elaborations on Etisplus "Harmonized" road O/D matrix and CAFT data

Rail freight O/D matrix reveals that in Europe:

- ✓ those transported within the countries of the Corridor 6 represents only 10% of the total amount of goods;
- ✓ according to transports to and from areas of the Corridor 6:
  - France is the country handling more goods, but more than 80% represent national traffic;
  - import of Italy is 35% higher than export;
  - larger interchanges occur between France and Italy (about 3 million tons), Slovenia and Hungary (about 2.1 millions of tons) and Italy and Hungary (about 1.7 million of tons), while freight flows between Spain and Slovenia/Hungary are not relevant at all;
  - macro-zone C is the area with most exchanges with countries of the Corridor.

Rail freight O (D matrix (thousands of tons)

	A	B	C	D	E	ES	FR	IT	SI	HU	Ext	Tot
A	9.295					484						*9.779*
B		129.505	21.699	567	16	186	2.479	4.740	40	330	12	*159.574*
C		7.113	422.036	9.277	1.188	775	2.164	18.313	3.597	3.046	1.190	*468.699*
D		424	21.380	275.161	2.245	15	397	1.045	1.700	2.146	7.160	*311.673*
E		42	463	409	66.300	1	11	1.502	235	2.500	377	*71.840*
ES	917	105	639	5	1	*14.439*	*147*	*112*		*3*	1.055	*17.423*
FR		3.799	3.928	258	51	*696*	*66.103*	*2.240*	*20*	*11*		*77.106*
IT		3.030	11.492	218	111	*65*	*734*	*23.473*	*46*	*245*		*39.414*
SI			5.577	1.407	158		*14*	*130*	*3.520*	*966*	80	*11.852*
HU		327	4.437	992	1.899	*3*	*6*	*1.471*	*1.130*	*10.374*	954	*21.593*
Ext		79	1.555	51.389	106	2.456			19	2.983	21.136	*79.723*
Tot	*10.212*	*144.424*	*493.206*	*339.683*	*72.075*	*19.120*	*72.055*	*53.026*	*10.307*	*22.604*	*31.964*	*1.268.676*

Source: elaborations on Etisplus "Harmonized" Rail Freight by O/D (2010)

With regard to the Mode of Appearance, "liquid bulk goods" have a very high share of (>60%) in Ports of Marseilles, Trieste, Tarragona and Bilbao, while in Valencia we have a very high percentage of Container (78%).

Maritime freight transport demand. Mode of Appearance (MoA)

Port	Large freight containers		Dry bulk goods		Liquid bulk goods		Other cargo		Ro-ro		TOTAL
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons
Marseilles	7.999.616	9%	12.746.766	15%	61.339.742	70%	1.816.238	2%	3.131.636	4%	87.033.998
Valencia	43.192.551	78%	3.041.695	5%	5.480.918	10%	3.970.931	7%	0	0%	55.686.095
Genoa	11.233.156	25%	2.933.640	7%	22.712.250	51%	907.315	2%	6.720.910	15%	44.507.271
Trieste	2.363.085	6%	896.347	2%	28.099.713	70%	1.608.905	4%	7.040.225	18%	40.008.225
Barcelona	15.411.033	41%	5.058.874	13%	12.157.314	32%	777.723	2%	4.148.895	11%	37.553.839
Tarragona	2.442.752	7%	10.079.295	30%	20.598.577	61%	719.928	2%	191.155	1%	34.031.707
Venice	1.832.805	6%	10.013.626	35%	12.609.607	44%	4.031.024	14%	415.054	1%	28.902.116
Koper	3.692.782	23%	7.591.134	46%	2.862.957	17%	1.724.970	11%	538.978	3%	16.410.821
Sete	51.807	1%	1.281.966	33%	2.046.874	53%	202.143	5%	276.295	7%	3.859.085
Rotterdam	79.223.038	20%	92.860.740	23%	208.599.680	51%	10.803.165	3%	13.766.628	3%	405.253.251
Antwerp	81.767.748	49%	22.049.754	13%	41.736.473	25%	12.706.441	8%	7.791.986	5%	166.052.402
Hamburg	61.405.256	56%	28.991.510	27%	15.319.665	14%	2.747.683	3%	867.271	1%	109.331.385
Le Havre	19.745.260	20%	19.765.923	20%	54.147.557	56%	1.183.225	1%	1.870.330	2%	96.712.295
Bilbao	4.020.485	12%	5.029.456	15%	21.531.955	62%	3.689.215	11%	411.469	1%	34.682.580

Source: elaborations on Etisplus "Harmonized Port Freight by OD" (2010)

In any port "Petroleum products" are the most transported type of goods; other type of goods frequently transported are "Machinery, transport equipment, manufactured articles and miscellaneous articles", "Chemicals" and "Foodstuffs and animal fodder": these 4 categories represent about 80% of the total.

Maritime freight transport demand. Type of goods

Port	Petroleum products		Machinery		Chemicals		Foodstuffs and animal fodder		Other		TOTAL
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons
Marseilles	56.716.972	65%	7.507.895	9%	4.737.794	5%	5.463.357	6%	12.607.980	14%	87.033.998
Valencia	8.001.167	14%	18.416.779	33%	13.783.667	25%	8.097.161	15%	7.387.321	13%	55.686.095
Genoa	19.998.225	45%	12.707.641	29%	3.428.108	8%	4.680.499	11%	3.692.798	8%	44.507.271
Trieste	25.492.967	64%	8.265.731	21%	1.195.683	3%	3.209.463	8%	1.844.381	5%	40.008.225
Barcelona	12.182.681	32%	10.971.891	29%	5.183.055	14%	3.700.727	10%	5.515.485	15%	37.553.839
Tarragona	19.099.402	56%	1.340.980	4%	1.427.979	4%	2.658.518	8%	9.504.828	28%	34.031.707
Venice	12.743.323	44%	1.790.041	6%	1.164.106	4%	2.612.916	9%	10.591.730	37%	28.902.116
Koper	2.542.447	15%	3.552.608	22%	1.408.492	9%	2.195.418	13%	6.711.856	41%	16.410.821
Sete	1.714.149	45%	425.749	11%	192.116	5%	390.589	10%	1.136.482	29%	3.859.085
Rotterdam	187.730.963	46%	41.029.492	10%	40.698.438	10%	45.079.227	11%	90.715.131	22%	405.253.251
Antwerp	39.259.468	24%	38.392.960	23%	36.380.715	22%	18.941.951	11%	33.077.308	20%	166.052.402
Hamburg	12.967.797	12%	38.504.942	35%	17.230.503	16%	10.924.242	10%	29.703.901	27%	109.331.385
Le Havre	51.260.828	53%	12.402.952	13%	6.323.576	7%	7.495.038	8%	19.229.901	20%	96.712.295
Bilbao	20.121.069	58%	2.897.801	8%	2.494.601	7%	2.994.710	9%	6.174.399	18%	34.682.580

Source: elaborations on Etisplus "Modelled Port Freight by OD" (2010)

The 4 European airports handling highest volumes of goods per year are those of Frankfurt International, London Heathrow, Amsterdam and Paris Charles de Gaulle with a total of about 6 million/tons. Total flows handled in 16 considered airports along Corridor 6 in terms of transported volumes (airport from Madrid Barajas to Alicante), can be compared to those in transit at Amsterdam, third in Europe.

Air freight transport demand

Country	Airport	Tons/year
Germany	Frankfurt International Airport	2.109.763
United Kingdom	London Heathrow	1.430.482
Netherlands	Amsterdam	1.384.772
France	Paris CGD	1.249.588
Spain	Madrid Barajas	414.795
Italy	Milan Malpensa	399.451
Spain	Barcelona	128.613
Italy	Milan Bergamo	93.239
Hungary	Budapest	71.739
France	Marseille Provence	60.573
Spain	Zaragoza	47.856
France	Lyon St. Exupery	42.659
Italy	Milan Linate	38.135
France	Nice	28.911
Italy	Verona/Brescia	16.945
Spain	Valencia	13.638
Spain	Malaga	10.916
Italy	Turin Caselle	10.819
Slovenia	Ljubljana	7.271
Spain	Alicante	4.552

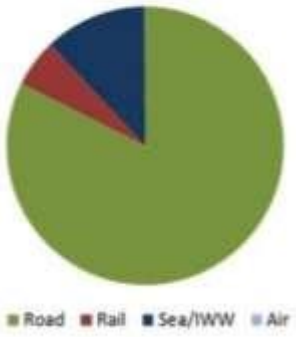
Source: Etisplus official web site (Etis Project) – Archived Data of Airports (2010)

4.2.3.3 Transport demand in the catchment area of Corridor 6

The analysis of modal split of freight flows within the catchment area of Corridor 6, confirms the importance of road transport (82.4%) and reveals also that rail market share in these part of the 5 countries is near to the rail market share in Europe (5,6% vs. 6,4%); goods transported by rail along the catchment area of Corridor 6 are about 3% of those transported by rail in Europe (277 vs. 1.246 million tons/year).

Freight flows along the Catchment area of Corridor 6 by mode of transport (millions of tons)

	Freight flows (mln of tons)	Modal split
Road	4.080	82,4 %
Rail	277	5,6 %
Sea/IWW	593	12,0%
Air	2	0,0%
Total	4.952	



Elaboration on Etis and CAFT data

Among those within the catchment area of Corridor 6 53,8% of rail transports have Origin and Destination in the same country, while 10,5% (29 million tons/year) in different ones. Exchanges from catchment area and any other zone (including those in 5 countries not crossed by Corridor 6) are 35,7% (99 million tons/year).

Freight flows to/from the catchment area of Corridor 6, by O-D links (millions of tons)

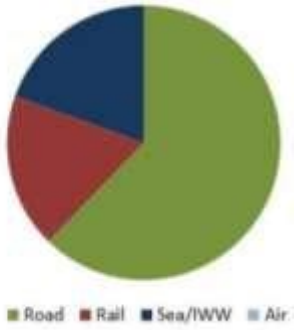
	TOTAL (mln of tons)	INT-INT National (mln of tons)	INT-INT International (mln of tons)	EXCHANGE (mln of tons)
Road	4.080	3.735 (91,6%)	99 (2,4%)	246 (6,0%)
Rail	277	149 (53,8%)	29 (10,5%)	99 (35,7%)
Sea/IWW	593	16 (2,7%)	31 (5,2%)	546 (92,1%)
Air	2	0 (0%)	0 (0%)	2 (100%)
Total	4.952	3.900 (78,8%)	159 (3,2%)	893 (18,0%)

Elaboration on Etis and CAFT data

The analysis of INT-INT International freight flows in the catchment area shows the importance of road transport (62,3% of market share) while Sea/IWW mode has 19,5% of market share and rail mode 18,2%

INT-INT International freight flows in catchment area of Corridor 6 by mode of transport

	Freight flows (mln of tons)	Modal split
Road	99	62,3 %
Rail	29	18,2 %
Sea/IWW	31	19,5 %
Air	0	0%
Total	159	

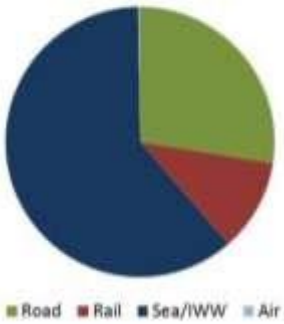


Elaboration on Etis and CAFT data

The analysis of Exchange flows highlights the importance of Sea/IWW transport with 61,1% of market share.

Exchange freight flows with catchment area of Corridor 6 by mode of transport

	Freight flows (mln of tons)	Modal split
Road	246	27,5 %
Rail	99	11,1 %
Sea/IWW	546	61,1 %
Air	2	0,2 %
Total	893	

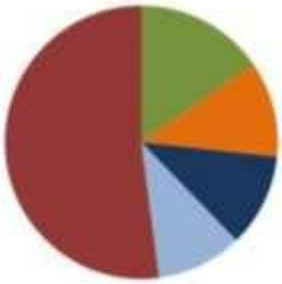


Elaboration on Etis and CAFT data

Those types of goods most transported by road and rail (share higher than 10%), have a clear relevance. Concerning "INT-INT international" flows in catchment area of Corridor 6, 4 types of goods most transported by road are about 40% of the total.

Catchment area of Corridor 6 "INT-INT international": type of goods (NST07) transported by road

	Millions of tons	%
Products of agriculture, hunting, and forestry; fish and other fishing products	15,1	15,4
Food products, beverages and tobacco	11,1	11,3
Chemicals, chemical products, and man-made fibers; rubber and plastic products ; nuclear fuel	10,8	11,0
Basic metals; fabricated metal products, except machinery and equipment	10,0	10,2
Other products	50,9	52,1

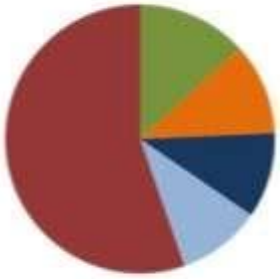


Elaboration on Etis and CAFT data

Concerning "Exchanges" flows between the catchment area of Corridor 6 and other zones, 4 types of goods most transported by road are about 45% of the total.

Catchment area of Corridor 6 "Exchanges": type of goods (NST07) transported by road

	Millions of tons	%
Food products, beverages and tobacco	32,4	13,2
Products of agriculture, hunting, and forestry; fish and other fishing products	27,1	11,1
Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel	25,1	10,3
Basic metals; fabricated metal products, except machinery and equipment	24,6	10,1
Other products	135,4	55,3

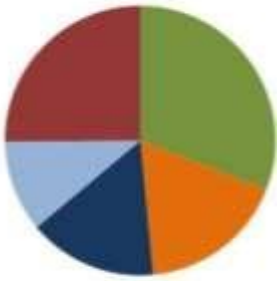


Elaboration on Etis and CAFT data

Concerning "INT-INT international" transports in the catchment area of Corridor 6, 4 types of goods most transported by rail are about 75% of the total.

Catchment area of Corridor 6 "INT-INT international": type of goods (NST1) transported by rail

	Millions of tons	%
Ores and metal waste	8,9	30,9
Crude and manufactured minerals, building materials	5,1	17,6
Machinery, transport equipment, manufactured articles and miscellaneous articles	4,4	15,4
Petroleum products	3,2	11,0
Other products	7,2	25,1



Elaboration on Etis data

Concerning "Exchanges" flows between the catchment area of Corridor 6 and other zones, 4 types of goods most transported by rail are about 60% of the total.

Catchment area of Corridor 6 "Exchanges": type of goods (NST1) transported by rail

	Millions of tons	%
Crude and manufactured minerals, building materials	17,9	18,2
Machinerym transport equipment, manufactured articles and miscellaneous articles	14,7	14,9
Ores and metal waste	13,2	13,3
Solid mineral fuels	12,0	12,1
Other products	40,9	41,5

Elaboration on Etis data

4.2.3.4 Main flows along the catchment area of Corridor 6

Further analysis is based on **main flows along the catchment area of Corridor 6**. The main flows along the catchment area of Corridor 6 are defined by the following process:

- ✓ the starting points are RAIL and ROAD O/D matrixes, considered separately to find the "RAIL main flows" and "ROAD main flows"; these O/D matrixes refer to the following zoning:
  - NUTS2 zones for Spain, France, Italy, Slovenia, Hungary and Austria[1];
  - NUTS1 zones for Germany; o NUTS0 zones for other Countries;
- ✓ exclusion of flows that goes for sure along paths that are NOT INTERESTING for Corridor 6, like:
  - flows along paths "far" from Corridor 6, which are clearly NOT INTERESTING for it (for example: flows between Belgium and Finland or between Northern Germany and Paris);
  - exclusion of flows that are maybe "closer" to the Corridor, but that are NOT INTERESTING for it (for example from Slovenia to Greece);
- ✓ exclusion of flows that, even if they could go along paths that are interesting for Corridor 6 (it means at least one of the possible paths between Origin and Destination could be along the Corridor 6), ARE NOT "INTERNATIONAL" FLOWS like flows between Turin and Venice or between Portugal and Barcelona. This final exclusion derives from the "European concept" of Corridors, intended to be infrastructure useful to support flows between different countries, and in this specific situation it has to be linked to Corridor 6 so that flows are interesting when they could be made along Corridor 6 and international only when they assume an international characteristics with regard to the 5 countries crossed by Corridor 6[3],

Remaining flows are then grouped in:

- ✓ International Flows with both Origin and Destination within the catchment area, like flows between Barcelona and Milan or between Budapest and Lyon;
- ✓ International Flows with:
  - Origin or Destination outside the "catchment area", like flows between Serbia and Milan (exchange flows)
  - Origin and Destination outside the "catchment area" like flows between Bilbao and Greece (transit flows)
  - The following analysis of main International ROAD or RAIL flows along Corridor 6, refers only to these remaining flows

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Austria is in NUTS2 aggregation due to its relevant exchange with the 5 Countries of the Corridor 6.

According to the analysis of main international ROAD freight flows "along" Corridor 6 (by O/D):

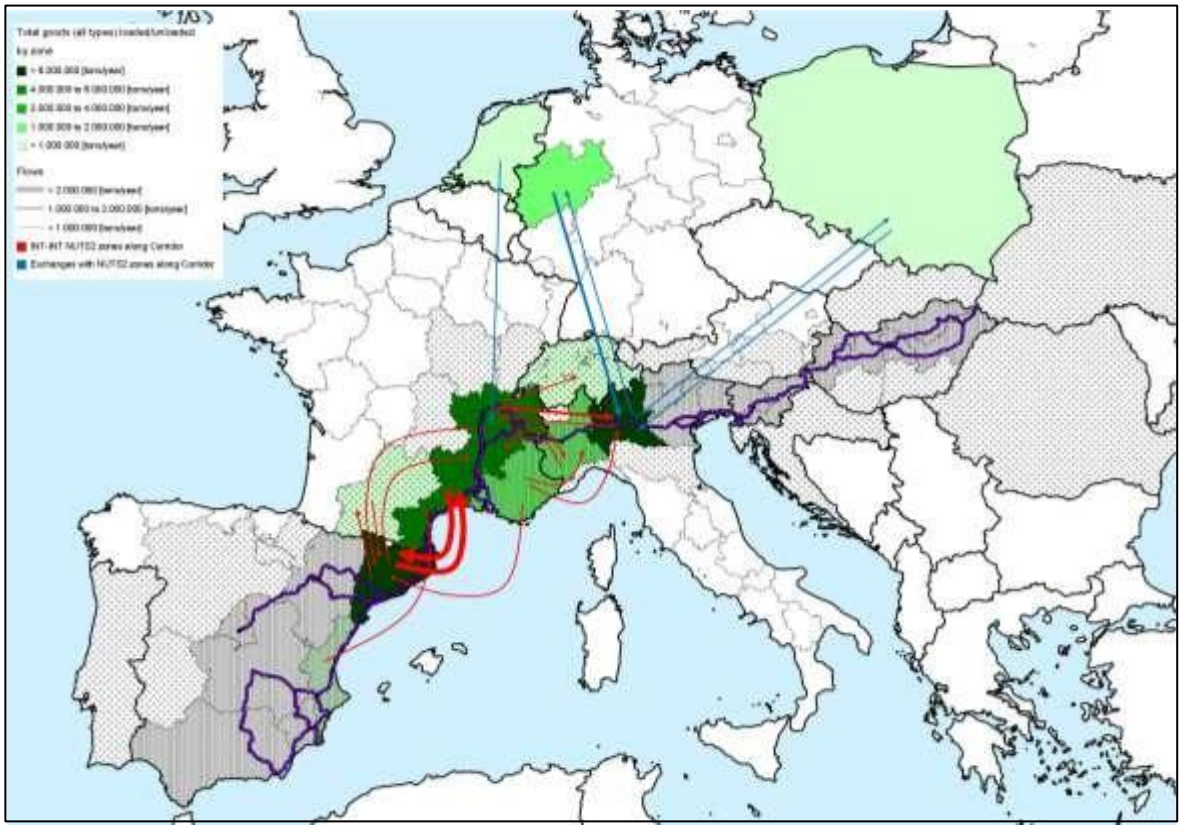
- ✓ The analysis refers only to flows that could transit through the catchment area of corridor crossing at least one border between 5 Countries, so that could be considered as International flows;
- ✓ The analysis considers more than 6.500 O/D pairs;
- ✓ "Internationality" of these flows with reference to 5 Countries of Corridor should have to be defined by followed paths, that depend on exact NUTS2 zones Origin or Destination;
- ✓ most important International flows within zones of the Catchment Area of the Corridor, are those in Western part of the Corridor, between Spain, France and Italy;
- ✓ at NUTS2 level, most important flows within zones of the catchment area of the Corridor are those from Cataluña to Languedoc-Roussillon and vice versa (about 2,3 million of tons/year per direction);

Flows are defined "international and interesting" when going at least along 2 of the 5 Countries of Corridor 6 (Spain, France, Italy, Slovenia and Hungary).

- ✓ most important O/D pair is completely within Corridor;
- ✓ ratio of the 20 most important O/D pairs is about 9% (18 million tons/year).

Next 4 tables refers respectively to main road or rail flows along or within the catchment area of Corridor 6: in any of these 4 tables, beside data of specific main flows they refer to, are presented also data about the "alternative" mode of transport[4] between the same O/D pairs in order to support an easy comparison of road and rail flows.

In next Table, beside the 20 main ROAD flows along the catchment area of Corridor 6 ranked by volumes of goods transported from Origins to Destinations, shows also the volumes of goods transported by rail between the same O/D pairs. These data reveals that, considering the total of goods transported between these 20 most important O/D pairs, road share is about 84% and rail share is about 16%. Rail share increase to 20% if we consider the total of goods transported between the 6.500 O/D pairs considered.



Main international ROAD freight flows that could be made "along" Corridor 6 (by O/D)

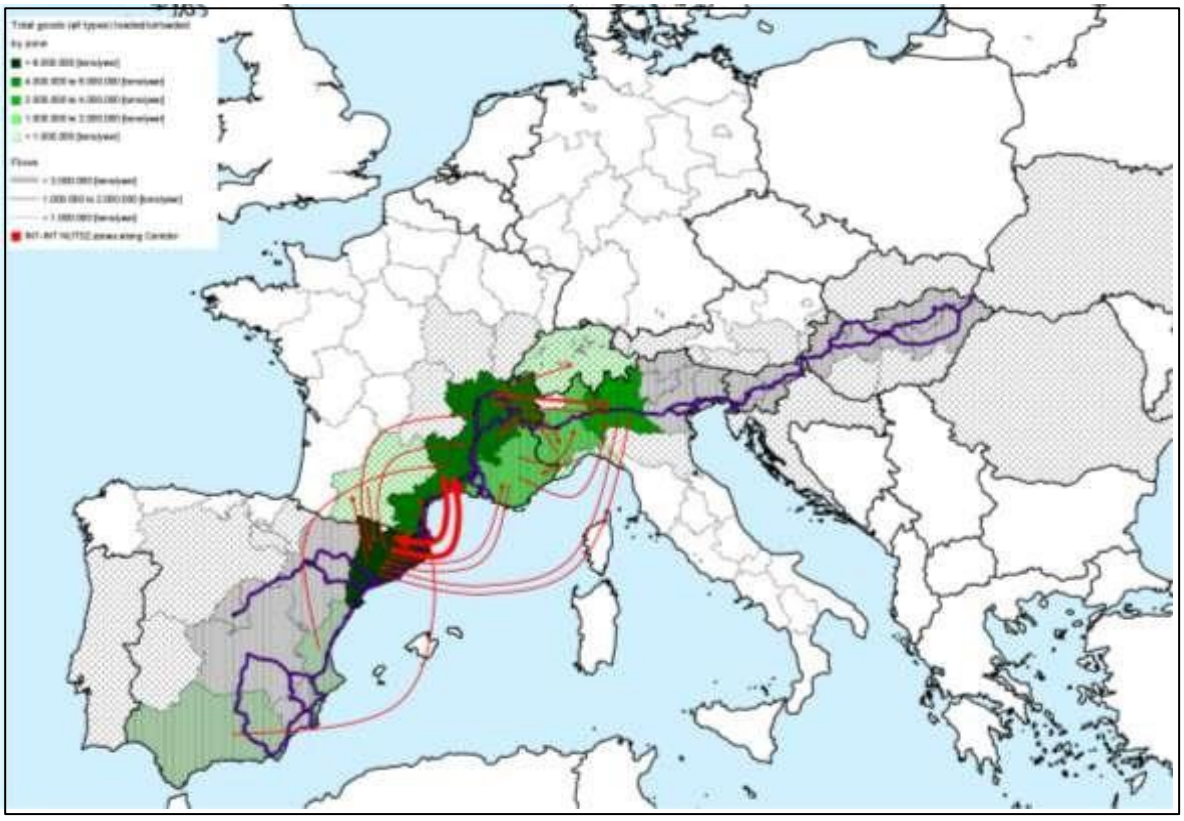
Analysis of main international ROAD freight flows within zones of the catchment area of Corridor 6 (by O/D):

- ✓ refers only to flows with Origin and Destination in the zone of the catchment area, that crossing at least one border between 5 Countries;
- ✓ considers more than 1.000 O/D pairs;
- ✓ reveals that ratio of the 20 most important O/D pairs is about 29% (16 million tons/year);

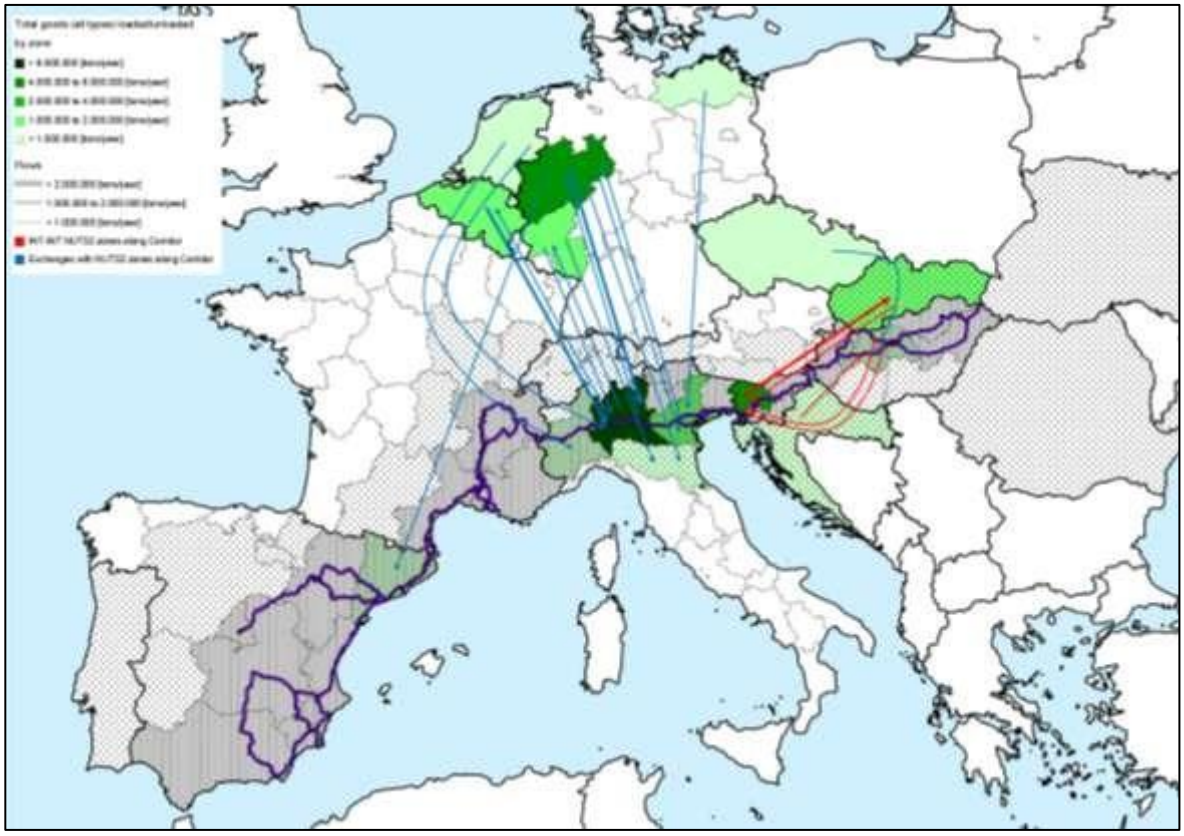
- ✓ reveals that ratio of the 2 most important OD pairs (from Cataluña to Languedoc-Roussillon and vice versa) is about 8% (4,7 million tons/year);

In the next table, beside the 20 main ROAD flows within the catchment area of Corridor 6 ranked by volumes of goods transported from Origins to Destinations, shows also the volumes of goods transported by rail between the same O/D pairs. These data reveals that, considering the total of goods transported between these 20 most important O/D pairs, road share is about 93% and rail share is about 7%. Rail share increase to 19% if we consider the total of goods transported between the 1.000 O/D pairs considered.

Main international ROAD freight flows within zones of the Catchment Area (by O/D)



Main international RAIL freight flows that could be made "along" Corridor 6 (by O/D)



Analysis of main international RAIL freight flows within zones of the catchment area of Corridor 6 (by O/D):

- ✓ refers only to flows with Origin and Destination in the zone of the catchment area, that crossing at least one border between 5 Countries;
- ✓ considers about 380 different O/D pairs;
- ✓ reveals that ratio of the 20 most important O/D pairs is about 64% (8,3 million tons/year);
- ✓ reveals that ratio of the most important OD pair (from Zahodna Slovenia to Slovakia and vice versa) is about 15,7% (2 million tons/year);

Next Table, beside the 20 main RAIL flows within the catchment area of Corridor 6 ranked by volumes of goods transported from Origins to Destinations, shows also the volumes of goods transported by road between the same O/D pairs. These data reveals that, considering the total of goods transported between these 20 O/D pairs, road share

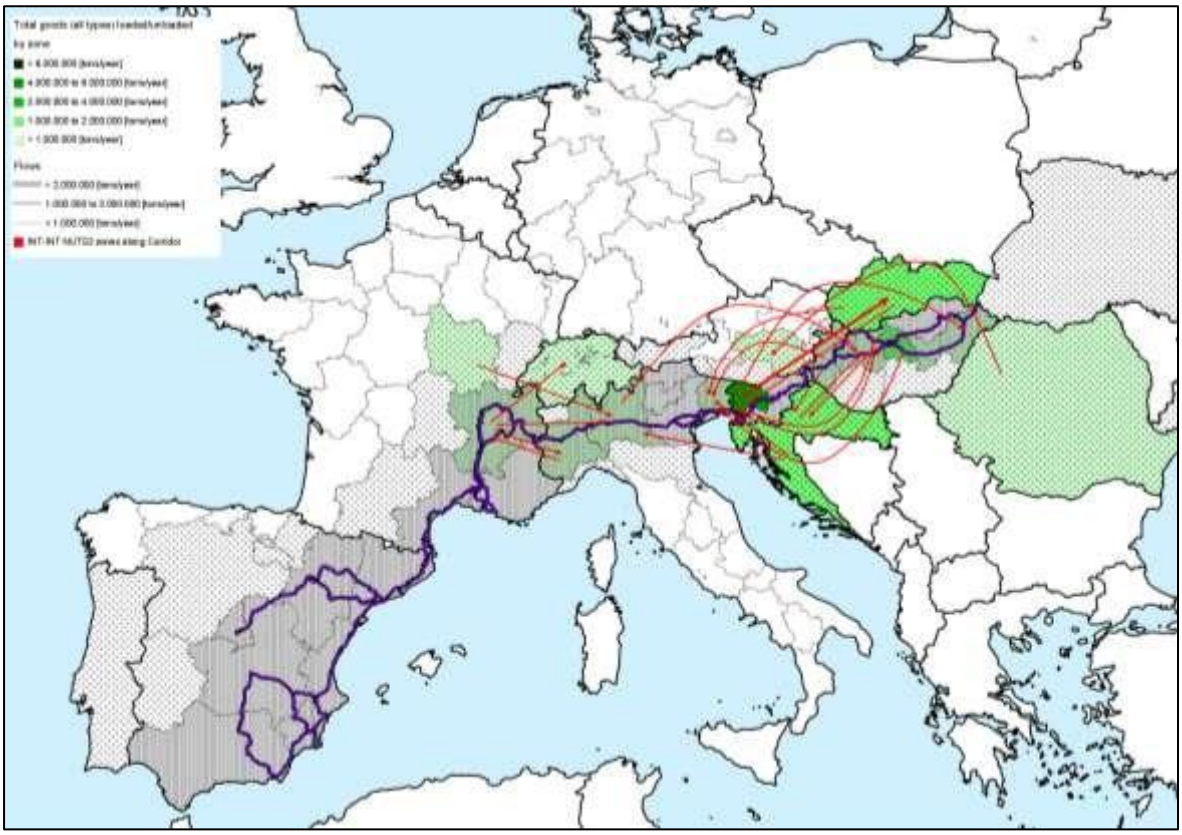
is about 35% and rail share is about 65%. Rail share decrease to 20% if we consider the total of goods transported between the 380 O/D pairs considered.

Main international RAIL freight flows within zones of the Catchment Area (by O/D)

ORIGIN		DESTINATION		RAIL	ROAD
Code	*Name*	*Code*	*Name*	Tons/Year	Tons/Year
SI02	Zahodna Slovenija	SK	Slovakia	**1.208.184**	172.833
HR	Croatia	HU21	Közép-Dunántúl	**832.403**	74.705
SK	Slovakia	SI02	Zahodna Slovenija	**826.248**	85.365
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	**742.323**	104.022
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	**694.949**	36.610
HR	Croatia	ITD4	Friuli-Venezia Giulia	**556.484**	149.441
HR	Croatia	ITC4	Lombardia	**549.940**	249.357
HU22	Nyugat-Dunántúl	HR	Croatia	**487.638**	225.667
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	**386.673**	34.337
FR71	Rhône-Alpes	ITC1	Piemonte	**266.768**	644.632
FR71	Rhône-Alpes	CH	Switzerland	**225.272**	595.783
FR26	Bourgogne	ITC4	Lombardia	**210.032**	222.382
SK	Slovakia	ITD4	Friuli-Venezia Giulia	**203.794**	76.393
ITC1	Piemonte	FR71	Rhône-Alpes	**199.069**	783.109
FR71	Rhône-Alpes	ITC4	Lombardia	**183.481**	1.019.191
RO	Romania	AT22	Steiermark	**172.494**	38.892
ITC4	Lombardia	HU21	Közép-Dunántúl	**165.548**	67.814
HU21	Közép-Dunántúl	HR	Croatia	**140.465**	157.994
HU10	Közép-Magyarország	ITD4	Friuli-Venezia Giulia	**134.494**	9.900
HU32	Észak-Alföld	SI02	Zahodna Slovenija	**131.177**	11.536
Total International RAIL freight flows within zones of the Catchment Area				**12.960.784**	55.764.822

Elaboration on Etis data

Main international RAIL freight flows within zones of the Catchment Area (by O/D)



4.2.4 Surveys

Key activity of the second phase of the TMS, is the realization of surveys to different stakeholders of the freight market along the Corridor 6. The overall design of the surveys to carry out included different sub activities: Focus Group analysis, sampling strategy definition, questionnaires design and general organization of direct surveys.

Overall survey design derives directly from the proposed, discussed and agreed methodology to be used for the overall study, so that key elements of any phase of surveys design lead to a specific pre-defined set of tools to complete any TMS Phase and to a specific set of possible and/or expected results and analysis.

The survey is directed to the following groups of stakeholders, key figures in the freight market of European Corridor 6:

- ✓ Shippers (manufacturing firms);
- ✓ Intermediaries (forwarders, logistic operators, MTo);
- ✓ Railway Undertakings and Terminal Managers (hereinafter RUs/TMs or RUs);

All different surveys completed to analyse behaviour, needs and thought of main freight market stakeholders in 5 countries of Corridor 6 aims to:

- ✓ Define the mode of transport decision process, with focus on main variables influencing it;
- ✓ Analyse behaviour of shippers and intermediaries in possible future scenarios;
- ✓ Evaluate opinions and thoughts of railways undertakings and terminal managers, with regard to possible actions useful to increase rail freight market share along Corridor 6;

According to the several goals of the study, different methodologies have been used during the surveys:

- ✓ RP and SP methodology in survey to Shippers, Intermediaries;
- ✓ RP, MaxDiff and Delphi methodologies in surveys to RUs and TMs.

Surveys to Shippers and the Intermediaries are very similar: the adopted sampling strategy is the same (efficient design) and both questionnaires include RP and SP parts, while only a few questions are a little different.

The RUs/TMs questionnaire, addressed to a list of stakeholders suggested by the different Infrastructure Managers of the 5 countries along Corridor 6, includes firstly an RP part, and the investigation is then completed by Max-Diff survey and by Delphi method.

4.2.4.1 Focus Group

✓ 2 focus groups

✓ Attendants: logistic manager of manufacturing companies and transport service provider

Focus Groups have been arranged to collect information needed to define most relevant parameters affecting the decisions of shippers and transport service providers, related to modes of transport available or to suggest/propose.

Parameters most frequently considered deciding mode of transport

Most important parameters considered by attendants are:

Travel time: it is really important to have a "fast delivery service", most of because in last year it happens more frequently to work with "just in time" production and delivery;

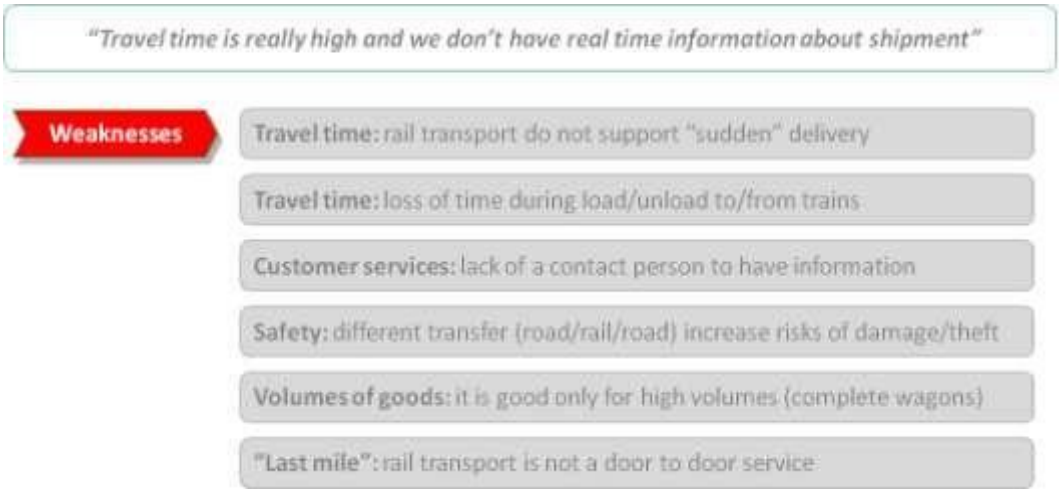
Cost: cost is always considered when asking for or offering a transport service;

Reliability of transport: service has to guarantee delivery of products everywhere with no delays and with no damages, having total responsibility of goods;

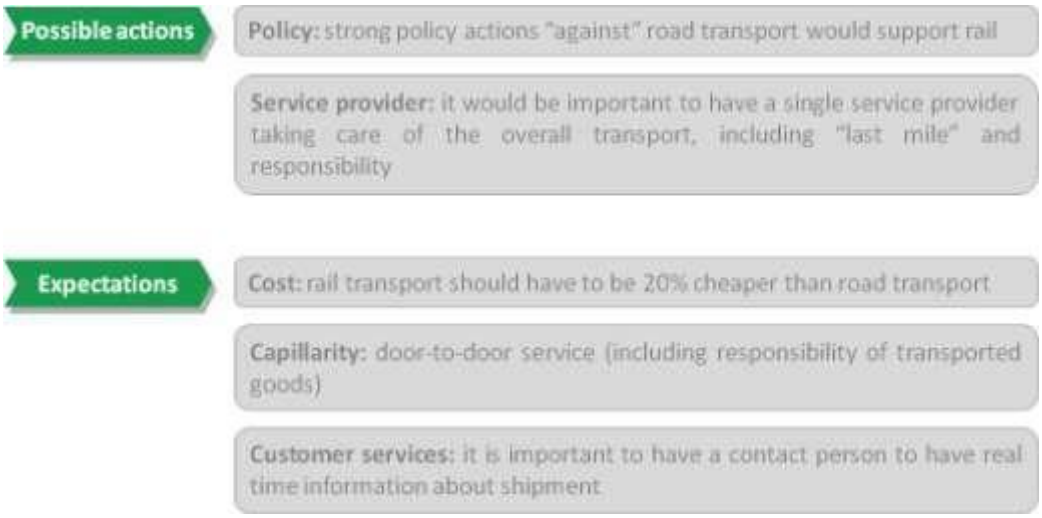
Possibility to overcome critical aspects: the transport service provider has to prove is capability to overcome "administrative and bureaucratic issues", especially at some border.

Present road transport services analysis: strength and weaknesses

Present rail transport services analysis: strength and weaknesses



Possible actions (suggestions) and expectations of the attendants at Focus Groups



A general analysis of completed Focus group reveals that:

- ✓ road transport has a "better and easier" organization: request of service, time to have the service, contact people, well-known service providers, well known cost;
- ✓ rail transport service need specific policy actions to increase its market share;
- ✓ rail transport services are not supported by "efficient marketing actions" compared to road transport: all shippers agree on importance to receive information and economical/technical proposal from rail transport service providers;
- ✓ rail transport should need to be offered by a well-known service providers and, today, it would be better to see a road transport service provider to offer "also" rail transport, than the opposite;
- ✓ rail transport, as any other transport service, should have to include:
  - o a door-to-door service, that means to take care also of first and last mile;
  - o 100% responsibility of transported goods from initial Origin to Destination final destination;

- a contact person to have real time information about transport.

4.2.4.1.1 Shippers and intermediaries RP/SP survey

4.2.4.1.1.1 Sampling strategy

The demand for rail freight transport and the willingness to switch from road to rail freight services can be evaluated on the basis of the preferences stated by freight users between the mode currently used and a set of alternative services hypothetically offered in the market. These kind of data are called stated preference data (SP) since they are based on stated choices, rather than choices currently made by the sample (revealed preferences).

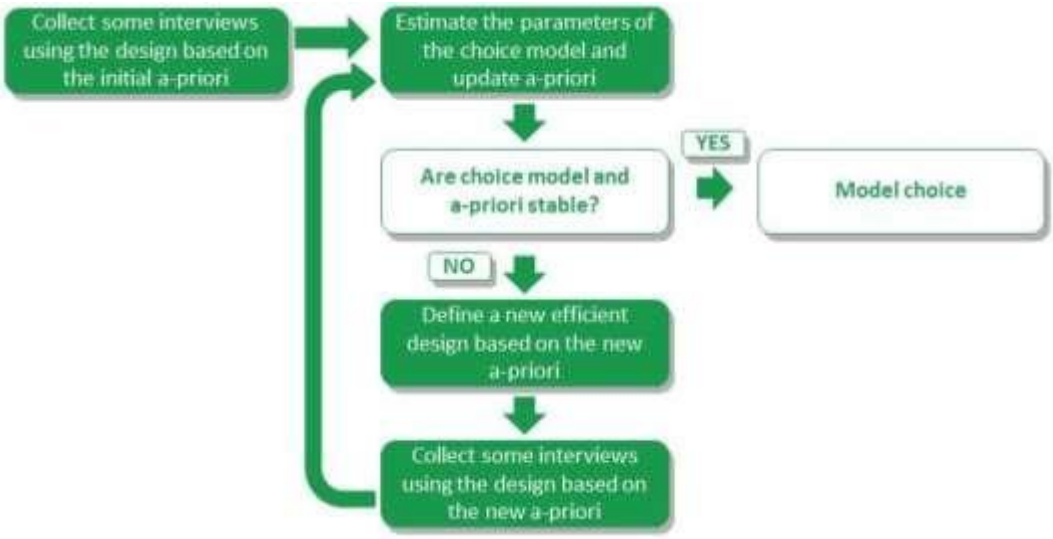
In order to collect SP data it is necessary to define the attributes, that is the characteristics of the freight services to be analysed, and the levels of the attributes, that is the values of the characteristics used to describe the hypothetical scenarios. To increase the realism of the choice experiments the levels of the attributes should be based on the values characterizing the transport services currently available to the respondents.

A choice scenario comprises a set of hypothetical freight services (alternatives) and the respondent is required to state the most preferred one. To increase the quality of the data collected the number of alternatives included in a choice scenario should be limited to three or four attributes (depending on the complexity of the choice process).

The description of the hypothetical alternatives included in each choice scenario, that is of the attributes and of the attributes" levels, and the sequence of the choice scenarios to be administered to each respondent is defined by an experimental design. Since the quality of the data collected is affected by the number of the scenarios administered to each respondent, the number of choices shouldn't be higher than 10. Traditionally orthogonal fractional factorial designs were used, allowing preserving the statistical independence of the parameters of the attributes analysed, but requiring large samples in order to obtain statistically significant parameters of the choice models to be estimated. More recently efficient designs have been developed. They are not necessarily orthogonal, but they allow reducing a lot the number of choice data needed in order to obtain statistically significant parameters. In fact, an experimental design is called efficient if it yields data that enables the estimation of the parameters with as low as possible standard errors. These standard errors can be predicted by determining the asymptotic variance-covariance matrix (AVC) which is based on the attributes" levels and some prior information about the parameters to be estimated. The AVC matrix is the negative inverse of the expected Fisher Information matrix, which is the matrix of the second derivatives of the log-likelihood function. It is interesting to notice that for the Multinomial Logit Model the choices made by the respondents drop out from the second derivatives, allowing analytically deriving the AVC matrix. The asymptotic standard errors of the parameters are the square roots of the diagonal of the AVC matrix and they decrease with a rate of 1 over the square root of the sample size N. To derive an efficient design we need to have some a-priori on the true value of the parameters to be estimated and derive the variance-covariance matrix. The a-priori are obtained from previous studies, pilot studies, focus groups or experts.

The efficient design is based on an iterative process of calculating choice model parameters and a-priori as long as these could be considered stable.

The efficient design



4.2.4.1.1.2 Questionnaire design

Questionnaires are a basic element of the surveys, as their contents have to be in the same time user friendly (any interviewer and interviewed has to perfectly understand questions and their "exact meaning") and exhaustive, as they have to allow to collect any qualitative and quantitative data necessary to carry on next analysis, including forecasts.

The questionnaires design (definition of the topics to be investigated, of the values of the different attributes, sequence of the questions, etc.) was based on and on main results of Focus Group or previous available studies and on the literature.

4.2.4.1.1.2.1 The questionnaire for shippers (manufacturing firms)

Starting from Focus Group evidences, results of completed studies, literature analysis and indication provided by European economic interest group of Corridor 6, survey's items and questionnaires (including both RP and SP survey) were defined with the following specific goal:

- ✓ RP section aims to define current transport demand, referring to specific role of different actors in supply chain. Questionnaire was arranged in order to analyse all relevant aspects influencing activities/services of different actors.
- ✓ SP section aims to determine how the variables (attributes) characterizing different transport modes influence the stated (revealed) choices. Attributes are defined by an experimental design, and the possibility to trace the independent influence that each attribute produces on the stated choice;

- ✓ Evaluation section aims to determine the customer satisfaction/opinion with reference to the main characteristics of road and rail freight transport.

4.2.4.1.1.2.2 The questionnaire for Intermediaries (forwarders, logistic operators, Mto)

Questionnaire used for Intermediaries was similar to that for Shippers, as, in their position in supply chain, Intermediaries assume the role of service providers but also that one of "customers".

Questionnaire includes 3 main sections:

- ✓ Section 1 refers to **general information about companies**:
  - nationality, turnover, employees, etc.;
  - main characteristics of 3 most frequently handled goods (type of goods, transport mode used, origin and destination, etc.);
- ✓ Section 2 (RP and SP section), about:
  - RP part on 2 main transports: transport mode used, weight and volume of shipment, cost, travel time, annual percentage of late shipments, annual percentage of damaged goods, estimated distance, transport organization, cost of alternative mode transport, travel time of alternative mode transport, etc.;
  - SP part (choice exercises): 5 choices exercises for each one of the 2 shipment previously described in RP part of the questionnaire;
- ✓ Section 3 (**"customer satisfaction section"**):
  - evaluation of main characteristics of road transport: travel time, cost, delay, risk of damage/lost goods, risk of theft, flexibility, general level of service;
  - the evaluation of main characteristics of rail transport: travel time, cost, delay, risk of damage/lost goods, risk of theft, flexibility, general level of service.

4.2.4.2 Survey achievement

4.2.4.2.1 The collect data

Regarding the execution of the survey, according to the "efficient design methodology", the number of interviews is not defined a priori but based on the preliminary results of surveys. 839 interviews have been completed, with this specific distribution in Countries and among type of interviewed people:

- ✓ 751 interviews to Shippers:
  - Spain: 199 interviews;
  - France: 130 interviews;
  - Italy: 240 interviews;
  - Hungary: 150 interviews;
  - Slovenia: 32 interviews.
- ✓ 88 interviews to Intermediaries companies:
  - Spain: 21 interviews;
  - France: 17 interviews;
  - Italy: 33 interviews;
  - Hungary: 9 interviews;
  - Slovenia: 8 interviews.

According to the efficient design methodology, it is not possible to define an "a-priori" number of interviews to collect, while the necessary number of interviews is derived from the step-by-step analysis of collected data: so far, the final number of interviews completed in single countries can be considered statistically significant and representative of the analysed market.

The logistic managers of the 839 firms have been interviewed on the characteristics of the most important incoming and outgoing freight flows. Since the manufacturing firms and the freight forwarders play a different role in the supply chain and have quite different logistic organizations, the analysis of the mode choice typically made both for the incoming and for the outgoing flows has been performed by firm type

4.2.4.3 Encountered problems

Even if during the surveys some problems regarding the survey questionnaires and the number of interviews have been encountered, most of these issues were easily overcame.

Questionnaires

It was necessary to modify the questionnaires because the first one used was too long: most of interviewees didn't accept to complete the interview, due to high number of questions, the complexity of some and the request to give detailed replies even about sensitive data.

The latest version of the questionnaire, shorter and most users friendly ensured a better feedback from the respondents.

Completion of necessary interviews and their quantity

Even if according to the "efficient design method" adopted, an "a-priori" minimum number of necessary interviews is not defined, at the beginning of the surveys it was defined a certain number of interviews to collect in each one of the 5 Countries of Corridor 6, on the basis of a preliminary analysis.

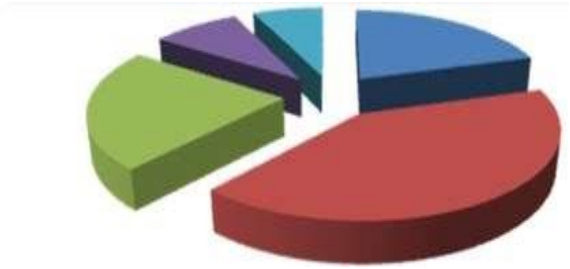
Surveys in Slovenia started very late due to force majeure but, however, thanks to the adoption of the efficient design methodology, the final number of interviews collected allows to carry out the predefined analysis.

4.2.4.4 Results

4.2.4.4.1 The sample

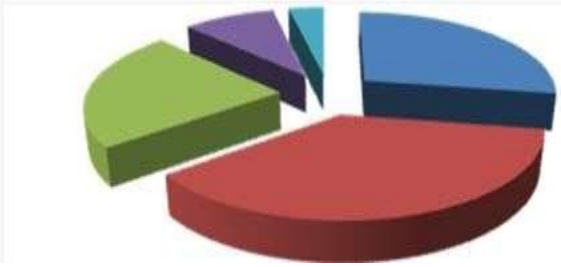
More than 60% of interviewed **shippers** has a typical micro-enterprise turnover, 23% that of the "small enterprises" and 16% that of medium-sized ones.

Annual turnover	
< 500.000,00 €	20%
500.000,00 - 2.000.000,00 €	41%
2.00.000,00 - 10.000.000,00 €	23%
10.00.000,00 - 20.000.000,00 €	9%
> 20.000.000,00 €	7%



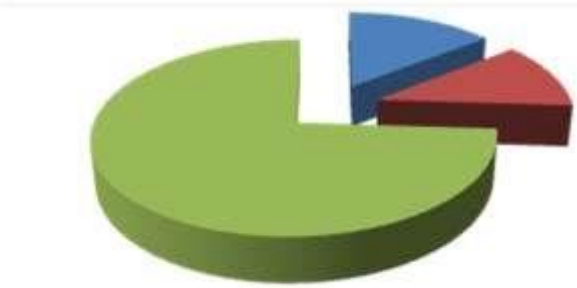
28% of interviewed **shippers** has a typical micro-enterprise number of employees, 37% that that of small enterprises, 23% of medium-sized and 12% of large ones.

Total employees	
< 10	28%
10-49	37%
50-249	23%
250-1.000	9%
>1.000	3%

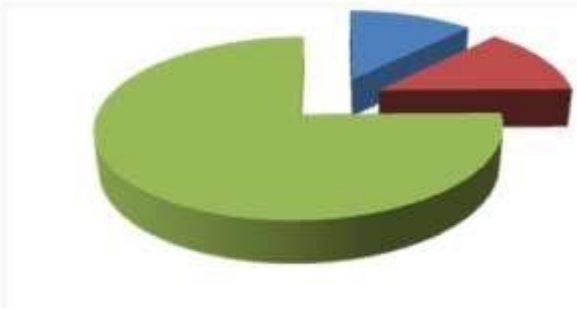


Most of interviewed **shippers** delegate to third party the organization and transportation of the goods (74% of incoming goods, 75% of the outbound flows).

Transport organization of inbound freight	
Transport arranged by Company AND made with Company's vehicles/equipments	14%
Transport arranged by Company BUT made with other Company's vehicles/equipments	12%
Transport arranged by THIRD PARTIES and made with their vehicles/equipments	74%

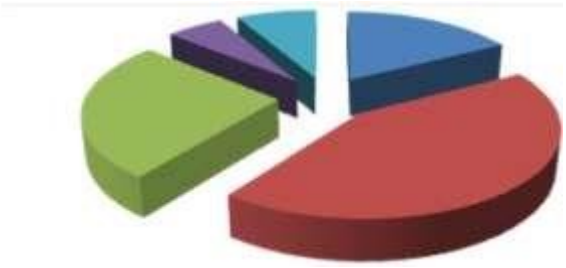


Transport organization of outbound freight	
Transport arranged by Company AND made with Company's vehicles/equipments	12%
Transport arranged by Company BUT made with other Company's vehicles/equipments	13%
Transport arranged by THIRD PARTIES and made with their vehicles/equipments	75%



60% of interviewed **intermediaries** has a turnover of a typical micro-enterprise (2.000.000,00 €/year), 26% that of "small enterprises" and 14% of medium-sized ones.

Annual turnover	
< 500.000,00 €	17%
500.000,00 - 2.000.000,00 €	43%
2.00.000,00 - 10.000.000,00 €	26%
10.00.000,00 - 20.000.000,00 €	6%
> 20.000.000,00 €	8%

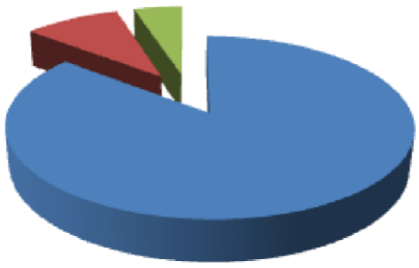


46% of interviewed **intermediaries** has a typical micro-enterprise number of employees, 41% that of small enterprises, 9% that of medium-sized and 4% of large.

Total employees	
< 10	46%
10-49	41%
50-249	9%
250-1.000	2%
>1.000	2%

The majority of interviewed **intermediaries** (86%) arranges and carries out the transport.

Transport organization	
Transport arranged by Company AND made with Company's vehicles/equipments	86%
Transport arranged by Company BUT made with other Company's vehicles/equipments	9%
Transport arranged by THIRD PARTIES and made with their vehicles/equipments	5%



The characteristics of the sample reveals that main market segments are represented by interviews completed, even if a statistically significant representativeness can't be referred to very detailed groups of stakeholders (i.e. small companies, shipping a specific type of good by rail along paths longer than 500 km)

Incoming freight flows arrangement by **ROAD** by localization of interviewed **Shippers**

661 interviewed shippers (73%) were able to describe shipment arrangement

- ✓ 62% of interviewed: 100% of the incoming freight flows arranged by road;
- ✓ 25%of interviewed: more than 50% of incoming flows arranged by road;
- ✓ 4% of interviewed: less than 50% of incoming flows arranged by road;
- ✓ 9% of interviewed: none of the incoming flows are transported by road.

Incoming freight flows arrangement by **RAIL** by localization of interviewed **Shippers**

663 interviewed shippers (73%) were able to describe shipment arrangement

- ✓ 2% of interviewed: 100% of the incoming freight flows arranged by rail;
- ✓ 2% of interviewed: more than 50% of incoming flows arranged by rail;
- ✓ 6% of interviewed: less than 50% of incoming flows arranged by rail;
- ✓ 90% of interviewed: none of the incoming flows are transported by rail;

% of incoming flows arranged by rail	ES	FR	HU	IT	SL	Tot.	
0%	180	64	137	101	22	504	90%
1% - 50%	5	3	12	9	6	35	6%
51% - 99%	2	1		3	3	9	2%
100%	9		1			10	2%
n.a.	3	62		127	1	193	
Total	**199**	**130**	**150**	**240**	**32**	**751**	

Outgoing freight flows arrangement by **ROAD** by localization of interviewed **Shippers**

709 interviewed shippers were able to describe shipment arrangement

- ✓ 54% of interviewed: 100% of the outgoing freight flows arranged by road;
- ✓ 25% of interviewed: more than 50% of outgoing flows arranged by road;
- ✓ 5% of interviewed: less than 50% of outgoing flows arranged by road;
- ✓ 16% of interviewed: none of the outgoing flows are transported by road.

Outgoing freight flows arrangement by **RAIL** by localization of interviewed **Shippers**

709 interviewed shippers were able to describe shipment arrangement

- ✓ 8% of interviewed: 100% of the outgoing freight flows arranged by rail;
- ✓ 5% of interviewed: more than 50% of outgoing flows arranged by rail;
- ✓ 9% of interviewed: less than 50% of outgoing flows arranged by rail;
- ✓ 78% of interviewed: none of the outgoing flows are transported by rail;

% of outgoing flows arranged by rail	ES	FR	HU	IT	SL	Tot.	
0%	79	96	146	211	23	555	78%
1% - 50%	36	8	3	11	8	63	9%
51% - 99%	28	1		1		30	5%
100%	55		1	2		58	8%
n.a.	1	25		15	1	42	
Total	**199**	**130**	**150**	**240**	**32**	**751**	

Main finding of the analysis of the mode of transport used to arrange incoming and outgoing main flows, is that shippers use road transport in majority of shipments: this data lead to consider that rail transport services are not considered as favourite choice for shippers, and it could also derive from the fact that some shipper don't even know characteristics of these services, as highlighted by preliminary Focus Group,

Freight flows arrangement by **ROAD** by interviewed **Intermediaries**

88 interviewed intermediaries were able to describe shipment arrangement

- ✓ 67 % of interviewed: 100% of the shipments are arranged exclusively by road;
- ✓ 23% of interviewed: more than 50% of the shipments arranged exclusively by road;
- ✓ 10% of interviewed: less than 50% of the shipments arranged exclusively by road;

% of shipments arranged by road	Tot.	
0% - 50%	**9**	**10%**
51% - 99%	**20**	**23%**
100%	**58**	**67%**
n.a.	**1**	
Total	**88**	

Freight flows arrangement by **RAIL** by interviewed **Intermediaries**

88 interviewed intermediaries were able to describe shipment arrangement

- ✓ 82% of interviewed: any shipment is arranged by rail;
- ✓ 15% of interviewed: less than 50% of shipments are arranged by rail;
- ✓ 3% of interviewed: more than 50% of the shipments are arranged by rail.

% of shipments arranged by rail	Tot.	
0%	72	82%
1% - 50%	13	15%
51% - 100%	3	3%
n.a.	0	
Total	88	

The analysis of information given by intermediaries, confirms that most of shipments are made by road and it confirms results achieved with shippers interviews. A cross analysis could lead to consider as really important an increase of the use of rail transport by intermediaries to increase also overall rail freight market share, because shippers generally contact intermediaries to arrange shipments and, so far, they could be "lead" to use road instead of rail.

4.2.4.4.2 Qualitative evaluation of road and rail services

In order to better understand opinions of shippers and intermediaries about present road and rail services, all the interviewed people have been asked to express their opinion about some of the main characteristics of the two different modes of transport. Main results of this part of the survey are presented with regard to different subsamples.

Qualitative evaluation of road service by Country of interviewed companies

The qualitative and qualitative analysis of road services, developed with a methodology similar to the customer satisfaction by asking interviewed people to express their opinion about some of the main characteristics of road transport, highlights these relevant aspects:

- ✓ the road service is generally appreciated: its better characteristic is the really low risk of theft, the worst one is the cost of transport, even if also with regard to it the overall opinion is positive; interviewed people are satisfied by all different characteristics of road transport and it could be due to the fact they are used to this mode and they know it, so that they appreciate it the way it is;

by carrying out the same analysis with regard to the different countries where interviewed people/companies are located, some slight difference could be observed with interviewed of Spain and Slovenia expressing a more critical opinion; data reveals that only for Spanish interviewed and only with regard to the cost of transport, the average is closer to a "neutral" than to "somewhat satisfied".

Shippers and Intermediaries surveys: qualitative evaluation of road service (all respondents)

1: Very satisfied; 2: Somewhat satisfied; 3: neutral; 4: Somewhat dissatisfied; 5: Very dissatisfied

	Travel time	Cost	Delays	Risk of damage	Risk of theft	Flexibility	General LOS	Traceability	Contact
ES	2,25	2,58	2,09	2,02	1,84	2,07	2,05	1,99	1,97
FR	1,61	2,13	1,94	1,97	1,97	1,99	1,87	1,81	1,83
HU	1,31	1,61	1,74	1,39	1,17	1,27	1,36	1,46	1,33
IT	1,79	2,28	1,86	1,72	1,65	1,80	1,70	1,95	1,75
SL	1,78	2,48	2,10	2,08	1,95	1,78	1,95	2,16	1,94
Tot	**1,78**	**2,21**	**1,92**	**1,78**	**1,67**	**1,79**	**1,76**	**1,84**	**1,73**

Qualitative evaluation of rail service by Country of interviewed companies

The same kind of analysis, referred to present rail services, highlights these relevant aspects:

- ✓ the rail services are generally appreciated even if less than road ones: best judgment about characteristics of present rail transport services, average 2,19 with regard to the possibility to contact a person to have information about shipments, is comparable with the worst judgment about road transport services (2,21 referred to cost of transport)

- ✓ the best characteristics of rail transport services are traceability of goods and the possibility to contact a person to have information about shipments, while the worst ones are limited flexibility and quite high risk of delays;

✓ by carrying out the same analysis with regard to the different countries where interviewed people/companies are located, with regard to rail services evaluation quite important differences could be observed: judgment in

1: Very satisfied; 2: Somewhat satisfied; 3: neutral; 4: Somewhat dissatisfied; 5: Very dissatisfied

Hungary is really much better than that expressed by interviewed people in other countries, where the average evaluation is generally closer to the "Neutral" position than to the "Somewhat satisfied" one. In particular, negative opinions are expressed by interviewed people in Slovenia, even if in Italy and Spain results are not that positive these results have to be taken into account, when analysing propensity of interviewed to move from road to rail transport.
Shippers and Intermediaries surveys: qualitative evaluation of rail service (all respondents)

Qualitative evaluation of road services by type of firms

	Travel time	Cost	Delays	Risk of damage	Risk of theft	Flexibility	General LOS	Traceability	Contact
ES	2,79	2,57	2,43	2,33	2,00	2,75	2,20	2,22	2,08
FR	1,76	2,11	2,12	2,07	2,21	2,07	1,94	1,93	1,93
HU	1,82	1,82	2,45	1,82	1,36	1,82	1,60	1,40	1,36
IT	2,69	2,52	2,79	2,56	2,47	2,84	2,52	2,40	2,34
SL	4,08	3,76	3.73	3.43	3.62	4.05	3.81	3.50	3.31
Tot	**2,47**	**2,50**	**2,61**	**2,44**	**2,45**	**2,64**	**2,41**	**2,24**	**2,19**

Analysis carried out separately for shippers and intermediaries, reveals that forwarders tend to have a more critical judgment than manufacturing firms.

	Travel time	Cost of transport	Delays	Risk of damage	Risk of theft	Flexibility	General LOS	Traceability	Contact
Intermediaries	1,98	2,66	2,15	1,86	1,83	1,89	1,92		
Shippers	1,76	2,16	1,89	1,77	1,65	1,78	1,74	1,84	1,73
Total	1,78	2,21	1,92	1,78	1,67	1,79	1,76	1,84	1,73

Shippers and Intermediaries surveys: qualitative evaluation of road service by firm's type

1: Very satisfied; 2: Somewhat satisfied; 3: neutral; 4: Somewhat dissatisfied; 5: Very dissatisfied

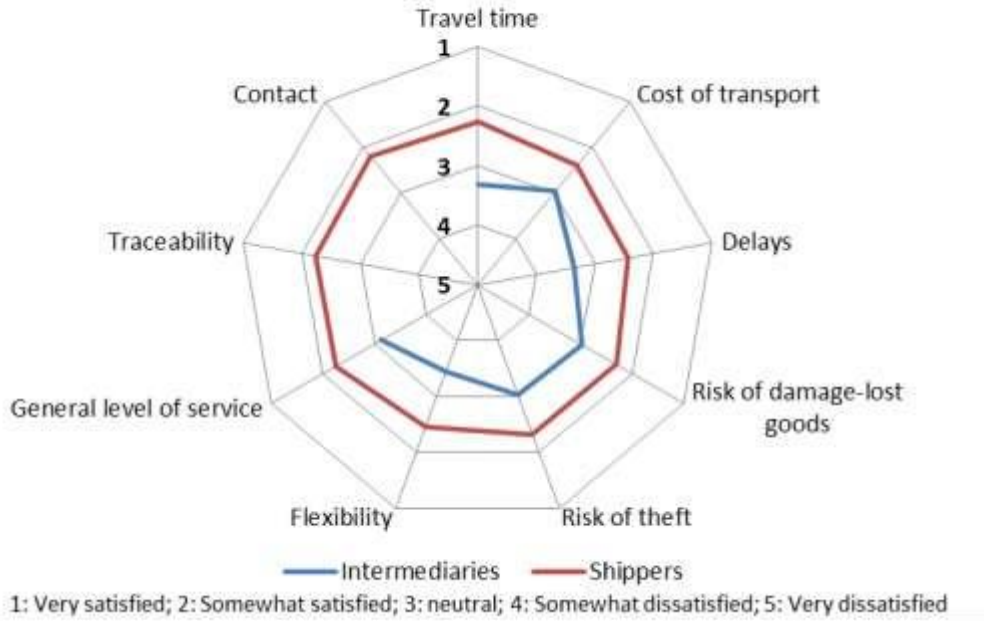
Qualitative evaluation of rail services by type of firms

The same evidence could be observed with regard to present rail services: once again, intermediaries have a more critical judgment than shippers. It is important to underline that, according to this mode of transport; the differences in judgment given by the two subsamples are really much more evident than those observed with regard to present road services. Even if judgment about any characteristic of rail transport services is always less positive than that given about road services, differences expressed by shippers are more limited than those observed for intermediaries.

These results could be considered as an important reason leading intermediaries to offer shippers the road transport as the preferred one.

	Travel time	Cost of transport	Delays	Risk of damage	Risk of theft	Flexibility	General LOS	Traceability	Contact
Intermediaries	3,31	2,96	3,35	2,98	3,02	3,45	3,13		
Shippers	2,27	2,39	2,43	2,31	2,32	2,45	2,24	2,24	2,19
Total	2,47	2,50	2,61	2,44	2,45	2,64	2,41	2,24	2,19

Shippers and Intermediaries surveys: qualitative evaluation of rail service by firm's type



4.2.5 RUs/TMs survey

The RUs/TMs survey represents the logical counterpart to those provided in the demand analysis section. It is important to know that, especially given the long term perspective that a European freight transport corridor necessarily must have, it is not sufficient to forecast the most likely demand evolution without considering both the GNP changes along with the actions and preferences of the suppliers, in this case the RUs/TMs.

Recent papers in the academic literature (Hensher and Puckett, 2007), especially with respect to freight transportation, have underlined the importance of accounting for interaction effects among agents in order to determine the end results of a given policy intervention that is about to be enacted. Given the geographical amplitude of the survey area investigated and the short time period available for administering the interviews the appropriate methodological tools needed to elicit interaction effects among agents in transport (Marcucci et al. 2012) could not be used. Nevertheless, the research team developed alternative survey instruments to capture the information needed to ex-post evaluate the compatibility between the elements considered relevant in the choice process by the agents expressing the demand for freight transport along the corridor and the attributes the RUs/TMs are focusing on in order to progressively attract more customers.

4.2.5.1 Survey's sampling strategy

The survey, addressed to Railway Undertakings and rail and intermodal Terminal Managers interested in Corridor 6, aims to collect and evaluate opinions, expectations and needs of these relevant stakeholders of the freight market.

Two advisory groups have been defined, including actors potentially interested in using Rail Freight Corridor 6: RAG (Railway Undertakings Advisory Group) and TAG (terminals Advisory Group).

Due to the quite limited number of persons included in provided list of TAG-RAG operators, about 170 people, and to the importance to know their opinions/expectations, a sampling strategy has not been defined preferring to try to interview all the different stakeholder.

4.2.5.2 Questionnaire design

This part of the surveys can be conceptually subdivided in two parts.

The first part of the survey focuses on individual agents" evaluations for single attributes. Three methods are used to elicit these preferences, namely: ranking, rating and Max-Diff. The choice is motivated both by the complementarities among the methods used as well as robustness check. Ranking the evaluated attributes helps ordering the various attributes while rating does not limit itself to an ordering but also provides information concerning how much more one attribute is considered important with respect to the other. Finally, Max-Diff (maximum difference or best-worst scaling) data (Louviere, 1991; Finn and Louviere 1992) provides the scaling of the evaluated attributes on a preference or importance scale. In a Max-Diff study agents are shown sets of product attributes and asked to choose the best or most important from each set as well as the worst or less important. One measure of attribute importance is the simple frequency of how many times, within the respondents" sample, the attribute was chosen as most important (attribute frequency matrix). Furthermore the data acquired (this is the main difference with respect to the previous methods) are used to estimate a multinomial logit model: the data are arrayed so that each original Max-Diff set forms two choice sets in the analysis, one positively weighted set for the best choice and one negatively weighted for the worst choice.

The second part of the survey focuses on wider set of issues considered relevant by the RUs/TMs. In particular using the Delphi Method (DM), specifically suited for long term forecasting in very uncertain environments, a set of statements was provided for two rounds to the interviewees while asking them to express their personal level of agreement/disagreement on a 1 to 5 Likert scale.

The Delphi technique is a widely used method in order to collect expert opinion data for medium or long-term challenges, issues and/or problems. The technique is versatile and well structured. The technique is useful to asses future possibilities and when the subject investigated is indefinable and/or delicate and/or emotional. The Delphi technique fits well the research objectives pursued in the present study. In the last 15 years, the method has been used more on expert panel argument gamut and reasoning logic. An essential characteristic of the technique is anonymity. With the Delphi technique, research data is gathered through sequential question rounds (2 in our case).

Before starting this specific part of the interview, a general question was posed concerning the relative importance of possible fields of intervention, namely:

- ✓ Political, legal and regulatory;
- ✓ Economic, social and cultural;
- ✓ Technological, industrial and infrastructural

Subsequently, for each macro-group a set of statements were proposed and the interviewees were asked to express their level of agreement/disagreement along with a possible short motivations of the position expressed (aimed to help the interpretation of the results).

The results provide an agreement/disagreement matrix for all the statements proposed and, after having given the option of modifying the opinion expressed once the average response of the sample is given to the interviewee in the second round, provide an interesting knowledge base concerning the type of actions, on average, RU consider more important and appropriate.

RUs/TMs questionnaire is designed using a different approach, as it was agreed not to submit them SP survey at all: due to the difficulties in defining really possible scenarios alternative to the present one, it would have been impossible to complete a reliable analysis of an SP survey.

The questionnaire's design aims to obtain different results.

First set of results consist in descriptive statistics of the RUs/TMs sampled (section 1 of questionnaire), describing their main characteristics in terms of:

- ✓ turnover;
- ✓ employees;
- ✓ number of other locations additional to the headquarters;
- ✓ % of raw, semi-finished, finished materials transported;
- ✓ type of carriage used (i.e. container, other, open, flat, covered, refrigerate);
- ✓ main classes of distance usually covered (500<, 501-1.000, 1.001-2.000, >2.000)

Another set of results (section 2 of questionnaire) include ranking and rating analysis of transport attributes. A set of transport attributes were proposed to the RU and each respondent was asked to provide both a ranking and rating[5] of the attributes so to determine a self-statement concerning the relative importance measured in two complementary and not contrasting methods so to check for coherence in evaluation.

The attributes tested in section 2 were:

- ✓ cost;
- ✓ delay;
- ✓ travel time;
- ✓ risk of goods lost or damaged;
- ✓ flexibility;
- ✓ risk of theft;
- ✓ possibility to contact the operator for information concerning shipped goods;
- ✓ traceability of the goods during transport.

Furthermore the MaxDiff approach (section 3 of questionnaire) is employed to determine the relative importance of the attributes used for the SP exercises in Shippers and Intermediaries" surveys to characterize the service along the Corridor 6: attributes used in this exercise (cost, travel time, risk of delay, risk of goods lost or damaged) represent a sub-set of those previously considered for the ranking and rating exercises.

Given that no interactive SP could have been reasonably administered, the method proposed determine a ranking of the attributes as defined by the RUs/TMs and this is compared to the results obtained for the discrete choice models estimated from the SP/RP data acquired, so to verify if there is consonance between the attributes the demand consider most important when evaluating a freight transport service and the priorities the RUs/TMs have. The obtained results are very important in determining the policy choices that should be made.

Finally, in order to complete a more detailed and relevant analysis of the market, a Delphi study was performed thanks to two rounds of interviews to RUs/TMs (section 4 of questionnaire). The statements proposed on three intervention areas ("Political, legal and regulatory", "Economic, social and cultural" and "Technological, industrial and infrastructural") are reported on the following

4.2.5.3 Surveys achievement

4.2.5.3.1 The collect data

Questionnaires were proposed to 170 people of the provided list of RUs/TMs., Due to the fact that this list includes companies involved in infrastructure or train maintenance and different people of the same organization, only 32 complete interviews to RUs/TMs were collected, divided as follows:

- ✓ Spain: 13 interviews;
- ✓ France: 3 interview;
- ✓ Italy: 7 interviews;
- ✓ Hungary: 4 interviews;
- ✓ Slovenia: 4 interviews;
- ✓ Slovakia: 1 interview (In the provided list of RUs/TMs, it was included a Terminal located in Slovakia)

4.2.5.3.2 Encountered problems

During this phase of the TMS, a general difficulty in contacting most of the people in delivered lists of RUs/TMs or in having their willingness to answer the questionnaire, so that it was necessary to try to contact them or to urge their responses several times.

Nevertheless, the respondents accepting to answer the questionnaire were 32 that are more than 15% of the delivered lists of RUs/TMs.

4.2.5.4 Surveys results

4.2.5.4.1 The sample

The descriptive statistics concerning the RUs/TMs sampled illustrate their main characteristics in terms of:

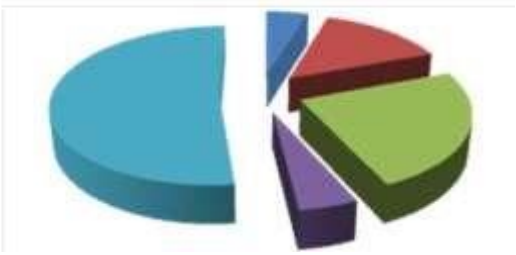
- ✓ turnover;
- ✓ employees;
- ✓ number of other locations additional to the headquarters;
- ✓ % of raw, semi-finished, finished materials transported;
- ✓ type of carriage used (i.e. container, other, open, flat, covered, refrigerate);
- ✓ main classes of distance usually covered (500<, 501-1.000, 1.001-2.000, >2.000).

A total of 32 RUs/TMs participated in the survey, even if unfortunately only 27 completed the second run of the Delphi study as described in following Delphi Analysis section). The RUs/TMs sampled are quite heterogeneous with respect to some variables considered (e.g. turnover) while, at the same time, showing more homogenous traits for other characteristics (e.g. distance class). The results obtained are intrinsically linked to the railway sector where nice RUs/TMs operate side by side with major national counterparts. These aspects should have to be considered when reading the results obtained, that necessarily have to refer to the overall average.

Turnover is the most widely dispersed characteristics among the sampled RUs/TMs (see previous min and max values).

RUs/TMs survey: annual turnover

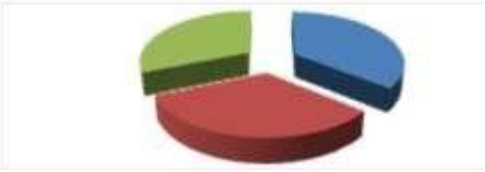
Annual turnover	
< 500.000,00 €	5%
500.000,00 - 2.000.000,00 €	14%
2.00.000,00 - 10.000.000,00 €	23%
10.00.000,00 - 20.000.000,00 €	5%
> 20.000.000,00 €	49%



The type of goods shipped almost evenly distributes itself among the three main categories considered: finished goods, raw materials, and semi-finished goods.

RUs/TMs survey: type of handled goods

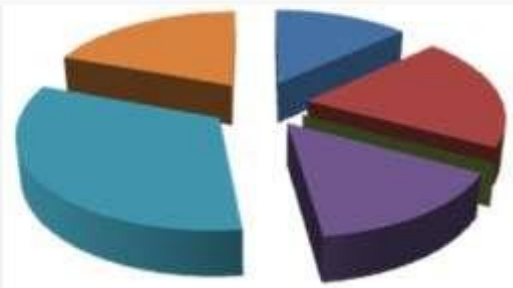
Type of handled goods	
Finished products	36%
Raw materials	33%
Semi- finished products/component	31%



As it is for the type of wagons used the investigated sample shows a substantial dispersion among the possible types with no company using refrigerated wagons and a substantial part (i.e. 19%) using other types of wagons.

RUs/TMs survey: type of wagon

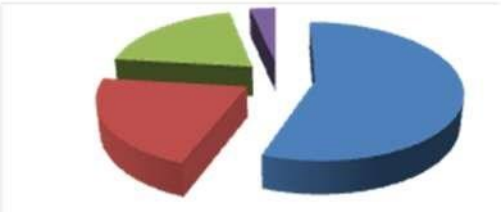
Type of wagons	
Open wagon	13%
Covered wagon	20%
Refrigerate wagon	0%
Flat wagon	15%
Spine car of intermodal containers	33%
Other	19%



The distance class within which the service is performed heavily concentrates in the class category "< 500 km", (56%) with only 3% present in the class "> 2.000 km" thus showing a low relevance of the long distance class with respect to the present situation.

RUs/TMs survey: class of distance

Distance range of transports	
< 500 km	56%
501 - 1.000 km	21%
1.001 - 2.000 km	20%
> 2.000 km	3%



4.2.5.4.2 Attributes analysis

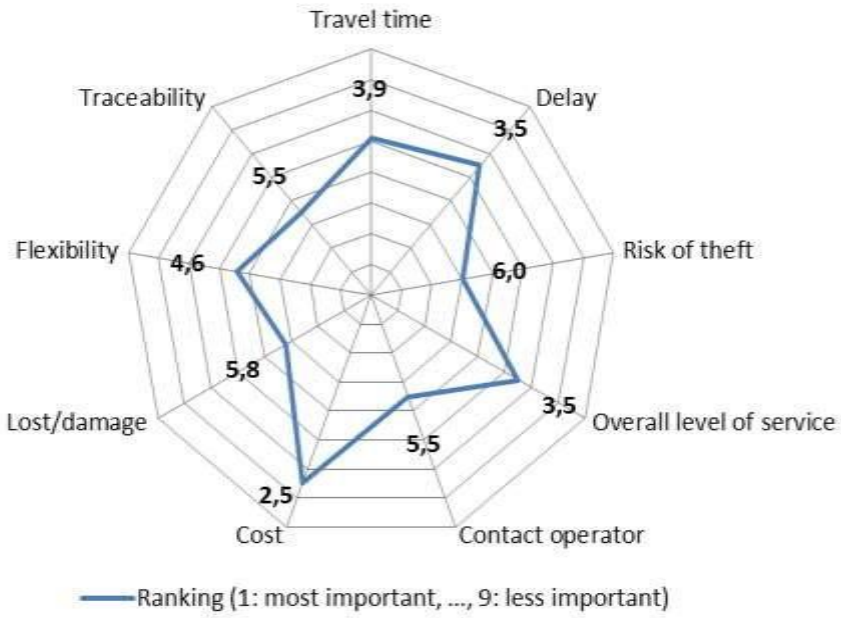
This section reports the results obtained using the various methods of analysis to detect the relative importance of the attributes considered relevant and the subset of those actually employed in the choice experiments administered in the stated preference survey. This information will be useful to qualitatively evaluate the compatibility between the preferences of the customers and the importance the RUs/TMs attribute to the various characteristics of the offered service.

4.2.5.4.2.1 Ranking

Next table and report the results of the ranking exercise that was administered to the 28 RUs/TMs. The ranking exercise was performed asking the interviewee to order the 9 attributes considered in this phase: travel time, delay, risk of theft, overall level of service, possibility to contact the operator for information about shipped goods, cost, risk of goods lost or damaged, flexibility (measured by the ability to meet the requests/needs of transport in terms of loading time, delivery time, etc.), traceability of the goods during transport.

Ranking	Mean
Cost	2,5
Overall level of service	3,5
Delay	3,5
Travel time	3,9
Flexibility	4,6
Traceability of the goods during transport	5,5
Possibility to contact the operator for information about shipped goods	5,5
Risk of goods lost or damaged	5,8
Risk of theft	6,0
Scale: 1 most important, 9 less important	

RUs/TMs survey: ranking of the attributes considered



The RUs/TMs consider the cost of the service provided as the most important driver of their customers" choice (2,5) whereas the second relevant attribute is a synthetic index of the overall level of service (3,5) which is, in turn, equivalent in importance to delay (3,5). Travel time comes in fourth at a sensible distance (3,9) from delay thus indicating a substantial difference between the priorities given to the two characteristics. Flexibility has been ranked, on average, at 4,6 among the RUs/TMs interviewed and underlining that the RUs/TMs do not consider this element very important for their customers, which might well be true given the present situation. Different considerations might hold once the RUs/TMs would aim at acquiring the transportation of freight that is currently transported by road. Traceability of the goods while transported (5,5), possibility to contact the operator for information about shipped goods (5,5) and risk of goods lost or damaged (5,8) are not relevant characteristics, while the attribute considered as the less important at all is the risk of theft (6,0), suggesting that the RUs/TMs do not consider this a problem for them or that they cannot counteract or control it.

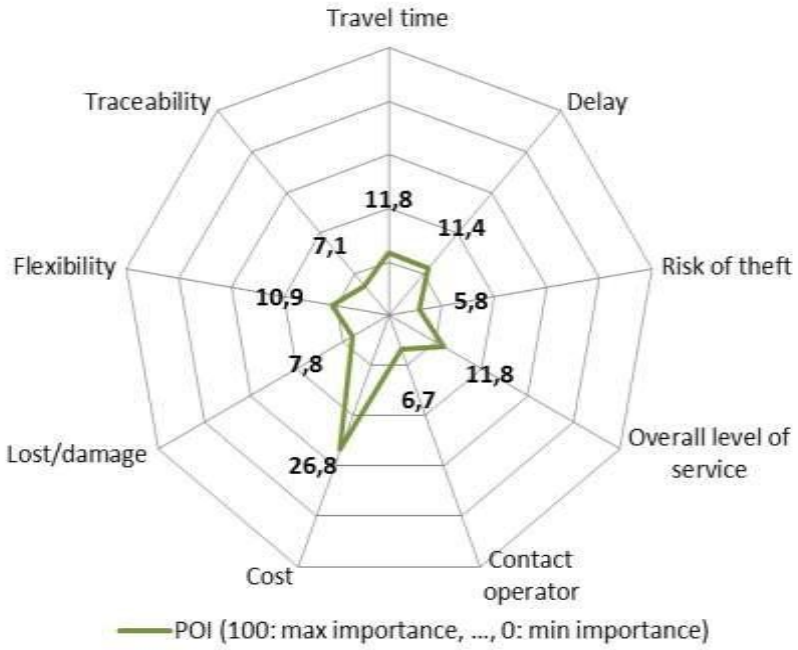
4.2.5.4.2.2 Rating

The rating exercise aims, according to replies given by interviewed, to provide an order of importance among the considered attributes and to elicit also how much one item is more important with respect to the other: this exercise introduces a primitive for of trade-off (e.g. relative importance) among the items evaluated.

RUs/TMs survey: rating of the attributes considered

Rating	Mean
1 Cost	26,8
2 Overall level of service	11,8
3 Travel time	11,8
4 Delay	11,4
5 Flexibility	10,9
6 Risk of goods lost or damaged	7,8
7 Traceability of the goods during transport	7,1
8 Possibility to contact the operator for information about shipped goods	6,7
9 Risk of theft	5,8

RUs/TMs survey: rating of the attributes considered



It 'important to note that there is no difference between ranking and rating results for the first two most important attributes while for some of the other attributes are slight differences. This result is reassuring in terms of the robustness of the results obtained.

4.2.5.4.2.3 Max-Diff

The Max-Diff exercises have two different but complementary research objectives.

The first was confirmatory: in order to test the invariance of the replies to the instrument used, the ordering of a subset of the most important attributes that were subsequently used for the choice experiments (CE) was tested via a different instrument (i.e. Max-Diff). In order to compare the results between the two different instruments used, given the rating exercise was performed on a total of 9 items whereas the Max-Diff exercise was administered only for the 4 attributes considered in the CE, their relative importance was rescaled to 4 and normalized.

Attribute	RATING	Max-Diff
Cost	46,37	47,12
Delay	20,42	20,48
Travel time	19,72	15,86
Risk of goods lost or damaged	13,49	16,54

RUs/TMs survey: rescaled Rating and Max-Diff comparison

The rescaled Rating and Max-Diff comparison confirms the reliability of the results obtained, as the ordering is almost identical, with the only noticeable difference being the relative importance of the risk of goods lost or damaged attribute in the Max-Diff exercise: in this case, this attribute seems to be more important than travel time. It is also observed that in the Max-Diff section, 4 different exercises were administered for each respondent giving rise to a total of 128 observations (32 respondents x 4 exercises) and, given the logic adopted (i.e. full ordering of the 3 attributes considered in each of the four cases), this should be considered the most reliable indicator of the relative importance of each of the attributes studied.

4.2.5.4.3 Main results

The investigation concerning the priorities of the RUs/TMs in terms of service characteristics considered most important and that would constitute the focus of RUs/TMs attention, leads to quite clear indications. Cost and delay are the two most important attributes, while travel time is surely a relevant aspect but its relative importance varies according to the elicitation method used and the number of items considered in the process. Moreover, flexibility of the service is also a significant characteristics but it is considered difficult to achieve in offered rail freight services, and among the attributes used for the choice experiments, the risk of goods been lost or damaged is the less relevant. Notwithstanding the number of RUs/TMs that finally completed both the submitted questionnaires, the relatively similar conclusions that can be drawn on the base of the data elicited via the different used methods confirm the robustness of the obtained results.

The data acquired indicate that RUs/TMs consider as the most important the technologically oriented actions/interventions, followed by those politically related and, finally, economic related actions/interventions. As it is for the technologically oriented interventions, the highest agreement relates to the need for (item 7) the improvement of the links and connections of the corridor with both sea-ports and inland ports.

With respect to the politically/regulatory actions/interventions the statements that received the highest level of agreement (item 2, 3) are linked to the importance to encourage greater harmonization of licenses concession procedures for train operators on one side and to guarantee rail interoperability throughout Corridor 6.

Finally, with respect to the economic oriented actions/interventions there is a generally high level of agreement but the one that generated the highest levels of agreement among the RUs/TMs is item 4 that is the importance of fostering a greater awareness within the consumers of the environmental impact freight transportation has on society. The results obtained provide clear indications about which actions should be taken so to guarantee the prerequisites for a successful development of freight Corridor 6, according to RUs/TMs opinions/expectations.

4.2.6 Future freight demand forecast

The forecast of the possible evolution of freight transport demand in near (2015) and far (2030) future, is developed thanks to 3 different phases, strictly linked to each other:

- ✓ the definition of the potential market area, intended to be that part of territory interested by flows that could realistically run along Corridor 6;
- ✓ The forecast of the overall road + rail freight flows in the potential market area defined;
- ✓ The definition of the modal split road vs. rail and of the ratio of forecasted flows that could run through RFC 6;

4.2.7 The definition of the "potential market area" of Corridor 6

The "potential market area" of Corridor 6, is considered that part of Europe including all NUTS2 zones that are Origin and/or Destination of freight flows that could be interesting for Corridor 6.
Initially, all geographical areas are considered at NUTS2 level and zones are grouped in:

- ✓ Corridor zones: those crossed by Corridor lines;
- ✓ Catchment zones: those adjacent to Corridor zones;
- ✓ Due to a methodology refinement, all the European areas are taken into account at NUTS2 level and it leads to slightly change to the catchment area: those regions initially taken into account at NUTS1 or NUTS0 level (i.e. Portugal) are now divided in NUTS2 zones and, among these, only to those adjacent to Corridor 6 are considered in the catchment area;
- ✓ Market zones: other zones;

Flows are considered interesting for Corridor 6 if there is at least one possible and reasonable path from Origin to Destination that:

- ✓ could be along the Corridor 6;
- ✓ crosses at least one border between the 5 Countries of Corridor 6;

Interesting flows are grouped in:

- ✓ Internal: with Origin AND Destination in Corridor or Catchment zones;
- ✓ Exchanges: with Origin OR destination in Corridor zones;
- ✓ Transits: with Origin AND Destination in Market zones;

Starting data are the 2010 road and rail O/D matrixes defined in previous phases of the TMS, and include 118.936 O/D pairs. Among these 118.936 O/D pairs, about 52.090 are excluded because:

- ✓ Origin and Destination are in the same Country or
- ✓ From Origin to Destination there isn't any reasonable path along Corridor 6 (I.e. from northern France to northern Germany) or
- ✓ Origin to Destination are not linked by rail lines (i.e. to/from Andorra) or
- ✓ Origin to Destination are not linked by rail path crossing at least one border between 5 countries of Corridor 6 (i.e. from Portugal to Spain);

With regard to the remaining 66.846 O/D pairs :

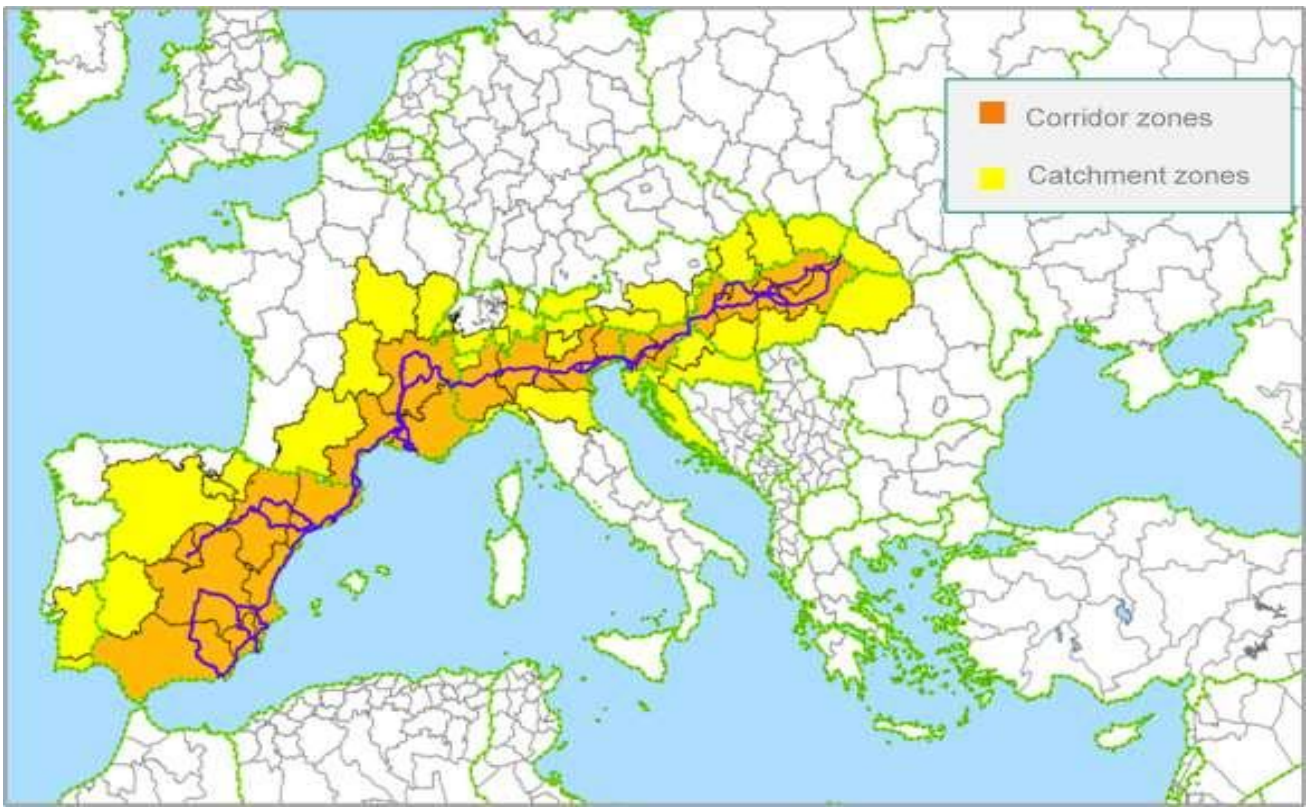
- ✓ 2005 AND/OR 2010 "road + rail" freight flows are null for about 41.846 O/D pairs;
- ✓ 2005 AND 2010 "road + rail" freight flows are NOT null for about 25.378 O/D pairs.

Road + rail flows of these 25.378 O/D pairs represent more than 99% of total freight flows of the 66.846 O/D pairs filtered.

Potential market area includes all NUTS2 zones that are Origin and/or Destination of flows of these remaining 25.378 O/D pairs. These O/D pairs are grouped in:

- ✓ 1.385 O/D pairs with Origin AND Destination in the Corridor or in the Catchment zones, considered as "Internal" O/D pairs;
- ✓ 7.038 O/D pairs with Origin OR Destination in the Corridor zones, considered as "Exchanges";
- ✓ 16.955 pairs with Origin AND Destination in the market zones, considered as "Transits";

Source: Etis 2010 and 2005 database



4.2.8 The estimation of freight transport demand

The estimation of freight transport demand is carried out for any interesting flow (single O/D pairs) in the "potential market area", with regard to:

- ✓ The overall "road + rail" freight flows;
- ✓ In near (2015) and far (2030) future;
- ✓ using specifically designed and developed models, as Decision Tree and Bayesian network;

4.2.8.1 Starting data

Starting data are the most recent available data regarding freight flows and other important variables that could influence the evolution of these flows:

- ✓ Etis 2005 road and rail freight O/D matrixes with no changes;
- ✓ Etis 2010 rail freight O/D matrix with no changes;
- ✓ Etis 2010 road freight O/D matrix with some change on flows to/from the Iberian Peninsula, defined according to CAFT bi-national study;
- ✓ 2005 and 2010 socio-economic indicators, as for example GDP, population, employment ratio;

A total of about 210.000 O/D pairs are considered. Road and rail are the only 2 mode choice considered in the estimation process; due to the fact these modes are alternatives to each other. Air and Sea/maritime/inland waterways freight flows are not considered

2005 and 2010 are the initial and final year of the period considered to analyze and characterize correlation (direct or crossed) between:

- ✓ A set of different relevant variables as GDP, outgoing/incoming flows, population, employees and others;
- ✓ The data to estimate: freight flows for any O/D pair (NUTS2 level);

4.2.8.2 The Decision Tree model

Decision tree model is used to define the attribute's importance in different areas and to give necessary input data to be used in the Bayesian network model; the period considered with the Decision Tree model is that from 2005 to 2010: due to the strong influence of the financial crisis, starting data are considered with particular attention to possible atipic dynamics that could influence results.

Different variables at different geographical level are considered:

- ✓ At NUTS0 level: GDP and fuel cost;
- ✓ At NUTS2 level: outgoing/ingoing flows, population, employees;

The Decision Tree model, used to analyse "freight flows dynamics" determined by values assumed by main variables in any part of the study area (down to NUTS2 level), highlights the stronger influence of these variables:

- ✓ GDP and of both Origin and Destination countries;
- ✓ Market share of outgoing flows for Origin zones of any O/D pair;

Results achieved with the Decision Tree model, analysed in detail in order to guarantee their accuracy and reliability, are used as input for the Bayesian Network models

4.2.8.3 The Bayesian Network model

The Bayesian Network is used to complete the process: it has a statistical robustness and offers the possibility to make inference so to determine the probability of any prediction The Bayesian Network:

- ✓ links the variable showing their reciprocal influence in a cause-effect relationship between "parent node" and "child node";
- ✓ calculates the probability distribution of the values of the "child variable" respect to the "parent variable";
- ✓ calculates the marginal log likelihood, that measures the distance between all the probability distribution and the real starting distribution of variables values;
- ✓ determines for any OD pair (NUTS2 – NUTS2) the range of values within which the considered variable (freight flows value) has the higher probability to attest in;

At the end of the process, the "road + rail freight O/D matrix" in 2015 and 2030 is determined, with regard to 3 different scenarios characterized by a different GDP"s growth: Regular (Official GDP forecast), Worst (Official -30%) and Best (Official + 30%). Due to the conservative long term GDP forecast used for the future traffic demand estimation, in 2030 it is reasonable to expect freight flows greater than that defined, and it would lead to a much more important increase of the Corridor 6 potential market, both in catchment and in market area.

4.2.8.4 Results

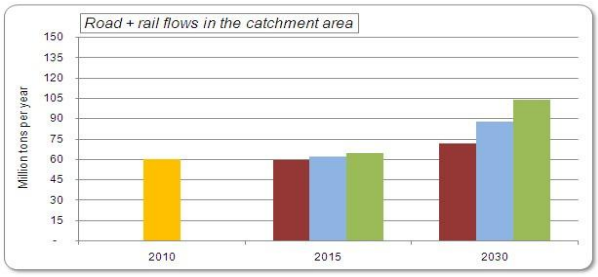
The analysis of the results at NUTS2 level with regard to the overall O/D pairs considered part of the "potential market area" of Corridor 6, lead to determine the following ranges of flows rate evolution (decrease or increase) in the 6 different scenarios considered.

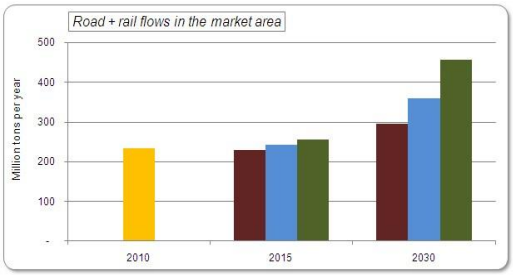
Estimation of "road + rail" freight flows in 2015, considers also a possible decrease of freight flows in case the GDP could evolve in its worst scenario (30% less than the official forecast)

Estimation of "road + rail" freight flows in 2030, lead to determine a wider range of estimates for any O/D pair in different scenarios and, consequently, also for the overall flows. Due to some atypical evolution of flows forecasted by the model used with regard to some O/D pair, a specific evaluation of these kind of dynamics is carried out;

Year	Catchment area flows			Market area flows		
	Worst	Regular	Best	Worst	Regular	Best
2010		60.247.412			233.245.319	
2015	59.280.555	61.921.467	64.561.855	230.393.985	243.444.417	256.476.076
2030	71.888.769	87.855.020	103.821.271	296.551.003	359.473.436	457.382.742

With regard to 2010 flows, due to the refinement in the definition of the catchment area of Corridor 6 some slight difference could be observed comparing data used in different phase of the TMS.





the provided focus on 30 main O/D pairs in 2015 in terms of tons/year forecasted highlights that:

- ✓ Overall flows of these 30 O/D pairs is more than 12% of the total forecasted flows;
- ✓ 7 of the most important 10, are Internal O/D pairs: their Origins AND Destinations are both in NUTS2 zones crossed by Corridor lines;

Year: 2015
GDP scenario: Worst, Regular and best

O/D type	Origin		Destination		ETIS Rail + Road 2010 (tons)	Estimated Rail + Road 2015 Worst GDP (tons)	Estimated Rail + Road 2015 Regular GDP (tons)	Estimated Rail + Road 2015 Best GDP (tons)
	NUTS ID	Zone name	NUTS ID	Zone name				
Internal	ES51	Cataluña	FR81	Languedoc-Roussillon	2.368.279	2.478.435	2.523.076	2.568.321
Internal	FR81	Languedoc-Roussillon	ES51	Cataluña	2.369.878	2.478.015	2.522.648	2.568.085
Exchange	BE21	Prov. Antwerpen	ITC4	Lombardia	1.300.119	1.361.741	1.386.269	1.361.300
Internal	FR71	Rhône-Alpes	ITC4	Lombardia	1.202.472	1.259.678	1.282.385	1.305.462
Exchange	DEA2	Köln	ITC4	Lombardia	1.065.314	1.115.807	1.135.909	1.115.445
Internal	ITC4	Lombardia	FR71	Rhône-Alpes	1.060.055	1.110.299	1.130.297	1.150.656
Exchange	DE21	Oberbayern	ITC4	Lombardia	1.038.964	1.088.206	1.107.809	1.087.853
Internal	ITC1	Piemonte	FR71	Rhône-Alpes	982.178	1.028.791	1.047.280	1.066.123
Internal	FR71	Rhône-Alpes	ITC1	Piemonte	911.400	954.598	971.792	989.298
Internal	FR62	Midi-Pyrénées	ES51	Cataluña	864.305	905.271	921.578	938.178
Internal	SI02	Zahodna Slovenija	HU10	Közép-Magyarország	846.345	886.480	902.426	918.681
Exchange	DEA1	Düsseldorf	ITC4	Lombardia	820.386	859.270	874.747	858.992
Exchange	DEA2	Köln	ITD5	Veneto	808.329	846.831	862.105	846.377
Exchange	DEA1	Düsseldorf	ES51	Cataluña	803.045	841.107	856.257	840.833
Exchange	HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	794.815	832.487	847.482	862.748
Transit	SK04	Východné Slovensko	AT31	Oberösterreich	780.076	552.725	791.498	909.936
Transit	DEA1	Düsseldorf	ITD5	Emilia-Romagna	766.754	803.096	817.561	802.836
Internal	ES51	Cataluña	FR71	Rhône-Alpes	758.150	794.084	808.387	822.948
Exchange	NL33	Zuid-Holland	ITC1	Piemonte	748.838	785.178	799.524	813.925
Exchange	NL33	Zuid-Holland	ITC4	Lombardia	737.612	772.373	786.488	800.654
Internal	FR82	Provence-Alpes-Côte d'Azur	ITC4	Lombardia	734.488	769.280	783.136	797.242
Internal	HU10	Közép-Magyarország	SI02	Zahodna Slovenija	731.339	766.233	780.034	794.084
Exchange	ITC4	Lombardia	DEA2	Köln	701.475	734.723	747.957	761.429
Transit	DEB1	Koblenz	ITD5	Emilia-Romagna	699.509	732.664	745.861	752.426
Internal	SI02	Zahodna Slovenija	SK03	Stredné Slovensko	694.737	727.666	740.772	754.113
Internal	ES52	Comunidad Valenciana	FR81	Languedoc-Roussillon	677.248	709.348	722.122	735.129
Internal	FR82	Provence-Alpes-Côte d'Azur	ES51	Cataluña	669.079	700.792	713.414	726.264
Exchange	ES51	Cataluña	DEA1	Düsseldorf	666.097	697.668	710.235	723.027
Internal	FR82	Provence-Alpes-Côte d'Azur	ITC1	Piemonte	658.490	689.701	702.123	714.770
Exchange	ITD3	Veneto	DEA2	Köln	633.650	663.681	675.638	687.807

30 main OD pairs	27.889.024	28.946.571	29.690.766	30.055.338
Catchment area flows	60.247.412	59.280.555	61.921.467	64.561.855
Market area flows	233.245.319	230.393.985	243.444.417	256.476.076

Year: 2030
GDP scenario: Worst, Regular and best

O/D type	Origin		Destination		ETIS Rail + Road 2010 (tons)	Estimated Rail + Road 2030 Worst GDP (tons)	Estimated Rail + Road 2030 Regular GDP (tons)	Estimated Rail + Road 2030 Best GDP (tons)
	NUTS ID	Zone name	NUTS ID	Zone name				
Internal	ES51	Cataluña	FR81	Languedoc-Roussillon	2.368.279	3.126.285	3.245.147	3.718.940
Internal	FR81	Languedoc-Roussillon	ES51	Cataluña	2.369.878	3.125.766	3.244.597	3.718.309
Transit	BE21	Prov. Antwerpen	ITC4	Lombardia	1.300.119	1.717.699	1.783.001	2.043.319
Internal	FR71	Rhône-Alpes	ITC4	Lombardia	1.202.472	1.588.954	1.649.386	1.890.188
Transit	DEA2	Köln	ITC4	Lombardia	1.065.314	1.110.800	1.460.988	1.970.969
Internal	ITC4	Lombardia	FR71	Rhône-Alpes	1.060.055	1.042.679	1.453.774	2.023.878
Transit	DE21	Oberbayern	ITC4	Lombardia	1.038.964	1.083.325	1.424.849	1.922.218
Internal	ITC1	Piemonte	FR71	Rhône-Alpes	982.178	986.079	1.346.972	1.875.142
Internal	FR71	Rhône-Alpes	ITC1	Piemonte	911.400	1.204.129	1.249.904	1.432.393
Internal	FR62	Midi-Pyrénées	ES51	Cataluña	864.305	1.141.908	1.185.319	1.358.377
Internal	SI02	Zahodna Slovenija	HU10	Közép-Magyarország	846.345	599.680	1.160.689	1.848.650
Transit	DEA1	Düsseldorf	ITC4	Lombardia	820.386	855.414	1.123.088	1.517.820
Transit	DEA2	Köln	ITD5	Veneto	808.329	843.031	1.108.827	1.495.883
Transit	DEA1	Düsseldorf	ES51	Cataluña	803.045	837.333	1.101.307	1.485.737
Transit	HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	794.815	781.787	1.090.026	1.517.475
Exchange	SK04	Východné Slovensko	AT31	Oberösterreich	780.076	1.030.424	1.089.867	1.225.999
Exchange	DEA1	Düsseldorf	ITD5	Emilia-Romagna	766.754	799.492	1.051.547	1.418.594
Internal	ES51	Cataluña	FR71	Rhône-Alpes	758.150	1.001.857	1.039.737	1.191.939
Transit	NL33	Zuid-Holland	ITC1	Piemonte	748.838	781.834	1.028.338	1.387.297
Transit	NL33	Zuid-Holland	ITC4	Lombardia	737.612	769.106	1.011.571	1.364.676
Internal	FR82	Provence-Alpes-Côte d'Azur	ITC4	Lombardia	734.488	970.369	1.007.259	1.154.320
Internal	HU10	Közép-Magyarország	SI02	Zahodna Slovenija	731.339	762.795	1.003.270	1.353.479
Exchange	ITC4	Lombardia	DEA2	Köln	701.475	689.877	962.012	1.339.269
Exchange	DEB1	Koblenz	ITD5	Emilia-Romagna	699.509	729.376	959.316	1.294.182
Internal	SI02	Zahodna Slovenija	SK03	Stredné Slovensko	694.737	482.258	592.772	1.517.496
Internal	ES52	Comunidad Valenciana	FR81	Languedoc-Roussillon	677.248	894.768	928.784	1.064.387
Internal	FR82	Provence-Alpes-Côte d'Azur	ES51	Cataluña	669.079	885.978	917.984	1.051.552
Exchange	ES51	Cataluña	DEA1	Düsseldorf	666.097	880.038	913.494	1.048.867
Internal	FR82	Provence-Alpes-Côte d'Azur	ITC1	Piemonte	658.490	869.988	903.062	1.034.909
Exchange	ITD3	Veneto	DEA2	Köln	633.650	623.264	868.996	1.209.778

30 main OD pairs	27.889.024	32.204.444	38.247.379	48.473.668
Catchment area flows	60.247.412	71.888.769	87.855.020	112.858.371
Market area flows	233.245.319	290.551.003	359.473.416	457.382.742

4.2.9 The modal split (road vs. rail)

The modal split analysis is carried out for all interesting flows (single O/D pairs) in the "potential market area":

- ✓ In near (2015) and far (2030) future;
- ✓ using specifically designed and developed econometric models;
- ✓ in different significant scenarios defined by specific values assumed by variables most influencing mode choice decision process;

These 3 activities lead to define the possible market of Corridor 6 in near and far future, in terms of overall rail transported tons by O/D.

4.2.9.1 Starting data

Starting data of this specific analysis are:

- ✓ Results of preliminary Focus Group and data from literature to determine most influencing variables in mode choice decision process. These data, even if not directly used in this final phase of the TMS, determined the design of the questionnaires used during interviews to shippers and intermediaries and in particular the variables analysed to define possible influences in mode of transport decision process;

Data collected with RP surveys to:

- characterize actual freight market, both for road and rail transports;
- define values (real or perceived) of its main variables in the study area (NUTS2 zones of the 5 Countries of Corridor 6, crossed by its lines);
- define importance (relative and absolute) of its main variables in the study area (NUTS2 zones of the 5 Countries of Corridor 6, crossed by its lines);

- ✓ Data collected with SP surveys to characterize actual freight market and to define values and importance of its main variables in the study area (NUTS2 zones of the 5 Countries of Corridor 6, crossed by its lines). Results of SP surveys highlight the importance of cost, travel time, risk of delays and risk of goods lost or damaged during shipment, in mode of transport decision process. So far, these variables could affect modal split and, consequently, rail market share.

- ✓ Estimation of "road + rail" freight flows in 2015 and 2030, as the total freight flows to split by using the designed and calibrated modal split model. Results afterwards used as input data of the modal split model are the estimations of "road + rail" freight flows achieved in the scenario defined by the regular GDP evolution

actually conditioned by recent crisis of most economies: in case of positive performance of economies in medium term, GDP predictions could improve and it would lead to a greater increase of freight traffic flows between those O/D pairs interesting for Corridor 6. Moreover, data actually used as input for the modal split model do not refer specifically to those market segments that could be more interesting for rail corridor, as for example longer shipments (> 500 km) or goods generally transported by rail.

4.2.9.2 The random parameter (mixed) Logit Model

The random parameter (mixed) logit model is designed and calibrated using results of surveys and according to literature data when needed.

- ✓ **RPL model's assumptions:**

- the parameters of the variables transport cost, travel time, % of late shipments and % of damaged shipments are negatively-constrained triangularly distributed and it is explicitly introduced the RP\SP scale parameter. Sensitivity of the demand to these 4 main variables, is initially assumed at its average value: by using this approach, results achieved can be considered as the most conservative and lead to determine the minimum target of Corridor 6 in terms of market share.
- distance, flow direction, weight, type of good and type of firm within Corridor 6 could be considered to achieve more detailed results, and would likely lead to an increase of the freight market share of rail Corridor 6.

- ✓ **Data code:**

- Travel time: hours;
- Transport cost: euro;
- Late shipments: % (0 to 100);
- Damaged shipments: % (0 to 100):

The estimate gives the following results:

Variable	Value	t-test	Variable	Value	t-test
ASC_RAIL	-2,51	-6,38	% late shipments within corridor	-0,244	-2,23
Transport cost	-0,00255	-6,07	% late shipments_manufacturing firms	0,172	2,24
Transport cost_within corridor	-0,00116	-2,79	% damaged shipments	-1,07	-5,34
Transport cost_short distance	-0,00894	-3,14	% damaged shipments_short distance	-2,6	-3,83
Transport cost_light weight shipments	0,00212	4,14	% damaged shipments_manufacturing firms	0,594	3,3
Travel time	-0,0257	-4,71	% damaged shipments_rail inclined	0,535	2,3
Travel time_incoming shipments	0,0306	3,17	% damaged shipments_light weight shipments	0,281	2,05
Travel time_short distance	-0,108	-2,05	Scale parameter RP	Fixed	
Travel time_rail inclined	0,0224	1,91	Scale parameter SP	0,531	5,43
% late shipments	-0,0681	-2,3			

Here are the econometric statistics:

- ✓ model: Mixed Multinomial;
- ✓ number of draws: 250;
- ✓ number of observations: 22.345;
- ✓ Logit null log-likelihood: -2.303,793;
- ✓ final log-likelihood: -1.400,470;
- ✓ adjusted Rho-square = 0,381;

As for the "road + rail" traffic demand estimates, even in definition of modal split a conservative approach is used: it is considered that all attributes influencing the definition of the possible rail potential market of Corridor 6 assume their average but not weighted value, even if due to peculiarities of road and rail freight transport market and services, a specific evaluation of these factors would lead to a more optimistic results. So far, the estimate of possible modal split for those flows between O/D pairs that could be connected by paths along Corridor 6, can be considered as absolutely conservative: a more detailed analysis considering all possible values assumed by relevant variables in different scenarios, could be carried out.

4.2.9.3 Modal split and simulation

The modal split simulation carried out with regard to 2015 and 2030, refers to 3 different scenarios:

- ✓ a base scenario defined without any change in values assumed by 4 most relevant variables (cost, time, risk of delay and risk of goods lost/damaged);
- ✓ +20% of road transport cost scenario, simulated considering an medium sensitivity of the demand to this variable;
- ✓ -20% rail travel time scenario, simulated considering a limited sensitivity of the demand to this variable;

More simulation will be carried out with regard to other scenarios defined by different possible evolutions of the values assumed by relevant variables characterizing road and rail transport services, updating assumptions in the modal split model in order to properly achieved most reliable and realistic results.

With regard to both 2015 and 2030, for each O/D pairs the modal split share is taken according to:

- ✓ the results of RPL model for O/D pairs with Origin AND Destination in Corridor and/or Catchment zones;
- ✓ the modal share derived by the 2010 ETIS data for others O/D pairs of Potential Market area: this assumption, derived from the fact that the modal split model is calibrated exactly on the 5 countries market, affects simulations especially regarding 2030: a greater increase of the rail market share could be expected considering evolution of values assumed by road cost of transport (+20%) and rail travel time (-20%) in simulated scenarios.

In order to define the potential market of Corridor 6, tons considered part of it are:

- ✓ for O/D pairs with Origin AND Destination in Corridor and/or Catchment area: 100%;
- ✓ for other O/D pairs, a ratio derived from the comparison between the "hypothetical railway distance using the Corridor 6" and the "minimum railway distance (Etis)" from Origin to Destination: ratio ≤ 1→ 100%; ratio > 1,5 → 0%).

"Minimum railway distance (Etis)" is derived directly from the Etis database reporting "rail impedance" in Europe.

"Hypothetical railway distance using Corridor 6", that is the one reducing as much as possible the path along Corridor 6 feeders, is defined by:

- ✓ calculating shortest path from initial Origin (if outside the Corridor area) to the "Entrance point" in Corridor 6, using the Etis impedance database. Due to the fact that Etis defines rail distances between NUTS3 zones, this data is considered as the minimum average distances between all NUTS3 zone of the "Initial Origin" of considered flow and all NUTS 2 zones crossed by Corridor 6;

- ✓ calculating shortest path from "Exit point" from Corridor 6 to final Destination (if outside the Corridor area) by using the Etis impedance database, using the same methodology;
- ✓ calculating length of path along Corridor 6, from "Entrance point" to "Exit point" using technical data provided;
- ✓ summing the parts of the path that could be only one for "Internal flows", 2 for "Exchanges" and 3 for "Transits";

The methodology used, once again conservative, aims to properly define possible freight flows along Corridor 6 considering its competitiveness derived from the length of the paths between any O/D pair along the corridor itself and/or along alternatives. The use of the length of paths as representative of their position among all alternatives, derives from the fact that distance is generally directly correlated to cost (cost are defined "per km") and time (by speed) that are 2 of the most important variables considered in the mode of transport decision process, and also to other important key factors as for example number of borders crossed. By considering as part of the potential market of Corridor 6 different ratios od forecasted rail flows for any O/D pairs, the goal is to properly consider possible overlap of potential market among different Corridors.

A base scenario in 2015 is defined in order to better evaluate possible evolution of potential market according to values assumed by relevant variables influencing mode of transport decision process that means affecting final modal split (road vs. rail) estimated. In 2015 base scenario, most important O/D pairs in terms of tons per year considered as part of the Corridor 6 potential market, are mainly Exchanges: Origin or Destination are in Corridor zones, and there"s a reasonable and competitive path connecting the two, going through Corridor 6 and crossing at least one of the borders between 5 countries of Corridor 6.

Main findings regarding 2015 base scenario are summarized as follow:

Area	Estimated Rail 2015 (tons)	Potential Market Estimated Rail 2015 (tons)
30 main OD pairs	**15.673.804**	**12.584.471**
Catchment area flows	**10.696.200**	**10.696.200**
Market area flows	**52.222.693**	**30.122.111**

By comparing a scenario characterized by a possible increase of road cost by 20% and the base scenario, and using a medium sensitivity of the demand to this specific variable, main findings are:

- ✓ an increase of more than 50% of rail freight flows in most important O/D pair and even higher increases in O/D pairs interested by lower flows (in tons);
- ✓ a consistent increase in terms of rail freight flows in Internal O/D pairs;
- ✓ an average increase of rail market flows in the catchment area of about 6,4 %;

- ✓ a less evident increase of flows in the market area, deriving from the fact that the modal split model is not considered for Exchanges and Transits;

Main findings regarding 2015 scenario with 20% increase in road cost of transport are summarized as follow:

By comparing a scenario characterized by a possible decrease in rail travel cost by 20% and the base scenario, and using a medium sensitivity of the demand to this specific variable, main findings are summarized as follow:

AREA	Base case 2015 (tons)	+ 20 % Road cost Case 2015 (tons)	Δ (tons)	Δ %
30 main OD pairs	614.495	810.104		
Catchment area flows	10.696.200	11.376.056	679.856	6,4%
Market area flows	30.122.111	30.801.967		

AREA	Base case 2015 (tons)	- 20 % Rail cost Case 2015 (tons)	Δ (tons)	Δ %
30 main OD pairs	591.103	692.613		
Catchment area flows	10.696.200	11.053.283	357.082	3,3%
Market area flows	30.122.111	30.479.193		

In 2030 base scenario, even considering the same modal share of 2010 for Exchanges and Transit O/D pairs and the same modal split for Internal flows, a consistent increase in overall freight flows is observed: it is reasonable to consider that possible evolution of values assumed by variables influencing mode of transport decision process, would increase rail market share.

Area	Estimated Rail 2030 (tons)	Potential Market Estimated Rail 2030 (tons)
30 main OD pairs	20.789.365	16.247.896
Catchment area flows	14.459.651	14.459.651
Market area flows	71.701.141	41.115.105

The same comparisons made for 2015, are completed also with regard to 2030 forecast and highlight that:

- ✓ even in 2030, a road cost transport increase, would determine an important increase of rail flows;
- ✓ a greater increase in the catchment area;
- ✓ a less relevant increase in the market area, once again due to the fact that modal split model is not considered so that modal share remains the same of 2010 in Exchanges and Transit flows;

Main findings of simulation regarding this scenario are summarized as follow:

AREA	Base case 2030 (tons)	+ 20 % Road cost Case 2030 (tons)	Δ (tons)	Δ %
30 main OD pairs	741.918	1.032.806		
Catchment area flows	14.459.651	15.512.910	1.053.259	7,3%
Market area flows	41.115.105	42.168.364		

As for 2015 forecast, the effects of the possible reduction of rail cost along Corridor 6, determines a lower increase of rail freight flows, both in terms of tons and modal share.

Main findings of simulation regarding this scenario are summarized as follow:

AREA	Base case 2030 (tons)	- 20 % Rail cost Case 2030 (tons)	Δ (tons)	Δ %
30 main OD pairs	683.421	834.319		
Catchment area flows	14.459.651	15.011.118	551.467	3,8%
Market area flows	41.115.105	41.666.573		

4.3 Closing remarks

The Transport Market Study on rail freight Corridor 6 confirms the strategic importance of this infrastructure in the overall European transport systems network, as a whole or even as part of multimodal or "multi rail-corridor" flows, since the preliminary on-desk analysis of available recent data.

The socio-economic indicators reveal the important role of the 5 Countries of Corridor 6 in the overall European market: their economies are among the most important in Europe or represent the increasing market of Eastern Countries. According to available data, first of all those provided by Etis, a huge amount of goods is transported along main European transport routes crossing the 5 Countries of Corridor 6, with any mode of transport and most of all rail

and road, that is its main alternative. Moreover, the expected rebound of the economies in near future, lead to forecast an increase of freight flows in these 5 Countries.

The analysis of the transport indicators and of the present and future European infrastructure network, including main road and rail routes, sea and inland ports and waterways and airports, confirms the relevant role of Corridor 6 that is the main rail line connecting countries of Southern Europe and main Mediterranean sea-ports to all European zones. Due to its extension along 5 different Countries, Corridor 6 can be considered as the principle rail line for those flows between countries located close to the Mediterranean Sea, but it can assume a relevant role even for many different routes crossing Europe to and from any of southern Country, both in Eastern or Western side. Moreover, while on North-South routes different Corridors are in service and/or will be implemented in near future; not excluding possible competitiveness among the same, along East-West routes Corridor 6 represents the only reasonable path for those flows interesting Countries in southern part of Europe. Last but not least, the present role of maritime transport, the policies adopted to increase efficiency of the highways of the sea and the continuous growth of commercial exchanges with Far East Countries, increase the importance of Corridor 6 that is the direct rail connection with main seaports located on the Mediterranean Sea.

Thanks to a huge campaign of surveys, designed and completed properly to achieved the expected targets, Transport Market Study provides also really positive forecast about possible evolution of the rail freight market with specific regard to Corridor 6. In order to deeply analyse present market characteristics and stakeholder's behaviour, thoughts, needs and expectations, more than 850 shippers, intermediaries, Railways undertakings/Terminal managers have been interviewed.

First type of surveys aiming to evaluate opinions, needs and expectations of Railways undertakings and Terminal Managers, confirms the importance of strategic interventions on rail Corridor 6 to increase its competitiveness and its market share compared to road. Interviewed people, representative of the most important organizations offering services on Corridor 6, consider really important both "socio-economic or political interventions", as for example the adoption of a more stringent limits on road transport in terms of driving hours, and "Technical interventions" aiming at an overall increase of capacity along Corridor 6, both in terms of line and single trains capacity. The Results of this surveys, confirms the optimistic result achieved by the overall Transport Market Study regarding potentiality of Corridor 6.

Second type of survey, thanks to Revealed Preferences and Stated Preferences, allowed to properly defining current freight market situation and, most of all, to describe the mode of transport decision process of shippers and intermediaries. Results of this survey, confirms the potentiality of the rail transport services both in near (2015) and far (2030) future: Corridor 6, market share could be increased adopting an efficient management of the services, appropriate trade policies, and maybe also specific actions to support rail transport as a valid and positive alternative to road.

A crossed analysis of results achieved in these two types of surveys, reveals that those characteristics of the rail transport service to improve according to the Railways Undertakings to increase market share of rail freight Corridor 6 are the same that shippers and intermediaries consider important but, actually, not very satisfying.

Data collected reveals that 4 variables seem to influence the decisions of shippers and intermediaries more than any other: cost and travel time first of all, but also risk of delay and risk of damaged/lost goods during shipment. All these variables influencing present freight market could be considered as fundamental to increase the rail market share

along Corridor 6: even with a prudential approach, aiming at considering possible limits to the reliability of the achieved results, it is observed that thanks to properly planned and actuated interventions, the rail modal share could be "modified".

Forecasts of the Transport Market Study based on results achieved with surveys and on specific tools used to estimate future road + rail freight flows, lead to consider Corridor 6 as a strategic infrastructure in future configuration of the European network, even if a really conservative approach is used.

The conservative approach adopted, is evident in some assumption:

- ✓ estimates of future road + rail freight flows are based on a preliminary analysis of recent past years (2005-2010) influenced by the financial crisis: the atypical evolution of economies and socio-economic variables used in forecasting models could lead to underestimate future freight flows;

- ✓ modal split model considers sensitivity of transport demand at its low/medium levels: a weighted definition of its values with regard to different market segments, could lead to more positive forecasts;

- ✓ the modal split model is used only for the catchment area, where the model can be considered as calibrated, but not in the market area: due to the fact that flows outside the catchment area represent an important ratio of the Corridor 6 potential market, the use of the modal split model even for these flows would change achieved results determining an increase of the rail market share along Corridor 6;

So far, even with this conservative approach the main findings of the Transport Market Study reveals that rail freight Corridor 6 is a strategic infrastructure for the European transport system and its competitiveness and market share can be increased by adopting different policies and strategies, first of all:

- ✓ an implementation of the level of service of rail transport, with particular focus on those interventions aiming at reducing travel time and cost: these results can be achieved thanks to trade policies and to reduction of technical constraints and bottleneck, in all sections of Corridor 6.

- ✓ Market stakeholders agree on the fact that a better knowledge of rail freight transport services and a greater efficiency in terms of cost and travel time, would lead to increase rail market share;

- ✓ the adoption of policies or regulations aiming to define more stringent limits to road freight transport: cost increase, more stringent limits on driving hours and, possibly, a general reduction of road flows that would determine even social benefits as less congestion and pollution. Results of the Transport Market Study reveals that these interventions could help to increase rail market share, reducing road transport and its negative effects on transport systems.

- ✓ Further developments are needed to better investigate the behaviour of the variables that have been identified as having an influence on the modal shift.

5 Objectives of the freight corridor

5.1 Objectives of Performance – Quality of Service

5.1.1 Compatibility between the performance schemes along the freight corridor

Train Performance Management will be established in order to ensure regular performance monitoring and quality improvement of traffic management on the Corridor.

The Management Board shall ensure the agreement on a common methodology by which RFC6 will measure, analyse, and manage the trains" performance. In order to provide a solid basis for the improvement of performance, the process for its monitoring and analysing is hereby described.

The goal is to describe the method for regular monitoring and analysing of the international trains' performance and to describe the rules for identifying and implementing the measures to improve the performance according to the approach

foreseen in the RNE Corridor Management (EPR, TIS, and Train Performance Management). Should RFC 6 decide to develop its own system, this will be harmonized and coherent with other corridors as well as with RNE "Punctuality Monitoring guidelines".

Although the main focus in the first step is on the Corridor Trains Performance Management, all the processes will be developed in such a way that they could be used also for other Trains Performance Management projects.

Implementation of the Trains Performance Management on the corridor level together with the domestic one will complete the whole process of performance management in railway business.

Expected benefits:

- ✓ Unique international approach for punctuality analyses to improve the quality of trains' performance along the corridor so to improve the Customer satisfaction and bring more traffic on rail;
- ✓ To fulfil current and future obligations for corridor punctuality monitoring (e.g. as requested for ERTMS corridors);
- ✓ To have a network of experts in place being able to fulfil the requirements for other performance monitoring projects (e.g.: future EPR development, 3rd railway package, and customer oriented quality circles);
- ✓ To establish regular international cooperation on the quality performance (looking over the borders) between IMs themselves and also together with the RUs.

As basis for the Train Performance Management along the Corridor the RNEIT-tool named Train information System (TIS) will be used as the main source of data.

TIS supports the international trains" management by delivering real-time trains data. The relevant data are then processed by the concerned Infrastructure Managers.

The use of the TIS supports the fulfilment of the requirement, mentioned in previous chapter and also delivers automatically-generated performance monitoring reports, as well as detailed reports needed for performance analysis.

5.1.2 Monitoring of the performance of rail freight services

Key performance indicators (KPI) will be used to evaluate the performance of RFC6 activities.

Performance indicator selection is closely associated with the use of various techniques to assess the present state of the business, and its key activities. These assessments lead to the identification of potential improvements and as a consequence, performance indicators are routinely associated with 'performance improvement' initiatives.

The procedure for a comprehensive monitoring of the performance of trains, from an operational perspective, is described in the mentioned RNE Guidelines for Punctuality Monitoring.

RFC6 will take such Guidelines into account while setting up its own monitoring procedures. The following sections describe a preliminary statement of how the RFC6´s trains performance management will look like and it is valid until RNE´s recommendations are analyzed and implemented, in so far as the RFC6 decide to implement them.

5.1.2.1 Description of the Indicators

Number of trains

The counting shall be done at defined points within a given timeframe. The measuring points will be defined considering the sections in which major changes in the number of trains can be expected (e.g. main hubs). The trains, monitored by this indicator, will fulfil following conditions:

- ✓ only international freight trains will be considered;
- ✓ must cross at least one border within the Corridor;
- ✓ must run a main part on the Corridor;

Train-km

This indicator will be used to monitor traffic flow trends along the Corridor. The indicator should include the same trains as in the previous paragraph. Only the train kilometres running on the Corridor are taken into account.

Punctuality reports

Punctuality reports are done on base of average delay. It is calculated according to the formula:

$Ad = D_{min} / T$

Abbreviations:

Ad – average delay

D_{min} – total minutes of delay

T – number of monitored trains

If necessary, this sample will be updated in the end of 2013.

Trains that are running punctually are not considered. So are taken into account the entire negative and the positive data of the punctuality values.

To establish impact of processes on interchange stations on, the lateness occurred between borders stations in a particular country will be shown separately or from the last border station to the final destination of train / from origin of train to the first border Station; for the punctuality measure on the network, the following measuring points have been defined.

Country / IM	Punctuality measuring points
Spain	Algeciras, Valencia, Madrid, Castellbisbal, Barcelona, Figueres Vilafant, Portbou
France	Cerbere, Perpignan, Miramas, Sibelin, Modane
Italy	Torino Orbassano, Novara Boschetto, Milano Smistamento, Verona P.N. / Verona Q.E., Cervignano Smistamento and Villa Opicina
Slovenia	Seţana, Koper, Ljubljana, Celje, Pragersko, Hodoš
Hungary	Őriszentpéter, Zahony, Ukk, Kelenföld, Ferencváros, Szajol, Fényeslitke

Average speed

The same sample as in the punctuality reports will be monitored. Average speed will be calculated according to the formula:

$As = D / J_t$ (km/h) Abbreviations:

As – average speed

J_t – journey time

D – run distance of train

Only the journey time from one border station to the next (or from beginning of Corridor to the border station / from border station to the end of Corridor) are considered. Border crossing times are not taken into account.

Cancellations

This indicator includes all cancellations of train paths planned in the annual timetable. It also includes unused train paths that have not been cancelled.

Only the data of cancellations of a single train runs on specific days will be taken into account. Cancellations of the allocated paths for the rest of the timetable will not be considered.

The cancelled paths will be counted on the same sample on which the number of trains is defined (see first indicator). So there will be a basis for comparison between number of cancelled paths and number of trains which ran indeed.

The cancelled paths will be identified by the cause of cancellation: RUS or IMs, external or secondary cause.

5.1.3 Collection of data

For purpose of analysing the train performance on RFC 6 a questionnaire has been made. Collated data will be used in order to manage and improve train performance on RFC 6.

Before submitting the questionnaire to the stakeholders, it will be verified if and which data are already available from other sources of information (for example, from surveys on the same subjects that are currently being carried out within RNE´s framework).

The measurement shall be done preferably within timeframe of quarters of year. The national trains will not be taken into account. As principle, only the trains, requested directly to the Corridor OSS will be included. All measures will be monitored separately by direction (west to east / east to west).

SAMPLE OF TRAINS TO BE MONITORED:

Number of trains includes international freight trains, which:

- ✓ must start and/or end in a Corridor or enter and/or leave the Corridor;
- ✓ must cross at least one border within the Corridor;
- ✓ must run a main part on the Corridor;

Train-km - the same sample as in number of trains (only the train kilometres running on the Corridor will be taken into account).

Punctuality reports will include trains running entire RFC6 course through particular country including ad – hoc trains

Average speed - the same sample as in the punctuality reports.

Cancellations - the same sample as in number of trains.

5.2 Punctuality objectives

According to EU Regulation 913/2010:

In order to establish and improve quality of service RFC6 will use model of surveys currently used in the context of the Transport Market Study and add the intention to cooperate with other corridors in order to develop a common form of satisfaction surveys.

The described collection and analysis of reliable data shall optimize the processes in Corridor and develop targets of punctuality.

In order to establish and improve high level punctuality in international traffic it is necessary to measure punctuality of trains and to identify the causes for delays and cancelled services in a common way. While the allocation of causes is a task of the Infrastructure Manager (IM), it will be necessary that the Railway Undertakings (RU) validate these causes.

Thus a commonly accepted and applied view of performance measurement will be established, to be used by IMs and RUs to get a common picture of actual performance and to develop actions to improve performance.

Punctuality of a train will be measured on the basis of comparisons between the time planned in the timetable of a train identified by its train number and the actual running time at certain measuring points. A measuring point is a specific location on route where the trains running data are captured. One can choose to measure the departure, arrival or run through time. The comparison should always be done against an internationally agreed timetable for the whole train run. If IM allocate a new timetable in case of delays. It will be certified by C-OSS that either a new timetable is allocated for the whole remaining part of the train run or the comparison is made against the originally planned timetable. If neither is possible the train run should not be considered.

When a train enters into the corridor with delay superior than a specific value (e.g. 60 min.) this train should not be considered for punctuality monitoring.

Punctuality will be measured by setting a threshold up to which trains will be considered as punctual and building a percentage:

- ✓ Number of all trains that are measured <= threshold (Threshold means that all trains are considered as punctual if they increase the delay between the agreed points of measuring less than 30 minutes.) It is intended to set this threshold to 30 minutes;

- ✓ Punctuality = percentage of all measured trains that are punctual;

Possible variations of the mentioned values may be considered, provided that the following topics in order to achieve consistent information must be adequately addressed:

Points and train status to be considered:

1. Clarification of timetable behaviour;

2. Uniform behaviour in rounding seconds;

3. Threshold for punctuality;

The divergences between the scheduled timetable and the actual running times will be usually reported in minutes.

The result of measurements on the defined measurement points will be a value in minutes and seconds that is rounded to minutes.

Known ways to manage the rounding are:

- ✓ Round down until 29", round up from 30" on – 4:30 is considered as 5
- ✓ The possible causes of delays will be listed in the coding table in accordance to UIC leaflet 450-2.
- ✓ The measurements will be done by the following IT tools developed by RNE.

The Train Information System (TIS, formerly EUROPTIRAILS) is a web-based application that supports international train management by delivering real-time train data concerning international passenger and freight trains. The relevant data is processed directly from the Infrastructure Managers' systems.

C-OSS will check all data inserted in TIS and if needed will ask IMs for further explanations.

If some IM does not have TIS they will have to collect data manually and send to C-OSS every month for validation.

The main reason for identifying the delay causes is to enable follow up actions to diminish or avoid the occurrence of same causes in the future. In case the delay is caused by RU the consequences for other trains will have to be coded as secondary delays.

For IM and external causes, primary causes are applicable on the whole network of the IM. If delays could not be traced back to the primary cause, secondary causes have to be used.

When comparing the delay causes of several networks the differences in data collection will be considered.

Circumstances which are influencing the results are:

- ✓ Density of measuring points on domestic level: If a comparison to the timetable is only made every 50 km more intermediate delay minutes will be unnoticed than if measured every 2 km. Recovery time will make up for at least part of the delay;

- ✓ Threshold for coding delays: The thresholds for identifying the cause in a single incident differ. It makes a difference if every single delay minute is allocated or if allocation starts at a delay of 5 minutes. In the 2nd case more delay causes will be unnoticed because they are made up for by recovery time. It is recommended to give a delay cause from 2 minutes on;

- ✓ Amount of undocumented delay minutes: It should not exceed 5 % of all the delay minutes. Especially for the use of performance analyses these differences have to be well considered;

The codes described should also be used to describe the causes of cancellation on the whole or just on the part of the route.

In the event of rerouting of the trains, if a commercial stop is missed on the original train path, it is considered as a cancelled service. A replacement road service - either for the whole line or for sections of it – shall be considered as a train cancellation too.

Punctuality target: Objective, 0' - 30' = at least 60 %

A basic punctuality goal of at least 60% of all measured trains will be set. (Increase of delay less than 60 min between points provided for measure).

The codified reasons for delay, in accordance to accordance to UIC leaflet 450-2, will be used for the continuous and systematic monitoring.

Main reasons for delays will be divided into 9 main groups:

1. Operation/planning management attributable to the infrastructure manager

2. Infrastructure installations attributable to the infrastructure manager

3. Civil engineering causes attributable to the infrastructure manager

4. Causes attributable to other infrastructure managers

5. Commercial causes attributable to the railway undertaking

6. Rolling stock attributable to the railway undertaking

7. Causes attributable to other railway undertakings

8. External causes attributable to neither infrastructure manager nor railway undertaking

9. Secondary causes attributable to neither infrastructure manager nor railway undertaking

The content of the report and procedures for its drafting and delivering will be established according to RNE Guidelines in so far these fit with the RFC6 specific situation and needs.

5.3 Capacity objectives

Article 14.1 of Regulation 913/2010 ("the Regulation") requires the Executive Board to establish a corridor framework for capacity allocation. The framework for capacity allocation on the corridor concerns the mandatory aspects of the Regulation regarding the capacity allocation.

This framework for capacity allocation on the corridor ("Corridor-Framework") concerns only the allocation linked to the prearranged train paths (PaPs) and to the reserve capacity given to the Corridor One-Stop-Shop ("C-OSS") for freight trains, crossing at least one border on a corridor as foreseen by article 14.4 of the Regulation, namely where the allocation of capacity by the C-OSS is mandatory, according to article 13 of the Regulation.

The framework shall apply to Infrastructure Managers and Allocation Bodies (IMs/ABs) in order to install clear and transparent principles for the allocation process of PaPs and reserve capacity by the C-OSS. IMs and ABs will enforce the implementation of the framework by including the relevant provisions in their network statements.

Indicators to be monitored on a bi-annual basis (period 1: mid-December till mid-June, period 2: mid-June to mid-December (change of timetable) :

Pre-arranged train path:

- Pre-arranged paths (Pap)
  - Number of PaPs for which standard priority rule applies;
  - Number of PaPs for which Network Pap priority rule applies;

- The number of requests period X-11 till X-8 and X-8 (-1 day) till X-2 (with feeder/outflow sections):
    - Total number of requests;
    - Number of requests covering only Pap sections where standard priority rule applies;
    - Number of requests covering only PaP sections where Network PaP priority rule applies;
- Number of PaPs which are allocated by C-OSS:
    - Number of PaPs for which standard priority rule applies;
    - Number of PaPs for which Network PaP priority rule applies;
- Number of PaPs which reached the active timetable phase;
- Number of conflicting applications (double booking at X-8);
    - Conflicts solved by consultation;
    - Conflicts decided based on standard priority rule;
    - Conflicts decided based on the Network PaP priority rule;
- Indicator for reserve capacity to be allocated by C-OSS between X-2 and X+12
    - Paths offered;
    - Paths allocated;
    - Paths reaching the status of active timetable;

The capacity offer on Rail Freight Corridors will have to address a wide range of market demands. Two parameters with strong influence on the path supply and the processes to be developed are the duration and predictability of the capacity needs, which depend to a high degree on the type of traffic and to some extent the type of rail freight service (production method), see figure below.

The capacity offer on the Rail Freight Corridors will take into account the varying character of capacity demand, both in order to address the market needs of the end customers (as shippers) and for reasons of neutrality towards different Railway Undertakings, since different Railway Undertakings may address different market segments. Therefore the Regulation demands both pre-arranged train paths available in the annual timetable, as well as reserve capacity, which is available at short notice.

The Regulation foresees the supply of capacity on the Rail Freight Corridors in form of 1) prearranged train paths and 2) reserve capacity.

Pre-arranged train paths address in first hand medium-to long-term capacity needs, while reserve capacity addresses temporary capacity needs at rather short notice. In order to address the applicants capacity needs in an optimal way it is suggested to establish three request processes:

- ✓ Requests in the annual timetable;
- ✓ Late requests;
- ✓ Ad-Hoc requests

While the two first-mentioned ones concern the PaPs, the latter one concerns the reserve capacity.

The quantification of capacity needs in form of PaPs as well as reserve capacity should be based on an analysis of current traffic patterns and paths recently used, the Transport Market Study, consultations with the Advisory Groups, which should be involved in an early stage, and, after the establishment of a Rail Freight Corridor, results from the Satisfaction Survey and Executive Board guidelines and MB decision.

When it comes to the reserve capacity, the current share of train paths allocated in recent timetable-periods may serve as an indicator for the quantification of reserve capacity in relation to the capacity supplied in form of PaPs.

It is suggested that reserve capacity is calculated either as a percentage of the allocated PaPs or a fixed number of train paths to be offered in addition to the allocated PaPs. This means that the reserve capacity needs to be defined in form of concrete train paths first when the pre-arranged train paths are allocated. With this approach an "over-supply" of train-paths, blocking capacity for other traffic, can be avoided. Since the reserve capacity is intended to address short-term ad-hoc capacity needs, it appears neither necessary to publish reserve train paths as long time in advance as PaPs.

However, for practical reasons it is suggested that the reserve capacity in first hand should consist of PaPs, which have not been allocated within the On-time and Late path application processes. Furthermore it has to be ensured that the reserve capacity is published a reasonable time (e.g. 4 weeks) in advance of the time from which on the reserve capacity not any longer needs to be reserved. This latter time must not exceed a maximum of 60 days (Art.14 (5)). This means in practice that the reserve capacity has to be published at least the following number of days in advance of the timetable-change. The Management board of RFC6 has decided in October 2013 to harmonize the number of days to 30 days

Concrete measures to improve the capacity utilization should be considered in this plan, e.g.

- ✓ increased train lengths;

- ✓ increased loading gauges;
- ✓ higher train gross weights;
- ✓ increased axle-loads;
- ✓ improved speed management;
- ✓ increase capacity of train stations;
- ✓ remove of identified bottlenecks;
- ✓ improvement of occupancy rates on the lines;
- ✓ extension of the station opening hours;

harmonization, coordination and publication of major works and possessions;

5.4 Interoperability objectives

The competitiveness of the railway system on the RFC6 will be increased with the elimination of differences on Corridor in terms of stock, technology, signalling systems axle load, the train length and safety regulations. With the focuses on establishing common standards for signalling and control systems, telematic systems for freight services, the operation and management of rolling stock intended for international freight, and staff qualifications.

The challenge is to establish the conditions to be met to achieve interoperability within the RFC6 in a manner compatible with the provisions of Directive 2004/49/EC concern the design, construction, placing in service, upgrading, renewal, operation and maintenance of the parts of this system as well as the professional qualifications and health and safety conditions of the staff who contribute to its operation and maintenance.

The new Directive 2008/57/EC of 17 June 2008 introduces the new conditions.

The goal of RFC6 is:

- ✓ To contribute to the progressive creation of the internal market in equipment and services for the construction, renewal, upgrading and operation of the rail system within the RFC6;

- ✓ To contribute to the interoperability of the rail system within RFC6;

The interoperability concerns three main subsystems: infrastructure, energy and signalling.

The interoperability involves:

- ✓ infrastructure and energy (electrification system);

- ✓ control and command and signalling: the equipment necessary to ensure safety and to regulate movements of trains authorized to travel on the network;

- ✓ operation and traffic management (including telematic applications): procedures and related equipment enabling a coherent operation of the different structural subsystems and professional qualifications required for carrying out cross-border services;

- ✓ rolling stock: vehicle dynamics and superstructure, command and control system for all train equipment, current-collection devices, traction and energy conversion units, braking, coupling and running gear and suspension, doors, man/machine interfaces, passive or active safety devices and requisites for the health of passengers and on-board staff;

- ✓ maintenance: procedures, associated equipment, logistics centres for maintenance work;

Railway interoperability is developed through the introduction of Technical Specifications of Interoperability (TSIs) concerning the specific subsystems; TSIs are also related to safety issues, even though security and interoperability are, at present, regulated by different normative initiatives. The European Railway Agency is directly involved in the interoperability process with the role of advising and assisting the process; moreover, the Agency is in charge for the development of some TSIs.

Obstacles to railway interoperability at macro level, concerns three main subsystems:

1. infrastructure: in particular, the presence of non-standard gauges in Spain the differences of axle load, tunnel gauges, train length;

2. energy: presence of different power systems (A.C. systems and D.C. systems or without electrification) and different pantograph;

3. Signalling: presence of different signalling and train control systems (in general, one or more system per national network).

The presence of several signalling and train control systems impacts negatively on:

- ✓ costs: (brand-new) interoperable locomotive must be equipped with the specific signalling interface of every single national network where it is allowed to operate;

- ✓ reliability: the presence of several systems and interfaces reduce the possibility of introducing redundancies, with consequent possible higher number of breakdowns;

- ✓ safety, intended as drivers" "interoperability": drivers must get familiar with several systems and interfaces to be allowed driving trains on different national networks. This can lead to a reduction in the overall safety levels and higher human errors rate;

- ✓ interoperability of existing rolling stock: existing rolling stock must be retrofitted with further system and interfaces; this has proven to be difficult in several cases. In fact, once locomotives have been designed it is extremely expensive and sometimes impossible to add more on board systems.

Other obstacles to interoperability, especially on beginning of RFC6 operation, do exist also at micro level and reflect differences in the present national technical specifications, i.e. for tracks micro-design, fire extinguisher on board, back lights and so on. The modification of these specifications in the direction of higher levels of

interoperability is often refused or delayed by national authorities (sometimes on the basis of possible problems in terms of safety). If, on one side, such behaviours could "hide" para-protectionist policies, on the other side it is important to remind how possible modifications to these elements should allow, at the same time, the operation on the same network with interoperable and non-interoperable (complying with national standards only) rolling stock.

According to Directive 2004/49/CE, some derogation to application of TSIs are possible; the derogation should be identified and explained the generation of short run benefits (i.e. compatibility with the national railway system), in the medium run they must be eliminated to prevent a further obstacle to the full interoperability of the RFC6.

6 The Investment Plan

6.1 Investment plan

6.1.1 Plan description

6.1.1.1 Methodology

For this first investment plan, The Management Board advocates to gather the national investment Plan of each Member States. The list of projects was defined in a common way and the aim is to emphasize the projects that have a positive impact to improve the efficiency and the competitiveness of rail freight services along the corridor.

The kind of projects was agreed in the 5th MB meeting in Paris on February 22.

The description of the plan is also split by kind of project, by benefits for the RFC6, by kind of funder.

6.1.1.2 Nature of the projects

a) Renewal of tracks;

b) The renewal of signalling system;

c) The renewal of tunnel, bridge etc.

d) The electrification;

e) The creation of siding, passing tracks, extra tracks;

f) The creation of a new structure (line, bridge, tunnel, leapfrog);

g) Adjustment of the gauge;

h) The enhancement in signalling (especially ERTMS that will constitute a specific issue);

i) The track enhancement;

j) The level crossings;

k) The noise reduction;

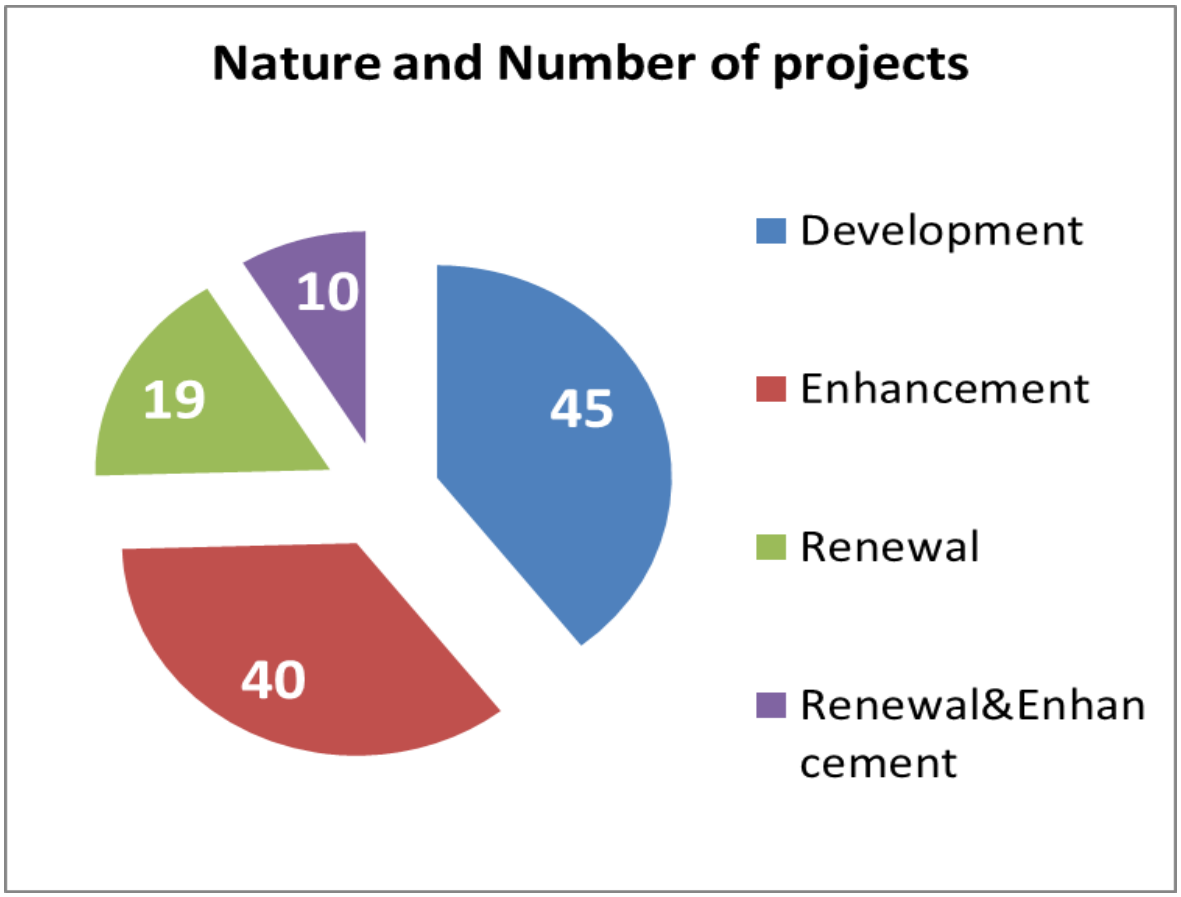
l) Other projects;

These kinds of projects have been split according to the following categories: renewal, enhancement and development.

Renewal projects include the renewal of tracks, signalling system, tunnels, bridges and other elements.

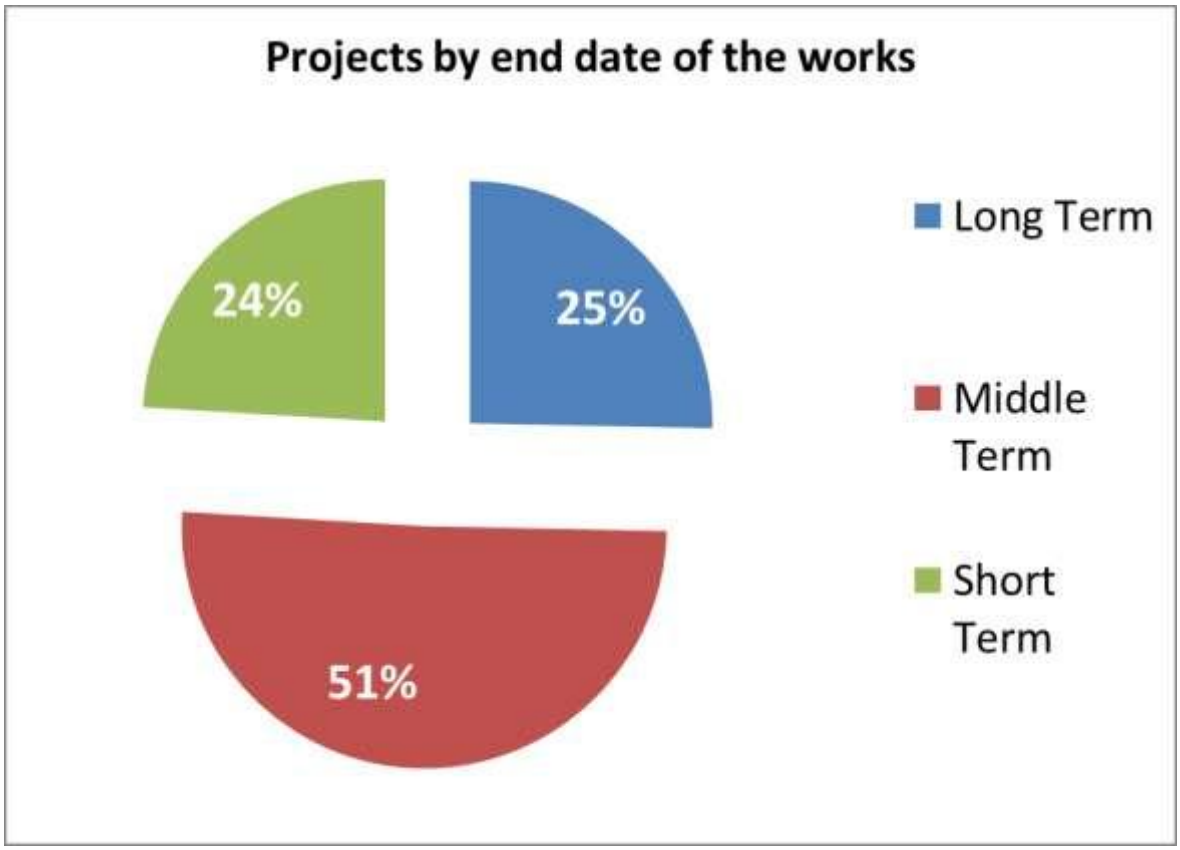
Enhancement investments consider projects related with the adjustment of gauges, the track enhancement, noise reduction, level crossings etc.

Finally in the development projects are included all new lines projected, electrification, creation of sidings, passing tracks or new structures.



This Investment Plan encloses the details of the projects of the five countries. 78 billion € are foreseen to be invested during the different periods this plan is targeting:

- Short term (until 2015);
- Medium term (2015 – 2020);
- Long term (>2020);



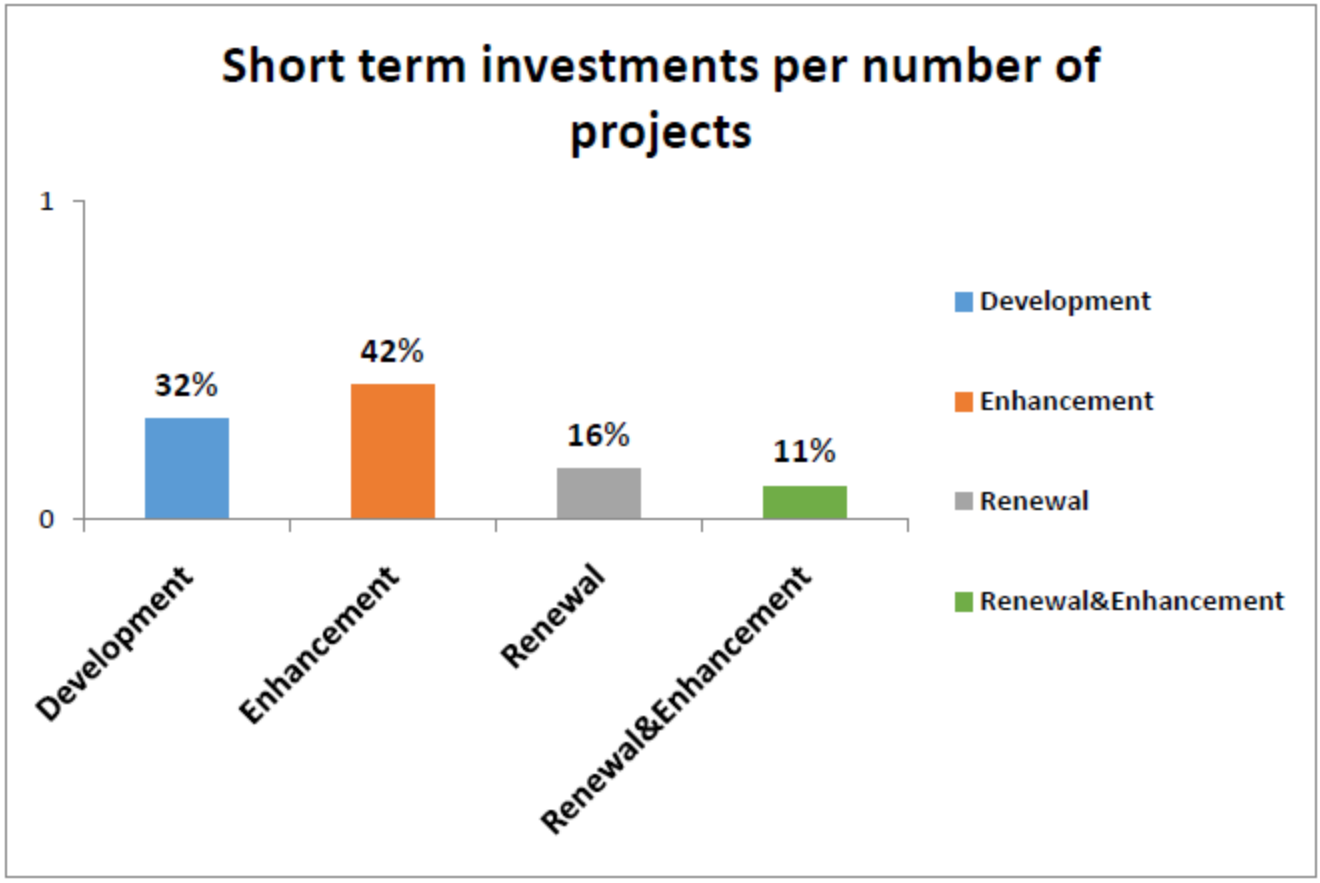
In the following lines you will find a short analysis about the kind of investments to be done and their nature, classified by the periods already mentioned:

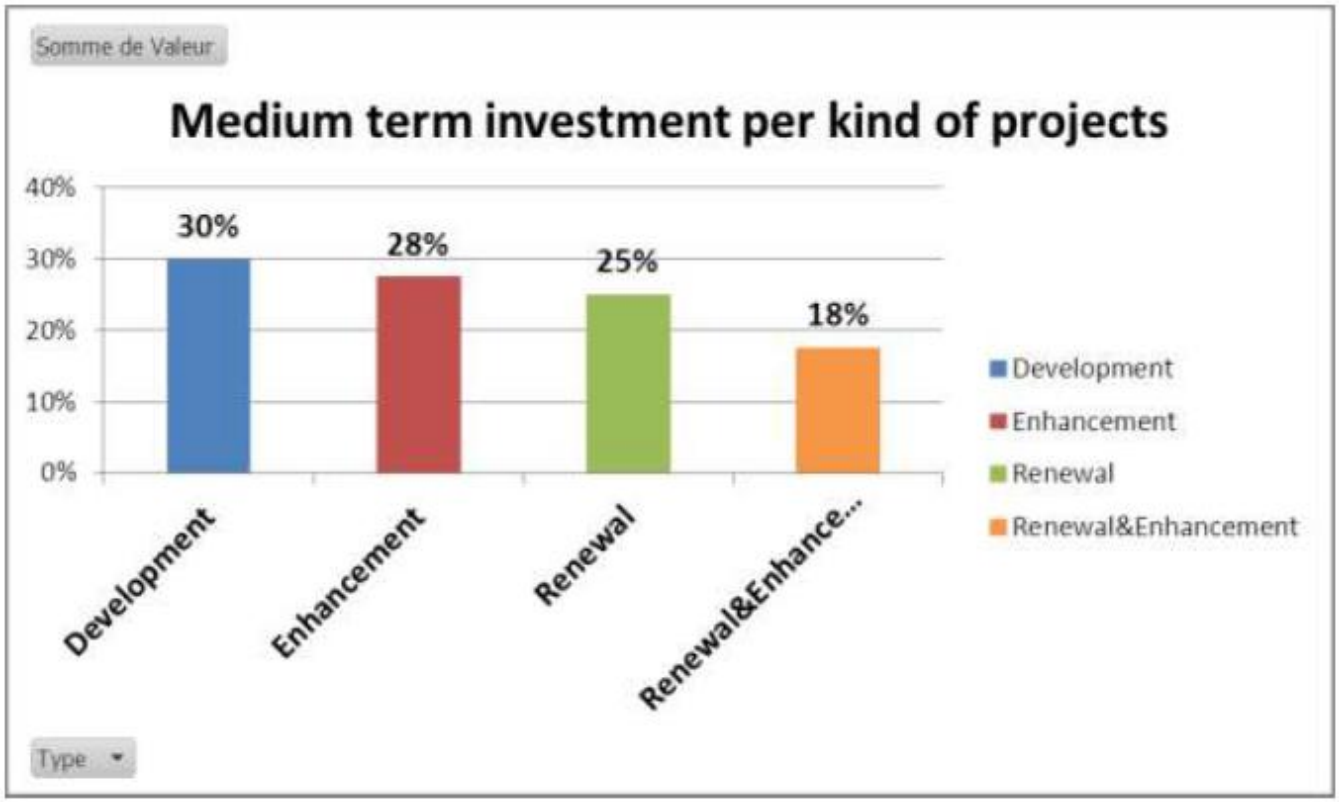
6.1.1.2.1 Short – Medium term projects breakdown

As we can see in the charts, short (2013-2015) and medium term (2015-2020) investments on projects are mainly concentrated on the renewal and enhancement of the network.

For the short term they are foreseen investments in 19 projects which represents a total amounts of 3.3 billion € spread between the five countries that form the RFC 6. Most of the projects are related with the enhancement of the infrastructures.

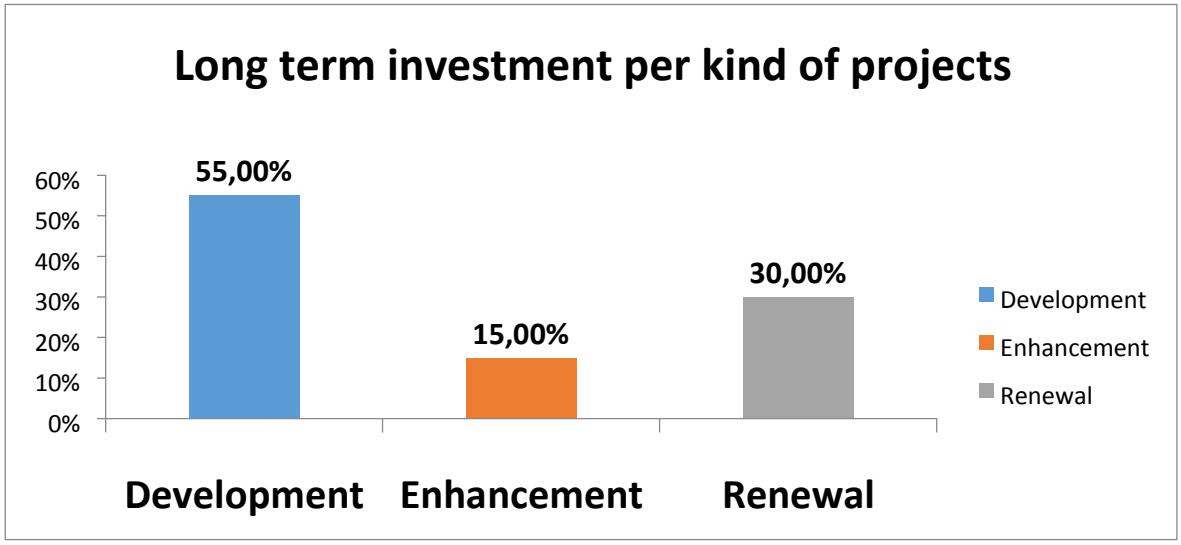
In the middle term, which includes the period between 2015 and 2020, the total amount foreseen to be invested is around 15.87 billion €.


Short term investments per number of projects
1
0
32%
42%
16%
11%
Development
Enhancement
Renewal
Renewal&Enhancement
Development
Enhancement
Renewal
Renewal&Enhancement


Somme de Valeur
Medium term investment per kind of projects
40%
30%
20%
10%
0%
30%
28%
25%
18%
Development
Enhancement
Renewal
Renewal&Enhancement
Development
Enhancement
Renewal
Renewal&Enhance...
Type

6.1.1.2.2 Long term projects breakdown

For the long term most of the investments are related to the development of new lines and new structures along the RFC 6. There are also some other projects already defined for the renewal of tunnels and bridges especially in France.



6.1.1.3 Benefits of the projects

Each project may have one or several benefits amongst these main benefits:

a. Bottleneck relief in order to make the infrastructure more available;

b. Safety/security;

c. Environment in order to comply with national laws but also to make the projects more acceptable;

d. Higher speed to increase competitiveness, especially regarding the road transportation;

e. Interoperability to increase also competitiveness;

f. Punctuality improvement, as provided by the surveys made for the TMS. It's one of the key point;

g. Maintenance of performance: especially the renewal of tracks is essential to maintain the performance. If not the performance will become worst;

h. Capacity improvement;

6.1.1.4 Breakdown per country

Spain	**Number of Projects**	**Estimation of the costs in M €**
Total	32	7 682
France	**Number of Projects**	**Estimation of the costs in M €**
Total	25	24 480
France-Italy	**Number of projects**	**Estimation of the costs in M €**
Total	1	8 500
Italy	**Number of projects**	**Estimation of the costs in M €**
Total	27	26 159
Slovenia	**Number of Projects**	**Estimation of the costs in M €**
Total	13	4 462
Hungary	**Number of Projects**	**Estimation of the costs in M €**
Total	17	6 312

CAUTION: The list of projects mentioned in the investment plan of the corridor is provided for informational purposes only.

This matter falls within the remit of the Member States, in accordance with the principle of subsidiarity.

A number of technical, political and financial factors may affect the implementation of these projects. It is therefore possible that some operations will be delayed or achievements could be challenged. Dates and costs presented may be modified in the future.

6.1.1.4.1 Investment Plan in Spain

INVESTMENT PLAN RFC 6														
N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
1	SP		BARCELONE PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	118					
2	SP		BARCELONE PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	148					
3	SP		VILLASECA-CASTELBISBAL	Adjustment of gauge	Bottleneck relief Interoperability			Approved and financed (but works have not started yet)	386					
4	SP		VANDELLÓS-VILLASECA	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement Higher speed			Works phase	659					
5	SP		CASTELLÓN-VANDELLÓS	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	154					

Nº	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
6	SP		VALENCIA-CASTELLÓN	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	247					
7	SP		ALMUSAFES-VALENCIA	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Works phase	66					
8	SP		JÁTIVA-ALMUSAFES	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	1345					
9	SP		LA ENCINA-JÁTIVA	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability			Works phase						
10	SP		LA ENCINA-JÁTIVA	Adjustment of gauge	Bottleneck relief Interoperability			Technical study						
11	SP		ALICANTE-LA ENCINA	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	145					
12	SP		SAN ISIDRO-ALICANTE	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	66					
13	SP		EL REGUERÓN-SAN ISIDRO	Track enhancement	Bottleneck relief Interoperability Capacity improvement Punctuality improvement Higher speed			Works phase	615					
14	SP		MURCIA-EL REGUERON	Adjustment of gauge	Bottleneck relief Interoperability Capacity improvement Punctuality improvement Higher speed			Technical study	127					
15	SP		ESCOMBRERAS-EL REGUERON	Adjustment of gauge	Bottleneck relief Interoperability			Technical study	143					

Nº	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
16	SP		CASTELLÓN PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	124					
17	SP		SAGUNTO PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	20					
18	SP		ALICANTE PORT AND FREIGHT TERMINAL ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Works phase						
19	SP		ESCOMBRERAS PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	31					
20	SP		ALMERÍA-MURCIA	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement Higher speed			Works phase	2480					
21	SP		POZO CAÑADA-VILLAR DE CHINCHILLA	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement Punctuality improvement			Technical study	4					

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
22	SP		ALMERÍA PORT ACCESS	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	4					
23	SP		LINARES-ALCÁZAR	Track enhancement	Bottleneck relief Interoperability			Technical study	6					
24	SP		ALCÁZAR-VALENCIA	Track enhancement	Bottleneck relief Interoperability			Technical study	20					
25	SP		MANZANARES-ALCÁZAR	Track enhancement	Bottleneck relief Interoperability Higher speed			Works phase	105					
26	SP		MADRID-ZARAGOZA-BARCELONA-PORTBOU	Track enhancement	Bottleneck relief Interoperability			Technical study	50					
27	SP		VICÁLVARO-SAN FERNANDO	Creation of siding, extra tracks	Capacity improvement Punctuality improvement			Technical study	40					
28	SP		PLASENCIA DE JALÓN-PLAZA	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement Punctuality improvement			Technical study	175					
29	SP		VALENCIA FUENTE DE SAN LUIS TERMINAL	Terminal enhancement	Bottleneck relief Interoperability Capacity improvement			Technical study						
30	SP		MADRID VICÁLVARO TERMINAL	Terminal enhancement	Bottleneck relief Interoperability Capacity improvement			Technical study	357					
31	SP		BARCELONA-FIGUERAS	Implementation ERTMS	Interoperability Capacity improvement			Works phase	20					
32	SP		BARCELONA-PORT-BOU	Implementation ERTMS	Interoperability Capacity improvement			Works phase	27					

The following table is the investment plan for the Common section with Rail Freight Corridor 6 section Algeciras-Madrid

INVESTMENT PLAN RFC 6													
N°	Country	Region	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4
33	SP		Variante de Almoraima (estación de San Roque)	Track and signalling	Bottleneck relief Interoperability Capacity Punctuality			Short term	< 50 m€				
34	SP		Complejo de Aranjuez (sistema de concesión)	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality			Short term	< 50 m€				
35	SP		San Cristobal - Villaverde bajo - Pitis vía mercancías	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€				
36	SP		Incorporación a UIC terminales de Vicálvaro y Abroñigal	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Medium term	< 50 m€				
37	SP		Algeciras – Madrid adaptación UIC:		Bottleneck relief Interoperability			Medium term					
38	SP		Algeciras - Bobadilla - incluye nueva electrificación	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality			Medium term	From 50 m€ to 500 m€				
39	SP		Bobadilla - Córdoba - Linares	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€				
40	SP		3.- Linares - Vadollano	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality			Medium term	< 50 m€				
41	SP		Vadollano - Santa Cruz de Mudela	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	< 50 m€				
42	SP		Santa Cruz de Mudela - Aranjuez	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality			Medium term	From 50 m€ to 500 m€				
43	SP		Aranjuez - San Cristobal - Villaverde bajo	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€				

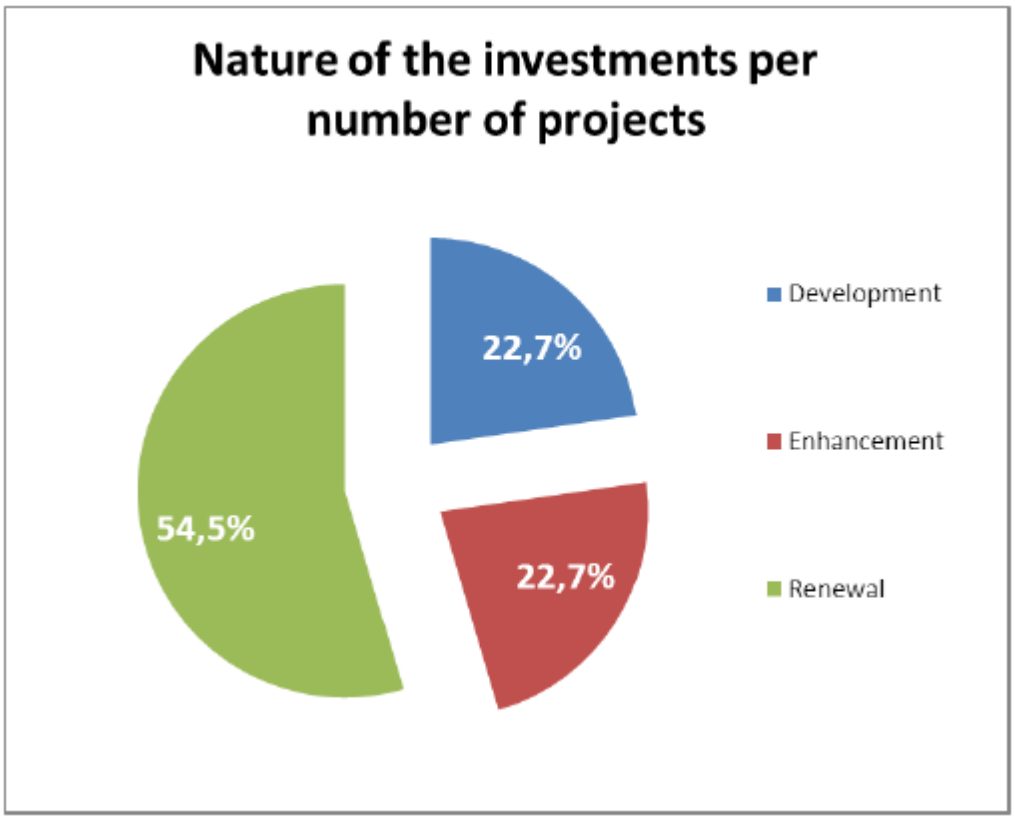
6.1.1.4.2 Investment Plan in France

Réseau Ferré de France is managing, modernising and developing a network at the heart of Europe. Continuously evolving over more than 150 years, this network requires constant adjustments to respond to the needs of passenger and freight transport.

Réseau Ferré de France has been committed to a wide programme of modernisation of the national rail network since 2008. At present, it manages nearly 1,000 construction sites per year on the whole territory.

Investments associated operations of maintenance, renewal and development with an overview of the network include:

- Major territorial projects across large areas of travel;
- A major project to modernise the network on a national scale to improve its fluidity, reliability and performance.



The following tables present the major projects on Corridor 6. The estimation of the costs are updated to the 1st of November of 2012.

INVESTMENT PLAN RFC 6													
N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
1	FR	LR	CERBERE - NÎMES	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	50 < x < 500	IM				
2	FR	LR-PACA	NÎMES-AVIGNON	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	x< 50	IM				
3	FR	PACA-RAA	AVIGNON-LYON	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	50 < x < 500	IM				
4	FR	PACA	MARSEILLE-FOS-AVIGNON	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	50 < x < 500	IM				
5	FR	RAA	VALENCE-MONTMELIAN	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	50 < x < 500	IM				

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
6	FR	RAA	LYON-MODANE	Renewal of tracks Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	2013	2020	Works phase	50 < x < 500	IM				
7	FR	LR	CERBERE - NÎMES	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	x< 50	IM				
8	FR	LR-PACA	NÎMES-AVIGNON	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	x< 50	IM				
9	FR	PACA-RAA	AVIGNON-LYON	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	50 < x < 500	IM				
10	FR	PACA	MARSEILLE-FOS-AVIGNON	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	50 < x < 500	IM				

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
11	FR	RAA	VALENCE-MONTMELIAN	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	x< 50	IM				
12	FR	RAA	LYON-MODANE	Renewal of tunnel, bridge, etc.	Safety / Security Capacity improvement Maintenance of performance	>2020		Technical study	x< 50	IM				
13	FR	RAA	GRENAY	Connection to the network of an intermodal platform	Modal Shift	<2020		Technical study	x< 50	State	EU			
14	FR	RAA	Lyon Node I	Signaling enhancement Track enhancement	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	<2030		Technical study	X<500	IM	State	EU	Local Government	

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
15	FR	RAA	Lyon Node II	Signaling enhancement Track enhancement	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	>2030		Technical study	500<x	IM	State	EU	Local Government	
16	FR	RAA	French Access to New Line under the Alps (French Italian Project)	New Line	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	>2030		Technical study	500<x	EU	State	IM	Local Government	
17	FR	RAA	By Pass of Lyon Urban Agglomeration	New line Creation of siding, passing tracks, extra tracks	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	>2030		Technical study	500<x	EU	State	IM	Local Government	

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
18	FR	LR	By pass of Nimes and Montpellier	New Line	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2011	2017	Work phase	500<x	EU	State	IM	Local Government	
19	FR	LR	New Line Montpellier Perpignan	New Line	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	>2030		Technical study	500<x	EU	State	IM	Local Government	
20	FR	LR	Montpellier Perpignan	Signaling enhancement Track enhancement	Interoperability Capacity Improvement	<2020		Work phase	50 < x < 500	IM	State			
21	FR	PACA	Gauge for the railway highway	Adjustment of gauge, track enhancement	Capacity and performance improvement,			Work phase	x< 50	IM	State			
22	FR	RAA	Centralized Network Control System Lyon perrache	signaling enhancement, traffic control	capacity and performance improvement	2014	2016	Technical ctudy	50 < x < 500	IM				

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
23	FR	RAA	Centralized Network Control System Rive Gauche	signaling enhancement, traffic control	capacity and performance improvement	X<2020		Works phase	50 < x < 500	IM				

Investment France – Italy

INVESTMENT PLAN RFC 6														
N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
1	FR-IT		New Line under the Alps St jean de Maurienne (FR)- Susa (IT)	New line	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2015	2025	Technical study	8087	EU	Italian state	French state		

6.1.1.4.3 Investment Plan in Italy

INVESTMENT PLAN RFC 6														
N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Founder 1	Founder 2	Founder 3	Founder 4	Comments
1	Italy		VENEZIA MESTRE - PORTOGRUARO	Signaling enhancement	Punctuality improvement		2020	Works phase	22	State				SCC (Remote control &command system)
2	Italy		BUSSOLENO	Signaling enhancement	Punctuality improvement		2020	Works phase	8	State				ACC (station traffic control and management system) Bussoleno
3	Italy		NOVARA-PADOVA	Signaling enhancement	Interoperability		2018	Technical study	40	State				ERTMS deployment
4	Italy		MILANO NODE	Infrastructure and technological enhancement	Capacity improvement		2020 (*)	Preliminary study	344	State				Technological upgrading for capacity increase
5	Italy		TREVIGLIO-BRESCIA	Infrastructure and technological development	Capacity improvement Higher speed		2020	Works phase	2050	State	EU			High Speed/High capacity line Treviglio - Brescia
6	Italy		TORINO-PADOVA	Signaling enhancement	Punctuality improvement		2020	Works phase	711	State	EU			Technological upgrading Torino-Padova line
7	Italy		TORINO-BRESCIA	Infrastructure enhancement	Loading gauge		2020	Preliminary study	10	State				Maximum loading gauge upgrading
8	Italy		TORINO - TRIESTE	Infrastructure and technological enhancement	Train lenght		2020 (*)	Preliminary study	120	State				Increase of maximum track length 750 m (Baltic-Adriatic corridor included)

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
9	Italy		VERONA	Signaling enhancement	Punctuality improvement		2020 (*)	Preliminary study	90					Technological upgrading Verona Porta Nuova
10	Italy		TORINO-ALESSANDRIA	Signaling enhancement	Punctuality improvement		2030 (*)	Works phase	99	State				ACC-M Torino-Alessandria
11	Italy		TRIESTE JUNCTION	Infrastructure and technological enhancement	Capacity improvement Train lenght		2020 (*)	Preliminary study	50	State				Railways infrastructure upgrading infrastructure Trieste Port
12	Italy		TORVISCOSA - MONFALCONE	Signaling enhancement	Capacity improvement		2020	Works phase	6	State				Technological upgrading VENEZIA – TRIESTE Line
13	Italy		TORINO - MILANO	Signaling enhancement	Punctuality improvement		2020 (*)	Preliminary study	50					Upgrade SCC AV TO-MI e RBC PC AV Settimo Torinese
14	Italy		MILANO SMISTAMENTO	Infrastructure and technological development	Capacity improvement Train lenght		2020 (*)	Preliminary study	50	State				Upgrade Terminal Segrate and Milano Smistamento
15	Italy		PORTOGRUARO - TRIESTE	Signaling enhancement	Punctuality improvement		2020 (*)	Preliminary study	105					SCC (Remote control &command system)
16	Italy		TREVIGLIO	Infrastructure and technological enhancement	Capacity improvement		2020 (*)	Preliminary study	82					Upgrading node of Treviglio

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
17	Italy		BRESCIA-VERONA	Infrastructure and technological development	Capacity improvement Higher speed		2025 (*)	Preliminary study	3954	State				High Speed/High Capacity line Brescia - Verona
18	Italy		NOVARA	Infrastructure and technological enhancement	Capacity improvement Train length		2020 (*)	Preliminary study	80					Novara Boschetto Terminal Upgrade
19	Italy		MODANE - TORINO	Infrastructure and technological development	Capacity improvement Higher speed		2025 (*)	Preliminary study	2 336	State				By pass node of Torino (priority phase) - Maximum loading gauge and maximum track length upgrading
20	Italy		VERONA-VICENZA	Infrastructure and technological development	Capacity improvement Higher speed		2030 (*)	Preliminary study	3658	State				High Speed/High Capacity line Verona-Padova
21	Italy		VICENZA - PADOVA	Infrastructure and technological development	Capacity improvement Higher speed		2030 (*)	Preliminary study	2393					High Speed/High Capacity line Verona-Padova
22	Italy-Slovenia		TRIESTE - DIVACA	Infrastructure and technological development	Capacity improvement Higher speed		>2030 (*)	Preliminary study	1 040	State	EU			New line AV/AC Trieste-Divaca
23	Italy		VENEZIA-RONCHI	Infrastructure and technological development	Capacity improvement Higher speed		>2030 (*)	Preliminary study	5 701	State	EU			High Speed/High Capacity line Venezia - Ronchi
24	Italy		RONCHI-TRIESTE	Infrastructure and technological development	Capacity improvement Higher speed		>2030 (*)	Preliminary study	1 746	State	EU			High Speed/High Capacity line Ronchi-Trieste

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
25	Italy		VENICE NODE	Infrastructure and technological enhancement	Capacity improvement		2020 (*)	Preliminary study	120					Bypass Venezia node
26	Italy		MONFALCONE-BIVIO SAN POLO	Infrastructure and technological enhancement	Capacity improvement		>2030 (*)	Preliminary study	70					Doubling of siding on the line San Polo-Monfalcone and upgrading node of Monfalcone
27	Italy		PADOVA	Infrastructure and technological enhancement	Capacity improvement		2020(*)	Preliminary study	15					PRG PADOVA
28	Italy		MODANE - NOVARA	Signaling enhancement	Interoperability		2020 (*)	Preliminary study	91					ERTMS deployment
29	Italy		VICENZA/PADOVA-VILLA OPICINA Bivio d'Aurisina – Trieste	Signaling enhancement	Interoperability		2020 (*)	Preliminary study	26					ERTMS deployment
30	Italy		BORDER MODANE - BUSSOLENO	Infrastructure and technological development	Capacity improvement Higher speed		2025 (*)	Preliminary study	4822 + adjustment to prices increase	state	EU			Turin – Lyon line

(*) Funding partially or not secured, therefore start and/or end date of the project are only indicative and may be subject to substantial changes

6.1.1.4.4 Investment Plan in Slovenia

INVESTMENT PLAN RFC 6														
N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
1	SL		Dolga Gora-Poljčane	Renewal of tracks	Bottleneck relief	2010	2014	Works phase	45,43	EU	State			
2	SL		Station Poljčane	Creation of siding, passing tracks, extra tracks	Capacity improvement	2012	2015	Works phase	26,30	EU	State			
3	SL		Divača-Koper	Creation of siding, passing tracks, extra tracks	Capacity improvement	2003	2015	Works phase	194,01	EU	State			
4	SL		Slovenska Bistrica-Pragersko	Renewal of tracks	Bottleneck relief	2011	2015	Approved and financed (but works have not started yet)	35,64	EU	State			

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
5	SL		Sežana/Koper-Ljubljana-Hodoš	Signaling enhancement (ERTMS...)	Interoperability	2008	2015	Work phase	56,97	EU	State			
6	SL		Pragersko-Hodoš	Electrification,Creation of siding, passing tracks, extra tracks	Bottleneck relief	2005	2015	Work phase	412,96	EU	State			
7	SL		Sežana/Koper-Ljubljana-Hodoš	Telecommunication enhancement (GSM-R)	Interoperability	2006	2015	Approved and financed (but works have not started yet)	149,55	EU	State			
8	SL		Trst-Divača	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2008	2016	Preliminary study	35,58	EU	State			
9	SL		Divača-Koper	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2004	2018	Technical study	903,51	EU	State			

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
10	SL		Divača-Ljubljana	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2009	2013	Preliminary study	0,56	State				End date of the works means only for Preliminary study
11	SL		Ljubljana-Zidani Most	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2009	2013	Preliminary study	0,60	State				End date of the works means only for Preliminary study
12	SL		Station Pragersko	Creation of siding, passing tracks, extra tracks	Capacity improvement	2010	2016	Preliminary study	0,60	State				End date of the works means only for Preliminary study
13	SL		Ljubljana knot	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2010	2016	Preliminary study	2 600,00	State				End date of the works means only for Preliminary study

6.1.1.4.5 Investment Plan in Hungary

INVESTMENT PLAN RFC 6														
N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
1	HU		Bajánsenye - Boba	Signaling enhancement (ERTMS...)	Interoperability	2012	2015	Works phase	24	EU	State			
2	HU		Boba - Székesfehérvár	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2015	2019	Technical study	528	EU	State			
3	HU		Székesfehérvár station	Renewal of tracks Renewal of signaling system	Punctuality improvement Maintenance of performance Capacity improvement Bottleneck relief	2013	2016	Technical study	114	EU	State			
4	HU		Székesfehérvár - Budapest (Kelenföld)	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2009	2015	Works phase	476	EU	State			

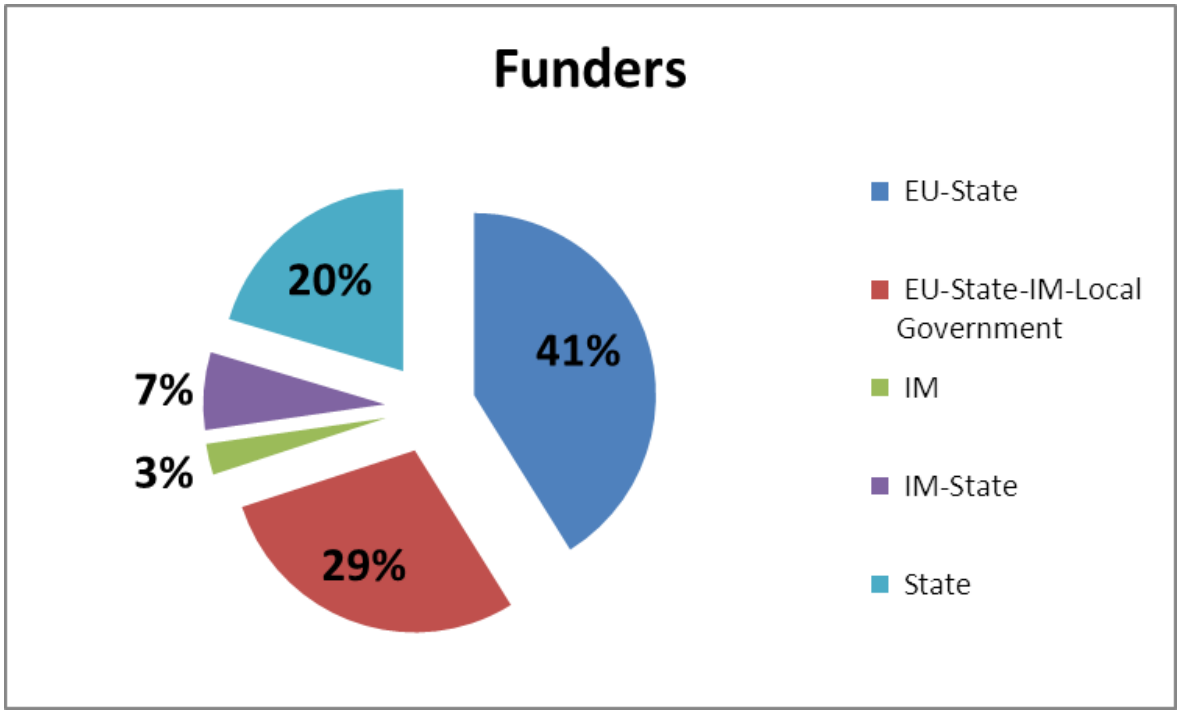
N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
5	HU		Déli összekötő vasúti híd	Renewal of tunnel, bridge, etc.	Bottleneck relief	2017	2020	Preliminary study	109	EU	State			
6	HU		Szolnok station	Renewal of tracks Renewal of signaling system	Punctuality improvement Maintenance of performance Capacity improvement Bottleneck relief	2016	2019	Technical study	110	EU	State			
7	HU		Szolnok - Szajol	Renewal of tracks Renewal of signaling system	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Bottleneck relief	2013	2015	Approved and financed (but works have not started yet)	66	EU	State			
8	HU		Szajol - Püspökladány	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2010	2015	Works phase	545	EU	State			
9	HU		Püspökladány - Debrecen	Renewal of tracksRenewal of signaling systemSignaling enhancement (ERTMS...)	Safety / SecurityHigher speedPunctuality improvementMaintenance of performanceCapacity improvementInteroperability	2016	2018	Technical study	379	EU	State			

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
10	HU		Debrecen - Nyíregyháza	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2017	2020	Technical study	377	EU	State			
11	HU		Nyíregyháza - Záhony	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2018	2020	Technical study	482	EU	State			
12	HU		Győr - Pápa - Celldömölk	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	-	-	Technical study	245	EU	State			
13	HU		Budapest – Hegyeshalom	Signaling enhancement (ERTMS...)	Interoperability	2015	2019	Preliminary study	44	EU	State			

N°	Country	*Region (if required)*	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
14	HU		Biatorbágy - Tata	Renewal of tracks Renewal of signaling system	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement	2015	2019	Technical study	483	EU	State			
16	HU		Rákos - Hatvan	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2015	2019	Technical study	501	EU	State			
17	HU		Hatvan - Miskolc	Renewal of tracksRenewal of signaling systemSignaling enhancement (ERTMS...)	Safety / SecurityHigher speedPunctuality improvementMaintenance of performanceCapacity improvementInteroperability	2015	2019	Technical study	1 087	EU	State			
18	HU		Miskolc - Nyíregyháza	Renewal of tracks Renewal of signaling system Signaling enhancement (ERTMS...)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2017	2020	Technical study	743	EU	State			

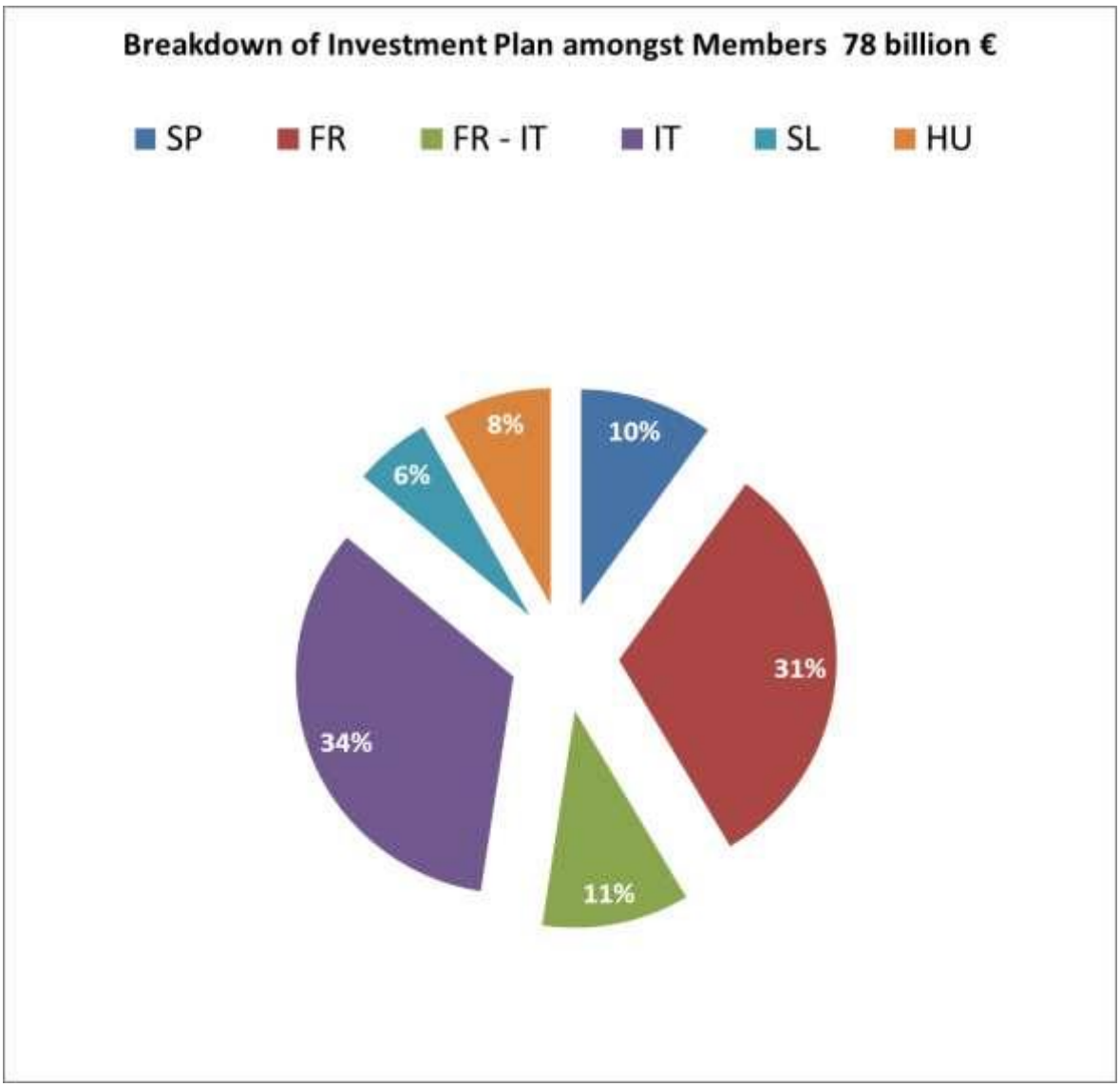
6.2 Costs and funding

The overall cost of the investment plan concerning Rail Freight Corridor 6 reach 70,3 Billions € (not included Spain Investment) (€ 2012)



The largest part of the financing comes from the States or the States in collaboration with the European Union. The independency of each one of the States members of the RFC 6 shows different ways of financing the projects including the participation of the Infrastructure Managers, Local Governments, States or EU.

The split amongst countries of these overall costs (quite 78 M€) is here followed


Breakdown of Investment Plan amongst Members 78 billion €
SP
FR
FR - IT
IT
SL
HU
10%
31%
11%
34%
6%
8%

6.3 ERTMS strategy along the corridor

Rail Freight Corridor 6 already complies with the interoperability criteria defined in Directive 2008/57/EC as far as loading

gauge, axle load, train speed and train length are concerned. To comply with the control command technical specifications for interoperability, Rail Freight Corridor 6 is currently deploying ETCS (European Train Control System) on its lines.

6.3.1 ETCS strategy along the corridor

The implementation of ETCS on Corridor routes is one of the fundamental goals which led to the creation of the ERTMS Corridors, including Corridor D which has subsequently been renamed Rail Freight Corridor 6. The creation of ERTMS corridors was itself inspired by the obligations set by the TSI CCS (Control Command System).

This European train control-command system is designed to eventually replace national legacy systems, imposing specific equipment on engines running on several networks.

The ETCS specifications are drawn up under the aegis of the European Railway Agency (ERA), in collaboration with representatives of the railway sector such as EIM, CER and UNIFE. One of the main problems is building a system capable of adapting to networks whose braking and signalling philosophies and operating rules have been developed on national bases which are sometimes very different from one another.

Following a period of stabilization of the specifications, version 2.3.0d was made official and, until end of 2012, was the only version that could be implemented from both infrastructure / track and rolling stock perspectives.

At a technical level, ETCS level 1 uses a specific transmission mode, eurobalises installed on tracks, to send information from track to on-board, while level 2 uses the GSM-R to exchange information bi-directionally between track and on-board. So far, level 1 has typically been superimposed on traditional national lateral signals, while level 2 was used for new lines.

Equipping the Corridor with ETCS depends on national projects incorporated into national ETCS deployment strategies. These projects did not start at the same time and each project has its own planning. The ETCS deployment realized through these national projects is not limited to corridor sections.

Once ETCS is installed, the deactivation of national legacy systems has to be decided on a country per country basis.

- ✓ The TP Ferro section is equipped only with ETCS. Trains using this infrastructure must be equipped with ETCS;
- ✓ In France, it is intended that on-board ETCS will be compulsory for a train to be allowed to run on a railway line 10 years after it has been equipped with in-track ETCS;
- ✓ In Slovenia, the mandatory use of ETCS on the Corridor is expected to be enforced three years after its installation in-track;

- ✓ In Hungary, it is expected that use of ETCS will be made compulsory on the corridors lines. No date has been set yet.

6.3.2 ERTMS deployment plans

The following deployment plans could be subject to changes and all information about planning and financing are without prejudice of each national deployment plan and European decision making.

6.3.2.1 The ERTMS deployment plan on Spanish part of Corridor 6 (RFC6) and TP Ferro

6.3.2.1.1 Mixed Traffic Line (Barcelona-Figueres-Perpignan (FR)).

ERTMS Level 1.

- ➢ Section Perpignan – Figueres Vilafant TP Ferro: delivery in service in February 2009.
- ➢ Section Figueres Vilafant - TP Ferro: Put in service in December 2010.
- ➢ Section Bif. Mollet-Figueres: Put in service in December 2012. Section Barcelona Sants - Bif. Put in service in April 2013.

ERTMS Level 2.

- ➢ Section Barcelona Sants – Figueres Vilafant: Date scheduled for completion of the works: 2015. Section Figueres Vilafant – Perpignan (FR - TP Ferro): Pending migration towards version 2.3.0d (estimated 2015).

6.3.2.1.2 Conventional Line (Can Tunis – Castellbisbal - Nudo de Mollet y Bif. Gerona Mercaderies Villa Maya - Figueres Vilafant)

ERTMS Level 1.

- Section Can Tunis - Castellbisbal- Nudo de Mollet (double track with third rail): Finished works. Pending authorization to put in service
- Section Bif. Gerona Mercaderies-Villa Maya-Figueres Vilafant (single track with third rail): Finished works. Pending authorization to put in service.

6.3.2.2 The ERTMS deployment plan on French part of Corridor 6 (RFC6)

In France a common project includes the deployment of ETCS on the French parts of RFC 2 and RFC6.

The call for tender was issued in 2008 and a contract was signed in late 2009 with Alstom, to develop the signalling principles, adapt their standard products to the French network specificities, produce prototypes then equip about

2200 km of lines (representing around 4400 signals). Additional contracts followed, covering the project management (SNCF Engineering) and the OQA activities (Bureau Veritas).

Version 2.3.0 was at the time of signature the only official version. Once version 2.3.0d was released and became the only legal one, the project switched to that version.

Technically the choice was made to deploy ETCS level 1 overlaid on the national legacy system, KVB.

The project and the relevant contracts are split in two main parts.

- ✓ The first part covers the development of the signalling principles, the adaptation of the products to the French network technical and normative conditions, the supply of prototypes and the ETCS "type commissioning" by the French National Safety Authority, EPSF (Établissement Public de Sécurité Ferroviaire). It includes the deployment of ETCS on two pilot sites of around 20 km each, located at the borders with Luxembourg and Belgium.

- ✓ The second part covers the deployment of ETCS on the French sections of RFC2 and RFC6.

Priority is given to the Basel-Bettembourg branch on RFC2 as this branch is the more active with international freight trains.

As for RFC6, it is scheduled that the deployment in France should start from Perpignan, leading north to Lyon on the conventional line, in order to connect to the TP Ferro section through the Pyrénées, which is already fitted with ETCS. The new bypass between Nîmes and Montpellier, designed for mixed traffic, shall be equipped with both ETCS1 and KVB. The equipment of the section Lyon-Modane (to Italy) and Marseille-Avignon shall start with an offset. The Lyon node is expected to be equipped the latest as it will be the more difficult area to address, and all the experience gained so far will have to be taken into account.

The current plan for the French part of ERTMS deployment on RFC6 is as follows. It must be considered as indicative:

Projected calendar for the ERTMS deployment for the French part of Rail Freight Corridor 6

ERTMS is one of the most important and complex tools of interoperability: technical, operational or implementation related difficulties can hamper the progress. In order to overcome those difficulties, the European Commission will establish in cooperation with the railway sector a “breakthrough program for ERTMS”.
One objective to be reached by 2016 is the review of the European Deployment Plan.

6.3.2.3 The ERTMS deployment plan on the Italian part of Corridor 6 (RFC6)

The ERTMS deployment plan relevant to the Italian line sections designated to be part of Rail Freight Corridor 6 is basically driven by the obligations deriving from the TSI CCS EDP presently in place.

However, some adjustments in the time planning of ERTMS deployment are proposed in order to ensure a harmonized trans-border implementation. In fact, only continuous trackside ERTMS coverage along the principal European lines will create the necessary incentives for train operating companies to invest in on board ERTMS equipment.

The TSI CCS (EDP) defines the deadlines for the equipment of (principal and diversionary lines) the Italian part of Corridor 6 with obligation for ERTMS implementation. (See the table below).

	2015	2020
Italian sections of RFC 6	Bardonecchia-Torino-MilanoVerona-Vicenza-Cittadelle-Castelfranco Veneto-Treviso-Portogruaro-Trieste-Villa Opicina	Vicenza-Padova, Padova-Venezia Mestre/Venezia Porto Marghera, Venezia Mestre-Portogruaro

With regard to the corridor sections to be equipped by 2015, a revised time planning has been notified to the European Commission by the Italian Ministry of Transport, in compliance with art.7.3.2.5 of Annex III of Commission Decision 2012/88/EU. Such plan substantially confirms the above mentioned time lines, with the exception of the Modane – Torino - Novara line, whose equipment with ERTMS will be realistically completed by 2020 and the line Verona Vicenza which will be completed by the end of 2016.

	2015	2016	2020
Revised ERTMS deployment plan of the Italian sections of RFC 6 due to be equipped by 2015	Novara-Milano-Verona VicenzaCittadella-Treviso-Portogruaro-Bivio Aurisina-Trieste-Villa Opicina	Verona - Vicenza	Modane – Torino - Novara

However, in 2014 RFI notified to the Ministry of Transport that ERTMS deployment on the sections Novara –Milano – Verona – Vicenza – Cittadella – Treviso – Portogruaro – Villa Opicina, will be delayed to year 2018 due to changes in the procurement strategy.

On the technical side, ERTMS implementation along the Italian sections of rail freight corridor 6 foresees the superposition of ERTMS to the existing legal Class B systems. The choice of the ERTMS Level on the different sections of the Corridor will be made on the basis of two criteria. The first one is based on the Control Command System in use.

On lines with existing SCMT + BACC, that means a continuous Control Command System, ERTMS Level 2 will be implemented.

On lines with SCMT Stand Alone, that means a discontinuous Control Command System, it will be applied second criteria based on an evaluation about:

- ✓ Costs;
- ✓ Performances;
- ✓ Maintenance;

On the basis of the mentioned criteria it will be possible to have two ERTMS Level implementations:

- ✓ Level 1 + Infill Radio;
- ✓ Level 2.

In both cases, ERTMS Baseline 3 will be implemented trackside.

With respect to the mentioned deployment plan, it is to be pointed out that on a relevant part of the Torino – Villa Opicina line, more precisely on the Torino – Padua section, a substantial Project of upgrading of the existing equipment is presently in progress.

Among the other activities, all the interlocking's will be renewed and in some cases "concentrated", thanks to the "ACC-Multi-station" technology. New buildings will be realized and all the equipment will have an "ERTMS interface" to ease the installation of the Radio Block Centre (level 2 ERTMS).

The on-going activities of the ERTMS Pilot Line deployment will be taken into account for the realization of ERTMS on freight corridor 6. The Pilot Line will consist in the installation of a fully interoperable system inside corridor D route based on ERTMS Level 2 in accordance with SRS ETCS Baseline 3, in parallel to the existing National system (SCMT). It will be realized on a section of the Torino – Villa Opicina line, more precisely between the stations of Milano Lambrate and Treviglio, where it will be possible to simulate most of the Corridors cases as there are both electronic and electromechanical interlockings in service. The total length is about 40 km.

6.3.2.4 The ERTMS deployment plan on Slovenian part of Corridor 6 (RFC6)

According to section 7.3.2.5 of the Commission Decision of 25 January 2012 on the technical specification for interoperability relating to control-command and signalling subsystem of the trans-European rail system, the Slovenian Ministry declare with notification to the EU DG Mobility and Transport on 21 December 2012 the progress of implementation the ERTMS on Corridor D section in Slovenia, which is located with RFC6.

Slovenian part of ERTMS deployment on RFC6 is part of project »Deployment of ERTMS/ETCS on Corridor D«, for which the European Commission with the Decision C (2008) 7888 of 10.12.2008 and in an annex to that Decision no. C (2011) 3250 of 6.5.2011 named as project no. 2007-EU-60120-P and project no. 2009-EU-60122-P approved funding for the TEN-T co-financing in the Republic of Slovenia.
The trackside deployment of the ETCS requested level 1 with version 2.3.0d, overlaid with existing INDUSI I60 national signalling system. The transition period of 3 years will allow using ETCS level 1 and/or INDUSI I60 indifferently.

The Infrastructure Manager (SŢ/IM) together with the Directorate for the implementation of investment in rail infrastructure (DŢI), created the conditions for the following tenders:

- The implementation of ETCS on the Slovenian part of the Corridor D, which includes two pilot section (Italian border-Gornje Leţeče and Murska Sobota-Hungarian border) and

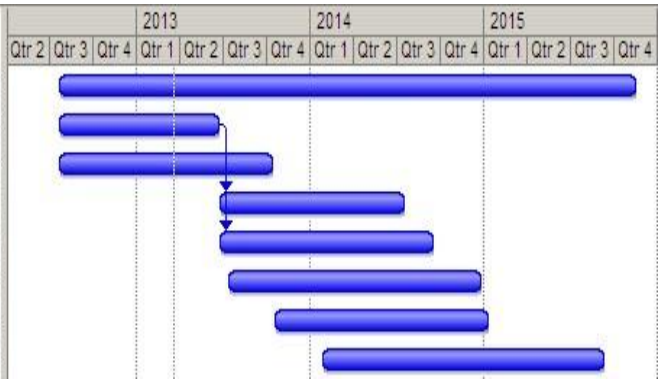
- Other rail sections between the stations Gornje Leţeče and Murska Sobota and Divača-Koper line

Notified Body (NOBO) for infrastructure project. In 2009, all tenders were published. The infrastructure project has been subject to a number of auditing requests, in accordance with the Auditing of Public Procurement Procedures Act (Official Gazette of the RS, no. 94/07; hereinafter APPA-UPB5), so that the process of selecting the most advantageous contractor delayed to 2012.

For the infrastructure project in July 2012 was signed a contract for the ETCS implementation of the two pilot sections, as well as other sections in the Slovenian part of Corridor D. The Contract deals with the ETCS implementation on pilot sections with completion by the end of 2013, which is in line with the Decision under project no. 2007-EU-60120-P. Other sections of the Slovenian part of Corridor D will be completed in 2015. According to the contract with the constructor, the deadline for end of works is 30 November 2015. The contract with the NOBO is effective from the date of signing the contract for the infrastructure project in July 2012.

The present time plan for the Slovenian part of ERTMS deployment on RFC6 is as follows:

	Task Name	Start	Finish
1	ERTMS deployment on Slovenian part of RFC6	Wed 18.7.12	Fri 13.11.15
2	Pilot line Italian border-Pivka	Wed 18.7.12	Thu 20.6.13
3	Pilot line Murska Sobota-Hungarian border	Wed 18.7.12	Fri 11.10.13
4	Line Ljubljana-Pivka	Fri 21.6.13	Tue 15.7.14
5	Line Zidani Most-Pragersko	Fri 21.6.13	Mon 15.9.14
6	Line Zidani Most-Ljubljana	Thu 11.7.13	Thu 25.12.14
7	Line Divača-Koper	Thu 17.10.13	Fri 9.1.15
8	Line Pragersko-Murska Sobota	Thu 23.1.14	Tue 8.9.15



The financial plan for the Slovenian part of ERTMS Deployment on RFC6 is as follows (Excl.taxes):

Activities	2012	2013	2014	2015	TOTAL

Pilot installation in Slovenia-DŽI	4.270.000	3.750.000	0	0	8.020.000
SŽ/IM ETCS level 1: deployment and certification.	0	0	20.424.198	18.619.302	39.043.500
TOTAL	4.270.000	3.750.000	20.424.198	18.619.302	47.063.500

GSM-R:

The GSM-R project is in the stage of public procurement for selection of the contractor that will provide the railway network with the GSM-R in Slovenia. All sections of the RFC6 will be equipped with GSM-R. The conclusion of public procurement procedure is envisaged for the first half of 2013, the end of works is envisaged by end of 2015.

6.3.2.5 The ERTMS deployment plan on Hungarian part of Corridor 6 (RFC6)

A National deployment Plan was approved in 2007 for ETCS implementation only on the Corridor. The plan will be up to 2020. The complete switch has not been planned yet. For the next twenty years, the two systems (the legacy and the ETCS system) will be installed both in parallel.

6.3.2.5.1 Section [border to Slovenia]–Őriszentpéter–Boba (102 km)

The rail link between Slovenia and Hungary was established in 2000, when a new rail line was built to cover the 19 km long gap along the Hungarian side of the border. The old rail link hasn't been in use since the Second World War, and in the period of pre-accession to the EU the re-establishing of a rail connection with Slovenia became a priority.

The cross-border freight flow on the single track line is moderate compared to ERTMS corridor E, which is a more established route. It amounted to 4.2 million gross tonnes and 3 814 freight trains in 2012. With regard to the lower traffic the line is single track.

The 19 km long section connected to the border was newly built between 1998 and 2000. The remaining 83 km long part has been reconstructed and significantly upgraded from a former branch line. Reconstruction works were carried out co-financed by the Instrument for Structural Policies for Pre-Accession (hereinafter: ISPA), projects 2000/HU/16/P/PT/003 and 2000/HU/16/P/PT/003-V. It is considered therefore that the line is subject to point 7.3.2.4. of the CCS TSI. Following the upgrading the line now has electronic interlocking installed on its whole length.

Neither the newly built part, nor the upgraded section has the legacy train control system (hereinafter: EVM) installed. Instead, an ETCS level 1 system was equipped on the newly built line in 2004. In line with the national ERTMS strategy EVM hasn't been added later on the upgraded section either, since the section was previously not equipped with it. As a result, ERTMS will be the only train control system utilised on the line.

ETCS level 2 is being installed on the whole length of the line, i.e. the old level 1 section will also be upgraded. (Level 1 TSS - as fall-back system - remains on section Zalacséb - Salomvár - Hodoš, however, this section will be upgraded to level 2. Őriszentpéter - Hodoš section remains pure level 1, because of SZ installs level ETCS Level 1 and this section is used as a GSM-R radio communication "entry section".) ETCS implementation is carried out within the project described in point 4.5, while for GSM-R point 4.1 applies.

6.3.2.5.2 Section Boba–Celldömölk–Győr (82 km)

The 82 km long line provides a temporary alternative alignment of TEN-T priority project 6, as noted in point 6.3 of the Annual Activity Report 2009-2010 for PP6 (Brussels, July 2010). In line with the above strategy Corridor D was directed via Celldömölk and Győr. For the ERTMS corridor the temporary alignment offered a route that cuts the length of the required ERTMS installation by 30% compared to the direct link between Boba and Budapest using the already equipped line of Corridor E from Győr.

GSM-R will be able to benefit from that advantage, and is going to be equipped within the project described in point 4.1. Report on the timeline of implementation of ERTMS corridors D and E on the territory of Hungary 6 / 11.

The line is single track with the exception of a 10 km long section, allowed speed is 100 km/h. Freight flows are split at Boba between this section and the direct line to Budapest. Freight flows on the line amounted to 2.3 million gross tonnes and just under 2 500 freight trains in 2012 including domestic traffic.

Reconstruction of the line hasn't been commenced yet. Subsequently, only four out of eleven interlocking systems on the line are capable of providing standardised interfaces for ETCS. Installing ETCS under the present technical circumstances would require to virtually rebuild the system in case of a future track reconstruction.

However, point 3.1.3.1.1. of Annex IV of ministerial decree no. 103/2003. of the Ministry of Economy and Transport on the interoperability of the conventional rail system only requires the installation of a train control system, if the allowed speed is over 100 km/h. Trains can therefore run without a requirement for on-board train control equipment of any type, and basic interoperability remains maintained.

The direct line to Budapest via Szekesfehervar is now listed in the annex to the proposal for a regulation establishing the Connecting Europe Facility. As a result, it is likely that the direct route has regained priority for the reconstruction considering that the assumed faster implementation of ETCS on the section Boba–Celldömölk–Győr can't be applied. Track reconstruction, GSM-R and ETCS installation will all be carried out in a single project during the next multiannual financial framework.

6.3.2.6 Cost Benefit Analysis

6.3.2.6.1 Costs

The costs are incurred at national level; when available, they have been described in the sections above.

6.3.2.6.2 Benefits

6.3.2.6.2.1 Interoperability

Until the deployment of ETCS, railway undertakings have to change their locomotives every time they cross a border or they have to equip these locomotives with multiple expensive on board control command systems. The first choice has a negative impact on travel time and on rolling stock management. The second is expensive.

With ETCS, they will be able to use locomotives that can run from the origin to destination with a single on board control command system. This will facilitate asset management, save journey time and reduce costs.

On top of that, ETCS will enable a driver to run an international train with the sole knowledge of ETCS related driving rules. In contrast, with the current situation were a driver is allowed to run in several countries only if he/she has been trained to use each national legacy system.

6.3.2.6.2.2 National legacy systems ("Class B") renewal

All the Infrastructure Managers of Corridor 6 consider that ETCS will replace in the mid run or in the long run, the national Control Command systems in use, and will hence provide a solution to the obsolescence of these legacy systems. However the deadline is not the same among infrastructure managers.

This benefit however should not be overestimated as the deployment of ETCS will not be as simple as the mere renewal of legacy systems. The complexity will depend on the characteristics of the legacy systems but in some cases, the new and the old systems will have to cohabit for many years and the old system may even have to be renewed after the deployment of ETCS.

6.3.2.6.2.3 Increased competition

ETCS is an opportunity for a Railway Undertaking to use its own rolling stock and act with open access, opening up competition and potentially bringing prices at market level

6.3.2.6.2.4 Reduction of externalities

With cost savings and increased competition, the railway mode should become more attractive and gain market share, hence reducing road congestion, greenhouse effect emissions and air pollution. On top of that, players who will switch from road to rail will enjoy cost savings or journey time reduction.

6.3.2.6.2.5 Safety

ETCS is a state of the art tool as far as safety is concerned and, at various degrees and its deployment provides infrastructure managers with benefits from an increase of safety compared to the safety provided by their legacy systems.

6.3.2.6.2.6 Recovery in the event of disturbances

In France, ETCS will allow a faster recovery in the event of disturbances compared to the current KVB legacy system which is driven by the so called VISA driving principle. Consequently, the deployment should lead to more robust performances

6.3.2.7 Conclusion

The computation of a monetary value for the benefits listed above is difficult, as corridor members/partners use different methods to assess them. This is specifically the case for the assessment of safety improvement. On top of that, the value of time saved thanks to ETCS when operating a railway node is a factor that cannot be determined, as it is sensitive to the node characteristics, and the time and conditions of operation.

All in all, corridor members and partners share the view that the ground deployment of ETCS does not provide an immediate financial return on investment nor a positive socio economic net asset value. The traffic gains induced by the use of ERTMS are presently difficult to assess, especially in the starting phase when few trains will be running in ETCS mode.

What is more, the socio economic benefits of ETCS vary a lot from one country to another as it depends on the characteristics of the legacy control command system and on the size of the country.

7 Measures

7.1 Coordination of works

7.1.1 Introduction

Based on the European Regulation 913/2010, "RNE Guidelines for Coordination / Publication of works and possessions" provide recommendations for the process of coordinating and publishing activities reducing the available capacity on a Rail Freight Corridor. The aim is to use a common tool for gathering and publishing necessary information about capacity restrictions.

In this Guideline the term „possession" will be used instead of „works", because the term better describes the need of the IMs to use their infrastructure for any activities reducing the infrastructure capacity (e. g. maintenance, repair, renewal, enhancement, construction works).

All works on the infrastructure and its equipment that would restrict the available capacity on the corridor shall also be coordinated at the level of the freight corridor and be the subject of updated publication.

"RFC6 manage the process of coordination/publication of possessions in accordance with RNE Guidelines for Coordination / Publication of Works and Possessions"

7.1.2 Main elements of this document

- ✓ Coordination
- ✓ Publishing
- ✓ Procedure in accordance with the RNE Guideline
- ✓ Characteristics of process

7.1.3 Coordination

IM/AB/RFC are aiming at securing the coordination of possessions from the long term to the short term. The planning of works should limit the risk of blocking the capacity and allow a minimum of available capacity on lines crossing borders.

Coordination principles:

- ✓ In the case of a capacity restriction on one section of the Corridor which does not allow re-routings, further restrictions in other sections of the corridor should be avoided, unless they do not affect the total capacity offer (also over a longer period) of the RFC in a negative way;

- ✓ In case of total closure the aim should be to plan the maximum amount of works simultaneously if technically possible;

- ✓ A capacity restriction on one section of the Corridor which requires re-routing of traffic shall be coordinated with capacity available over alternative routes and border crossings to limit the negative impact on the capacity offer of the RFC. This may be done for example by prohibiting planned capacity restrictions on the alternative route;

- ✓ A capacity restriction on one section of the Corridor which requires re-routing of traffic shall be coordinated or combined with additional restrictions on neighbouring sections of the corridor if the same re-routings may be used. If possible, modifying the time of additional possessions shall be taken into consideration;

- ✓ Possessions should not be planned in such a way that they conflict with published PaPs. This demands active communication between the possession planning IMs and the C-OSS.

IM/AB is putting in place process for coordinating works along the corridor. When necessary applicants have to be involved in the discussions. Applicants are informed either directly by the IM's or by Corridor OSS

The coordination process for RFCs should start at around 25 months in advance of the timetable change with the first publication of major possessions from X-24

After coordination of capacity restrictions among IMs involved in the RFC publication of the coordinated possessions, RUs should be given the possibility to comment on the planned activities. Comments should be sent to the Corridor Organisations.

The comments of RUs have only an advisory and supportive character but shall be taken into consideration. Regular meetings of the Railway Advisory Group (RAG) of the RFCs should be used as information platform regarding the planning of possessions. If necessary, RFCs/IMs will initiate special meetings with RUs/Applicants for discussing and solving open issues.
The publication of the possession programs is made at the end of December, August and December each year on RFC WEB. RFC provides a selected list of possessions that may have an impact on the capacity.

7.1.4 Publishing

IMs shall publish an overview of construction works that are expected to impact freight traffic at border cross points. "Publication criteria are set by RNE guidelines, however, in order to highlight the possessions with major impact expected on the international freight traffic, it may be enough to communicated the works which have a significative impact on the corridor capacity"

A mechanism for interconnecting the IMs and get the RUs quickly informed will be set up. Information will be published on the corridor website and have monthly update (if there any changes).
The official RNE tool for the publication of the possessions list: it consist of a common unified Excel-table with a map of the Corridor and a Gantt of the planned possessions.

- ✓ Place;
- ✓ Start time;
- ✓ End time;
- ✓ Short description of works;
- ✓ Consequences for traffic on the pre-arranged paths of the corridor (or reserved capacity);
- ✓ The extent of international coordination among IMs;
- ✓ In the tool, the IMs publish the planning status for the infrastructure availability restriction along the related Rail Freight Corridor. The published measures constitute a snapshot of the situation at the date of the publication and are subject to constant changes. For this reason the information provided should be used for rough orientation purposes only and may not constitute the basis for any legal claim. Publication of possessions does not substitute any national law or legislation and RUs/applicants must refer to national network Statement.

7.1.5 Procedure in accordance with the RNE Guidelines

- ✓ X-24 Initial publication (e. g. for the TT year 2015/2016 planning should start in 2013 October - November at the latest);
- ✓ Meeting of November (year n): it is appointed to
- ☐ Share information and harmonize the possessions expected in year N+2 and n+3 to the extent of the design of the Timetable
- ☐ Share detailed information of possessions of year n+1 and to perform residual harmonization

- ✓ Meeting of May (yearn+1): it is appointed to update the information exchanged in the previous meeting (also for the running timetable, if necessary)
- ✓ X-9 prior to deadline for path request at X-8;
- ✓ X-4 prior to final allocation;

These deadlines define the long term planned possessions that shall be published in the Corridor Information Document.

7.1.6 Characteristics of the process

- ✓ Regular international meetings, normally 2 per year, (i.e. November and May) or at any time for urgent needs;
- ✓ Meeting of November (year X): sharing information about main works expected;
- ✓ Meeting of May (year X+1): updating of information exchanged in previous meeting and communication about works planned for the second semester of the current year;

Contents of information to be shared:

- ✓ Details about schedule of maintenance;
- ✓ Details about works bringing about interruptions which affect the planning of timetable;
- ✓ Analysis of the planning and of the consequences of the works on the transport service, check of any incompatibility;

Results of the process

- ✓ Decisions shared between the Infra Managers concerned on the periods of works;
- ✓ Decisions about the best way to coordinate works taking into consideration the consequences on the commercial offer;
- ✓ Agreement on schedule needed to ensure the process of communications addressed to RUs and the adaptation of the timetable;
- ✓ Agreement on the formal procedure to be adopted for the common planning of capacity program;

- ✓ Every IM designate a main contact person to coordinate the communication between IMs;
- ✓ The IM responsible for the construction work will prepare a notice of the international freight trains related consequences for the rehabilitation works up to and including the border crossing points.

7.2 One Stop Shop

7.2.1 Glossary/abbreviations

Term/expression	Definition
AB	In this document, only the term Infrastructure Manager (IM) is applied. It refers to IMs and also – if applicable – to Allocation Bodies (ABs).
Allocation	Means the allocation of railway infrastructure capacity by an Infrastructure Manager or Allocation Body. When the C-OSS takes the allocation decision as specified in Art. 13(3) of Regulation 913/2010, the allocation itself is done by the C-OSS on behalf of the concerned IMs, which conclude individual national contracts for the use of infrastructure based on national network access conditions.
Applicant	Definition in Directive 2012/34/EU: *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.*
Capacity restrictions	Reduced availability of infrastructure. This can include times of possessions for maintenance, repair, renewal, enhancement, construction works. This includes also speed, length and weight restrictions or other influences on rolling stock (e.g. diesel only).
Catalogue path (CP)	Any kind of pre-constructed path if it is not a prearranged path on a Rail Freight Corridor according to Regulation 913/2010.
CID	Corridor Information Document According to the Regulation 913/2010: a document drawn up, regularly updated and published by the Corridor Management Board. This document comprises all the information contained in the network statement of national networks regarding the freight corridor in accordance with Article 3 of Directive 2001/14/EC; the list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminals; information concerning the procedures of application for capacity, capacity allocation to freight trains, traffic management coordination, and traffic management in the event of disturbance.
CIS	Charging Information System. A web-based application for Railway Undertakings (RUs), Infrastructure Managers (IMs) and Allocation

Term/expression	Definition
	Bodies (ABs) which provides fast information on charges related to the use of European rail infrastructure and estimates the price for the use of international train paths. For further information please visit: http://cis.rne.eu
Conflicting applications	The situation where, after co-ordination of the requested paths and consultation with Applicants, it is not possible to satisfy requests for infrastructure capacity adequately. This is because several Applicants are applying for the same/adjacent path sections in more or less the same time period.
Connecting point	A point in the network where a Corridor cross another Corridor and it is possible to shift the services applied for from one Corridor to the other.
Corridor OSS (C-OSS)	A joint body designated or set up by the RFC organisations for Applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight Corridor. (EU Regulation No 913/2010, Art. 13). The Corridor One-Stop Shop.)
Dedicated capacity	Capacity which has to be foreseen by the Corridor Organisations to fulfil the requirements of Regulation 913/2010. It refers to pre-arranged paths and reserve capacity.
ERTMS (European Railway Traffic Management System)	ERTMS is a major industrial project being implemented by the European Union, which will serve to make rail transport safer and more competitive. It is made up of all the train-borne, trackside and line side equipment necessary for supervising and controlling, in real-time, train operation according to the traffic conditions based on the appropriate Level of Application.
ETCS (European Train Control System)	This component of ERTMS guarantees a common standard that enables trains to cross national borders and enhances safety. It is a signalling and control system designed to replace the several incompatible safety systems currently used by European railways. As a subset of ERTMS, it provides a level of protection against over speed and overrun depending upon the capability of the line side infrastructure.
ExBo	Executive Board of the Rail Freight Corridor.

Term/expression	Definition
Feeder/outflow (F/O) path	Any path/path section prior to reaching an operation point on RFC (feeder path) or any path/path section after leaving the RFC at an operation point (outflow path). The feeder and/or outflow path may also cross a border section which is not a part of a defined RFC.
Flexible approach	When an Applicant requests adjustments to a Pre-arranged Path, as e.g. different station for change of drivers or shunting that is not indicated in the path publication. Also if the Applicant requests feeder and/or outflow paths connected to the Pre-arranged Path and/or a connecting path between different RFCs, these requests will be handled with a flexible approach. When there is a case of 'force majeure', an unforeseeable exterior factor as well as the need for safety critical work the flexible approach justified.
Flex PaP	Semi-finalised path product with the following, most relevant characteristics: ➢ Harmonised handover times at network borders are fix and published ➢ Origin, destination, intermediate locations: ▪ IMs may communicate times for their own locations ➢ Indication for each corridor section: ▪ Standard journey times ▪ Parameters ➢ IMs may limit (per section or for the entire network) ▪ Number of stops ▪ Total stopping time ➢ In path elaboration phase (x-8 to X-5): ▪ Path planning by IMs can be done focussed on optimal capacity use but respecting agreed border time
Force majeure	An unforeseeable exterior factor, which could also infer urgent and safety critical work.
Handover point	Point where the responsibility changes from one IM/AB to another.
IM	Infrastructure Manager. Definition in Directive 2012/34/EU: *'infrastructure manager' means anybody or firm responsible in particular for establishing, managing and maintaining railway infrastructure, including traffic management*

Term/expression	Definition
	and control-command and signalling; the functions of the infrastructure manager on a network or part of a network may be allocated to different bodies or firms. In this document, only the term Infrastructure Manager (IM) is applied. It refers to IMs and also – if applicable – to Allocation Bodies (ABs).
Implementation Plan	Definition in Regulation 913/2010: *the document presenting the means and the strategy that the parties concerned intend to implement in order to develop over a specified period the measures which are necessary and sufficient to establish the freight corridor.*
Intermediate location	It is the end and start of a Corridor section excluding border point
Interchange point	Location where the transfer of responsibility for the wagons, engine(s) and the load of a train goes from one RU to another RU. Regarding a train running, the train is taken over from one RU by the other RU, which owns the path for the next journey section.
KPIs (key performance indicators)	Performance factor with which the progress regarding important objectives can be measured within an organization
MB	Management Board of the Rail Freight Corridor.
Network PaPs (NetPaPs)	"Network PaPs (in short "NetPaPs)" are PaPs designated to foster the optimal use of infrastructure capacity and address the needs for capacity in specific geographical relations or of market segments with special requirements in train path characteristics. They may be offered on a single RFC or on two or more connected RFCs. "Network PaPs consist of contiguous PaP sections linked together and are identified by a special ID or marker in PaP catalogues and IT tools.
Overlapping section	National infrastructure sections where two or more Corridors share the same infrastructure.
PCS	Path Coordination System, formerly known as Pathfinder. A web-based application developed by RailNetEurope (RNE). Main working tool for Corridor path requests management.
Possessions	Times when parts of the infrastructure are used by the IM in order to manage the infrastructure. The reasons may be any activities of the IM on the infrastructure or its equipment (e.g. maintenance, repair, renewal, enhancement, construction).

Term/expression	Definition
Pre-arranged Path (PaP)	A pre-constructed path on a Rail Freight Corridor according to the Regulation 913/2010. A PaP may be offered either on a whole RFC or on sections of the RFC forming an international path request crossing one or more international borders.
Pre-constructed path product	Any Kind of pre-constructed path, i.e. a path constructed in advance of any path request and offered by IMs; applicants can then select a product and submit a path request. Pre-constructed path products are either: - Pre-arranged paths (PaP) on Rail Freight Corridors or - Catalogue paths (CP) for all other purposes
RAG	Advisory Group of Railway Undertakings.
RB	Regulatory Body or Regulatory Authority (RA). An appeal body in case of disputes.
Reserve Capacity (RC)	Capacity – e.g. Pre-arranged paths still available or additional paths created during the running timetable period for ad-hoc market needs (Art 14 (5) Regulation 913/2010).
RFC	Rail Freight Corridor. A Corridor organised and set up in accordance with Regulation 913/2010. A 'List of initial freight corridors' is provided in the Annex of the Regulation.
RFC-Handbook (DG MOVE working document)	Handbook on Regulation concerning a European rail network for competitive freight.
Rail Freight Regulation (RFR)	Regulation (EU) No. 913/2010 of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight.
RNE	RailNetEurope. International cooperation among Infrastructure Managers.
RU	Railway Undertaking. Definition in Directive 2012/34/EU: *'railway undertaking' means any public or private undertaking licensed according to this Directive, 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 ensure traction; this also includes undertakings which provide traction only.*

Term/expression	Definition
TAF-TSI	Technical Specification for Interoperability relating to Telematic Applications for Freight.
TAG	Advisory Group of Terminal owners/managers.
Tailor made solution	Same definition as for flexible approach.
TCCCom	Traffic Control Centres Communication.
Terminal	Definition in Regulation 913/2010: *'terminal' means the installation provided along the freight corridor which has been specially arranged to allow either the loading and/or the unloading of goods onto/from freight trains, and the integration of rail freight services with road, maritime, river and air services, and either the forming or modification of the composition of freight trains; and, where necessary, performing border procedures at borders with European third countries.*
TIS	Train Information System. A web-based application that supports international train management by delivering real-time train data concerning international passenger and freight trains. The relevant data is processed directly from the Infrastructure Managers' systems. For more information please visit: http://tis.rne.eu
TMS	Transport Market Study.
Travel Time	The scheduled time which a train is expected to take between two given locations.
WG	Working Group organised with members addressing Corridor topics (e.g. capacity, performance, infrastructure, etc.).
Works	Any kind of maintenance or engineering works on the infrastructure and its equipment. In the Corridor Information Document the term "possessions" will be used.
X-/+n	First day of the annual timetable (X) and the months (n) prior to/subsequent to.
X-8 (months)	Deadline for requesting paths for the annual timetable (Annex VII, Directive 2012/34/EU).
X-11 (months)	Deadline for publication of pre-arranged paths (Annex VII, Directive 2012/34/EU).

7.2.2 Background

The railway Infrastructure Managers (IMs) and Allocation Bodies (ABs) of Spain, France, Italy, Slovenia and Hungary established the Management Board (MB) of Rail Freight Corridor 6 (RFC 6) – Mediterranean Corridor by signature of a Memorandum of Understanding in April 2012.

According to the decision of the RFC 6 MB, the parties agreed that the C-OSS of RFC 6 will take its role in the Permanent Management Office (PMO) in Milan as a Dedicated OSS, which means a joint body set up or designated by a Corridor organization supported by a coordinating IT tool. Corridor OSS related tasks/liability is detailed in the Internal Rules of RFC 6.

The working language of the C-OSS is English, prepared documents and possible meetings are held in English in the framework of C-OSS activity.

7.2.3 Requirements

7.2.3.1 Defined by Regulation 913/2010

According to Art. 13 of the Regulation 913/2010, the requirements for the Corridor OSS"s role are defined as follows:

- ✓ Contact point for Applicants to request and receive answers regarding infrastructure capacity for freight trains crossing at least one border along a Corridor;
- ✓ As a coordination tool provide basic information concerning the allocation of the infrastructure capacity. It shall display the infrastructure capacity available at the time of request and its characteristics in accordance to pre-defined parameters for trains running in the freight Corridor;
- ✓ Shall take a decision regarding applications for pre-arranged paths and reserve capacity;
- ✓ Forwarding any request/application for infrastructure capacity which cannot be met by the Corridor OSS to the competent IM(s) and communicating their decision to the Applicant;
- ✓ Keeping a path request register available to all interested parties.

The Corridor OSS shall provide the information referred in article 18, included in the Corridor Information Document drawn up, regularly updated and published by the RFC MB:

- ✓ Information contained in the Network Statements regarding railway lines designated as a Rail Freight Corridor
- ✓ A list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminal

Information about procedures for:

- ✓ Set up of the Corridor OSS;
- ✓ Allocation of Pre-Arranged Paths and Reserve Capacity;
- ✓ Applicants;
- ✓ Coordination of Traffic management along the freight corridor and between freight corridors;
- ✓ Information regarding the Implementation Plan with all connected documents.

7.2.3.2 Described in the Handbook to Regulation 913/2010

In addition to the Regulation, the European Commission published a Handbook in which a number of recommendations regarding the tasks to be carried out by the Corridor OSS are made. Although the Handbook is not legally binding (it has only an advisory and supportive character), there is no reason to not refer to it at all. RFC 6 will of course fulfil the binding requirements of the Regulation but, if applicable, will also refer to proposals/concepts described in the Handbook.

7.2.4 Documentation related to the C-OSS

Documents, which could contribute to the C-OSS operation, are as follows:

- ✓ EU Regulation 913/2010 (including the Handbook to the Regulation): spells out the overall framework for setting up the Corridor OSSs;
- ✓ EU Directive 2012/34 Establishing a single European railway area;
- ✓ RNE Framework for setting up a freight corridor traffic management system;
- ✓ RNE Process Handbook for International Path allocation (For Infrastructure Managers);
- ✓ RNE Guidelines for Pre-Arranged Paths;
- ✓ RNE Guidelines for the Coordination and Publication of Works on the European Rail Freight Corridors;
- ✓ RNE Guidelines for Punctuality Targets;
- ✓ RNE Guidelines for the Coordination/Publication of Possessions;
- ✓ RNE PCS Process Guidelines ;
- ✓ RNE Guidelines for C-OSS;

7.2.5 Applicants

Article 3 Definitions of the directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area defines an applicant as: *"Applicants : a railway undertaking or an international grouping of railway undertakings or other persons or legal entities, such as competent authorities under Regulation (EC) n°1370/2007 and shippers, freight forwarders and combined transport operators, with a public-service or commercial interest in procuring infrastructure capacity."*

Article 15 of the regulation 913/2010/EU of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight is stating *"Notwithstanding Article 16(1) of Directive 2001/14/EC, applicants other than undertakings or the international groupings that they make up, such as shippers, freight forwarders and combined transport operators, may request international pre-arranged train paths specified in Article 14(3) and the reserve capacity specified in Article 14(5). In order to use such a train path for freight transport on the freight corridor, these applicants shall appoint a railway undertaking to conclude an agreement with the infrastructure manager in accordance with Article 10() of Directive 91/440/EEC."*

The C-OSS will act according to the above mentioned regulation in cooperation with the concerned IMs/ABs in order to assess the commercial interest of the Applicant. The applicant commits to comply with all relevant regulations regarding its path request via the RFC 6 C-OSS, by signing the "General Terms and Conditions" (GTC) for requesting international freight paths through the Rail Freight Corridor 6 one stop shop of the C-OSS, at the latest before placing the request, otherwise the request will not be handled. The General Terms and Conditions have to be signed by all applicants. General Terms and Conditions can be found on:
https://www.railfreightcorridor6.eu/RFC6/web.nsf/Pub/index.html

7.2.6 Tasks of the C-OSS

7.2.6.1 Based on Article 12 of Regulation 913/2010

As the Corridor OSS shall display infrastructure available at the time of request (Art. 13.2), it would be practical if the Corridor OSS was involved at an early stage in this process and could communicate the impact on the available capacity on Corridor sections as an input for MB decisions regarding the number of pre-arranged paths (PaPs) to be published.

7.2.6.2 Based on Article 13 of Regulation 913/2010

According to Article 13 the tasks of the Corridor OSS are to:

- ✓ Give information regarding access to the Corridor infrastructure;
- ✓ Give information regarding conditions and methods of accessing terminals attached to the Corridor;
- ✓ Give information regarding procedures for the allocation of dedicated capacity on the Corridor;
- ✓ Give information regarding infrastructure charges on the Corridor sections ;

- ✓ Give information on all that is relevant for the Corridor in the national network statements and extracted for the Corridor Information Document;
- ✓ Allocate the Corridor pre-arranged paths, as described in Art. 14(3), and the reserve capacity, as described in Art. 14(5) and communicate with the IM of the Corridor regarding the allocation (please see Section 7 for further description);
- ✓ Keep a register of the contents described in Art. 13(5);
- ✓ Establish and maintain communication processes between Corridor OSS and IM, Corridor OSS and Terminals attached to the Corridor, as well as between Corridor OSSs;
- ✓ Report to the MB regarding the applications, allocation and use of the pre-arranged paths, as input for the report by the MB, referred to in Art. 19(3);

7.2.6.3 Based on Article 16 of Regulation 913/2010

The Corridor OSS shall be able to provide information regarding traffic management procedures on the Corridor; this information will be based on the RNE Guidelines "Framework for setting up freight corridor traffic Management System.

7.2.6.4 Based on Article 17 of Regulation 913/2010

The Corridor OSS shall be able to provide information regarding traffic management procedures in the event of disturbances on the Corridor; this information will be based on the RNE Guidelines "Framework for setting up freight corridor traffic Management System.

7.2.6.5 Based on Article 18 of Regulation 913/2010

Mandatory tasks for the Corridor OSS based on Art. 18 are to:

- ✓ Give information regarding access to the Corridor infrastructure;
- ✓ Give information regarding conditions and methods of accessing terminals attached to the Corridor;
- ✓ Give information regarding procedures for allocation of dedicated capacity on the Corridor;
- ✓ Give information regarding infrastructure charges;
- ✓ Give information on all that is relevant for the Corridor in the national network statements and extracted for the Corridor Information Document;

✓ Give information concerning procedures referred to in Articles 13,14,15,16 and 17 of Regulation 913/2010;

7.2.6.6 Based on Article 19 of Regulation 913/2010

The Article lays down the requirements that the MB shall monitor the performance of rail freight services on the Corridor (Art. 19(2)) and shall perform a customer survey (Art. 19(3)). The results shall be published once a year.

7.2.6.7 Customer Confidentiality

The Corridor OSS is carrying out his assigned working task on behalf of the Management Board consistent of cooperating IM in a RFC. The task shall be carried out in a non-discriminatory way and under customer confidentiality keeping in mind that the applicants are competing in many cases for the same capacity and transports. The functionality of the Corridor OSS is based on trust between all involved stakeholders.

7.2.7 Allocation of pre-arranged paths (hereinafter PaPs) on RFC 6

The basic requirements regarding PaPs are laid down in Article 14 of Regulation 913/2010.

Also the RNE Guidelines for Pre-Arranged Paths establish rules for the setup and allocation of PaPs and the related responsibilities.

The life cycle can be broken down into the following 6 phases:

1. Preparation phase X-19 – X-16;

2. Coordination/Construction phase X-16 – X-12;

3. Delivery and publication phase X-12 – X-11;

4. PaP application phase X-11 – X-8 for the annual timetable;

5. Allocation phase X-8 – X+12 (with sub phases below):

✓ Pre-booking phase by C-OSS X-8 – X-7,5;

✓ C-OSS gives back non-requested PaPs to IMs based on MB decision X-7,5;

✓ Constructing tailor made solution X-7,5 – X-5,5;

✓ Publication deadline of draft offer to the Applicants X-5;

✓ IMs forward non-used PaPs to C-OSS to be used for late path requests X-5;

- ✓ Observations from Applicants X-5 – X-4;
- ✓ Post processing and final allocation for annual timetable X-4 – X-3,5;
- ✓ Allocation phase for late path request X-4 – X-2;
- ✓ Publication reserve capacity for ad-hoc traffic X-2;
- ✓ Allocation phase for ad hoc path requests X-2 – X+12;

6. Evaluation phase X+12 – X+15 ;

Date/period	Main Activities	C-OSS	IM	Applicant
X-19 – X-16	Preparation phase (based on TMS results involving Advisory Groups, and other information as previous years PaP requests, etc.) PMO is coordinating this phase in order to check the consistency of the overall corridor Paps offer.	X	X	X
X-17	IMs provide the C-OSS the volumes and main parameters of PaPs.		X	
X-17	After agreement within IMs, MB makes a preliminary decision as far as volumes are concerned.	X		
X-18, 16	PaPs proposal is presented to RAG.	X		X
X-16 – X-12	Coordination/Construction phase among IMs.	X	X	
X-12 – X-11	Delivery from IMs to the C-OSS for the preparation of the publication.	X	X	
X-11	Validation and publication of PaPs in PCS.	X		

7.2.7.1 Preparation phase X-19 – X-16

Inputs for this phase include:

✓ the outcome of the Transport Market Study (TMS);

✓ the available capacity, both in respect of overall capacity as well as capacity restrictions due to IMs" own requirements – as defined in the RNE Guidelines for the Coordination / Publication of Works;

An IM with agreed framework agreements should take the requirements of these agreements into consideration when planning and publishing the PaPs in accordance with Art. 14 (2) of the Regulation.
The evaluation of previously timetable-operated traffic, if it is not covered by the Transport Market Study, such as e.g. passenger traffic, effects on the number of PaPs can also serve as an input for the preparation of the paths – especially because the Regulation establishes that also other modes of traffic shall be respected.

This forms the basis for the MB decision on the number of PaPs to be produced on the Corridor sections.
The Corridor OSS could, depending on decisions of the MB, be responsible for preparing the decision paper for the MB and communicating the decision to IMs in the Corridor.

7.2.7.2 Construction and coordination phase X-16 – X-12

The input for this phase is the decision taken by the MB regarding the number of Corridor PaPs to be constructed. Here, the Corridor OSS role depends on the decisions of the MB. The IM(s) are responsible for the production and the border coordination of Corridor PaPs. But if the MB decides so, the Corridor OSS could serve as a support and monitoring of the production and report to the MB regarding the progress of the work. The IM is responsible for the actual production of PaPs, but the responsibility for that there is PaPs produced rests on the MB. The Corridor OSS could in that perspective support the MB in their responsibility.

The Corridor OSS could also be given the task of monitoring the paths due to PCS import requirements and verifying if the paths are in line with MB decisions and if they are harmonized at the border points. The C-OSS is monitoring this phase in cooperating with the IM(s) in order to facilitate the timetable harmonization of the PaP catalogue.

7.2.7.3 Delivery and publication phase X-12 – X-11

Before publication, a formal approval by the MB has to be made, which states that the IMs have produced PaPs that meet the MB decisions regarding the number of paths, and that they meet the requirements of the Corridor. After this endorsement, the PaPs should be published.

The publication of PaPs is a mandatory task for C-OSS via PCS.

The publication task includes making PaPs ready to be imported into PCS as long as production is not entirely done within the tool itself.

7.2.7.4 PaPs application phase X-11 – X-8

From X-11 the PaPs shall be published and available so that Applicants can submit applications for the annual timetable. PaPs can only be requested through the PCS tool. (In exceptional cases like a PCS break down, RNE form for international path ordering may be used)

Corridor OSS tasks in this phase will be to:

- ✓ Keep a register in PCS accordance with Art. 13(5);
- ✓ Display PaPs made available for the Corridor by the IMs;
- ✓ Receive and collect the applications for PaPs;

7.2.7.5 Allocation phase X-8 – X+12 (with sub-phases)

7.2.7.5.1 Pre-booking phase by C-OSS X-8 – X-7.5

This is the allocation phase concerning requests for PaPs for the annual timetable. The tasks of the Corridor OSS in this phase are described below:

✓ The Corridor OSS shall keep a register, based on Article 13 (5), of all activities performed by the Corridor OSS concerning the allocation of infrastructure capacity, and keep it available for Regulatory Bodies, ministries and Applicants;

✓ The Corridor OSS shall ensure the ongoing update of the register and manage access to it for the above-mentioned parties. The content of the register will only be communicated to these interested parties on request;

Allocation of PaPs to Applicants by the Corridor OSS

This task contains elements of allocation, communication and interaction between Corridor OSSs, IMs and Applicants. The Corridor OSS shall decide on the allocation of PaPs requests and communicate the result to the Applicant through PCS following the timeline for allocation agreed by all IMs within RNE International Timetable Calendar.
In case of conflicting PaPs requests, the Corridor OSS shall base its decisions:

- ✓ according to Articles 45 and 46 of Directive 2012/34/EU and;
- ✓ applying the Corridors common priority rules (as stated in RFC6 Corridor information document) and forward the application to the competent IMs if this Applicant does not accept the alternative PaPs or no other PaPs fit the customer request;

The Corridor OSS shall communicate with Terminals regarding the allocation of Corridor PaPs – if the Terminal is acting in the function of an IM and the PaP starts or ends within the terminal area – and forward the application to the IM if the Terminal is not a part of the PaP.
If the Corridor OSS is unable to meet any application for PaPs submitted to the Corridor OSS for the annual timetable between X-8 and X-7,5, the Corridor OSS forwards the application to the competent IMs, then these IMs must consider the application as sent on time (as before the X-8 deadline), these IMs should handle the application and then communicate the related offer to the Corridor OSS via PCS.
If not all published PaPs have been requested at X-8, the Management Board will decide which of the non-requested PaPs will be returned to the IMs at X-7.5.
Each year between X-8 and X-7,5, the MB has to make a decision about which PaPs to be kept at X-7,5. The MB should decide at that time, if it hands on decision power to the C-OSS (in the following procedure this is the case). The decision of which PaP to keep and which to return to the IMs, will depend on the after "booking situation".
The IM may then use the capacity for other requests received at X-8 or in the late path request phase, thereby ensuring the availability of sufficient reserve capacity at X-2.

7.2.7.5.2 Construction phase X-7,5 – X-5,5

During this phase the Corridor OSS will prepare answers to paths requests, other Corridor OSSs and Applicants regarding path requests placed on time (X-8), including both feeder and outflow paths as well as sections of PaPs.

The Corridor OSS will ensure and facilitate the cooperation process between IMs concerning requests containing feeder and outflow paths placed by X-8.

Before X- 5.5 the concerned IMs delivers their results concerning feeder / outflow path construction to the Corridor OSS, so that the Corridor OSS can communicate the draft offer to the Applicants. The IMs are responsible for the construction and allocation of the connecting paths. In any case the COSS is responsible for giving the full answer to the applicants.

7.2.7.5.3 Publication deadline of draft offer to the Applicants X-5

Publication of draft timetable:

- ✓ PaPs ;
- ✓ sections provided by the IMs (feeder/outflow);

The C-OSS is responsible for providing the draft offer to the Applicant, based on the information given by IMs.

7.2.7.5.4 Observations from Applicants X-5 – X-4

Applicant checks the draft offer, and makes its remarks in PCS. This process follow up the process for international train path management: ”Observation phase Final allocation for annual timetable X-4 – X-3,5”.

The Corridor OSS is responsible for bringing the final offer of PaP to the Applicant, based on the information given by IMs:

- ✓ Fulfill the management of the request;
- ✓ Different offer agreed with customer;
- ✓ No offer;
- ✓ Information on access to terminals;

In case of complaints regarding the allocation of PaPs (e.g. due to a decision based on the priority rules for allocation),
Contacts can be found on the following link or under Annex 2 Book 1 of corridor information document. http://ec.europa.eu/transport/modes/rail/market/regulatory_bodies_en.htm

The regulatory bodies along the corridor have signed an agreement in order to nominate a central point of contact:

ART – Autorità di Regolazione dei Trasporti
Via Nizza 230, 10126 Torino
Telefono: 011.0908500

E-mail: art@autorita-trasporti.it
PEC: pec@pec.autorita-trasporti.it

The cooperation agreement can be found at:
http://www.mit.gov.it/mit/site.php?p=cm&o=vd&id=2856

The Corridor OSS will also communicate with other Corridor OSSs regarding allocation involving several Corridors and IMs for connecting points.

7.2.7.5.5 Allocation phase for late path request X-8 – X-2 and ad hoc path request X-2 – X+12

The C-OSS is responsible for updating the PaP catalogue in PCS, according to actions made at X-7,5 and to the MB decision.

Based on MB decision the Corridor OSS may also receive late path requests referring to the PaPs kept by the C-OSS at X-7,5. These requests may be placed after X-8.

The C-OSS is responsible for their allocation based on the process for late path requests following the principle "first come - first served"

If the late path request cannot be met by the C-OSS and there is no other/suitable alternative PaP or if a flexible approach is needed, the Corridor OSS forwards the application to the competent IMs. The concerned IMs deliver their results to the Corridor OSS, so that the Corridor OSS can communicate the final offer to the Applicants.

The C-OSS is responsible for the continuous updating of the PaP catalogue in PCS.

According to Article 14.5 of the Regulation, the IMs jointly define this reserve capacity for international freight trains on the Corridor.

At X-4 – X-2 Planning (production) reserve capacity for ad hoc traffic.
At X-2.5 the MB should be informed by the IMs about the outline of the reserve capacity.

Reserve capacity may consist in non-requested PaPs, or a PaP constructed out of remaining capacity by the IMs after the draft network timetable development or other defined capacity on the RFC 6. The reserve capacity should be displayed at X-2 in PCS and protected from any modification by the IMs.

The MB shall define the time limit by which the reserve capacity has to be locked in national working timetables. RFC6 has decided to fix it to 30 days if it is displayed in national systems as well; the concerned national IM has to ensure consistency with PCS.
The Corridor OSS will not treat applications for reserve capacity with a shorter time limit to the first day of operation day is earlier than the time limit defined(30 days) Requests with shorter time limit should be addressed to the national IMs directly through PCS.

Applications for reserve capacity referring to PaP(s) shall be placed to the Corridor OSS through PCS only. Neither national systems nor any other communication channels to the Corridor OSS will be allowed. (Except exceptional conditions when PCS is not available)

The Corridor OSS takes the allocation decision for reserve capacity requests according to the rule first come – first served (X-2 – X+12). In addition to automatically updating in PCS, the Corridor OSS has to supervise the use of the reserve capacity

In case of applications including feeder/outflow paths and/or Terminal slots, the Corridor OSS will forward the request to the concerned national IMs and ensure a consistent path construction between the feeder and the Corridor-related path section.

Applications requiring modifications to the displayed reserve capacity on the Corridor section (e.g. differing parameters, additional stops etc.) cannot be handled by the Corridor OSS. Therefore they should be forwarded to the national IMs directly. The concerned IMs deliver their results to the Corridor OSS, so that the Corridor OSS can communicate the final offer to the Applicants.

Applicants will be informed about the result of the path allocation immediately through PCS.

The Corridor OSS will also forward applications to the concerned IMs in case no more reserve capacity is available on the Corridor (offer „sold out“).

7.2.7.6 Evaluation phase X+12 – X+15

Based on MB decisions and on the RNE Draft Guidelines for Punctuality Targets, the Corridor OSS could provide with input for evaluating the Corridor’s performance regarding the use of PaPs and their allocation. This may serve as an input for the revision of the pre-arranged path offer for the next available annual timetable. This can also serve as an input for the report to be published in accordance with Art. 19 (2) in Regulation 913/2010.

Also depending on decisions taken in the MB, the Corridor OSS could be given the task to organize a satisfaction survey of the users of the Corridor and send the results of the survey to the MB, to be published in accordance with Art. 19 (3) in Regulation 913/2010.

7.2.8 Tools for the Corridor OSS

The main working tools for the Corridor OSS are the three RNE IT tools: Path Coordination System PCS, Train Information System TIS and Charging Information System CIS.

In order to enjoy the full benefits of these tools, it is in the interest of all involved stakeholders that their national systems are connected to them. The use of these tools is not only related to day-to-day business, but also to additional functions such as reports.

7.2.9 Priority criteria for the allocation of pre-arranged paths

Definition of Network PaPs:

"Network PaPs (in short "NetPaPs)" are PaPs designated to foster the optimal use of infrastructure capacity and address the needs for capacity in specific geographical relations or of market segments with special requirements in train path characteristics. They may be offered on a single RFC or on two or more connected RFCs. "Network PaPs" consist of contiguous PaP sections linked together and are identified by a special ID or marker in PaP catalogues and IT tools.

If no "Network PaP" is involved in the conflicting requests

L^{PAP} = Total requested length of pre-arranged path.
$L^{F/O}$ = Total requested length of the feeder/outflow path(s); for the sake of practicality, is assumed to be the distance as the crow flies.
Y^{RD} = Number of requested running days for the timetable period.
K = The rate for priority
All lengths are counted in kilometres.

The priority is calculated according to this formula:

$$K = (L^{PAP} + L^{F/O}) \times Y^{RD}$$

This formula has to be used so that

in a first step the priority value (K) is calculated using only total requested length of pre-arranged path (L^{PAP}) multiplied by the Number of requested running days (Y^{RD});

- if the requests cannot be separated in this way, the priority value (K) is calculated using the total length of the complete paths ($L^{PAP} + L^{F/O}$) multiplied by the number of requested running days (Y^{RD}) in order to separate the requests;
- if the request cannot be separated in this way, a random selection is used to separate the requests.

If a "Network PaP" is involved in at least one of the conflicting requests:

- If the conflict is not on a "Network PaP", the priority rule described above applies

- If the conflict is on a "Network PaP", the priority is calculated according to the following formula:

$$K = (L^{NetPAP} + L^{Other\ PAP} + L^{F/O}) \times Y^{RD}$$

K = Priority value

L^{NetPAP} = Total requested length (in kilometres) of the PaP defined as "Network PaP" on either RFC

$L^{Other\ PAP}$ = Total requested length (in kilometres) of the PaP (not defined as "Network PaP") on either RFC

$L^{F/O}$ = Total requested length of the feeder/outflow path(s); for the sake of practicality, is assumed to be the distance as the crow flies.

Y^{RD} = Number of requested running days for the timetable period

This formula shall be used so that

- in a first step the priority value (K) is calculated using only total requested length of the "Network PaP" (L^{NetPAP}) multiplied by the Number of requested running days (Y_{RD});

- if the requests cannot be separated in this way, the priority value (K) is calculated using the total length of all requested "Network PaP" sections and other PaP sections ($L^{NetPAP} + L^{Other\ PAP}$) multiplied by the Number of requested running days (Y_{RD}) in order to separate the requests;

- if the requests cannot be separated in this way, the priority value (K) is calculated using the total length of the complete paths ($L^{NetPAP} + L^{Other\ PAP} + L^{F/O}$) multiplied by the Number of requested running days (Y_{RD}) in order to separate the requests;

- All detailed scenarios and example are explained in the RNE guidelines for Corridor OSS;

- In cases, where there will be exactly the same request by two or more applicants; the following steps will be applied:

✓ A consultation phase between all applicants and the C-OSS will take place.

7.2.10 Availability of the Corridor OSS

It shall be mandatory for all Applicants to use PCS when they request pre-arranged paths. Other questions can be submitted via e-mail or telephone and be answered accordingly.

As the Corridor OSS will not be active less than 21 days before the day of operation, there is no need for a facility staffed 24 hours a day, 7 days a week. Regular office hours would be sufficient from the point of view of availability.

7.3 Capacity allocation framework

The Executive Board adopted the new RFC 6 Capacity Allocation Framework which will be published on the Corridor website (Written approval 15th December 2014).

This document is expected to provide an overview on the principles of:

- ✓ The supply of PaPs by the national IMs and Abs;
- ✓ The allocation of PaPs and RC by the C-OSS;
- ✓ Regulatory control;
- ✓ Authorized applicants (see chapter 4);
- ✓ Priority rules including the management of NetPaP

7.4 Authorized applicants

The applicant commits to comply with all relevant regulations regarding its path request via the RFC 6 C-OSS, by signing the "General Terms and Conditions" (GTC) for requesting international freight paths through the Rail Freight Corridor 6 one stop shop of the C-OSS, at the latest before placing the request. The General Terms and Conditions have to be signed by all applicants.
General Terms and Conditions can be found on: https://www.railfreightcorridor6.eu/RFC6/web.nsf/Pub/index.html

Here following, a brief description of the rules in place for the IM operating in RFC6 is given.

7.4.1 Who can be an authorized applicant in each country

ADIF

RU with a License or an international RU group. There may also be Public Authority Applicants with transport service powers who may be interested in supplying certain railway transport services, as well as other corporations, which without having the condition of RU are interested in operating the service, such as transport agents, carriers and combined transport operators.

RFI

A licensed Railway Undertaking and/or an international grouping of railway undertakings, each one holding a license, and other individuals and/or corporations with a public service or commercial interest in acquiring infrastructure capacity, for the purpose of providing transport services by rail, concluding a specific "Framework Agreement" with the IM, and which does not carry out a brokerage business in respect of the capacity acquired under the framework agreement; Applicants also include the regions and autonomous provinces, limitedly to the provision of the services for which they are responsible.

SNCF Reseau

The article L.2122-12 of National Code of transportation indicates that« Other people than RUs may be authorized to ask for paths in order to make these paths used by one RU ».

The Art 19 of the decree 2003-194 concerning the use of the French network rail makes an overall description of the bodies that can use paths. Thus, in addition to RU, international grouping of RUs, IMs, Allocation Bodies the following entities can ask for paths

- ✓ Combined transport Operators;
- ✓ Public entities that organize a freight service of transportation on the national network, included:
- ✓ Port authorities managing railways:
- o Public bodies and grouping for a contract including a service of transport for their needs ;
- o From 14 December 2008, public bodies organizing a public service of passengers transportations and the STIF (organizing public passenger transportation of the Capital Region).

SNCF Reseau may ask applicants to provide information demonstrating their financial robustness before any contract may be signed.

SZ+AZP

Regarding answer on this question we must give you short term description because in our legislation we don't have direct explanation »authorized applicant«:

a. National Railway act – term »applicant« (meaning: railway undertaking or any other legal subject, who from public interest (state, local community, provider of public service obligation) or commercial interest (railway undertaking, forwarding agent, or transporter in combine traffic) needed the train path);

b. National Order about capacity allocation and the levying of charges for the use of public rail infrastructure – term »any other interested parties« (meaning: subjects from which live and business, the rail service activities from rail transporters, have the influence, e.g. local community, industrial undertakings etc.).

In this meaning in our national legislation instead of the term »authorized applicant« we use the term »any other interested parties«.

MÁV+VPE

The definition "Authorized Applicant" does not exist anymore, as we consider now the relevant Directive 2012/34/EU instead of Directive
2001/14/EC, the definition for "Applicant ". For their identification and management we think that a solution would be preferable on a higher level. This is a crucial point; every country has different explanation on the definition of Applicant.

Hungary by economic organizations as set out by point c of section 685 of act IV of 1959 on the civil code of Hungary, namely state-owned companies, other state-owned economic agencies, cooperatives, business associations, professional associations, European company, grouping, European economic grouping, European grouping of

territorial cooperation, companies of certain legal entities, subsidiaries, water management organizations, forest management associations, private entrepreneurs, state and local governments, budgetary agencies, associations, public bodies and foundations in connection with their economic activities; apart from railway undertakings or the international groupings that they make up, as set out in Article 15 of the Regulation.

7.4.2 Legal basis of the procedure

RFI

D.Lgs. 188/03

ADIF

✓ Law 39/2003, of 17th November, the railway Industry. (Art. 43);

✓ Royal Decree 2387/2004 of 30th December, approving the Railway Industry Regulation (Article 79)

SNCF Reseau

The network statement of SNCF Reseau indicates in chapter 4 the procedure

4.1.3. Contracts for the allocation of train paths on the national rail network

Railway undertakings can use contracts for use of the infrastructure of the national rail network which ensure that they can be allocated train paths.

Before train paths on the national rail network can be allocated to a beneficiary other than a railway undertaking that wishes to place them at the disposal of one or several railway undertakings to provide the transport services that it organizes, a contract will first have to be signed between SNCF Reseau and the said beneficiary regarding train path allocation on the national rail network. The general conditions applicable to such contracts on the date of publication of this document are given in Appendix 3.1 and a specimen of the corresponding special conditions in Appendix 3.2.2.

Such contracts must be signed before the beneficiary informs SNCF Reseau of the name(s) of the railway undertaking(s) that will provide the transport service.

SNCF Reseau may have to ask applicants to provide: information demonstrating their financial robustness before any contract may be signed.

SZ+AZP

The legal basis for the procedure is the Regulation (EU) No 913/2010 which is binding and entered into force directly by all member states (of course also national Railway act and other related legal acts).

MÁV+VPE

2005. CLXXXIII. Law on RailwayTransport Network Statement.

7.4.3 Responsibilities of applicants

Applicants prepare train path applications on their own responsibility.
Each request consists of information about the applicant and the requested route, the originating station, any intermediate stops, the destination station and the requested convoy for calculation purposes.
Applicants are also responsible, whether a railway undertaking or an authorized applicant, for indicating if the particular details of capacity requests may have an effect on the construction of a train path or on the network's conditions of use, stated particularly in §§ **4.7.1** to **4.7.3** below.
Note that prior to submitting a capacity request applicants must also verify, under the conditions of § **2.7.2** above, that the rolling stock used is compatible with the infrastructure of the lines used, with the versions of the Technical Information in force and the local operating instructions (supplemented if necessary by compatibility certificates drawn up by Réseau Ferré France while waiting for these to be updated).
Prior to submitting a capacity request, applicants are also requested to verify the availability of the infrastructure elements made available to them, so that the request may be made in full knowledge of the facts (any extra opening of lines, stations and signal boxes, windows and track possessions, temporary speed limits, etc.).
Specific responsibilities of authorized applicants

Authorized applicants must ensure that they have sufficient resources (human, technical and financial) to manage the organization required (particularly in terms of access to information) for dealing with capacity requests.
In contractual terms authorized applicants shall guarantee that the railway undertakings selected are capable of meeting the traffic timetable they have been sent as regards capacity allocation, other than in exceptional cases for which provision is made in the regulations. To this end the authorized applicant shall pass on the information he possesses to the railway undertaking enabling the latter to deploy trains compatible with the characteristics of the train path allotted and, in particular, to ensure that his train(s) pass the designated landmarks on this train path at the appointed time in each case.
Specific responsibilities of railway undertakings
Regardless of the nature of the applicant, the railway undertaking that will use the train path shall be responsible for only deploying trains compatible with the characteristics of the train path allocated (traction, weight, length, dangerous goods, exceptional consignments, etc.) and, in particular, ensuring that his train(s) pass the designated landmarks on this train path at the appointed time in each case.
If the train path does not have the appropriate characteristics, the applicant, whether railway undertaking or authorized applicant, will have to request that the train path allocated be changed to account for the actual restrictions of the train.
In addition, railway undertakings are responsible for meeting the obligations to provide information prior to running that are laid down in the documents "Provisions concerning traffic management on the national rail network", appended to this document.

SZ+AZP
The legal basis for the procedure is the Regulation (EU) No 913/2010 which is binding and entered into force directly by all member states (of course also national Railway act and other related legal acts).

MÁV+VPE
2005. CLXXXIII. Law on RailwayTransport
Network Statement

7.4.4 What conditions shall be satisfied to be an authorized applicant

RFI

The conditions are clearly specified in the above mentioned definition (according to the D.Lgs 188/03).

ADIF

Article 62.- Royal Decree 2387/2004.

General qualifications for RU.

1. The granting of the license as a railway undertaking to provide any of the services mentioned in the previous article, requires, in any case, that the applicant demonstrates, as provided in the Law 39/2003 and these Regulations(Royal Decree 2387/2004), compliance the following requirements:

a. Take the form of a corporation, in accordance with Spanish law and without prejudice to the already established; regarding the public company RENFE-Operator, in the third additional measures of the Law 39/2003. In any case, the company must have been established for an indefinite period, their shares shall be nominative and their main goal shall be the provision of railway services.

b. Have the financial capacity to meet its present and future obligations. The requirement for financial capacity will be fulfilled when the entity applying for the license of RU counts on economic resources to cope with the obligations referred to in Article 46 of the Law 39/2003

c. Ensuring the professional competence of its managerial and technical staff and the safety on the services that wants to provide.

d. Must have covered the civil liabilities that may be required.

2. The entities where there are some of the cases referred to in Article 45.3 of the Law 39/2003 shall not be licensed railway undertakings

Article 82. Requirements for obtaining the authorization.

To obtain the authorizations referred to in the preceding article must meet the following requirements:

a. Take the form of a corporation, in accordance with Spanish law, for an indefinite period, and with nominative shares;

b. Not be subject to any of the causes of incapability to have a license RU, set down in Article 45.3 of the Law 39/2003;

c. Make a statement of activity, indicating the type of service and the annual traffic foreseen by applying for capacity;

d. Ensuring the request of capacity for a minimum annual traffic, (trains x Km) and it must be based on traffic level of its statement of activity. It may not, in any case, be less than 50,000 trains x Km;

e. Having, at the time of the beginning of its activities, operational communication systems. Those systems must be capable of delivering information with appropriate conditions of speed and reliability both to the Directorate General of Railways and to the rail infrastructure manager;

g. Sufficient resources to meet the fixed and operational costs, resulting from the operations of its business;

h. Must have covered the civil liabilities that may be required;

SNCF Reseau
But the article 4.1.4 here above, no other conditions contrary to the Railway undertakings that should have a license and a safety certificate.

SZ+AZP
The condition: the subject shouldn“t be / isn't railway undertaking and don't provide the rail transport services. For using the train path on freight corridor this applicant shall appoint the railway undertaking.

MÁV+VPE
The conditions are specified in the above mentioned points.

7.4.5 Which organization is responsible for it

RFI
The Infrastructure Manager (RFI) and, in case of disagreement, the Regulatory Body.

ADIF

Ministry of Public Works

SNCF Reseau

SNCF Reseau is responsible for it

SZ+AZP

Ministry of Infrastructure and Spatial Planning of the Republic of Slovenia and Public Agency of the Republic of Slovenia for Railway Transport.

MÁV+VPE

Infrastructure Manager

7.4.6 Any other information about this topic

RFI

In accordance with the national law, the Authorized Applicant is allowed to submit applications only for long-term infrastructure capacity, for the purpose of entering into a Framework Agreement.

ADIF

- ✓ Law 39/2003, of 17 November, the railway Industry;
- ✓ Royal Decree 2387/2004, of 30 December, the Railway Industry Regulation;
- ✓ Network Statement;

SNCF Reseau

No.

SZ+AZP

In Slovenia the term "authorized applicant" shall be implemented in the national legislation (Regulation (EU) No 913/2010 - with one from the next legal acts changes).

MÁV+VPE

Network Statement Appendix

7.5 Traffic management

7.5.1 Introduction

The present document's aim is to set up an overall framework of standard procedures in the traffic management along the freight corridors. These procedures represent the fulfilment of the requirements contained in the EU Regulation (EU Reg. 913/2010), the so-called Freight Regulation in articles 16, 17 and 19.

All IMs and ABs on the RFC6 are members of the association RailNetEurope.

The document "Framework for setting up a freight corridor traffic management system" doesn't suggest exact thresholds and conditions that make the coordination procedures for traffic management necessary; therefore they should be determined by the IMs or ABs on the corridor. The exact knowledge of the state of the traffic is the basis to take correct decisions for the traffic management, both for RUs and IMs, and to possibly estimate the development of the situation in case of disturbances.

The main focus is given to the standardization of communication and coordination of procedures. In addition, the basics to set up a harmonized procedure for traffic management in case of disturbance are described. This RNE Guideline is suitable for the common use on the RFC6, but they must be adjusted and in fact RNE is currently managing an update.

The main issues of the traffic management:

- ✓ Corridor train definition and priority rules;
- ✓ Coordination of traffic management along the corridor and with Terminals;
- ✓ Traffic management in the event of disturbance;
- ✓ Traffic management- in case of deviations from timetable;
- ✓ Punctuality targets and performance objectives;

The following sections describe the way the RFC6 intends to manage the above listed items. The procedures and principles described in this Implementation Plan are a preliminary framework that will be further developed on the basis of a deeper analysis of the RNE offered services and information basis (already delivered Guidelines and other documents, like the "Overview of Priority rules in operations" as well as newly delivered documents and tools, as outcomes of the currently managed RNE projects). RNE recommendations will be applied in so far they are fitting with RFC6 strategy and needs.

7.5.2 Pre-arranged train paths for trains running on the corridor

The infrastructure managers of the freight corridors shall jointly define and organize international pre-arranged train paths for freight trains.

The C-OSS defines pre-arranged paths and these paths are offered to freight trains crossing at least one border (Art. 14(4)). Trains running on these international paths are high priority international freight trains.

7.5.3 Priority rules in operations

Legal frame:

- ✓ Pap trains on time have to be kept on time (art 17.3);
- ✓ A common quality standard has to decided, taking in account the priority rules really applied.(art 17.1);

There is no legal need to apply the same priority rules in the different networks along the corridor, only the target has to be common. General principles of prioritization on RFC6

Commercial target:

The objective of the corridor is, in order not to downgrade the punctuality standard achieved by the RU when declaring their trains "ready for departure", to contract with the different IM control centres the following managing operative modes (Propositions to be tuned and completed by the members at a later stage):

- ✓ Trains starting or running in time (< 6 mn deviation) under PaP label will be kept on time against any other train;
- ✓ Trains running under PaP label with more than 5 mn deviation will be prioritized against any other train having same or smaller maximum speed;
- ✓ Trains running under PaP label with less than 16 mn deviation keep right to run before line closure for a track possession starting shortly after their planned passage;

An interim situation could be to accept, for 2014 only, that, starting from initial national rules in some IM, that "already delayed" passenger trains could have priority on "on time" Corridor PaP trains

Along the corridor, every IM has a different legal basis in connection with the priority rules – in some States these rules regulated by the Ministry, but some States it is in the internal rules - so it is hardly possible at this stage to create common priority rules on the corridor.

7.5.4 Coordination of traffic management along the corridor and with terminals

Among the IMs and between the IM and Terminal to coordinate and monitor the traffic, the following RNE IT will be used as a basis:

- ✓ Train Information System (TIS): a web-based application monitoring international traffic on real time and providing historical information through its reporting function; not all involved parties are currently using such a tool, but a roll-out to other partners is foreseen;
- ✓ Traffic Control Centres Communication (TCCCom): the TCCCom tool that allows a better communication between cross border dispatching centres;
- ✓ The presented tools and procedures shall be applied for all cross border traffic;

The main strategy is to improve already the existing means in order to ensure that all communication needs are fulfilled and that the used tools are integrated and user-friendly at the maximum possible extent.

- ✓ TIS – Train Information System: as an RNE tool can be useful for the IMs;

- ✓ If all of the members will use TIS, each IM can follow the trains along the corridor;
- ✓ Till the full implementation of the TIS on the whole corridor line, members could use TCCCOM between dispatching centres and „TIS Light" to inform each other;
- ✓ TIS Light – manual data entry;

Since the Infrastructure Managers are working together, there are existing bilateral agreements. These procedures are in place among Spain – France, France – Italy, Italy – Slovenia, Slovenia – Hungary. Bilateral agreements can be obtained **on demand at C-OSS.**

7.5.5 Traffic management in the event of disturbance

At first the IM should inform the neighbouring IMs and the concerned RU in their own country. These activities are part of the bilateral agreements. However, RFC6 considers that a communication procedure should be in place for informing the COSS in case of:

- ✓ Closure of the line for more than 6 hours;
- ✓ Capacity reduction is more than 50%;
- ✓ Specific major event which is having an impact on the normal flow of traffic on the corridor such as (Tunnel closure, extreme weather conditions, severe accident….);

As soon as the concerned IM will be aware of the existing of a disruption (defined according to the previous cases) affecting a corridor PAP it will immediately inform the PMO who will ensure the corrected communication to the IMs concerned. At this stage we could consider that PMO mail box is inserted in the incident messages sent by IM"s.

According to the gravity of the incident (Evaluation of the consequences to the daily business of the applicant) The PMO will communicate with involved applicants and IM"s in order to inform and also to find international solutions if needed, when needed.

The communication procedures among IMs, RUs, Terminals and OSS need to be described when the corridor organization will be completely set up if there is a further need comparing to bilateral agreements and procedures.

7.5.6 Traffic management- in case of deviations from timetable

New path request in the event of disturbance:

- ✓ In the event of disturbance, when an RU wants to deviate from the pre-arranged path, RU should request a new path and thereby renounce the quality requirements (delay, alternative routes);
- ✓ IM suggests the new path, if the RU accepts, automatically accepts the quality requirements of the new path allocation in operation;
- ✓ In the case of emergency, IM informs the RUs about the circumstances on the way mentioned above;

7.5.7 Diversion of trains

- ✓ In the event of non-planned events, trains use alternative routes to destination;
- ✓ When a train delays more than 60 minutes, IMs must inform the concerned RUs directly or through information systems (e. g. TIS);

7.5.8 Punctuality targets and performance objectives

Punctuality targets:

- ✓ A corridor train under PaP label is punctual if it has maximum 6 minutes delay on the terminal, on the shunting yards where the train will manipulated from departure;
- ✓ Scheduled time for corridor trains is 10 minutes (until 10 minutes delay we should say that this train is on time);
- ✓ At least 60 % of the corridor trains should be punctual on the terminal/start of origin, or on the shunting yards and the final station;

7.6 Corridor Information document

7.6.1 Book 1

7.6.1.1 Introduction

The Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010 lays down rules for the establishment and organisation of international rail corridors for competitive rail freight with a view to the development of a European rail network for competitive freight and it sets out rules for the selection, organisation, management and the indicative investment planning of freight corridors.

The Regulation (EU) No 1316/2013 of the European Parliament and the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 in its Article 29 has amended the genuine version of the Regulation (EU) No 913/2010, so the Annex to Regulation (EU) No 913/2010 has been replaced by the text of Annex II to the Regulation (EU) No 1316/2013. The current legislation has changed the initial rail freight corridors' route set out in the Annex in 2010. In the case of RFC 6, there were 3 major changes effected.

1. the route of RFC 6 in Spain has been extended from Madrid to Algeciras to be implemented by January 2015

2. the route of RFC 2 in France has been extended from Lyon to Marseille to be implemented by November 2016

3. the route of RFC 6 in Slovenia and Hungary has been extended to Croatia,
   - from Ljubljana to Zagreb and
   - from Budapest via Zagreb to Rijeka
   to be implemented by November 2016

The GA of EEIG RFC 6 has adopted the extension of RFC 6 in Italy effective January 2015, adding a new connecting line, from Torino to Tortona via Alessandria, to reach the Milano node by the line section Tortona – Milano belonging to the RFC1, in order to provide a Corridor offer to the dangerous goods traffic flows which are unable to run through the principle routing from Torino to Milano via Novara.

The Corridor Information Document provides all information in one document in relation with Rail Freight Corridor 6, 'Mediterranean Corridor' (hereinafter RFC6 – among Railway Infrastructure Managers and Allocation Bodies of Spain, France, Italy, Slovenia and Hungary) from the national Network Statements. This document ensures the existence of the Corridor and gives the overall, basic structure of the applicable rules, procedures and available data of RFC6.

The creation of the Corridor contributes to the development of the international freight market. As for the comparison of the other modes of transport, the competitiveness of the railway sector is essential; therefore a proper railway infrastructure and good quality regarding the freight transport services should be applied and generated along the Corridor. According to the fulfilment of the Regulation (EU) 913/2010 the cooperation of the Infrastructure Managers and Allocation Bodies is indispensable at international level.

7.6.1.2 Structure of the Corridor Information Document

"*This CID follows the RNE CID Common Structure so that Applicants can access similar documents along different corridors and in principle, as is the case with national Network Statements, find the same information at the same place in each one.*"

On the basis of the RailNetEurope (RNE) structure, the Corridor Information Document, which is a single document, is consisted of 5 different Books. There are proposed structures available for each book; the Network Statement Excerpts part follows the structure of national Network Statements.

The Corridor Information Document is built up as follows:

- ✓ Book 1 – Generalities;
- ✓ Book 2 – Network Statement Excerpts;
- ✓ Book 3 – Terminal Description;
- ✓ Book 4 – Procedures for Capacity and Traffic Management;
- ✓ Book 5 – Implementation Plan;

All Books can be executed under different processes but the Network Statement Excerpts part should be drawn up in accordance with the procedure set out in Directive 2012/34/EU.

The Corridor Information Document should contain:

- ✓ all the information in relation with the freight corridor from the national Network Statements;
- ✓ information on terminals;
- ✓ information on capacity allocation (OSS operation) and traffic management, also in the event of disturbance;
- ✓ the Implementation Plan that contains:
  - o the characteristics of the freight corridor;
  - o the essential elements of the Transport Market Study that should be carried out on a regular basis;
  - o the objectives for the freight corridor;
  - o the investment plan described in the regulation;
  - o measures to implement the provisions for co-ordination of work, capacity allocation (OSS), traffic management etc.

The Corridor Information Document (hereafter CID) is an international document, therefore it is written in English language.

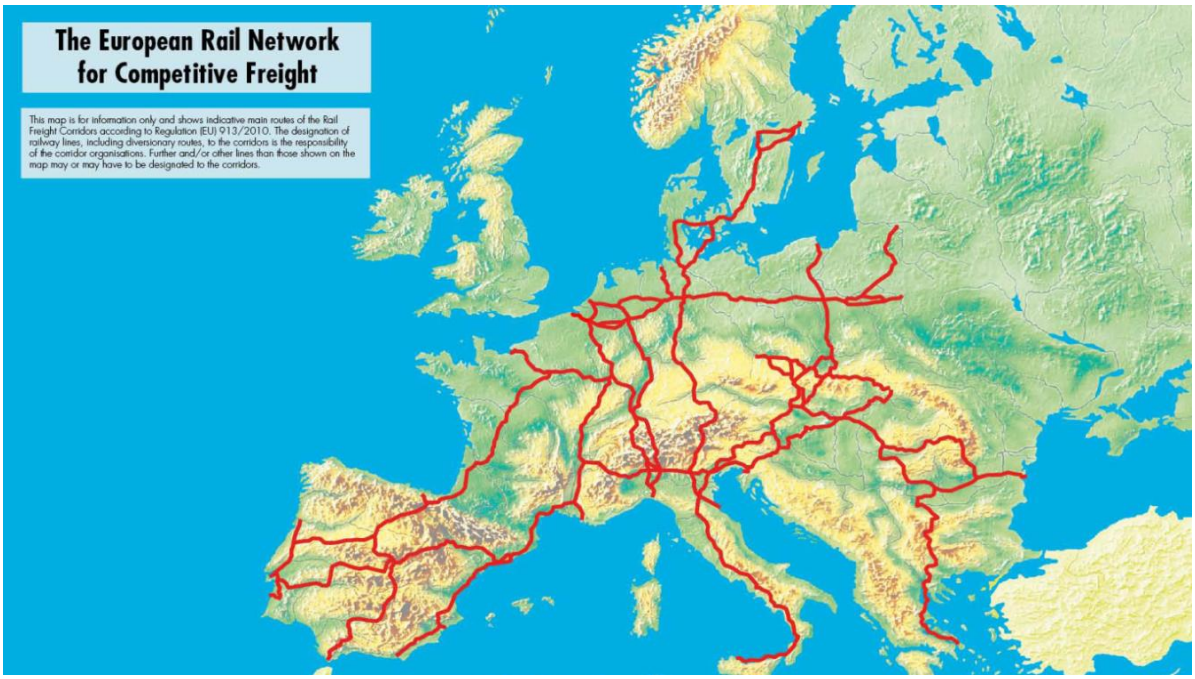
7.6.1.3 Corridor Description

The RFC 6 runs in the following 5 countries: Spain, France, Italy, Slovenia and Hungary, between the cities of Almeria – Valencia / Algeciras / Madrid – Zaragoza / Barcelona – Marseille – Lyon – Torino – Milano – Verona – Padua / Venezia – Trieszt / Koper – Ljubljana – Budapest – Zahony.

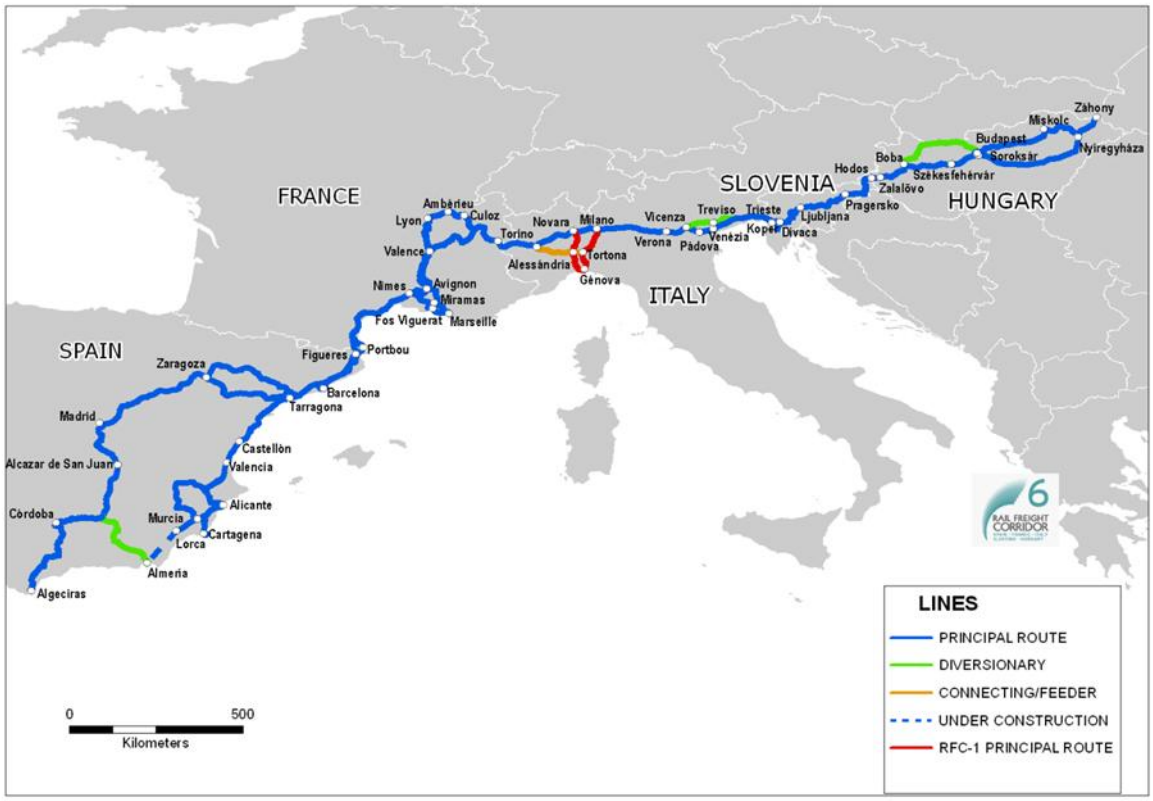
Detailed description will be available in Book 2 of this CID. (Please find the Corridor's detailed route in Annex 3.)
Actually RFC 6 has the following connections with other RFCs:

- ✓ the Algeciras – Madrid section is shared with Rail Freigth Corridor 4 (already set up on 10 November 2013);
- ✓ in Lyon and Ambérieu-en-Bugej with Rail Freight Corridor 2 (already set on 10 November 2013);
- ✓ in Alessandria and Tortona, with Rail Freight Corridor 1 (already set up on 10 November 2013);
- ✓ in Verona with Rail Freight Corridor 3 (to be set up by 10 November 2015);
- ✓ the Venezia – Cervignano – Villa Opicina/Trieste- sections in Italy and Trieste/Koper – Ljubljana – Zidani Most – Pragersko sections in Slovenia are shared with Rail Freight Corridor 5 (to be set up by 10 November 2015);
- ✓ in Győr and Budapest with Rail Freight Corridor 7 (already set up by 10 November 2013);

The initial network formed by Rail Freight Corridors is drafted as follows:



Map of RFC 6, which is also included in the Corridor's Implementation Plan, is the following*:



7.6.1.4 Corridor organization

The Regulation (EU) 913/2010 defines three levels in the governance structure:

1. **The Executive Board (EB)**: shall be composed of representatives of the authorities of the Member States concerned. The body is responsible for defining the general objectives of the freight corridor, supervising and taking measures if necessary for improvement of the project. The participation of each Member States is obligatory.

2. **Management Board (MB)**: For each freight corridor, the Infrastructure Managers concerned and, where relevant the Allocation Bodies as referred, shall establish a Management Board responsible for taking all operative measures for the implementation of the regulation. The participation of each IM and AB is obligatory. MB takes its decisions based on a mutual consent. The MB was established by a signature of a Memorandum of Understanding among the parties, signed already in April 2012. Effective 1st of January 2014 the Management Board took a form of EEIG (European Economic Interest Grouping). As a consequence the role of Management Board was taken over by the **General Assembly of EEIG RFC 6 (hereinafter: GA)**

A Permanent Management Office (hereafter PMO) is set up in Milan (Italy) to support the implementation of the RFC 6 and to ensure the functioning of the EEIG. The migration of Corridor D EEIG towards RFC 6 EEIG was implemented in early 2014.
The PMO is led by the EEIG Managing Director and is composed by two other full time dedicated people in the start-up phase: one Infrastructure Adviser (who is also the EEIG Deputy Director) and one OSS leader. The corridor one-stop-shop is applying the dedicated C-OSS model of RNE from 1st July 2013.

Five EU Member States (Spain, France, Italy, Slovenia and Hungary) are involved in RFC 6. The Management Board has 8 members; 6 Infrastructure Managers and 2 Allocation Bodies.

6 IMs:

and 2 ABs:

3. **Advisory Groups (AGs)**: The MB shall set up an Advisory Group made up of

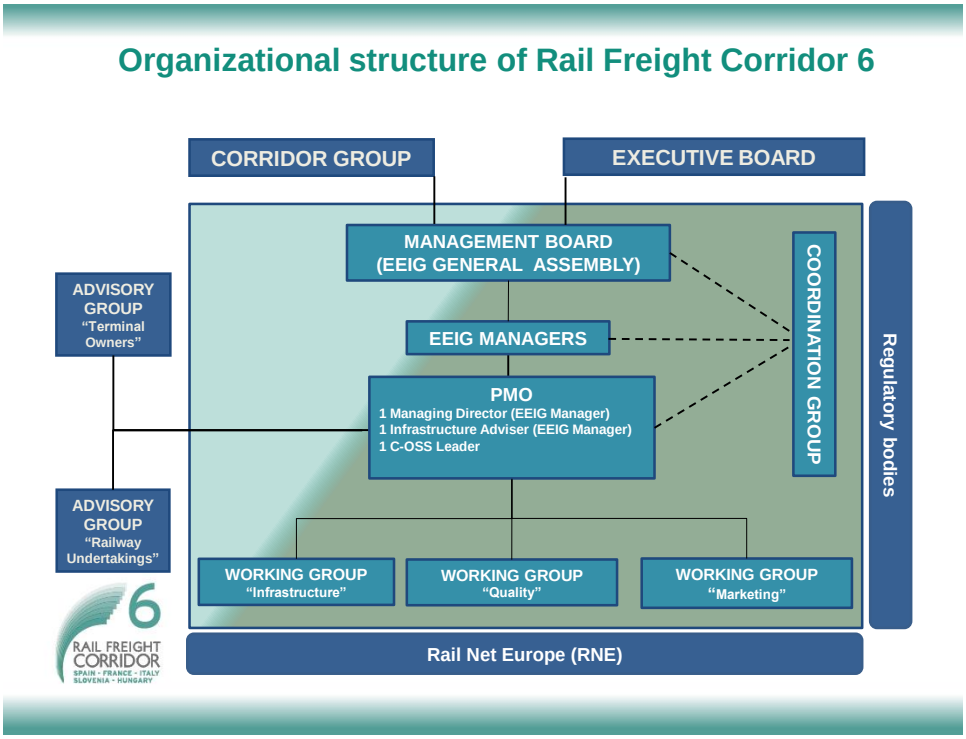
- ✓ **railway undertakings** interested in the use of the corridor;
- ✓ **managers and owners of the terminals** of the freight corridor including, where necessary, sea and inland waterway ports.

These AGs may issue an opinion on any proposal by the MB, which has direct consequences for them. It may also issue own-initiative opinions. The MB shall take any of these opinions into account.

The voice of customers is taken into account via the Terminal and the Railway Undertaking Advisory Groups. In these groups participation is on a voluntary basis. Advisory Groups members will have a dedicated area in the RFC 6 website, where all materials on consultation will be available. To join the Advisory Groups please contact the Permanent Management Office (PMO) and/or the representative of the Advisory Group.

National representatives of the Advisory Groups should be nominated to coordinate the position of the group. The groups' opinion has to contain both majority and minority opinions.

The organizational structure of the Corridor is set down in the Internal Regulations of EEIG RFC 6, approved by the Management Board in March 2013.



The main aim of the work is to increase the competitiveness of rail freight services by the means as the Regulation describes.

Contacts (national Network Statement)

The following national contact persons are available for give further information regarding the CID:

Company	Representative	E-mail address	Phone number
ADIF (ES)	Rafael Cordon	rcordon@adif.es	+34 917744424
TP Ferro (ES/FR)	Jean-François Pescador	jfpescador@tpferro.com	+34 972 678 800
SNCF RESEAU (FR)	Marie Sainson	marie.sainson@rff	+33 01 53 94 93 10
RFI (IT)	Marco Giovannini	ma.giovannini@rfi.it	+39 0647 309 033, +39 313 809 6486
SŽ (SI)	Uroš Zupan	uros.zupan@slo-zeleznice.si	+386 1 29 13 226
AŽP (SI)	Zdenko Zemljič	zdenko.zemljic@azp.si	+386 2 2341481
MÁV (HU)	Krisztián Urvald	urvaldk@mav.hu	+36 1 511 4096
VPE (HU)	Dóra Kondász	kondaszd@vpe.hu	+36 1 301 9928

7.6.1.5 Legal Framework

The main international regulations to be considered in relations with Rail Freight Corridors are Regulation 913/2010/EU of the European Parliament and of the Council of 22 September 2010 concerning a European Rail Network for Competitive Freight and Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 Establishing a single European railway area (recast).

The framework for the allocation of infrastructure capacity on the RFC has to be defined by the Executive Board of each Rail Freight Corridor according to Article 14 (1) of the Regulation (EU) 913/2010.

7.6.1.6 Legal Status

The designation of a joint body by the Management Board for applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight corridor is legally binding. According to the decision of the RFC 6 Management Board, the parties agreed on that the C-OSS of RFC 6 is operated as a 'dedicated C-OSS'[1] in the PMO in Milan.

7.6.1.7 Validity and Updating process

The Regulation (EU) 913/2010 states that the CID should be drawn up, published and regularly updated by the Management Board.
CID for TT 2015 is valid from 12th January 2015 till 11th January 2016.
Due to the type of content all five Books of the CID have different updating needs, therefore different updating procedures shall be drawn up.

[1] On the basis of one of the suggested RNE proposal. The Dedicated C-OSS: a joint body set up or designated by the Management Board (MB). (supported by IT tool)

In general, the CID for the timetabling year Y shall be published on the 2nd Monday of January of the year Y-1 (the same date as the publication of the pre-arranged paths catalogue. Based on the Internal Regulations of RFC 6all Books of the CID shall be updated continuously by the PMO according to:

- ✓ changes in the rules and deadlines of capacity allocation process;
- ✓ changes in the railway infrastructure of the member states;
- ✓ changes in services provided by the member states;
- ✓ changes in charges set by the member states, etc.

The IMs are responsible for informing the PMO immediately about any modifications in the Network Statements, which are relevant to the Corridor so that the PMO can implement these changes to the Corridor Information Document. Book 3 and Book 5 shall be updated once in every year by the PMO if the MB decides otherwise.

All CID updates shall be registered in Book 1 under Version Control section by the PMO.

7.6.1.8 Publishing

Based on MB decision CID shall be available in electronic format on the RFC 6 website. The language of the CID is English.

7.6.1.9 IT- Tools

Path Coordination System (PCS)

PCS is the only tool for publishing the offer of PaPs and RC and for placing international path requests on the corridor. The advantage of this solution is that the displayed data for a PaP or RC may be used for creating a path request dossier – without any manual copying. Furthermore, this method simplifies the presentation and management of the paths, which remain in the catalogue for allocation as ad-hoc paths during the running timetable period.
More information, and access to the tool can be found on http://pcs.rne.eu.

Charging Information System (CIS)

CIS is an online tool which allows the rapid estimation of infrastructure charges for international train paths. It combines the various national rail charging systems to calculate the price for the use of international train paths.
More information, and access to the tool can be found on http://cis.rne.eu/

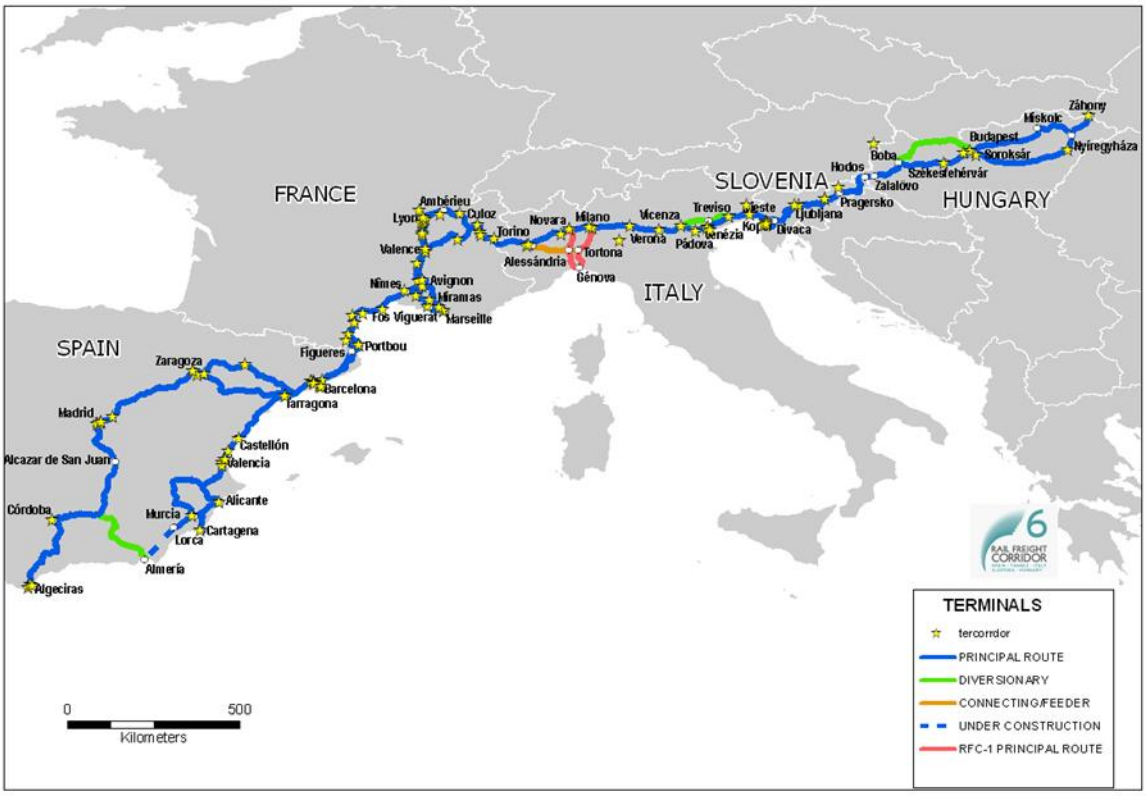
Train Information System (TIS)

The main purpose of TIS is the real time monitoring of international trains via a web based interface. The tool can be used by IMs, RUs, and more recently, by Terminals. In order for RUs to see trains from other companies, mutual agreements have to be signed. A similar document has to be signed between terminals and RUs.

The IMs send data to TIS, where all the information from the different IMs is combined into one train run from departure or origin to final destination. In this manner, a train can be monitored from start to end across borders. On RFC6 most of the IMs (MAV, SZ, RFI and SNCF RESEAU) deliver real-time train data, ADIF provides information in real time through national alternative tools.

More information, and access to the tool can be found on http://tis.rne.eu.

Map of the RFC 6 Terminals.



7.6.2 Book 2 - Network statement excerpts; (Provided as separated annex)

7.6.3 Book 3 – Terminal Description; (Provided as separated annex)

7.6.4 Book 4 – Procedures for capacity and traffic management; (Provided as separated annex)

7.6.5 Book 5– Implementation plan

7.7 Quality of service

With reference to the discussions at last RNE-RFC Meeting on 12 April 2013 in Vienna RFC6 would like to follow the RNE support for the setup of the RFC Satisfaction Survey (Art. 19/3 of the EU Reg 913/2010).

According to the common position RFCs which will have to start the corridors operation in November 2013, the first surveys will have to be carried out during 2014.

In order to get the work started, RNE is intending to setup a small project group to lay the basis for a detailed project plan (including timelines, technical issues etc.). RFC6 will join to this project group to elaborate a project plan for the Satisfaction Survey.

8 Comments of the Advisory Groups

In this chapter we may indicate all the comments received in anonymous way and where in the Implementation plan we shall respond on these comments, in the current implementation plan or in the following one.

This chapter of course will be updated regularly, especially with other TAGRAG meetings and with the dialogue with the EC and the EB

8.1 Consultation of the Advisory groups

RFC6 set up its Railway undertaking Advisory Group to enable a fruitful dialogue with railway undertakings and terminals on all topics related to Corridor 6. The RFC6 management board and the Advisory Groups can share information, ideas and opinions.

One kick off meeting took place In Budapest on 30 November 2012 and the second one in Barcelona on 18 April. In that occasion, the Management Board presented to the two Advisory Groups (Terminals and Railway Undertakings) the Implementation Plan with a separate discussion between MB and the two advisory Groups. Moreover the advisory groups had the possibility to download the implementation plan on the website www.corridord.eu.

On 7th May we received 5 comments, but as already indicated the Implementation plan is a living document at least from May to November 2013, in order to incorporate further comments. It constitutes, of course, the very beginning of the discussion between the Management board of RFC6 and the Advisory Groups. This discussion shall follow up in the next months.

On 29th October a TAG RAG meeting has been held in Marseille where the new OSS organization as well as a detailed feed back to the RUs and TMs related to the raised issues has been provided.

In 2014, there were two TAG RAG meetings, in mid-March in Milan and end of October in Koper.

8.1.1 Mechanism of consultation of the Implementation Plan

In order to reduce travel time and costs and to respond to the principles of transparency and wide-range involvement as recommended by the European Commission, the consultation will mainly be done by electronic tools (e-mail and website) as agreed during the first meeting of Advisory Groups.

Nonetheless, at least one physical meeting per year is expected in order to discuss specific matters. All the documentation about Advisory Groups activities is available on Corridor website, in order to involve the operators which cannot attend physical meetings and the working language is English.

Two levels of communication flows are offered to operators, corridor and national level: one corridor central point and one national contact person for each country involved, facilitating the use of national languages. Opinions may be issued during the meetings or by e-mail: when specific deadlines are fixed late comments will not be accepted.

All opinions are duly taken into account but are not binding for the decisions of the Management Board.

8.1.2 Advisory Groups comments (Implementation plan consultation)

8.2 VIIA

Geographical areas: It would be interesting to add some flexibility into the studied areas. As a matter of fact, we are currently studying various sites for terminals and our problems are basically the same each times, we experience troubles for terminal access (electrification, ERTMS, etc.) as last miles are never renewed. Can we plan to add in the works of Corridor "last mile" renewals and works?

We stress on the necessity to run larger trains on all network, our goal is to exceed 1 000 m.

Do you plan to grant slots "authorized applicant"? If not do you plan to integrate them in the process?

Can you integrate management rules for the allocation of slots overlapping on 2 or more corridors?

Can we expect a system with steady slots and penalties for ungranted slots (same level of penalties as operators" losses)?

8.3 Trenitalia

Divisione Cargo
Sviluppo Business Cargo
Il Responsabile

Comments by Trenitalia on Corridor 6 Draft Implementation Plan (published on 18th April 2013)

1) Section on Transport Market Study: it is necessary to have a more effective coordination between the Transport Market Studies of all Freight corridors provided in the Regulation in order to avoid - in particular for the intermodal maritime traffics towards Italy - the multiple counting of the same traffics (that could be present in the traffic forecasts of several alternative ports, i.e North Europe ports, Spanish Ports, Italian Ports or Slovenian ports and could be counted in the forecast of Corridors 1,3,5,6). Reliable and coordinated figures for all corridors should be provided.

2) Section related to C-OSS and capacity allocation: on the section related to capacity allocation and C-OSS, in correlation with PaP, there are some general remarks about the timing indicated on page 202/203. We agree on the fact that the processes of paths allocation and elaboration of PaP require specific phases and steps which goes from the preparation to the publication on PCS, including the definitive decision of the MB. However it is necessary that RUs are involved in the whole chain of the process. For instance, within the PAP offered by the C-OSS, there could be the risk of having paths already booked on a multiannual basis by the RUs by contracts signed with their clients. This issue should be further investigated. Moreover, RUs should receive a formal communication about when PaP will be available. For instance, are the indicative timetables indicated in the IP likely to be respected? This should be checked in a "work in progress" where RUs should be involved.
Another issue is the relationship between "PAP" and "national path", in particular in those cases where the RU is operating on a railway connection which is not entirely part of the PAP requested and consequently it is not treated by the C-OSS. How the two steps are combined? RUs should be informed about how process is going step by step. During the process, it is necessary to have a constant feedback by RUs.

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Trenitalia S.p.A. - Gruppo Ferrovie dello Stato Italiane
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Iscritta al Registro delle Imprese di Roma -
Cod. Fisc. e P. Iva 05403151003 - R.E.A. 0803047

3) Coordination of works/disruption on the network: The Implementation Plan proposes positive measures of cooperation between IMs along the Corridor. However, to the aim of ensuring operations continuity for RUs it is necessary as well to have clear and prior indications of alternative proposed itineraries by IMs together with specific possible variations of timetables and track access charges.

4) Investments/ERTMS: for the circulation of rolling stock without limitations and barriers, the elements written in the section ERTMS strategy (for the Italian section) – in particular concerning the principle of superposition of ERTMS with the existing system (and not replacing) - shall be duly implemented. Any over cost due to the adaptation of rolling stock shall be avoided. Moreover, in a short-medium term perspective and on the basis of the IM planning, an estimation of the costs concerning the installation of ERTMS on board should also be part of the Implementation Plan.

I remain at your disposal for any further request of clarification.

Best regards,

Aldo Maietta

8.4 FGC

FGC Mobilitat S.A.

Eduardo Martínez Martínez
Jefe de Área de Proyectos Europeos
Subdirección de Internacional
Avda/ Pio XII nº 110, 28036 Madrid España

Apreciado Sr. Martínez:

En el curso de la segunda reunión del Grupo Consultivo de Operadores Ferroviarios del Corredor Ferroviario número 6 que tuvo lugar el 18 de abril de 2013 en la que se presentó el borrador del Plan de Implementación del Corredor y a la que asisitió FGC Mobilitat S. A. se requirió a los miembros del grupo que hicieran llegar durante el mes de abril sus consideraciones al respecto.

Tras el análisis del documento completo, desde FGC Mobilitat se considera conveniente formular las tres consideraciones, que se exponen a continuación.

La primera es manifestar el interés de que el corredor incluya el máximo de las terminales próximas al mismo. En particular, y sin excluir otros posibles casos, consideramos que debería incluirse la Terminal d'El Far d'Empordà-Vilamalla, cuyo propietario, CIMALSA, tiene un acuerdo de operación con Renfe Operadora.

En segundo lugar, en relación con el estudio de demanda, quisiéramos hacer notar que, a nuestro entender, deberían revisarse los resultados obtenidos pues no parece satisfactorio que se identifique el flujo entre Cataluña y Rosellón como el flujo internacional más relevante cuando se trata, probablemente, de etapas intermedias en flujos de larga distancia.

Finalmente, mencionar, como ya se apuntó en la reunión, que desde el punto de vista de la competitividad del corredor frente a otros modos de transporte (en particular, a la carretera) sería muy interesante una cierta unificación y estabilización de los cánones que permitiera a los operadores configurar una oferta comercial atractiva y sostenida en el tiempo.

Finalmente, quisiera agradecerle la oportunidad de participar en este grupo consultivo.

Reciba un cordial saludo,

Adrina Bachiller Saña

Cardenal Sentmenat, 4
08017 Barcelona
Tel. 93 368 30 00
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Generalitat de Catalunya

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SNCF GEODIS

SNCF GEODIS
FRET SNCF - DIRECTION DE L'INNOVATION
24 rue Villeneuve - F-92583 CLICHY CEDEX

Implementation Plan RFC6
Opinion/remarks of SNCF Geodis
(30th April 2013)

Transport Market Study (3): global remark, this study was done individually in each corridor without coordination. It has to be taken into account to really estimate the flows from the different European regions, e.g. Sweden/Germany/France/Spain/Portugal which can involve corridors 3-8-1-2 and then either corridor 6 or corridor 4, thus Atlantic or Mediterranean side, to give arguments to the different EB for an extension of the routes description, e.g. Metz-Germany (via Forbach and via Apach) or to estimate the paths needs and the investments.

Objectives (4)
(p 114) **TPM and EPR (4)**:.a glossary of the different abbreviations should help. Specific presentation of TPM and EPR may be done because these are 2 different topics.
(p 117) List of punctuality measuring points may change or be adapted if necessary.
(p 125) punctuality objectives. Art 11 of Directive 2001/14/EC is now art 35 of 2012/34/EC. These articles are dealing with performance enhancement, which is different of punctuality. Some details, errors or misinterpretations need to re write more clearly the chap 4.2

Coordination of works
(6.1.5) pages 192/202: different stages are summarized from the table on page 202 but not with the same related dates. Some deadlines do not correspond to the "guidelines for C-OSS from RNE.

Tasks for the OSS
(6.2.9) Priority criteria: remarks (sent to the decision of the EB of RFC1&2) are jointed to the present file in keeping with these proposed rules, some of them are available for the RFC6.
(6.2.10) availability of the C-OSS: did the IMs imagine bridges/links between the mandatory IT-tool PCS and their own intern tool?
Tasks of "last minute" paths in case of traffic disturbance are also planned in the Plan : will the C-OSS able to fulfil such operational tasks (with 24/7 works hours ?).

Traffic management
(6.5.3) priority rules : in certain cases the freight trains might get a better place than the 4th one behind passenger trains (e.g. regional trains which stop every 5-10 km run slower than direct freight trains)

These remarks will be completed by autumn 2013 after more reflection

Régis Vircondelet
Project Manager Innovations
SNCF FRET Representative in the RAG of the RFC6

8.5 Comments of the Barcelona Port Authority on the Investment Plan in Spain of the Rail Freight Corridor & Implementation Plan

Investment plan in Spain (page 144, items 1 and 2)

Regarding to the accesses of the Port of Barcelona the Plan includes two actions (nº1 and nº 2) with the same description and with a total cost of 266 M €.

✓ Action nº1

Railway section: Barcelona Port access

Nature of project: Creation of new structure (line, tunnel, bridge, leapfrog) Actual step: Technical study Estimated cost: 118 M €

✓ Action nº2

Railway section: Barcelona Port access

Nature of project: Creation of new structure (line, tunnel, bridge, leapfrog) Actual step: Technical study Estimated cost: 148 M €

The rail accesses to the Port of Barcelona will be bid shortly. For a total amount of 96 M €. This does not coincide with any of the amounts included in the actions 1 or 2. It would be necessary to concrete the content of each one.

Investment plan in Spain (page 147, item 27)

The track enhancement of the railway section Madrid-Zaragoza-Barcelona-Portbou, action nº 27, should be more detailed. A least, in the "nature of the projects" column, instead of "Track enhancement", it should be "Track enhancement, creation and enlargement of sidings, adjustment of gauge".

In Spanish-French border, the use by freight trains of the high speed line for passengers with UIC gauge and the border crossing tunnel of Le Perthus have not solved the problem of the rail connection for freight with France. Unfortunately this connection is done on equal or even worse conditions to the previous transhipment or change of axes at Port Bou. In fact, the majority of operators are still using the Port Bou border crossing in spite of the UIC connection which is operative since more than two years ago.

- ✓ Details of the Spanish limitations of using the UIC line for freight and the border crossing tunnel of Le Perthus: Reduction of the maximum weight of the train as a consequence of 18 0/000 ramp of the Le Perthus tunnel and the future tunnel of the city of Girona. It is calculated that with this ramp, and depending on the type of locomotive and wagons, the maximum weight is reduced in 200 tons;

- ✓ TP Ferro High tolls for each train (770€ for combined trains) and energy costs (125€ approx.). These costs could represent 10% to 20% of total rail costs;

- ✓ Very limited availability of slots for freight trains. Passenger high speed trains and maintenance trains have the priority and there are not enough sidings on the UIC line;

- ✓ Different types of electrification in the railway network (1.500, 3.000 and 25.000) that requires multisystem locomotives (for the tree electrifications). Nowadays there are very few locomotives of this type and it will be necessary to adapt the current ones, and this requires extremely high investments on each locomotive;

Different signalling and controlling systems that increase the cost of freight trains. The high speed line uses the ERTMS system whereas conventional freight uses the ASFA system (in Spain) and the KVB (in France). Therefore it is necessary to adapt the system of the high speed line to the freight systems ASFA/KVB or include the ERTMS system to the current locomotives;

Potential limitations for the transport of dangerous goods through the urban tunnel of Girona. This is due to the fact that it is a passengers' station;

- ✓ Substantial maintenance costs of the line and transfer of this costs to freight trains;

- ✓ Another significant limitation today that may be solved in the future is that trains between Spain and France cannot run from origin to destination with the same composition. It's still necessary to change the locomotive and the driver at Le Soler station. This means and additional cost for paying two traction services of short distance proportionally more expensive than a single one;

Taking into account these current limitations for freight traffic, **the upgrading of the existing line of the cross bordering section (Castellbisbal-cross border Port Bou) becomes very important and urgent.** The adaptation to UIC of the Castellbisbal-cross border section will allow the increase of the share of freight rail vis-à-vis road on the short term all along the two main sections of the Mediterranean corridor (French Border-Castellbisbal-Tarragona-Valencia and French Border-Castellbisbal-Zaragoza-Madrid).

In this respect, the main works that need to be done to solve the present bottleneck are detailed below:

Mollet - Sant Celoni section: construction of 2 new UIC gauge tracks next to the 2 current IB gauge tracks. This section has a high density of commuting trains and it is necessary to have exclusive tracks for freight traffic.

Sant Celoni – Portbou section: Conversion to UIC of one of the current Iberian gauge track. We propose to change one the Iberian tracks to UIC gauge. Our studies show that this option is cheaper than the conversion to a mixed track (UIC + Iberian). Consequently, this section will become a mixed line with 1 track Iberian and 1 track UIC.

This adaptation is essential taking into account the present commercial and operating limitations that have as a consequence that rail freight has to cross the border through the cross border tunnel, not suitable for freight as previously mentioned. The main actions for the upgrading of this section are the following:

Sant Celoni – Girona section: Conversion of one of the Iberian tracks to UIC. The works have to be undertaken at the same time that the ones of the Mollet – Sant Celoni section so that both gauges may be used without limitation.

Girona-Portbou section: It is especially critical the conversion of one Iberian track to UIC on the conventional line, from Girona (specifically from Vilamalla) to Port Bou through the city of Figueres. This section is used by all freight trains with origin / destination the Mediterranean coast and the centre of the Iberian peninsula (with the exception of those that can go through Irun). Therefore the improvement of this section of the line with the inclusion of a UIC track (Port Bou- Figueres – Girona -Mollet) is critical for the development of the rail freight market between Spain and France. Moreover it would be necessary to connect the intermodal terminal of Vilamalla/el Far to Portbou, with 2 new tracks (1 Iberian and 1 UIC) by the south of the city of Figueres, to avoid the traffic of cargo through the city.

Regarding to the possibility of the length of trains accepted, this IB+ UIC line has to be adapted with **adequate and sufficient 750 meters side-tracks**. Specifically in the **Sant Celoni Portbou section**, where a new side-track is needed each 15 kilometres.

Upgrading of the section connecting Madrid – Zaragoza – Castellbisbal

Together with the previous initiative, this is the second most urgent action needed in the Spanish section of the Mediterranean corridor. Today the competitiveness of logistics operators and the exports and imports of companies located in Madrid and Zaragoza is limited due to the lack of an adequate connection with the rail node of Castellbisbal

and the prolongation to the French border. The main limitation here is the limitation of the length of trains accepted in this corridor. This length has to be extended at least till 750 meters. In this respect, the line has to be adapted, with adequate and sufficient 750 meters side-tracks.

As general criteria, the circulation of trains of 750 meters requires one side-track each 40-50 km in the case of single track and one side-track each 80 km if the track is double. According these criteria we propose these actuations on the exiting stations:

Barcelona - Sant Vicenç de Calders section

- **Castellbisbal**: extension of the current tracks to 750m and constructions of new ones. - **Sant Vicenç de Calders**: upgrading of the station **Sant Vicenç de Calders - Zaragoza by Lleida**

- **Borges Banquets**: extension of the current tracks to 750 m.

- Adaption of the current side-tracks of the **surroundings of the city of Lleida**. - **Sariñena and Zuera**: upgrading of the stations **Sant Vicenç de Calders - Zaragoza by Tarragona**

- **Reus and Mora la Nova** extension of the current tracks to 650 m

- **Nonaspe and la Puebla de Híjar**: upgrading of the stations

Zaragoza-Madrid section

- **Calatayud**: extension of the existing tracks to 750 m

- **Torralba and Yunquera**: adaptation of the stations

Moreover, it's necessary to include the **UIC gauge from Madrid to Castellbisbal**. From Zaragoza to Tardienta the UIC gauge already exists through approx. 70 km next to the Lleida line. Therefore this line has to be prolonged till Lleida and later connected to Castellbisbal.

1. Regarding **the Barcelona-Le Perthus railway section**, new side-tracks are required. One each 20/25 km. Our proposal is a **new one side-track between Mollet and Breda** and a **new one between Vilobí and Figueres**.

ERTMS deployment plan in Spain (pages 172-173)

When considering the conventional line the section between Figures Vilafant and Port Bou is not considered. In order to have a complete development of the ERTMS system alongside the Corridor it is necessary to include this section.

Map of the terminals of RFC 6 (page 240)

The Port of Barcelona is not a rail terminal as it appears in the document. In fact, as a Port Authority the Port of Barcelona owns eight different terminals located in the port service area. These terminals are:

- ✓ Terminal Ferroviaria TCB (in Muelle Sur);
- ✓ Terminal Ferroviaria Tercat (in Muelle Príncipe de España)
- ✓ Terminal Ferroviaria BEST (in Muelle Prat);
- ✓ Terminal Ferroviaria de Inflamables (in Muelle de la Energía);
- ✓ Terminal Ferroviaria Dársena Sur;
- ✓ Terminal Ferroviaria Campa Z;
- ✓ Terminal Ferroviaria Muelle Costa;
- ✓ Terminal Ferroviaria Muelle Contradique;

We consider that the eight terminals should appear as separate entries in the terminal map, as some of them (like Terminal Ferroviaria TCB) have more traffic than most of the remaining corridor terminals. In addition each terminal has its own traffic specialization, and therefore cannot be considered as a unique terminal.

8.5.1 Questions and Answers

The issue raised by the Stakeholders have been analyzed by the Management Board and grouped for different categories. These proposed answers have been presented and discussed in separated session with RUs and TMs during the TAG RAG meeting held on the 29th of October 2013 in Marseille.

Interoperability

Issue raised: Interoperability, as well known, is one of the big challenges of RFC 6 and also one of the most claimed points among the Railway Undertakings, especially concerning the difference of track gauge in the Iberian Peninsula.
MB answer:

1) prioritization: to identify the most important interoperability issues affecting in particular trans-border rail freight transport;
2) implementation: setting up working groups composed of experts coming from all infrastructure managers to implement what identified above;
3) Proposing a stronger involvement of the Corridor in the Technical specification for interoperability drafting process

Issue raised: Electrification: some kilometres of different electrification can oblige to use multisystem locomotives which require high investments.

MB answer: The MB is willing to identify all the situations where a cost benefit analysis will suggest quick actions with (relatively) limited investments having a positive effect on the majority of the stakeholders

Issue raised: The existence of different signalling and controlling systems increase the cost of freight train running. As it is foreseen in the Regulation, one of the main challenges of the Corridor is to succeed in the compatibility along the railways.

MB answer:

UE Decision 2012/88 defines the deadlines for the implementation of the ERTMS along corridor D, which overlaps with RFC 6.

Possible delays in ERTMS implementation have already been communicated to the EC by member states.

The MB will take notice of the national ERTMS deployment plans and will promote technical and timing harmonization.

The MB has set up bilateral working groups dealing with cross border ERTMS compatibility.

Improvement of efficiency

Issue raised: Some Railway Undertakings claim the necessity of increase the trains length. For some RUs the goal should be to achieve the 1000m trains in order to be more efficient.

MB answer: The new TEN T regulation under approval provides as target system a train length of 750 m to be implemented by 2030 along the lines belonging to the core network.

Paths allocation

Issue raised: Railways undertakings claim to be involved in the whole chain of the process.

MB answer: The RU"s have a consultative role in the corridor management organization.
The MB is willing to inform all potential applicants about international capacity allocation process in accordance with RNE rules. RU"s have already been involved in the test phase of PCS utilization.

Issue raised: The Railway Undertakings point the question of the integration of PAP"s which cross more than one Corridor. It is suggested to integrate the managing rules of these intercorridors operations.

MB answer: Bilateral and multilateral meetings between RFC's have been organized in order to identify the best procedures to manage PAP's crossing more than one corridor. Some criteria for identifying the corridor having the leadership have already been identified.

Coordination of works

Issue raised: Even if the Implementation Plan proposes cooperation actions among IMs along the Corridor, to the aim of ensuring operations continuity for RUs it is necessary as well to have clear and prior indications of alternative proposed itineraries by IMs together with specific possible variations of timetables and track access charges.

MB answer: C-OSS is in charge to play a role of being a single contact point of a corridor in this regard. It means exactly to inform properly the Railway Undertakings about possessions e timetables. According to RNE guidelines for the timetable 2015 a first draft of the planned works have to be produced by the corridor by the end of the year.

Measures

Issue raised: Due to the commitment taken by the Railway Undertakings when a PAP is booked, they may be obliged to pay penalties in case of not utilizing the PAP. Considering this, they also ask for a penalization for the Infrastructure Managers in case of delay or breach of agreement;

MB answer: The MB will consider thon the harmonization of reservation/cancellation fees but is difficult to be achieved in a very short term. The Directive 2012/34 provides the possibility to adopt a performance schemes to improve the efficiency of the rail operations which involves both IM"s and RU"s

Issue raised: The traffic management in case of disturbance is required to be analyzed in depth

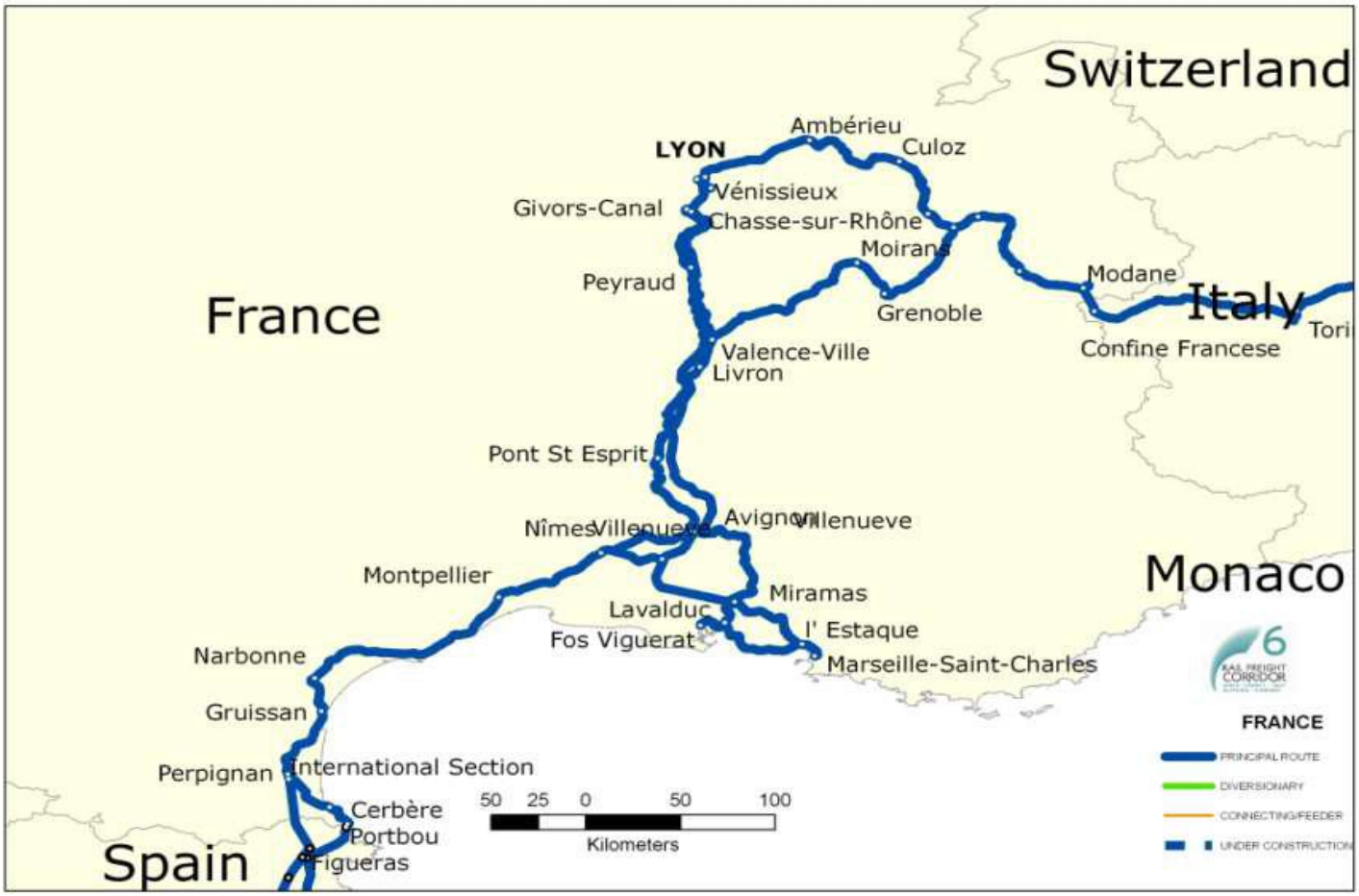
MB answer: The MB is aware that this issue needs a deeper development. A specific working group has been put in place in order to define proper procedures. New harmonized procedures have already been defined in CID book 4 as already presented. Further harmonization phase has already been envisaged.

Transport Market Study

Issue raised: The big importance of this document which is supposed to provide the flows from the different European regions, is today done by each one of Corridors. For some of the Railways Undertakings and Terminals, this study should also be analyzed in a higher level due to the interrelation between some of the corridors, due to the fact that this could reveal some new synergies and flows.

MB answer: The network of Corridors will generate added value for the market players and so attract the competitiveness of railway sector. The phase III of the study is already considering possible comparisons among alternative paths belonging to different corridors. The MB is promoting as a further step meetings with other corridor's Mb's in order to identify synergies.

9 Map of the Rail Freight Corridor 6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