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MEDITERRANEAN RAIL FREIGHT CORRIDOR
Spain-France-Italy-Slovenia-Croatia-Hungary

MEDITERRANEAN CORRIDOR-RFC 6
CID BOOK 5
IMPLEMENTATION PLAN
TT 2018/2019

adif · LFP Perthus · SNCF Réseau · RFI Rete Ferroviaria Italiana · Slovenske železnice SŽ-Infrastruktura · HŽ Infrastruktura · MÁV · VPE

Version

Evolution Index	Date	Modification / comments	Written by
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V08Jan2018	08 January 2018	Yearly update	PMO
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1 Introduction

In order to meet market needs, the methods for establishing a freight corridor is presented in an Implementation Plan, which includes identifying and setting a schedule for measures which would improve the performance of rail freight.

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 The Annex to the Regulation has been replaced by the text of Annex II to the Regulation (EU) 1316/2013.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 a 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:

- increasing the rail competitiveness and market share on the European Transport Market;
- 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);
- planning a corridor approach to infrastructure investment, with the aim to overcome cross-border difficulties and to remove bottlenecks;
- developing intermodal freight terminals;
- promoting interoperability along the network as defined in Directive 2008/57/EC and its following amendments;
- 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;
- 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;
- 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;
- 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, Mediterranean Corridor - RFC n. 6 Almeria-Valencia / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milan-Verona-Padua / Venice-Trieste / Koper-Ljubljana-Budapest- Záhony, 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 Mediterranean Corridor - RFC 6 has been extended as follows:

Effective 1st of January 2015. Almeria-Valencia / Algeciras / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padua / Venice-Trieste / Koper- Ljubljana-Budapest-Záhony.
Effective 10th of November 2016. Almeria-Valencia / Algeciras / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padua / Venice-Trieste / Koper- Ljubljana / Rijeka-Zagreb-Budapest- Záhony.
A new high-speed line, first one with mixed traffic, will be introduced on Mediterranean Corridor - RFC 6. **The New High Speed Mixed Traffic Line Nimes – Montpellier** will be opened in 2018 and it will part of the Mediterranean Corridor.

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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - 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 Mediterranean Corridor - RFC 6:

ensuring the best integration between Mediterranean Corridor - RFC 6 and ERTMS corridor D Valencia-Lyon-Ljubljana-Budapest;

- ensuring the best integration between Mediterranean Corridor – RFC 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 Mediterranean Corridor - RFC 6 Management Board, taking into account the governance of Corridor D and its organizational structure;
- improving the interoperability all along Mediterranean Corridor - RFC 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 Corridors' 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 Permanent Management Office (hereafter PMO) of Mediterranean Corridor - RFC 6, with the contribution of experts specifically appointed by the Infrastructure Managers and the Allocation Bodies members of the Management Board of Mediterranean Corridor – RFC 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.

Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, aiming at harmonizing the overall approach at corridor level.

The information provided in the Investment Plan of the Mediterranean Corridor - RFC 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 Corridor Description

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 Mediterranean Corridor – RFC 6 locations included in the Annex II of the Regulation have been adequately incorporated into this Corridor.
The selection of railway lines and terminals is 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 have 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 (EU) 913/2010/EU together all the amendments Almeria-Valencia / Algeciras / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padua / Venice-Trieste / Koper- Ljubljana / Rijeka-Zagreb-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. In addition, lines that 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 that may not be used for pre-arranged train paths, but could become used in case of traffic disturbances, are also designated to this corridor.
Coordination with existing ERTMS Corridor D and RNE Corridors 6 and 8 were 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/EU, 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 therein. 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 Key Parameters of Corridor Lines

The length of the Mediterranean Corridor - RFC 6 is over 7.967 km, according to the table shown below.

	Total LENGHT	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/ FEEDER	UNDER CONSTRUCTION
SPAIN	**3.397**	3.015	240		142
FRANCE	**1.515**	1.515			
ITALY	**861**	636	113	112	
SLOVENIA	**457**	457			
CROATIA	**375**	375			
HUNGARY	**1.362**	1.143	203	16	
TOTAL	**7.967**	**7.141**	**556**	**128**	**142**

Mediterranean Corridor - RFC 6 in Italy includes the Torino-Alessandria-Tortona bypass solution for dangerous goods (connecting feeders).

Mediterranean Corridor - RFC 6 principal routes constitute about 89,5 % 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, more than 90 terminals have been included in Mediterranean Corridor – RFC 6, according to the following distribution:

- Spain: 37 terminals;
- France: 25 terminals;
- Italy: 14 terminals;
- Slovenia: 7 terminals;
- Croatia: 8 terminals;
- Hungary: 10 terminals;

The description of Mediterranean Corridor - RFC 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:

- Type of line: principal, diversionary, and connecting/feeder;
- Section length, in kilometres;
- Track gauge: International Standard gauge (1435 mm) or Iberian gauge (1668 mm);
- Number of tracks: Single or double track;
- Maximum train length: maximum train length guaranteeing a flawless run along a whole section of the corridor, including traction;

- Axle load: maximum loading gauge guaranteeing a flawless run along a whole section of the corridor;
- Load per meter: Maximum load per meter guaranteeing a flawless run along a whole section of the corridor;
- Train speed: Maximum general speed limit allowed on each line;
- Loading gauge: maximum dimension for the freight and passenger vehicles especially in the tunnels;
- Power supply: Type of current and voltage for electrified lines (DC 1.500V, DC 3.000V & AC 25.000V);
- Signalling and interlocking systems: Type of signalling systems implemented on each line;
- Gradient: Maximum line gradient in both directions of each line of the corridor (Towards NE – Algeciras-Madrid to Záhony and towards SW Záhony to Madrid-Algeciras);

Here below a series of comprehensive maps of the Corridor according to these relevant parameters are displayed.

DOUBLE TRACK

TRACK GAUGE

MAX. TRAIN LENGTH

AXLE LOAD

TRAIN SPEED

LOADING GAUGE

LOADING GAUGE TUNNELS

POWER SUPPLY

SIGNALLING SYSTEM

LINE GRADIENT N/E

LINE GRADIENT S/W

According to Article 2.2.c of Regulation 913/2010/EU, 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.

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

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;

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);
- Storage capacity: Total capacity for storage of loading units (TEUs);
- Handling capacity: Number of loading units handled yearly (TEUs per year);
- Intermodal traffic: Total number of incoming and outgoing TEUs dispatched per year;
- Storage utilization: Average storage capacity utilization rate (%);
- Handling utilization: Average handling capacity utilization rate (%);

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.

This designation of lines and terminals in Mediterranean Corridor - RFC 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 Spain

* In Barcelona-Rubí and Castelbisbal-Mollet sections, ETCS L1 is only available for standard gauge trains;

	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/FEEDEF	1435 mm	1668 mm		350 m	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	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
ALGECIRAS - CORDOBA	**305**	**X**				**X**	**–**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**										**24**	**23**
ALGECIRAS - GAUCIN	57	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	74	X				X	–			X								X			X				X	45/364	GHE16		X		X						17	17
MONTILLA - CORDOBA	55	X				X	–			X								X			X				X	45/364	GHE16		X		X						17	17
CORDOBA - MANZANARES-	**245**	**X**				**X**												**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**						**13**	**16**
CORDOBA - ANDUJAR	79	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	**213**	**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	66	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**						**##**	**##**
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

* Portbou-Cerbere section is formed by one track for each gauge. 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 SNCF Réseau;
* In Zaragoza-Tarragona sections, freight trains usually run NE by the Cartuja-Tardienta-Selgua-Lérida-Plana-Reus route, and SW by the Cartuja-Samper-Reus route. Thus, global gradients are considered in this way;

	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	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	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
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

2.1.2 France

	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	DIVERSION/ AVY	CONNECTING/FEEDER	1 435 mm	1 668 mm		350 m	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	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	%advers.to NE	%advers.to SW
PORTBOU - PERPIGNAN	**43**	**X**			**X**											**X**		**X**				**45/364**	**45/364**	**X**				**X**								
PORTBOU - CERBERE	2	X			X*	X*	⇗		X							X		X		X		45/364	45/364	X*	X*		X*	X*							5.0	10.0
CERBERE -COLLIOURE	14	X			X		X								X	X		X			X	45/364	45/364	X				X							11.0	15.0
COLLIOURE - PERPIGNAN	27	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
INTERNATIONAL SECTION - PERPIGNAN	**5**	**X**			**X**		**X**								**X**	**X**		**X**			**X**	**45/364**	**45/364**	**X****		**X****		**X**							**0.0**	**10.0**
PERPIGNAN - MONTPELLIER	**158**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**	**X**				**X**							**5.0**	**5.0**
PERPIGNAN - GRUISSAN	51	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
GRUISSAN - NARBONNE	10	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
NARBONNE - MONTPELLIER	97	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
MONTEPELLIER - NÎMES OC'VIA HIGH SPEED	**80**	**X**			**X**		**X**								**X**	**X**		**X**			**X**	**PC 70/400**	**PC 70/400**			**X**		**X**						**X**	**12.5**	**12.5**
MONTEPELLIER - AVIGNON	**142**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**	**X**				**X**								
MONTEPELLIER - NÎMES	50	X			X		X								X	X		X			X	45/364	45/364	X				X							4.0	4.0
A) NÎMES - VILLENEUVE-LES-AVIGNON (VIA REMOULINS)	38	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	10.0
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							6.0	7.0
TARASCON - AVIGNON	22	X			X		X								X	X		X			X	45/364	45/364	X				X							8.0	8.0
AVIGNON - LYON	**283**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**	**X**				**X**								
A) VILLENEUVE - LES-AVIGNON - PONT ST ESPRIT	44	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	6.0
PONT ST ESPRIT - PEYRAUD	127	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	6.0
PEYRAUD - GIVORS	44	X			X		X								X	X		X			X	45/364	45/364	X				X							10.0	5.0
GIVORS - CHASSE SUR RHÔNE	3	X			X		X								X	X		X	X			45/364	45/364	X				X							7.0	5.0
B) AVIGNON - LIVRON	107	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
LIVRON - VALENCE	17	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
VALENCE - CHASSE SUR RHÔNE	85	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
CHASSE SUR RHÔNE - LYON PART DIEU	26	X			X		X								X	X		X			X	45/364	45/364	X				X							12.0	11.0
LYON PART DIEU - VENISSIEUX	4	X			X		X								X	X		X			X	45/364	45/364	X				X							8.0	5.0
VALENCE - MONTMELIAN	**152**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**					**X**							**5.0**	**5.0**
VALENCE - MOIRANS	80	X			X		X								X	X		X				45/364	45/364					X							5.0	5.0
MOIRANS - GRENOBLE	18	X			X		X								X	X		X				45/364	45/364	X				X							5.0	5.0
GRENOBLE - MONTMELIAN	54	X			X		X								X	X		X				45/364	45/364					X							5.0	5.0
LYON - MODANE	**231**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**	**X**				**X**								
LYON PART DIEU - AMBÉRIEU	46	X			X		X								X	X		X			X	45/364	45/364	X				X							8.0	10.0
AMBÉRIEU - CULOZ	50	X			X		X								X	X		X			X	45/364	45/364	X				X							12.0	12.0
CULOZ - CHAMBERY	36	X			X		X								X	X		X			X	45/364	45/364	X				X							10.0	10.0
CHAMBERY - ST PIERRE D'ALBIGNY	48	X			X		X								X	X		X			X	45/364	45/364	X				X							10.0	10.0
ST PIERRE D'ALBIGNY - ST. JEAN DE MAURIENNE	23	X			X		X								X	X		X			X	45/364	45/364	X				X							6.0	18.0
ST. JEAN DE MAURIENNE - MODANE	28	X			X		X								X	X		X			X	45/364	45/364	X				X							30.0	30.0
MARSEILLE - MIRAMAS	**136**	**X**			**X**		**X**								**X**	**X**		**X**										**X**								
MARSEILLE ST CHARLES - L'ESTAQUE	10	X			X		X								X	X		X			X			X				X							5.0	5.0
A) L'ESTAQUE - MIRAMAS PAR ROGNAC	42	X			X		X								X	X		X			X	45/364	45/364	X				X							5.0	5.0
B) L'ESTAQUE - LAVALDUC	56	X			X		X								X	X		X			X	3,3	3,3					X							13.0	12.0
LAVALDUC - MIRAMAS	16	X			X		X								X	X		X		X		45/364	45/364	X				X							10.0	5.0
LAVALDUC - FOS-VIGUERAT	12	X			X		X								X	X		X		X		45/364	45/364	X				X							10.0	5.0
MIRAMAS - AVIGNON	**111**	**X**			**X**		**X**								**X**	**X**		**X**				**45/364**	**45/364**	**X**				**X**								
A) MIRAMAS - AVIGNON (PAR CAVAILLON)	65	X			X		X								X	X		X			X	45/364	45/364	X				X							8.0	8.0
B) MIRAMAS - TARASCON	46	X			X		X								X	X		X		X		45/364	45/364	X				X							11.0	11.0

* Portbou-Cerbere section is formed by one track for each gauge. 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 SNCF RÉSEAU;
* Marseille St Charles - Lavalduc: 9 T/m ;

2.1.3 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**	**102**	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	**80/410**		X							X	X				**14**	**13**
	NOVARA-MILANO	**45**	X						X					X			X					X	**80/410**		X							X	X				**5**	**7**
	MILANO-VERONA	**148**	X								X			X			X					X	**80/410**		X							X	X				**6**	**10**
	VERONA-PADOVA	**82**	X								X			X			X					X	**80/410**		X							X	X				**5**	**5**
	VERONA-VICENZA	52	X								X			X			X					X	80/410		X							X	X				5	5
	VICENZA-PADOVA	30	X								X			X			X					X	80/410		X							X	X				5	3
	VICENZA-PORTOGRUARO (by Cittadella)	**113**		X				X						X			X					X	**80/410**		X							X	X				**6**	**7**
	VICENZA-CASTELFRANCO V.	36		X				X						X			X					X	80/410		X							X	X				6	7
	CASTELFRANCO V.-TREVISO	25		X					X					X			X					X	80/410		X							X	X				1	4
	TREVISO-PORTOGRUARO	53		X					X					X			X					X	80/410		X							X	X				5	4
	PADOVA-BIVIO D'AURISINA	**131**	X						X					X			X					X	**80/410**		X							X	X				**9**	**10**
	PADOVA-VENEZIA	29	X								X			X						X			80/410		X							X	X				3	3
	VENEZIA-PORTOGRUARO	59	X						X					X						X			80/410		X					X		X					8	8
	PORTOGRUARO-BIVIO D'AURISINA	43	X							X				X						X			80/410		X					X		X					9	10
	BIVIO D'AURISINA-VILLA OPICINA	**15**	X							X				X			X		X				**80/410**		X				X			X					**15**	**0**
	BIVIO D'AURISINA-TRIESTE	**14**	X							X				X			X		X				**80/410**		X							X	X				**14**	**1**
	TORINO-ALESSANDRIA	90		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

2.1.4 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		450 m	500 m	525 m	570 m	587 m	600 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
SLOVENIA	VILLA OPICINA (BORDER) - DIVACA	13	X		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	**48**	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	**248**	X		X	56%					X				X			X			X				80/401		X								X			**10**	**11**
	LJUBLJANA - ZIDANI MOST	64	X		X	X						X					X		X			X			99/429		X								X			1	3
	ZIDANI MOST - PRAGERSKO	73	X		X	X							X		X				X			X			90/410		X								X			9	9
	PRAGERSKO - HODOS	109	X		X	-							X					X				X			80/401		X								X			10	11
	ZIDANI MOST - DOBOVA	**49**	X		X	X						X					X		X			X			99/429		X								X			**1**	**4**

2.1.5 Croatia

		SECTION LENGHT	LINE TYPE			TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION									AXLE LOAD			LOAD PER METRE			TRAIN SPEED			INTERMODAL LOADING GAUGE	LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM									GRADIENT / (INCLINE)	
		km	PRINCIPAL ROUTE	DIVERSIONARY	CONNECTING/FEEDER	1435 mm	1520		200 m	360 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	18,0 T/axle	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 Gudsline	Lines	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BOA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	APS	ID	O	‰ towards NE	‰ towards SW
CROATIA	Rijeka - Zagreb RK	241,269																																										
	Rijeka - Sušak-Pećine	2,962	x			x				x										x			x			x			52/368	GB			x										x	26	0
	Rijeka Brajdica - Sušak Pećine	2,923	x			x				x									x			x	x						52/368	GB			x										x	21	0
	Sušak Pećine - Škrljevo	9,012	x			x				x											x		x	x						52/368	GB			x									x		26	–
	Bakar - Škrljevo	11,405	x			x				x											x		x	x						52/368	GB			x									x		26	0
	Škrljevo - Lokve	40,362	x			x				x											x		x	x						52/368	GB			x									x		26	17
	Lokve - Moravice	37,691	x			x					x										x		x	x						52/368	GB			x									x		3	18
	Moravice - Ogulin	29,749	x			x						x									x		x	x						52/368	GB			x									x		3	8
	Ogulin - Karlovac	56,033	x			x						x									x		x		x					80/410	GB			x									x		5	8
	Karlovac - Zagreb RK	51,132	x			x						x									x		x		x					80/410	GB			x									x		7	8
	Zagreb RK - Koprivnica - St. Bor.	101,261																																									
	Zagreb RK -Sesvete	11,981	x			x		x					x								x		x	x						80/410	GC			x									x		6	5
	Sesvete - Dugo Selo	10,156	x			x		x					x								x		x					x		80/410	GC			x									x		1	5
	Dugo Selo - Koprivnica	65,720	x			x						x									x		x					x		80/410	GC			x									x		8	6
	Koprivnica - Botovo - St. Bor.	13,404	x			x								x							x		x					x		80/410	GC			x									x		6	5
	St. Bor. Savski Marof - Zagreb RK	32,875																																									
	St. Bor. - Savski Marof	5,092	x			x		x					x								x							x		80/410	GC			x										x	0	3
	Savski Marof - Zaprešić	6,540	x			x		x					x								x		x	x						80/410	GC			x									x		1	1
	Zaprešić - Zagreb Zap. Kolodvor	13,008	x			x		x					x								x		x	x						80/410	GC	GB**		x									x		3	3
	Zagreb Zap. Kolodvor - Zagreb RK	8,235	x			x							x								x		x	x						80/410	GC			x										x	4	3

APS – automatic bloc system
ID – inter station dependence
O – other safety devices
** bridge Krapina: section line Zaprešić - Podused TV; fence between tracks: section line Podsused TV -Gajnice

2.1.6 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		450 m	500 m	550 m	575 m	600 m	625 m	650 m	700 m	740 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 Gudsline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BEM	BOA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	APS	ID	O	‰ towards NE	‰ towards SW
HUNGARY	HODOS - ZALALÖVŐ	20	X			X	-								X					X			X				X	80/410			X												10,6	10,6
	ZALALÖVŐ - BOBA	75	X			X	-								X					X			X				X	80/410			X												10,6	10,6
	BOBA - SZÉKESFEHÉRVÁR	115	X			X	-						X						X				X				X	80/410			X												11	11
	SZÉKESFEHÉRVÁR - BUDAPEST	63	X			X	X						X						X			X					X	80/410			X												7	7
	BUDAPEST - NYÍREGYHÁZA	270	X			X	X									X			X				X				X	80/410			X												7,3	7,3
	NYÍREGYHÁZA - TUZSÉR	58	X			X	X									X			X			X					X	80/410			X												3,1	3,1
	TUZSÉR - ZÁHONY	8	X			X	-									X			X			X				X		80/410			X												3,1	3,1
	BOBA - CELLDÖMÖLK	8		X		X	X					X							X			X				X		80/410			X												6,7	6,7
	CELLDÖMÖLK - GYŐR	70		X		X	-					X							X			X				X		80/410															8,5	8,5
	GYŐR - BUDAPEST	125		X		X	X									X		X		X	X					X		80/410			X												8	8
	BUDAPEST FERENCVÁROS - SOROKSÁR	12			X	X	-									X		X				X				X		70/400			X												11,2	11,2
	BUDAPEST FERENCVÁROS - SOROKSÁRI ÚT	4			X	X	-	X											X			X			X			70/400															5	5
	BUDAPEST - MISKOLC	182	X			X	X								X				X			X					X	80/410			X												10	10
	MISKOLC - NYÍREGYHÁZA*	88	X			X	Partly								X				X			X					X	80/410			X												3	3
	BUDAPEST - ÉRD	23	X			X	X					X							X			X			X			70/410			X									X			7,8	8,9
	ÉRD - PUSZTASZABOLCS	30	X			X	X					X							X			X			X			70/410			X									X			9,0	9,0
	PUSZTASZABOLCS - RÉTSZILAS	40	X			X	-					X							X			X					X	70/410			X									X			6,9	6,8
	RÉTSZILAS - DOMBÓVÁR	71	X			X	-					X							X			X					X	70/410			X									X			6,9	8,1
	DOMBÓVÁR - KAPOSVÁR	31	X			X	-					X							X			X		X				70/410			X									X			4,4	5,0
	KAPOSVÁR - SOMOGYSZOB	40	X			X	-					X							X			X			X			70/410			X											X		7,0	7,1
	SOMOGYSZOB - GYÉKÉNYES	30	X			X	-					X							X			X			X			70/410			X										X			6,7	8,3

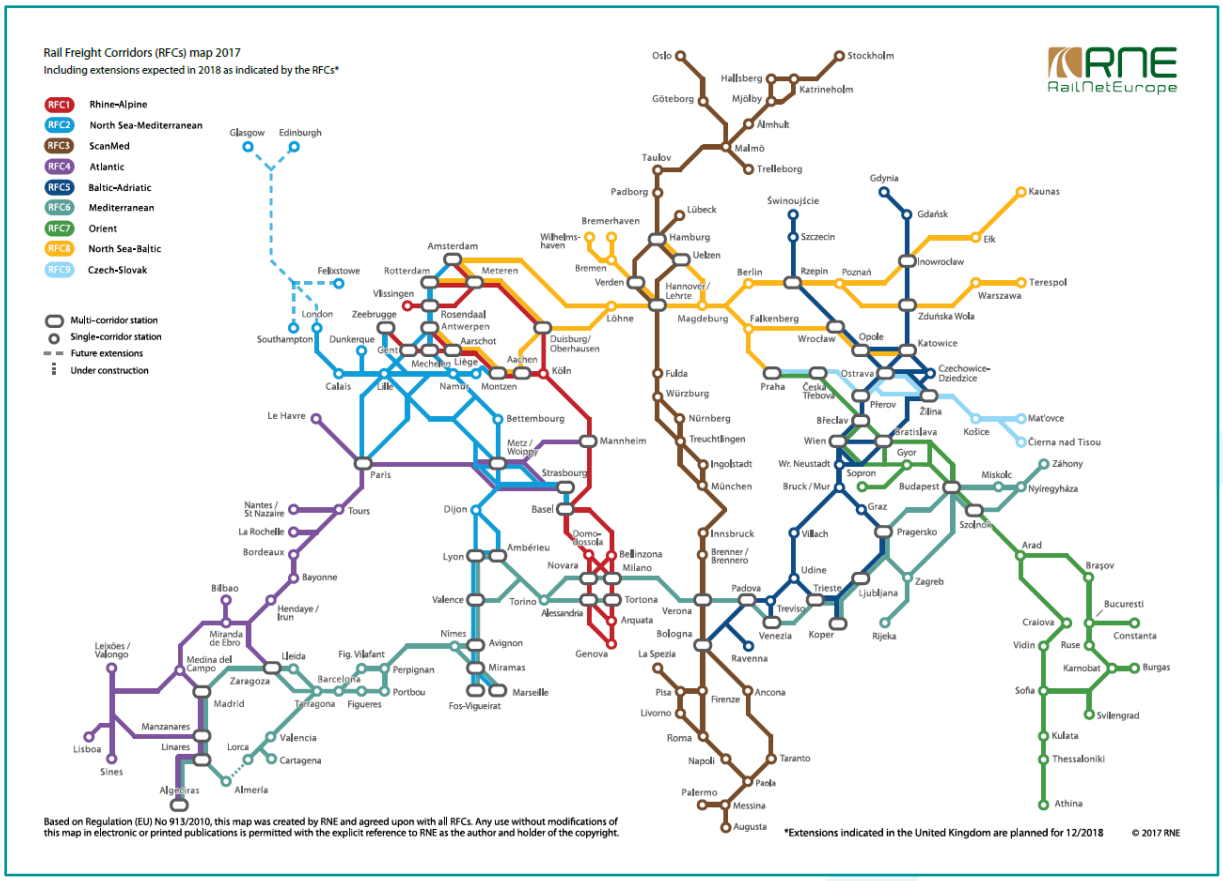
APS – automatic bloc system
ID – inter station dependence
O – other safety devices
*Between Mezőzombor - Nyíregyháza (45 km) only single track

2.2 Connections with Other Corridors

This corridor connects with six other corridors: 1, 2, 3, 4, 5 and 7, and some of their sections overlap. Actually, Mediterranean Corridor - RFC 6 has the following connections with other RFCs:

in Algeciras-Madrid with Rail Freight Corridor 4 (set up on the 10th November 2013) as overlapping section since the 1stof January 2016;

- in Lyon and Ambérieu-en-Bugej with Rail Freight Corridor 2 (set up on the 10th November 2013); Lyon – Marseille is overlapping section from the 10th on November 2015;
- in Milano with Rail Freight Corridor 1 (set up on the 10th November 2013);
- in Verona with Rail Freight Corridor 3 (set up on the 10th November 2015);
- in Venice and Koper with Rail Freight Corridor 5 (set up on the 10th Novemb2er 2015); the Line Venice/Koper-Pragersko is overlapping section form the 10th of November 2015;
- in Győr-Budapest and Budapest-Szajol with Rail Freight Corridor 7 (set up on the 10th November 2013); this line is overlapping section from the 10th of November 2013;
- in Győr-Budapest and Budapest-Szajol with Rail Freight Corridor 9 (to be set by the 10th November 2020); this line will be overlapping section from the 10th of November 2020;



2.3 Corridor Terminals

Freight terminals, inland ports, maritime ports and airports connect transport modes in order to allow multi-modal transport of goods. Where freight terminal means a structure equipped for transhipment between at least two transport modes and for temporary storage of freight such as seaports, inland ports, airports and (dry ports) rail-road terminals. Freight terminals for the transhipment of goods within

the rail mode and between rail and other transport modes are one of the components of railway transport infrastructure. The technical equipment associated with railway lines includes electrification systems, equipment for the loading and unloading of cargo in stations, logistic platforms and freight terminals. It includes any facility necessary to ensure the safe, secure and efficient operation of vehicles.

Terminal requirements relate to the anticipated scale and nature of the freight and the operations involved in accessing sidings and handling the transfer of the cargo. This can split between the rail-side operations and the road/water/air-side operations.
In general, a terminal need being:

- alongside an existing railway line;
- alongside a major highway route;
- just on the bank of sea bay or bank of an inland waterway;
- on flat terrain, level with the railway line;
- near to the origin/destination of freight;
- distant from residential areas;
- next to developable land for expansion;

For intermodal terminals additional requirements are:

- room to store containers;
- hard standing;
- space for crane/stacker movements;
- at least 3 running lines together with reception sidings;
- space for road vehicles' movements;

The railway lines, and where appropriate rail ferry lines of a RFC, connect a terminal of relevance to rail freight traffic along the route to:

- marshalling yards;
- major rail-connected freight terminals;
- rail-connected intermodal terminals in seaports and along inland waterways;

A list of the terminals designated to the corridor has been worked out, agreed upon and regularly updated. The designation is based on national assessment and evaluation (to be updated according to Transport Market Study and consultation with the Terminal Advisory Group). All nodes indicated in the Annex of Regulation 913/2010/EU are connected.

SPAIN	FRANCE	ITALY	SLOVENIA	CROATIA	HUNGARY
Algeciras-Terminal	Aiton	Brescia Terminal Intermodale RFI	Celje tovorna SZ	Bakar - Bulk Cargo Terminal	Budapest MAHART Container Centre
Barcelona Can Tunis	Ambérieu	Cervignano Interporto Alpe Adria	Gorenje Velenje Terminal	Port of Rijeka	Debrecen DELOG Container Terminal
Barcelona Morrot	Badan	Milano Segrate RFI	Port of Koper	Rijeka - Brajdica Intermodal Terminal	DEPO Logistic Centre
Castellbisbal	Chasse Sur Rhone	Milano Smistamento FS Logistica	Koper tovorna SZ	Terminal Škrljevo - Warehouse Complex	Győr / ÁTI DEPO
CELSA (Castellbisbal)	Grenoble	Novara Boschetto FS Logistica	Ljubljanan Moste Kontejnerski terminal	Zagreb - Jankomir Freight terminals	LOGISZTÁR
Córdoba - El Higuerón	Le Boulou (Ambrogio SA)	Novara Terminal CIM	Ljubljana-Zalog-Marshalling yard	Zagreb - Zitnjak Freight terminals	METRANS Terminal Budapest
FORD - FACTORIA, (Silla - Valencia)	Le Teil	Padova Terminal intermodale FS logistica	REVOZ Novo Mesto Terminal	Zagreb - Vrapce Intermodal Terminal	Rail Cargo Terminal - BILK
GONVAUTO, (Castellbisbal – Barcelona)	Marseille Maritime Arenc	Padova Terminal intermodale Interporto		Zagreb Marshalling Yard	Szolnok Industrial Park
GRANOLLERS MERCADERIAS Terminal	Modane	Sito Interporto di Torino			Terminal GYSEV Sopron
Grisen	Ateliers d'Occitanie (Narbonne)	Torino Orbassano Terminal AFA			Záhony-Port
La Llagosta	Perpignan	Torino Orbassano Terminal Intermodale			
Madrid Abroñigal	Port Edouard Herriot	Trieste Campo Marzio - Raccordo autorità portuale			

SPAIN	FRANCE	ITALY	SLOVENIA	CROATIA	HUNGARY
Martorell	Portes Valence	Venezia Marghera-raccordi portuali			
Murcia Mercancías	PORTES CNR	Verona QE-raccordo ZAI			
Port Bou	Salaise Gie Osiris				
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				

SPAIN	FRANCE	ITALY	SLOVENIA	CROATIA	HUNGARY
REPSOL (Constanti)	VIIA - Le Boulou				
Sagunto					
San Roque - La Línea					
SEAT-Martorell Terminal					
Silla					
SOLVAY (Martorell)					
Tarragona Mercancias					
Terminal Intermodal de Monzón, (Monzón de Rio Cinca –					
Terminal Marítima Zaragoza S.L., (Corbera Alta –					
Valencia Fuente San Luis					
Vicalvaro Mercancías					
Vilamalla					
Zaragoza Plaza					

2.4 Bottlenecks

Our RFC carried out a Capacity Study in 2014. For common understanding the same definition of bottlenecks as per set in (15) of Definitions Article 2 of Regulation (EU) No 1316/2013 was used. Bottleneck means a physical, technical or functional barrier which leads to a system break affecting the continuity of long-distance or cross- border flows and which can be surmounted by creating new infrastructure, or substantially upgrading existing infrastructure, that could bring significant improvements which will solve the bottleneck constraints.
All the analysis, assessments and classifications were made upon definition above.
The key technical parameters, infrastructure requirements set in Article 39 of Regulation (EU) No 1315/2013, were considered obligatory and common part of the future elements of the transport infrastructure for both passengers and freight transport capacity.

- full electrification of the line tracks and sidings;
- at least 22,5 t axle load;
- 100 km/h line speed;
- freight trains with a length of 740 m;
- full deployment of ERTMS;
- track gauge for railway lines 1.435 mm;

This Implementation Plan provides a description of the main bottlenecks identified along the corridor, integrating information given by Infrastructure Managers.
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 sector.
In the case of bottlenecks removal, there are further details available in the Chapter on Investment Plans, in the section Benefits of the projects defined country by country.

2.4.1 Spain

Track gauge

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

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.

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. Level crossings increase the risk.

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.

Sant Vicencs de Calders- Tarragona: This section could be problematic if the traffic will increase significantly.

Access to Ports and Terminals

Critical investment has been made in Spain 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 to absorb significant traffic growths, as those expected in the Corridor.

In the 2014 a Capacity Allocation study on the Mediterranean Corridor - RFC 6 has been carried out to identify the existing bottlenecks, analyse present and future capacity needs and so define priorities for bottlenecks removal. After the identification and description of physical technical and functional bottlenecks, the priority list of bottlenecks was put together in terms of strategic importance "geographical location" in the section, key characteristics, like nature, present vs future bottlenecks, length, its effects" and of course the rank of priorities. The Spanish sections have been grouped to ensure to continuity of flows in four sections in priority order: French border, to Valencia, Barcelona Madrid, Valencia to Almeria and diversionary lines. The access to ports and terminals will be adopted to UIC Gauge in parallel with the installation of UIC Gauge along the corridor.

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. Finally, the line linking the port of Valencia to Zaragoza via Teruel has capacity constraints and needs to be upgraded in order to be used in case of disturbances.

2.4.2 France

New line Montpellier-Perpignan

This new line will be the chain to join the Spanish high-speed section Barcelona-Figueres and its link with Perpignan with the new bypass project in Nîmes and Montpellier and the lines to Lyon, will be effective in 2018. The 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.

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 the creation of alternatives to road traffic, given the natural environment, which is particularly sensitive in this region. The new infrastructure will also 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 journey time;
- Increase of capacity;
- Improvement of traffic reliability;
- Upgrading of maximum weights;

Development of the access tracks to the Marseille Harbour

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.

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.

2.4.3 Italy

Quadrupling of the Treviglio - Brescia line

The existing double track line Treviglio–Brescia is facing a capacity shortage, in particular along the section Rovato – Brescia. Apart 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.

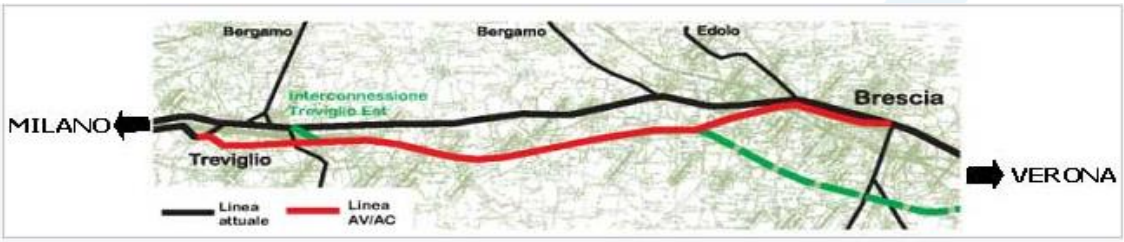
The expected benefits relate to the capacity increase and to the reduction of long distance trains travelling times between Milano and Brescia.

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.



Milano Node upgrading (Milano Lambrate, Porta Garibaldi, Monza, Rho)

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 – Padova 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.

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. One of the initiative considered a priority to strengthen the capacity of Milan 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.

2.4.4 Slovenia

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 increase the permeability of capacity.

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 Mediterranean Corridor - RFC 6 sections in Slovenia.

Train length

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. 525 m.
Ljubljana – Zidani Most 570 m.
Zidani Most – Pragersko 597 m.
Pragersko – Ormož – Hodoš border 600 m.
Zidani Most – Dobova border 570 m.

Our goal is to increase the length on all lines of Mediterranean Corridor - RFC 6 to 750m.

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 Mediterranean Corridor - RFC 6 in Slovenia.

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.

2.4.5 Croatia

Considering the current traffic volume there is no real bottlenecks on the line, but of course there are some obstacles in existing infrastructure characteristics that could cause bottlenecks in the future if the traffic volume will significantly increase.

Section line Rijeka - Lokve

On the section line Rijeka – Lokve due to the very unfavourable relief features of the line there are huge inclines / declines and thus great ruling line resistance up to 29 daN/t. Consequently, the train mass is limited and there is a need for two traction locomotives or a stronger one. Given to the existing configuration as a possible solution arises the construction of a new railway line, to bypass the hills, so-called "lowland line" that is not on the near horizon for now.

Section line Rijeka – Skrad

On the section line Rijeka - Skrad, tracks for the reception and dispatching of trains at the railway stations are less than 500 meters long. This is of course limits to the traffic flow and limits the line capacity in whole.

Section line Zagreb RK – Karlovac

In order to enhance the competitiveness of corridor line from the port of Rijeka to European Middle East and further, there is a plan to build the second track on the line section Hrvatski Leskovac –

Karlovac in the time horizon 2019 – 2023. With much more favourable characteristics of the future railway infrastructure will be met requirements for the corridor traffic as well as increase in line capacity according to European standards.

Section line Dugo Selo – Koprivnica – St. Border

In order to enhance the competitiveness of corridor line from the port of Rijeka to European Middle East and further, there is a plan to build the second track on the line section Dugo Selo - Koprivnica – State border – (Hungary) in the time horizon 2016-2021. With much more favourable characteristics of the future railway infrastructure will be met requirements for the corridor traffic as well as increase in line capacity according to European standards.

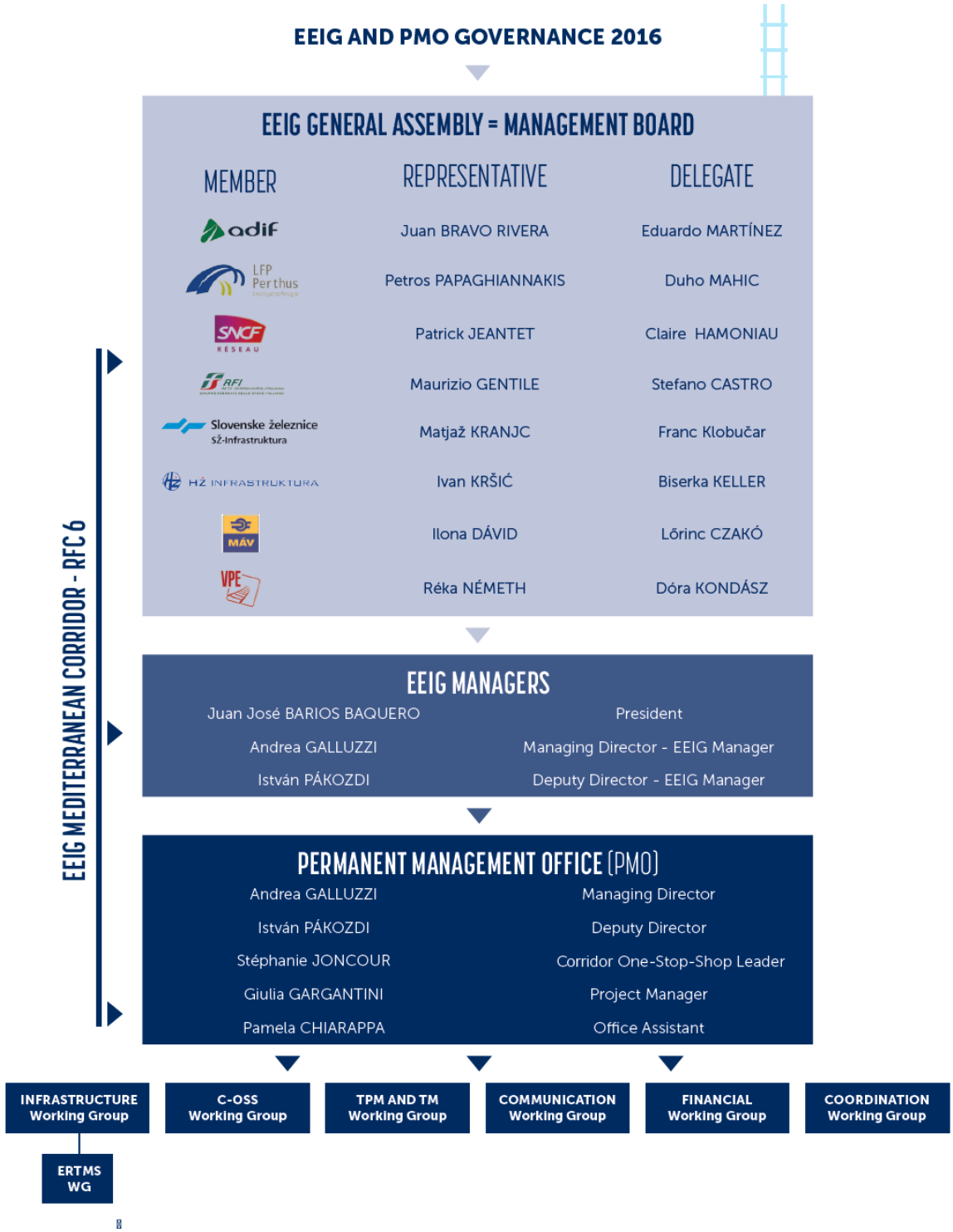
2.4.6 Hungary

Budapest-Ferencváros – Miskolc – Nyíregyháza section where bottlenecks were identified.
Between Budapest-Ferencváros – Miskolc there is an on-going reconstruction. The aim is to reach the original capacity of the line. This will not increase the capacity of that section significantly but give the possibility to reduce the number of speed restrictions causing delays.
Between Miskolc and Nyíregyháza there is no plan to have investment in the foreseeable future.

2.5 RFC Governance

The Regulation 913/2010/EU defines three levels in the governance structure:
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 the necessary measures for improvement of the project. The participation of each Member State is obligatory.

The 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.



**For VPE, Ms Dóra Kondasz was replaced by Ms Nora Hobot during 2017.*

The MB makes its decisions based on a mutual consent. The MB was established by the signature of a Memorandum of Understanding among the parties, signed already in April 2012. Effective 1st of January 2014 the Management Board took the form of a EEIG (European Economic Interest Grouping). As a consequence, the role of the Management Board was taken over by the **General Assembly of EEIG Mediterranean Corridor - RFC 6 (hereafter: GA).** On the 7th of July 2016 HZI joined the EEIG and AZP left the EEIG. The EEIG was also renamed EEIG for Mediterranean Corridor - RFC 6.

A **Permanent Management Office (hereafter PMO)** was set up in Milan (Italy) to support the implementation of the Mediterranean - RFC 6 and to ensure the functioning of the EEIG. The migration of Corridor D EEIG towards Mediterranean Corridor - RFC 6 EEIG was implemented in early 2014.
The PMO is led by the Managing Director and, was composed of 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 the 1st of July 2013.
Six EU Member States (Spain, France, Italy, Slovenia, Croatia and Hungary) are now involved in Mediterranean Corridor - RFC 6. The Management Board has 8 members; 7 Infrastructure Managers and 1 Allocation Body.

7 Infrastructure Managers

1 Allocation Body

Advisory Groups (AGs): The MB set up Advisory Groups 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. They may also issue their own-initiative opinions. The MB shall take any of these opinions into account. The voice of customers is taken into account via the Terminal Managers and the Railway Undertakings Advisory Groups. Participation to AGs is on a voluntary basis. Advisory Groups members have a dedicated area in the Mediterranean Corridor - RFC 6 website, where all the materials under consultation are available. To join the Advisory Groups please contact the Permanent Management Office (PMO) and/or the representatives of the Advisory Group.
One representative for each Advisory Group has been nominated to coordinate the position of the group. The Advisory Groups' opinion has to contain both majority and minority opinions.
The organizational structure of the Corridor is included in the Internal Regulations of EEIG Mediterranean Corridor - RFC 6.
The first step for the setting up of the governance of the Management Board of Mediterranean Corridor - RFC 6 was the signature of a Memorandum of Understanding among the 8 (eight) stakeholders involved in Mediterranean Corridor - RFC 6: Administrador de Infraestructuras Ferroviarias (ADIF), Réseau Ferré de France (RFF) - from January 2015 Société Nationale des Chemins de fer Français Réseau (SNCF Réseau),
Rete Ferroviaria Italiana (RFI), Slovenske železnice-Infrastruktura d. o. o. (Sž-Infra), MÁV Hungarian State Railways Private Company Limited by Shares and TP Ferro Concesionaria - from December 2016 Línea Figueras Perpignan S.A. as Infrastructure Managers concerned and as Allocation Bodies: Javna

agencija za železniški promet Republike Slovenije (AZP) - the former Slovenian Capacity Allocation Body and Vasuti Palyakapacitas-eloszto Kft (VPE) – Hungarian Rail Capacity Allocation Office.
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 Mediterranean Corridor - RFC 6.
Since Mediterranean Corridor - RFC 6 has a principal route which, in its greatest part, coincides with ERTMS corridor D, the migration of Corridor D EEIG towards Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6: Administrador de Infraestructuras Ferroviarias (ADIF), Réseau Ferré de France (RFF), Rete Ferroviaria Italiana (RFI), and Slovenske železnice Infrastruktura d. o. o.,(Sž-Infra), 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).
The form of an EEIG as legal entity of the Mediterranean Corridor – RFC 6 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 Mediterranean Corridor – RFC 6 involves countries not involved in the ERTMS corridor)".
So, Corridor D EEIG, in cooperation with the other 4 stakeholders involved in Mediterranean Corridor - RFC 6, carefully evaluated the following governance migration options in terms of costs and benefits:

- extension of Corridor D EEIG to Mediterranean Corridor - RFC 6 EEIG adapting its mission and membership (entrance of 4 new members);
- establishment of a new EEIG;

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

- it avoided duplication of organizational structures;
- it ensured continuity on current corridor work;
- it allowed to recover some start-up costs of Corridor D EEIG;
- 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 the Mediterranean Corridor - RFC 6 EEIG was formally approved during the preparatory meeting of the Management Board of Mediterranean Corridor - RFC 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 originally 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 Mediterranean Corridor - 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 Mediterranean Corridor - RFC 6 EEIG was confirmed ("acting as Management Board of Mediterranean Corridor - RFC 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).
The Management Board approved the Act of Incorporation of future "Mediterranean Corridor - RFC 6 EEIG" on 13th December 2012 in Rome and its internal rules on 9th April 2013 in Brussels: legal steps for migration were taken in April 2013.
The new EEIG for Mediterranean Corridor - RFC 6 was created in Rome in December 2014. The managers of the EEIG have been appointed on the 31st of March 2014 in Rome. On the General

Assembly held in Milan on the 13th and 14th of March the following managers have been appointed with a mandate expiring on the 31st of May 2019:

President: Mr. Juan José Barios Baquero;

Managing Director - **EEIG Manager**: Mr. Andrea Galluzzi;

Deputy Managing Director - **EEIG Manager**: Mr. István Pakozdi;

On the 7th of July 2016 HZI joined the EEIG and AZP left the EEIG. The EEIG was also renamed EEIG for Mediterranean Corridor - RFC 6.
The General Assembly of Mediterranean Corridor - RFC 6 EEIG acts as Management Board. The General Assembly of Mediterranean Corridor - RFC 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 (mandated till the 31st of May 2019).
The EEIG managers are usually appointed for three years' renewable period unless otherwise decided by the General Assembly of the EEIG. 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 coordinates 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 is not dedicated full time to the EEIG; he has 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 supervises 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

Coordination Group

Member	Representative
Administrador de Infraestructuras Ferroviarias (ADIF)	Eduardo Martínez
Línea Figueras Perpignan S.A. (LFP)	Petros Papaghiannakis
Société Nationale des Chemins de fer Français Réseau (SNCF Réseau)	Claire Hamoniau
Rete Ferroviaria Italiana (RFI)	Simona Garbuglia
Slovenske železnice-Infrastruktura d. o. o. (SŽ-I)	Bojan Kekec
HŽ Infrastruktura d.o.o. (HŽI)	Biserka Keller
MÁV Hungarian State Railways	Ágnes Lengyelné Kerekes dr.
VPE – Hungarian Rail Capacity Allocation Office	Dóra Kondász/Nora Hobot

In 2013, a Coordination Groupwas set up in order to support the Management Board members and the Permanent Management Office.
In particular, the Coordination Group carries out the following activities:

ensures 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 of the GA;

- contributes to prepare decisions of the GA and to their implementation;
- advises and supports the PMO;

ensures an efficient communication flow between the EEIG (GA, Managers, PMO, Working Groups) and the internal structures of the EEIG Members, acting as contact point between national and corridor level; The Coordination Group organises at list two live meetings per year and videoconference meetings when needed.

Advisory Groups

The kick off meeting for the setting up of the Advisory Groups of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, according to the principles of transparency and equality.
The following Advisory Groups meeting were organised so far by Mediterranean Corridor - RFC 6:

Year	Event	Venue	Date
2012	TAG-RAG	Budapest (HU)	30/11/2012
2013	TAG-RAG	Barcelona (ES)	18/04/2013
2013	TAG-RAG	Marseille (FR)	29/10/2013
2014	TAG-RAG	Milano (IT)	12/03/2014
2014	TAG-RAG	Koper (SI)	30/10/2014
2015	TAG-RAG	Madrid (ES)	23/04/2015
2015	TAG-RAG	Budapest (HU)	19/11/2015
2016	TAG-RAG	Montpellier (FR)	26/05/2016
2017	TAG-RAG	Milano (IT)	26/01/2017
2017	TAG-RAG	Ljubljana (SI)	14/11/2017

Mediterranean Corridor - RFC 6 organizes two TAG-RAG meetings per year, which alternatively take place on **the eastern or on the western** part of the Corridor. Also, a Common RAG meeting will take place once a year according to the new procedures defined at Corridor Talk level among RFCs.
Starting from the 6th Mediterranean Corridor – RFC 6 TAG-RAG meeting, the Management decided to introduce a new role within the context of the Advisory Groups: a **representative for each Advisory Group** in order to make the consultation process more effective and more useful for RUs and TMs. The

representatives will encourage coordination within each Advisory Group and also towards other external institutions.
The Advisory Groups meeting are organised in order to establish a regular dialogue of the freight corridor management with its stakeholders. The consultation mechanism is 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 (2 physical meetings per year);
- wide-ranging involvement of Railway Undertakings and Terminals;
- involvement of 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);

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:

Member	Country	Contact name	E-mail	Telephone
ADIF	Spain	Eduardo Martínez	emmart@adif.es	+34 913006195
LFP	ES/FR	Petros Papaghiannakis	ppapaghiannakis@lfpperthus.com	+34 972678800
SNCF Réseau	France	Claire Hamoniau	claire.hamoniau@reseau.sncf.fr	+33(0)153943325
RFI	Italy	Simona Garbuglia	s.garbuglia@rfi.it	+39 0644103987
SŽ-Infra	Slovenia	Bojan Kekec	bojan.kekec@slo-zeleznice.si	+386 12914174
HŽI	Croatia	Biserka Keller	biserka.keller@hzinfra.hr	+385 14533556
MÁV Co.	Hungary	Zoltán Nagy	nagy11z@mav.hu	+36 15113799

For consultation of applicants likely to use the corridor (art. 10 of Regulation 913/2010), the first draft of the Implementation Plan is submitted to the Advisory Groups of Mediterranean Corridor - RFC 6 taking place in spring.
All RUs and terminal owners/managers which cannot attend physical meetings but are interested in the use of Mediterranean Corridor - 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. 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 Mediterranean Corridor - 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.

Permanent Management Office

A Permanent Management Office (hereafter PMO) for Mediterranean Corridor - RFC 6 was 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 Mediterranean Corridor - RFC 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 is composed of 3 full time personnel: one Managing Director from RFI (Italy), one Deputy Director-Infrastructure Manager from MÁV (Hungary) and one OSS leader from SNCF Réseau. Each Member is 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 Mediterranean Corridor - RFC 6 and the Member promoting the candidate. In late 2014, the EEIG GA decided to hire a fulltime Office Assistant to support the work of the PMO and at the beginning of 2017 a part time advisor.
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.

Managing Director – Andrea GALLUZZI The PMO is led by the Managing Director Mr. Andrea Galluzzi, who is a full-time manager dedicated to the EEIG and Mediterranean Corridor - RFC 6. He is the head of the PMO and the main coordinator of all corridor related activities. He is responsible for the correct implementation of all tasks and obligations ensuing from the Regulation. The objectives and mission of the Managing Director are defined by the General Assembly of the EEIG.

Deputy Director / Infrastructure Advisor – István PAKOZDI He is a full-time manager dedicated to the EEIG and Mediterranean Corridor - RFC 6. As Infrastructure Advisor, he also has the responsibility to constantly update and collect the technical parameters of the corridor, control and draft the geographical description of the network and complete the CID.

C-OSS Leader – Stéphanie JONCOUR The OSS leader has the role to be the **single contact point** for applicants to request and receive rail infrastructure capacity for freight trains (Pre-Arranged Paths and Reserve Capacity) crossing at least one border along the corridor. The OSS leader handles communication process between IMs, ABs and other C-OSSs and Terminals linked to the corridor. The objectives and mission of the OSS leader are defined in the Internal Regulations of Mediterranean Corridor - RFC 6. His tasks are set in the Directive 2001/14/EC and Regulation (EU) 913/2010.

Project Manager - Giulia GARGANTINI According to the decision of the General Assembly of Mediterranean Corridor - RFC 6 one Project Manager joined the PMO at the beginning of 2017. Under the monitoring of the Managing Director, she is responsible for different projects concerning the corridor developments and more generally she supports the PMO staff. At the moment she coordinates the following projects: the Last Mile study, the related video-project "On train experience" and she is responsible, under the supervision of the Managing Director, of the study, preparation and coordination of the reporting procedure for the Connecting Europe Facility funding.

Administrative Assistant – Pamela CHIARAPPA According to the decision of the General Assembly of Mediterranean Corridor - RFC 6 one Administrative Assistant joined the PMO at the end of November 2014. Under the monitoring of the Managing director, she's responsible for the administrative management of the EEIG and she supports the PMO staff in all the operational and administrative issues.

Working Groups

The Working Groups were set up in 2013 and their tasks are described in the Internal Regulations of Mediterranean Corridor - RFC 6 EEIG, these working groups are composed of experts appointed by the Members of the EEIG. The staff of the Permanent Management Office coordinate them. They assist the PMO and the Coordination Group in their work.

Currently there are seven Working Groups:

Infrastructure WG

This Working Group is 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;
- update the infrastructure parameters (lines and terminals) constituting the Mediterranean Corridor - RFC 6;
- interoperability;
- analyse the outcomes of the Transport Market Study in order to improve the quality of the corridor.

ERTMS WG

The ERTMS Working Group carries 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. Stefano Marcoccio (RFI) leads this Working Group.

Train Management WG (TM WG)

Train Performance Management WG (TPM WG)

The Infrastructure Advisor leads these Working Group. The WGs are in charge of the following tasks:

- Harmonization of national approaches in order to set up corridor model for traffic management;
- Harmonization of national approaches in order to set up corridor model for traffic performance management;
- cooperate in drafting the CID;
- define the Priority rules;
- draft the performance management report;
- propose the corridor objectives.

C-OSS WG

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

- promote compatibility between the Performance Schemes along the corridor;
- propose the corridor objectives;
- cooperate in drafting the CID;
- promote coordination of works along the corridor aiming to minimize traffic disruptions.

Communication WG

The Communication WG ensures the communication of the Corridor to all possible stakeholders. The Communication WG is leaded by Miriam Rodríguez (ADIF), and for the website part by Dóra Kondasz / Nora Hobot (VPE) from 2017. In particular the WG is in charge of the following tasks:

- update and development of the RFC6 website;
- take care and analyse the Customer Satisfaction Survey;
- Mediterranean Corridor - RFC 6 merchandising;
- develop new communication tools;
- organise National Info Days and other conferences and events;
- cooperate in drafting the CID;
- ensure the overall communication strategy of the corridor.

Financial WG

The WG is in charge of the following tasks:

- prepare the budget;
- analyse the balance sheet;
- prepare the General Assembly members for the approval of the budget and the balance sheet.

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 that may arise.

3 Essential Elements of Transport Market Study

3.1 Introduction

This document aims to present the essential elements of the Transport Market Study regarding Mediterranean 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 regard 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.

3.2 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 Mediterranean Corridor - RFC 6 and, more in general, of Europe; although they might provide some preliminary useful information on the evolution of freight traffic flows, a full forecast of future flows (as well as of flows on rail along Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6:
- NUTS2 zones crossed by Mediterranean Corridor - RFC 6 and other zones adjacent to these ones;

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 Mediterranean Corridor - RFC 6 countries at 2030 are positive (+ 7%) whilst European population is supposed to grow of about 4%; disparities among countries crossed by Mediterranean Corridor - RFC 6 can be shown: Hungary shows negative relative trends (about 3% reduction), whilst Spain, France, Italy and (at lower rates) Slovenia positive ones. Therefore, 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 only, at year 2030 the expected GDP

is about € 6.100billions, growing about 28% both for countries crossed by Mediterranean Corridor - RFC 6 and for Europe.

Social and macro-economic framework

	Population[1] (mln)	GDP[2] (bn €)	GDP per capita[2] (th €)	Production value[3] (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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 against a total European export of about €4.400billions. Regarding 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). Consequently, 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.

Source: elaborations on Eurostat data (2011)

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.

Regarding 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)

The transport market characteristics along the corridor

The total length of highways could be considered as representative of the possibility to use road for medium-long range transports of goods: highways' network is distributed evenly in the Mediterranean Corridor - RFC 6 countries, if we consider both toll and free network. Density of relevant roads 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 Mediterranean Corridor - RFC 6, relevant road network is particularly dense in NUTS2 zones of Lombardy, Piemonte and Provence-Alpes-Côte d'Azur.

Mediterranean Corridor - RFC 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)

Mediterranean Corridor - RFC 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*	

The overall railway network density (km of railway lines length/surface area) in the originally 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 Mediterranean Corridor - RFC 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 parameter 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 Mediterranean Corridor - RFC 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 parameter assumes 4 different values.

Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, airports do not have direct connections with railway lines.

Mediterranean Corridor - RFC 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 Exupery	Milan Bergamo	Ljiubljana	Budapest
	Malaga	Marseille Provence	Milan Linate		
	Madrid Barajas	Nice	Milan Malpensa		
	Valencia		Turin Caselle		

	Zaragoza		Verona/Brescia		
	Alicante				

Assessment of the market

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

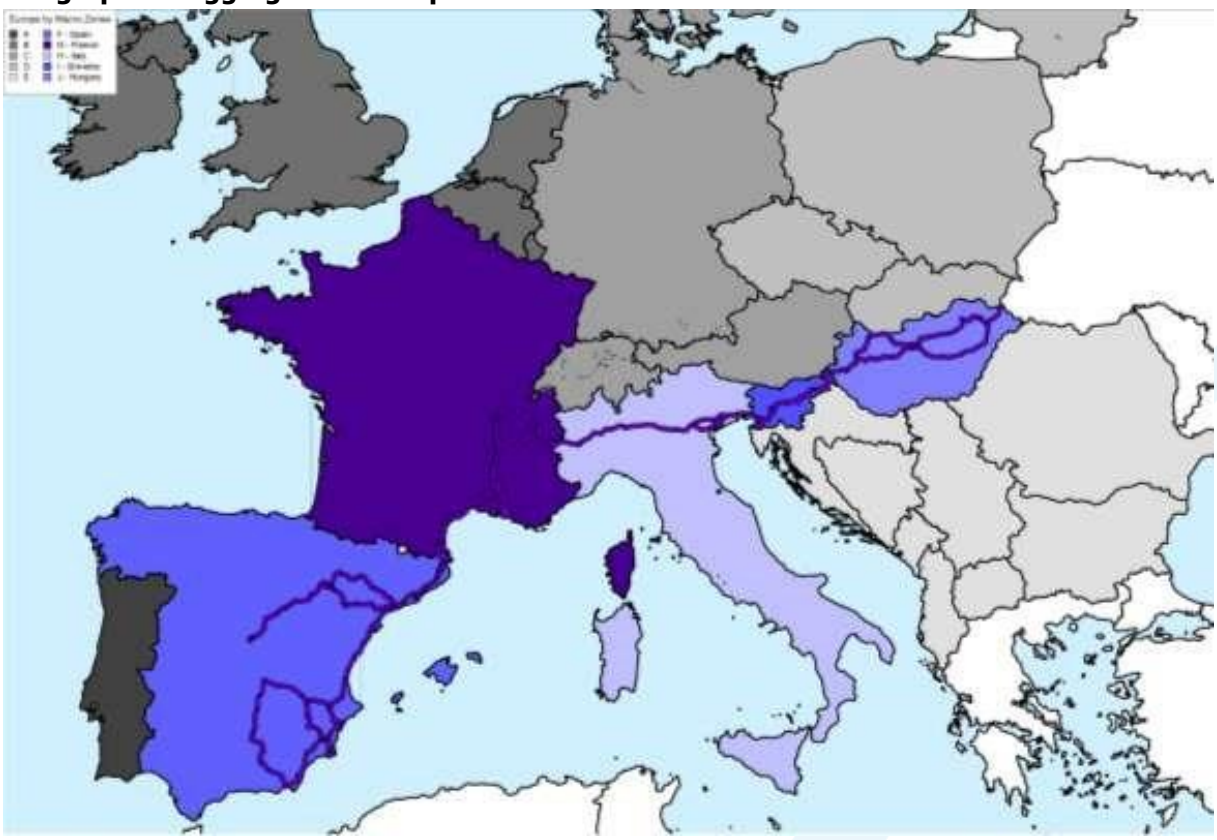
NUTS zone of Origin and/or Destination;

Geographical aggregation:

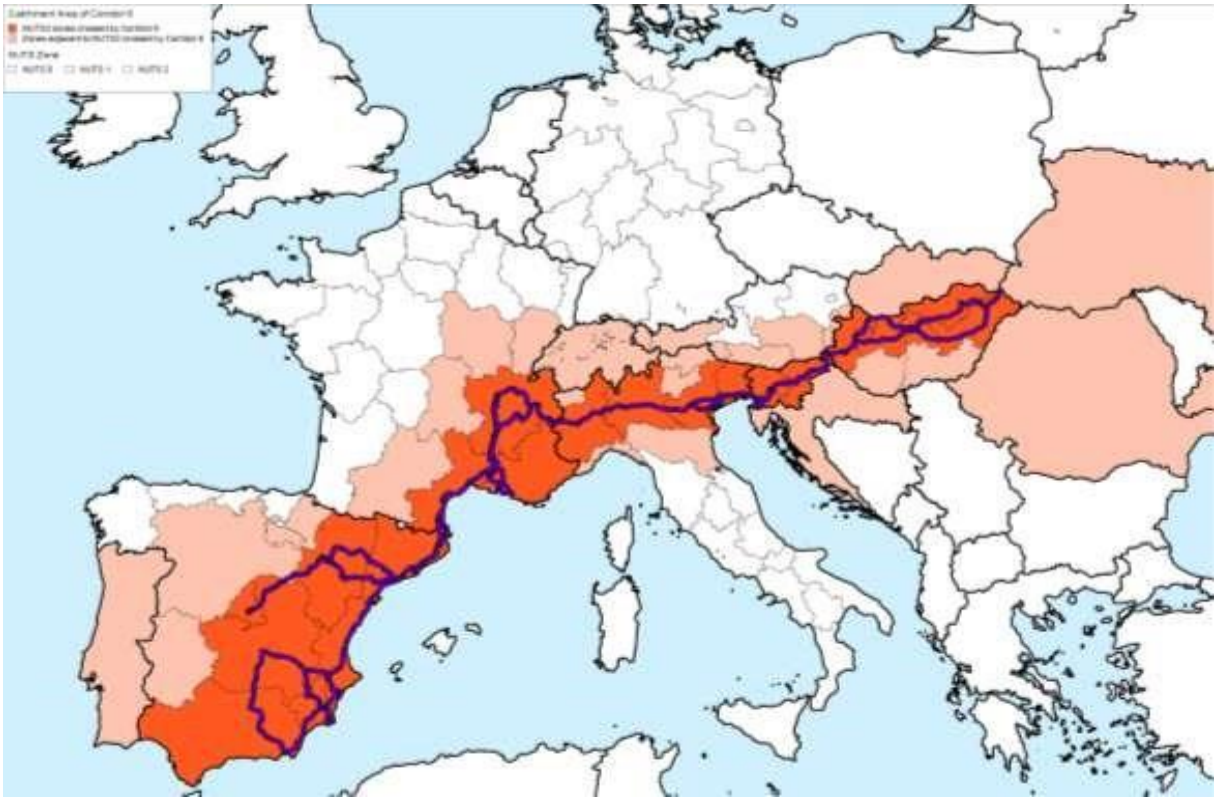
Europe: including the individual Countries of the macro-zones A, B, C, D, E, Spain, France, Italy, Slovenia and Hungary; Countries such as Russia, Turkey, Morocco, etc. are considered outside areas;

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

Geographical aggregation: Europe



Geographical aggregation: Catchment area of Mediterranean Corridor - RFC 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;

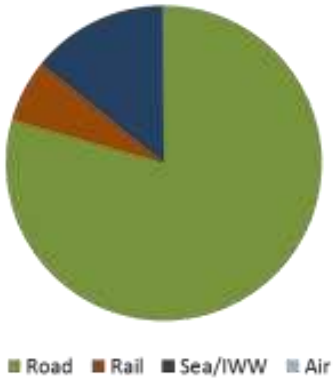
Exchange: transports with Origin (or Destination) within the considered geographical aggregation ("Europe" or "Catchment area of Mediterranean Corridor - RFC 6") and Destination (or Origin) outside of it.

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)

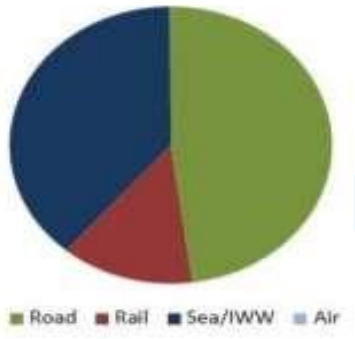
	TOTAL (mln of tons)	INT-INT National (mln of tons)	INT-INT International (mln of tons)	EXCHANGE (mln of tons)
Road	15.401	14.512 (94,2%)	873 (5,7%)	16 (0,1%)
Rail	1.246	933 (74,9%)	244 (19,6%)	69 (5,6%)
Sea/IWW	2.718	220 (8,1%)	706 (26,0%)	1.792 (65,9%)
Air	11,9	0,3 (2,5%)	1,2 (10,1%)	10,4 (87,4%)
Total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

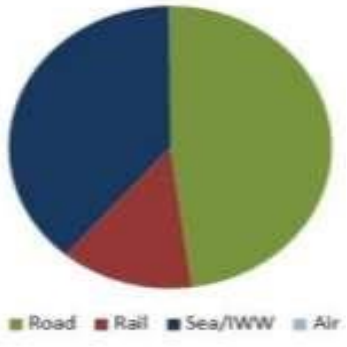
	Freight flows (mln of tons)	Modal split
Road	873	47,8 %
Rail	244	13,4 %
Sea/IWW	706	38,7 %
Air	1,2	0,1 %
Total	1.824	



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	

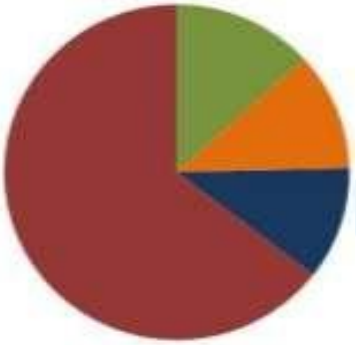


Elaboration on Etis and CAFT data

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

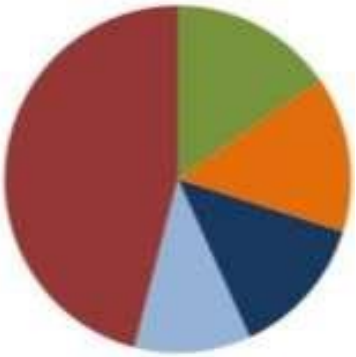


Elaboration on Etis and CAFT data

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

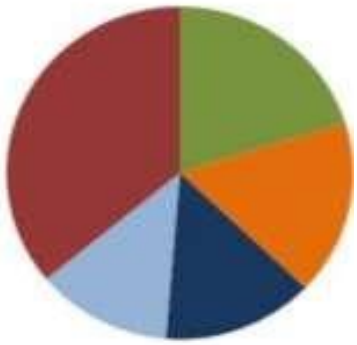


Elaboration on Etis and CAFT data

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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 represents only 10% of the total amount of goods;
according to transports to and from areas of the Mediterranean Corridor - RFC 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 million 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	2.363.035	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%	3.692.758	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 the 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. The total flows handled in the 16 airports considered along Mediterranean Corridor - RFC 6 can be compared, in terms of transported volumes, (airport from Madrid Barajas to Alicante) to those in transit at Amsterdam, third in Europe.

Airfreight 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)

Transport demand in the catchment area of Mediterranean Corridor - RFC 6

The analysis of modal split of freight flows within the catchment area of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 by mode of transport (millions of tons)

Elaboration on Etis and CAFT data

Among those within the catchment area of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6) are 35,7% (99 million tons/year).

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

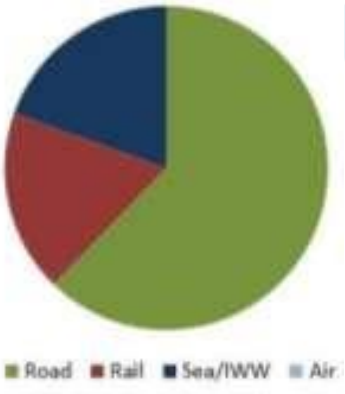
	TOTAL (mln of tons)	INT-INT National (mln of tons)	INT-INT International (mln of tons)	EXCHANGE (mln of tons)
Road	4.080	3.735 (91,6%)	99 (2,4%)	246 (6,0%)
Rail	277	149 (53,8%)	29 (10,5%)	99 (35,7%)
Sea/IWW	593	16 (2,7%)	31 (5,2%)	546 (92,1%)
Air	2	0 (0%)	0 (0%)	2 (100%)
Total	4.952	3.900 (78,8%)	159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

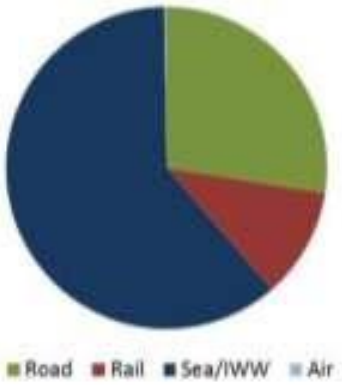


Elaboration on Etis and CAFT data

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 Mediterranean Corridor - RFC 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	

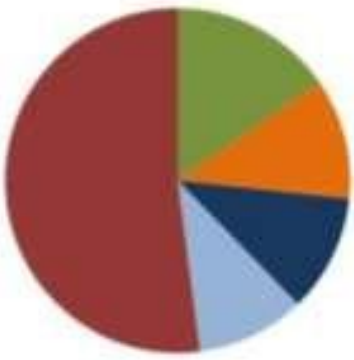


Elaboration on Etis and CAFT data

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 Mediterranean Corridor - RFC 6, 4 types of goods most transported by road are about 40% of the total.

Catchment area of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 and other zones, 4 types of goods most transported by road are about 45% of the total.

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

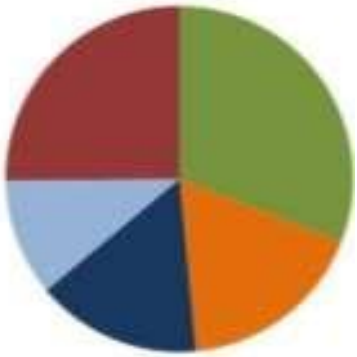
	Millions of tons	%
Food products, beverages and tobacco	32,4	13,2
Products of agriculture, hunting, and forestry; fish and other fishing products	27,1	11,1
Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel	25,1	10,3
Basic metals; fabricated metal products, except 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 Mediterranean Corridor - RFC 6, 4 types of goods most transported by rail are about 75% of the total.

Catchment area of Mediterranean Corridor - RFC 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

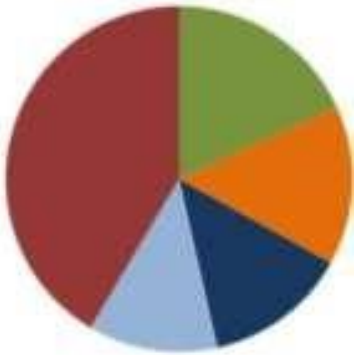


Elaboration on Etis data

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

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

	Millions of tons	%
Crude and manufactured minerals, building materials	17,9	18,2
Machineryn 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

Main flows along the catchment area of Mediterranean Corridor - RFC 6

Further analysis is based on **main flows along the catchment area of Mediterranean Corridor - RFC 6**. The main flows along the catchment area of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, like:

flows along paths "far" from Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 (it means at least one of the possible paths between Origin and Destination could be along the Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 so that flows are interesting when they could be made along Mediterranean Corridor - RFC 6 and international only when they assume an international characteristic regarding the 5 countries crossed by Mediterranean Corridor - RFC 6,

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 Mediterranean Corridor - RFC 6, refers only to these remaining flows

According to the analysis of main international ROAD freight flows "along" Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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).

The next 4 tables refer respectively to main road or rail flows along or within the catchment area of Mediterranean Corridor - RFC 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.

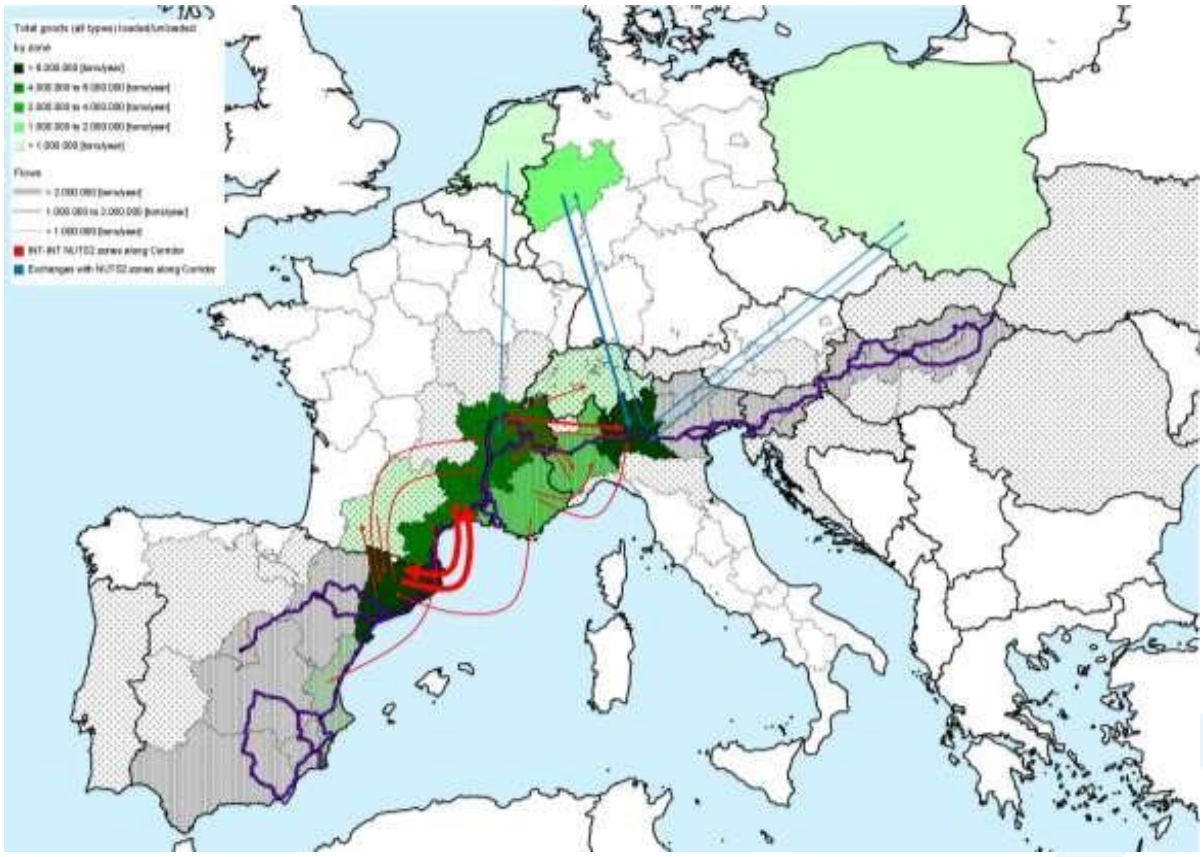
In next Table, beside the 20 main ROAD flows along the catchment area of Mediterranean Corridor - RFC 6 ranked by volumes of goods transported from Origins to Destinations, shows also the volumes of goods transported by rail between the same O/D pairs. These data reveals that, considering the total of 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" Mediterranean Corridor - RFC 6 (by O/D)

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

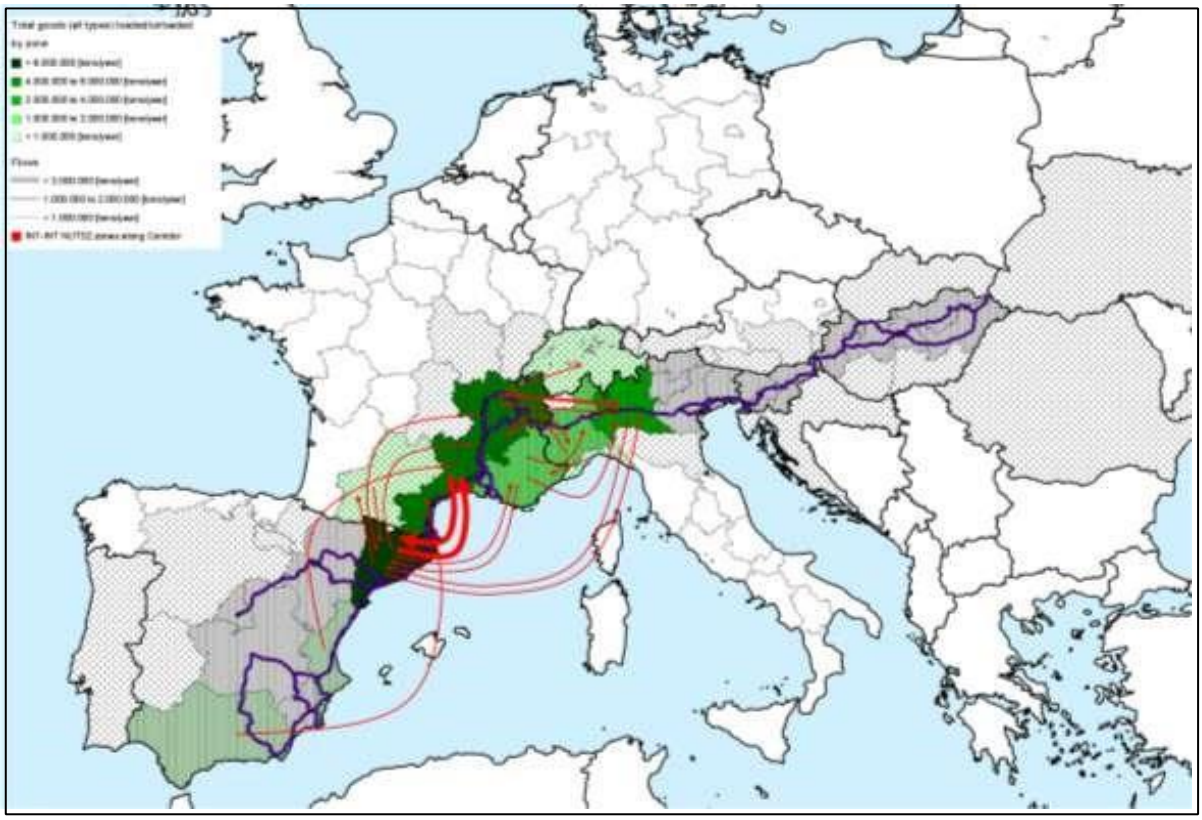
refers only to flows with Origin and Destination in the zone of the catchment area, that crossing at least one border between 5 Countries;

considers more than 1.000 O/D pairs;

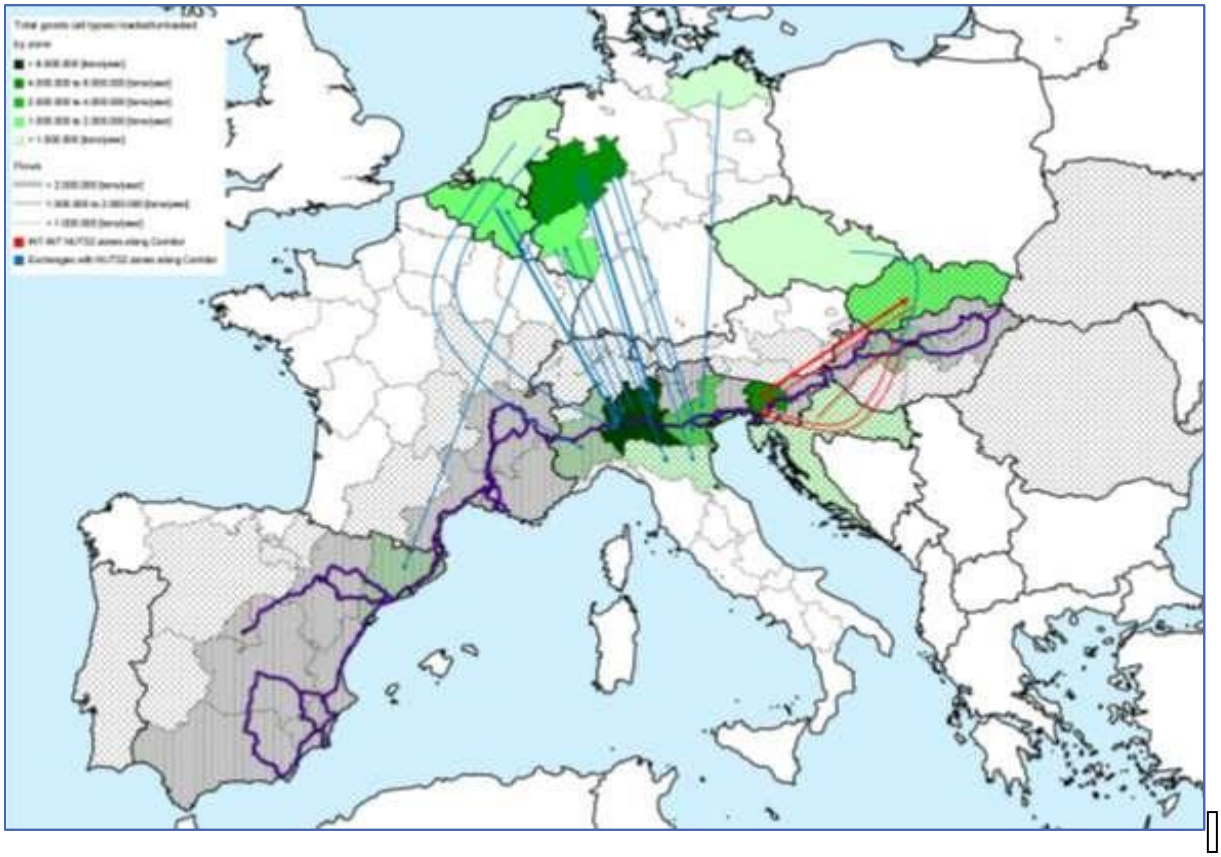


reveals that ratio of the 20 most important O/D pairs is about 29% (16 million tons/year);
reveals that ratio of the 2 most important OD pairs (from Cataluña to Languedoc-Roussillon and vice versa) is about 8% (4,7 million tons/year);
In the next table, beside the 20 main ROAD flows within the catchment area of Mediterranean Corridor - RFC 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" Mediterranean Corridor - RFC 6 (by O/D)



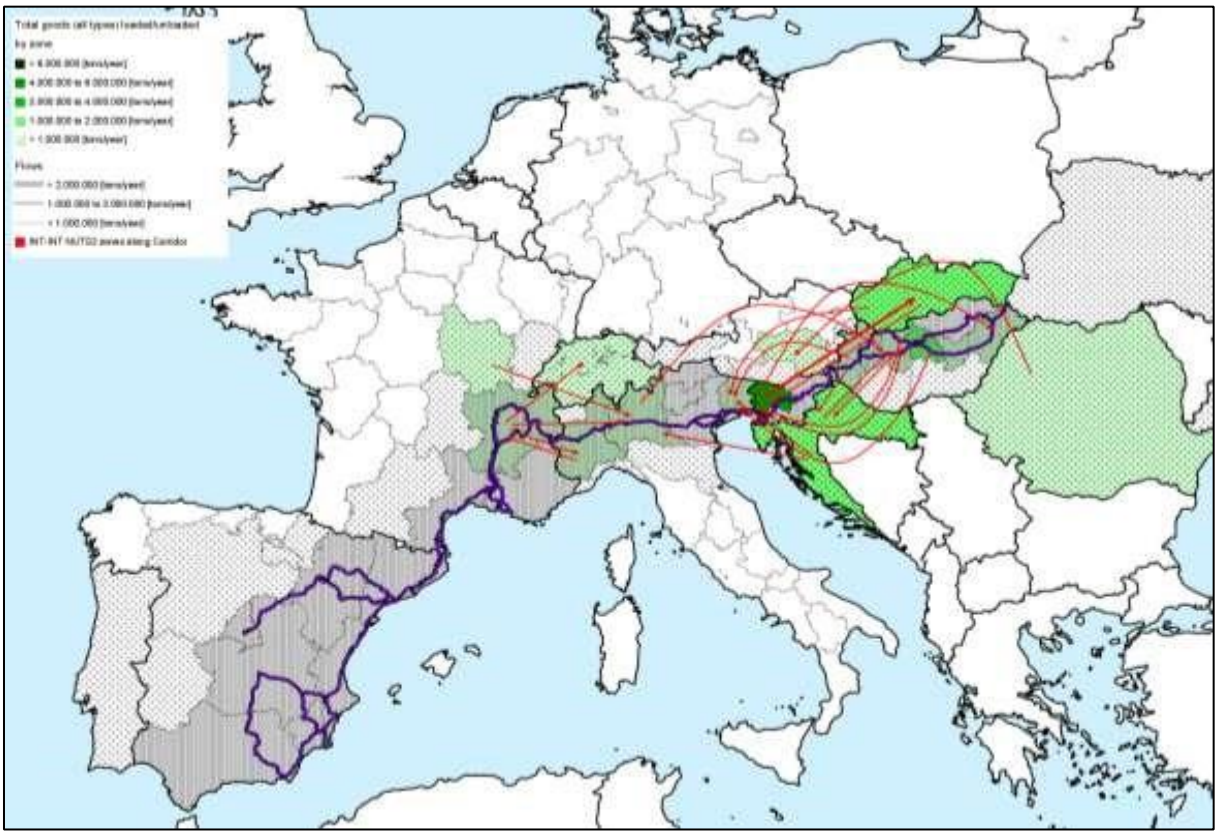
Analysis of main international RAIL freight flows within zones of the catchment area of Mediterranean Corridor - RFC 6 (by O/D):
refers only to flows with Origin and Destination in the zone of the catchment area, that crossing at least one border between 5 Countries;
considers about 380 different O/D 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 Mediterranean Corridor - RFC 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)



Surveys

Key activity of the second phase of the TMS, is the realization of surveys to different stakeholders of the freight market along the Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, includes firstly an RP part, and the investigation is then completed by Max-Diff survey and by Delphi method.

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 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;

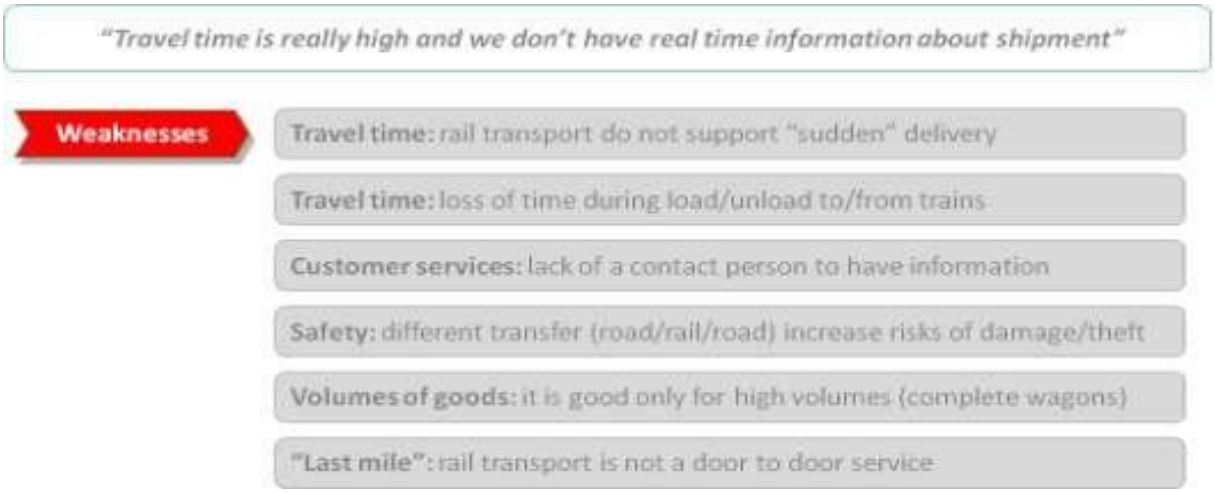
Cost: cost is always considered when asking for or offering a transport service;

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

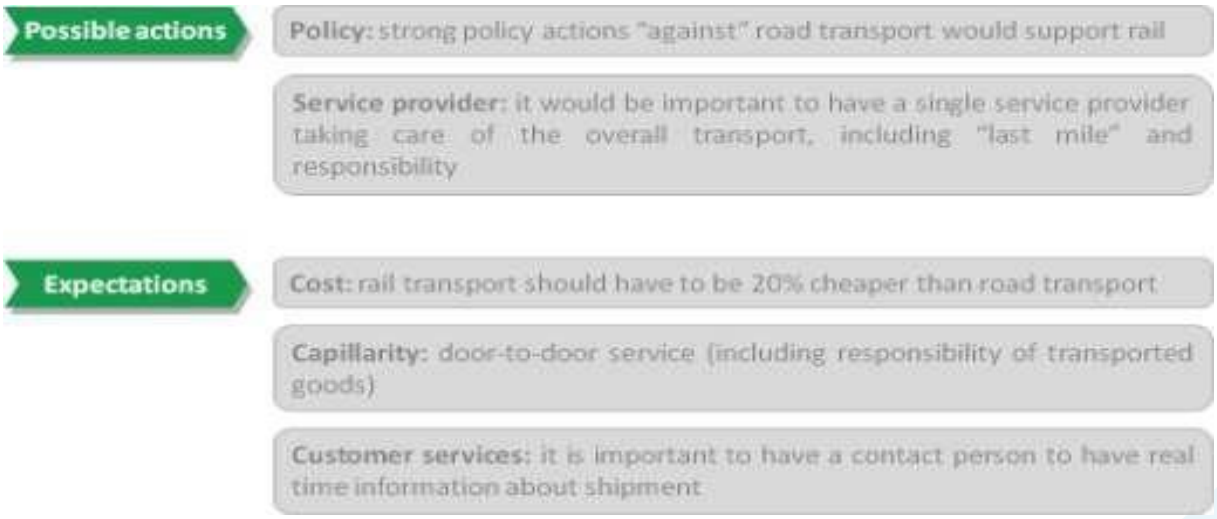
Possibility to overcome critical aspects: the transport service provider must prove is capability to overcome "administrative and bureaucratic issues", especially at some border.

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:

- a door-to-door service, that means to take care also of first and last mile;
- 100% responsibility of transported goods from initial Origin to Destination final destination;
- a contact person to have real time information about transport.

Shippers and intermediaries RP/SP survey

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 kinds 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).

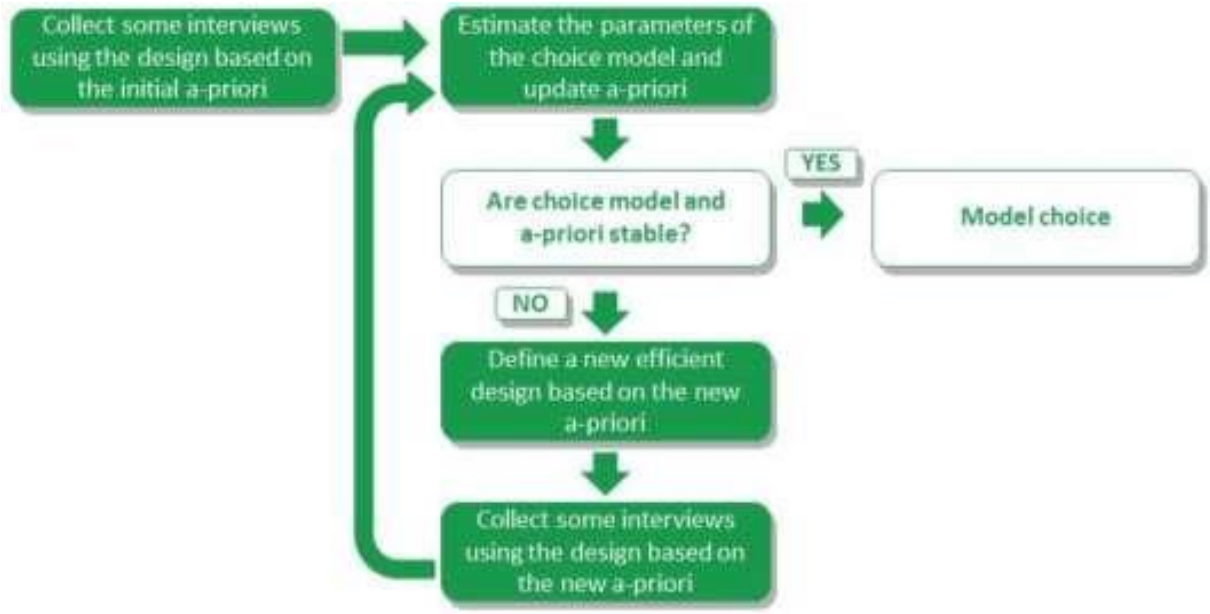
In order to collect SP data, it is necessary to define the attributes, that is the characteristics of the freight services to be analysed, and the levels of the attributes, that is the values of the characteristics used to describe the hypothetical scenarios. To increase the realism of the choice experiments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



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.

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 Mediterranean Corridor - RFC 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.

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.

Survey achievement

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

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 Mediterranean Corridor - RFC 6, on the basis of a preliminary analysis.

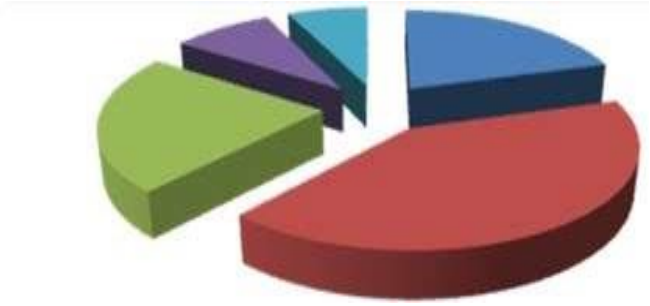
Surveys in Slovenia started very late due to force majeure however, thanks to the adoption of the efficient design methodology, the final number of interviews collected allows to carry out the predefined analysis.

Results

The sample

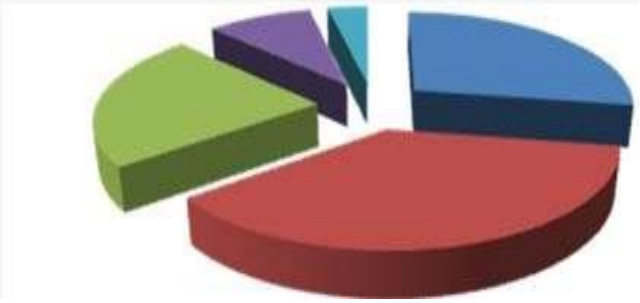
More than 60% of interviewed **shippers** has a typical micro-enterprise turnover, 23% that of the "small enterprises" and 16% that of medium-sized ones.

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%



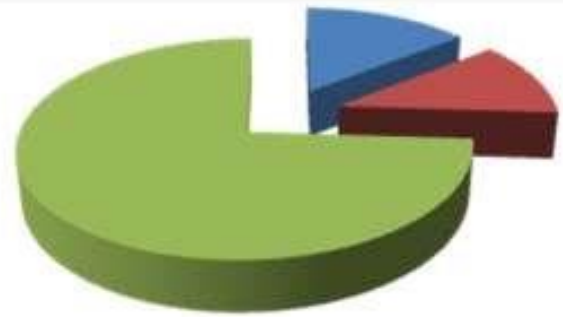
28% of interviewed **shippers** has a typical micro-enterprise number of employees, 37% that that of small enterprises, 23% of medium-sized and 12% of large ones.

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

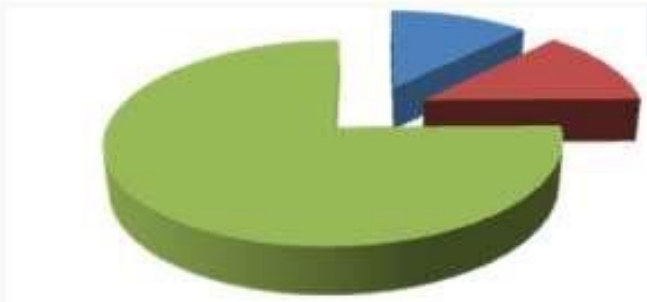


Most of interviewed **shippers** delegate to third party the organization and transportation of the goods (74% of incoming goods, 75% of the outbound flows).

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%

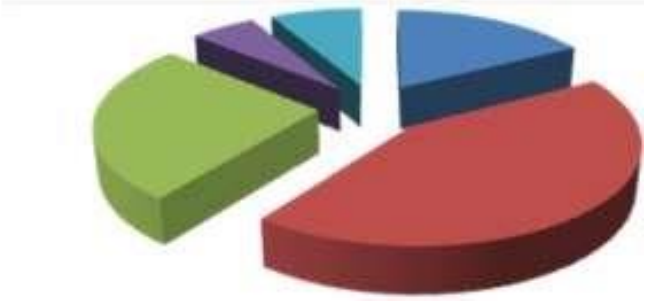


Transport organization of outbound freight	
Transport arranged by Company AND made with Company's vehicles/equipments	12%
Transport arranged by Company BUT made with other Company's vehicles/equipments	13%
Transport arranged by THIRD PARTIES and made with their vehicles/equipments	75%



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%

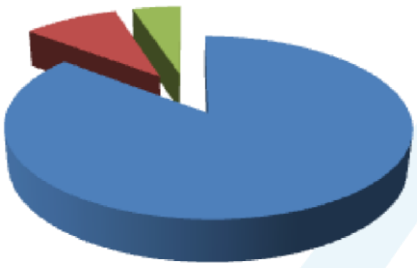


46% of interviewed **intermediaries** has a typical micro-enterprise number of employees, 41% that of small enterprises, 9% that of medium-sized and 4% of large.

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.

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 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 considered, when analysing propensity of interviewed to move from road to rail transport. Shippers and Intermediaries surveys: qualitative evaluation of rail 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	2,79	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**

Qualitative evaluation of road services by type of firms

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

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

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.

Survey sampling strategy

The survey, addressed to Railway Undertakings and rail and intermodal Terminal Managers interested in Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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.

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 agent 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 assess 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 Mediterranean Corridor - RFC 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

Surveys achievement

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 interviews;
- 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)

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.

Surveys results

The sample

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

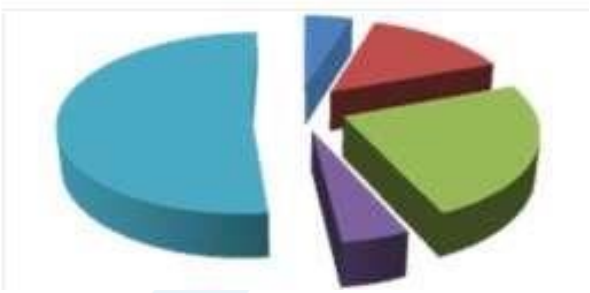
- turnover;
- employees;
- number of other locations additional to the headquarters;
- % of raw, semi-finished, finished materials transported;
- type of carriage used (i.e. container, other, open, flat, covered, refrigerate);
- main classes of distance usually covered (500<, 501-1.000, 1.001-2.000,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

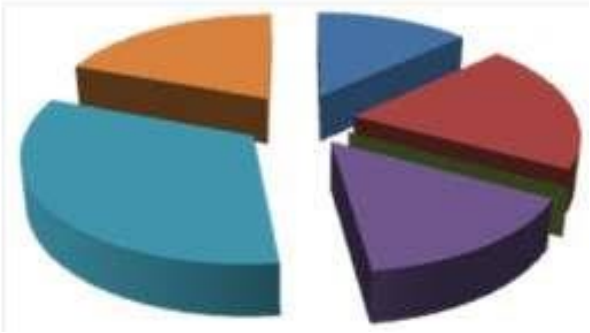
RUs/TMs survey: type of handled goods

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

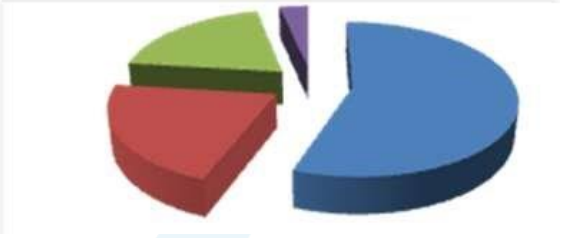
Type of wagons	
Open wagon	13%
Covered wagon	20%
Refrigerate wagon	0%
Flat wagon	15%
Spine car of intermodal containers	33%
Other	19%



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%



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.

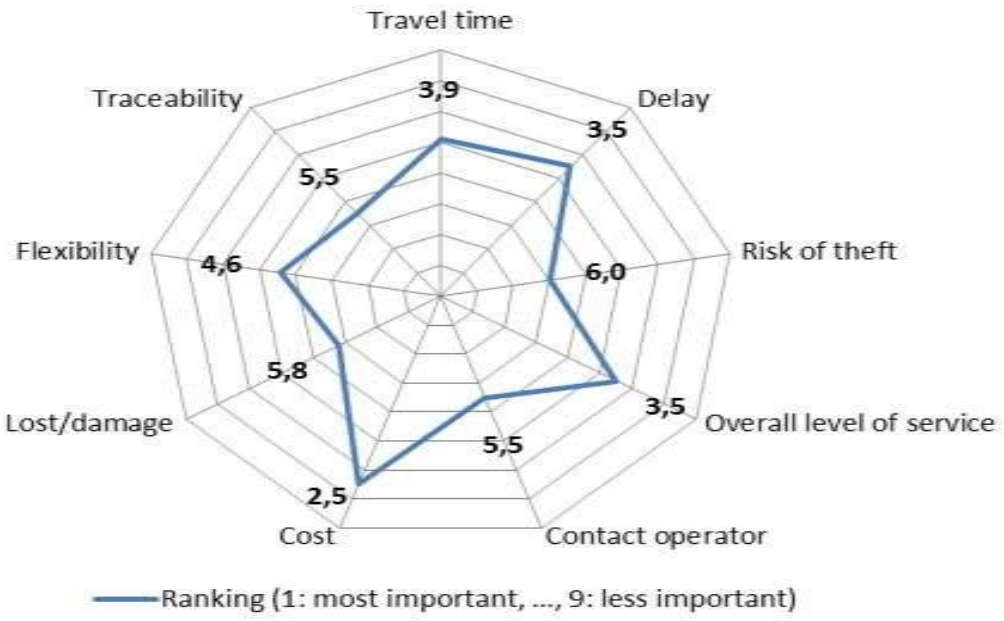
Ranking

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.

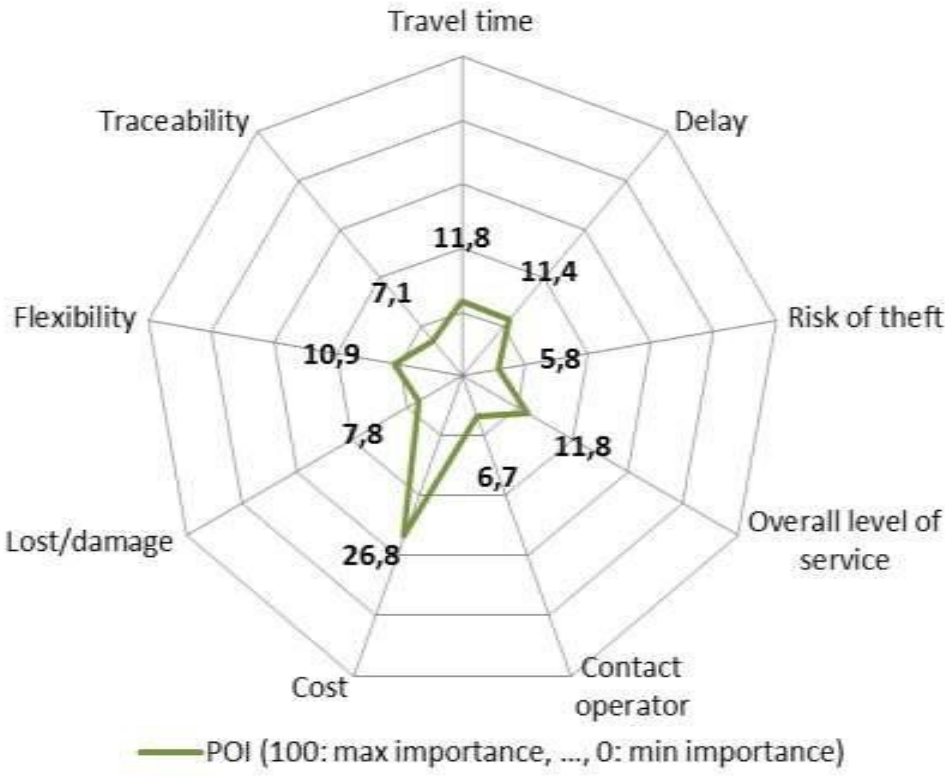
Rating

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's 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.

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.

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

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

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.

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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6, according to RUs/TMs opinions/expectations.

3.3 Projections

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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6;

The definition of the "potential market area" of Mediterranean Corridor - RFC 6

The "potential market area" of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 are considered in the catchment area;
- Market zones: other zones;

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

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

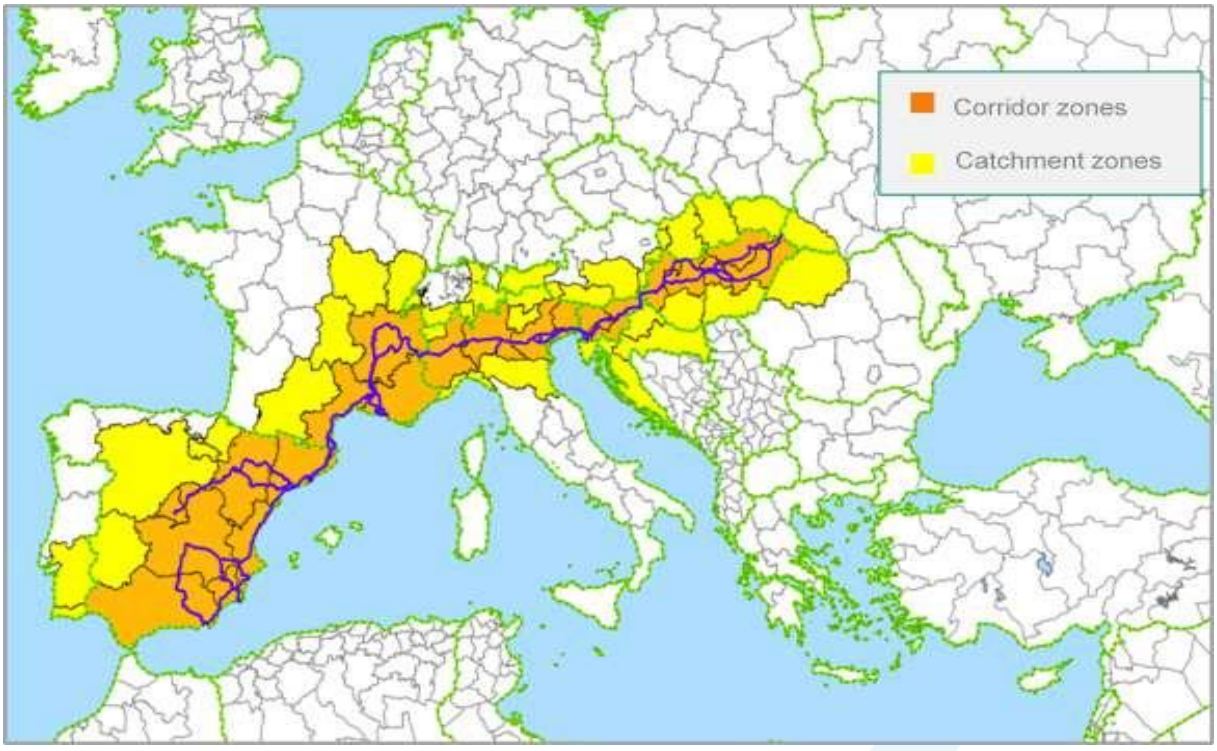
- From Origin to Destination there isn't any reasonable path along Mediterranean Corridor - RFC 6 (I.e. from northern France to northern Germany) or
- Origin to Destination are not linked by rail lines (i.e. to/from Andorra) or
- Origin to Destination are not linked by rail path crossing at least one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



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;

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 analyse 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);

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.

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 Mediterranean Corridor - RFC 6 potential market, both in catchment and in market area.

Results

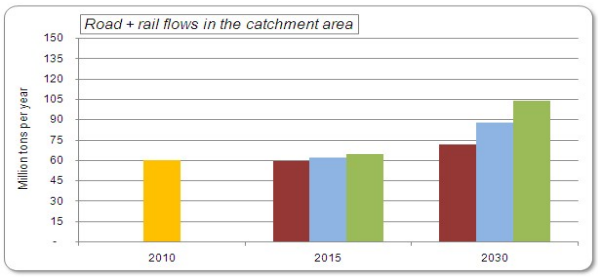
The analysis of the results at NUTS2 level with regard to the overall O/D pairs considered part of the "potential market area" of Mediterranean Corridor - RFC 6, lead to determine the following ranges of flows rate evolution (decrease or increase) in the 6 different scenarios considered.

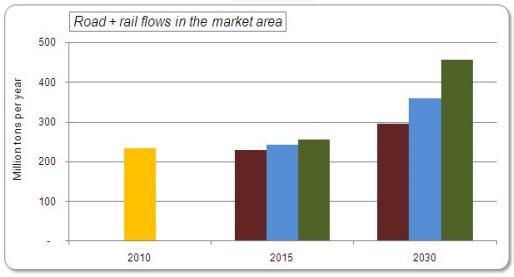
Estimation of "road + rail" freight flows in 2015, considers also a possible decrease of freight flows in case the GDP could evolve in its worst scenario (30% less than the official forecast)

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 Mediterranean Corridor - RFC 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;

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":

1. In near (2015) and far (2030) future;
2. using specifically designed and developed econometric models;
3. 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 Mediterranean Corridor - RFC 6 in near and far future, in terms of overall rail transported tons by O/D.

Starting data

Year: 2030
GDP scenario: Worst, Regular and best

O/D type	Origin		Destination		ETIS Rail + Road 2030 (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	2.368.270	3.126.285	3.245.147	3.718.940
Internal	FR81	Languedoc-Roussillon	ES51	Cataluña	2.963.976	3.125.766	3.244.597	3.718.309
Transit	BE21	Prov. Antwerpen	ITC4	Lombardia	1.300.119	1.717.089	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	1.042.479	1.453.774	2.023.870
Transit	DE21	Oberbayern	ITC4	Lombardia	1.038.984	1.083.323	1.424.849	1.922.218
Internal	ITC1	Piemonte	FR71	Rhône-Alpes	982.176	986.079	1.368.972	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	864.365	1.141.908	1.185.319	1.358.377
Internal	SI02	Zahodna Slovenija	HU10	Közép-Magyarország	848.345	599.680	1.160.689	1.848.650
Transit	DEA1	Düsseldorf	ITC4	Lombardia	820.386	855.414	1.125.088	1.517.820
Transit	DEA2	Köln	ITD3	Veneto	808.529	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	794.915	781.787	1.090.036	1.517.473
Exchange	SK04	Východné Slovensko	AT31	Oberösterreich	780.076	1.030.826	1.069.807	1.225.999
Exchange	DEA1	Düsseldorf	ITD5	Emilia-Romagna	766.754	799.492	1.051.547	1.418.544
Internal	ES51	Cataluña	FR71	Rhône-Alpes	758.150	1.001.857	1.039.737	1.191.939
Transit	NL33	Zuid-Holland	ITC1	Piemonte	748.836	781.854	1.026.338	1.387.267
Transit	NL33	Zuid-Holland	ITC4	Lombardia	737.412	769.106	1.011.571	1.364.678
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	731.338	762.795	1.003.276	1.353.479
Exchange	ITC4	Lombardia	DEA2	Köln	701.475	689.377	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	492.238	952.772	1.517.496
Internal	ES52	Comunidad Valenciana	FR81	Languedoc-Roussillon	677.348	894.768	928.784	1.064.387
Internal	FR82	Provence-Alpes-Côte d'Azur	ES51	Cataluña	669.075	885.378	917.564	1.051.552
Exchange	ES51	Cataluña	DEA1	Düsseldorf	666.067	880.038	913.494	1.046.963
Internal	FR62	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	868.998	1.209.776

30 main OD pairs	27.889.024	32.204.444	38.247.379	48.471.668
Catchment area flows	60.247.412	71.888.769	87.855.020	112.858.373
Market area flows	233.245.319	290.551.003	359.471.416	457.382.742

Starting data of this specific analysis are:

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	1.300.115	1.361.741	1.386.269	1.361.300
Internal	FR71	Rhône-Alpes	ITC4	Lombardia	1.202.472	1.259.078	1.282.385	1.305.462
Exchange	DEA2	Köln	ITC4	Lombardia	1.065.314	1.115.807	1.135.905	1.115.447
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	1.088.208	1.107.809	1.087.853
Internal	ITC1	Piemonte	FR71	Rhône-Alpes	982.178	1.028.731	1.047.265	1.066.123
Internal	FR71	Rhône-Alpes	ITC1	Piemonte	911.400	954.598	971.792	989.298
Internal	FR82	Midi-Pyrénées	ES51	Cataluña	864.305	905.271	921.576	938.178
Internal	SI02	Zahodna Slovenija	HU10	Közép-Magyarország	848.345	886.480	902.426	918.681
Exchange	DEA1	Düsseldorf	ITC4	Lombardia	820.386	859.270	874.747	858.992
Exchange	DEA2	Köln	ITD3	Veneto	808.329	846.851	862.105	846.577
Exchange	DEA1	Düsseldorf	ES51	Cataluña	803.045	841.107	856.257	840.033
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	785.378	799.524	813.925
Exchange	NL33	Zuid-Holland	ITC4	Lombardia	737.612	772.573	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	766.238	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	732.424
Internal	SI02	Zahodna Slovenija	SK03	Stredné Slovensko	694.737	727.666	740.772	754.113
Internal	ES52	Comunidad Valenciana	FR81	Languedoc-Roussillon	677.248	709.346	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	666.057	697.668	710.235	723.027
Internal	FR82	Provence-Alpes-Côte d'Azur	ITC1	Piemonte	638.490	669.701	702.123	714.770
Exchange	ITD3	Veneto	DEA2	Köln	633.850	663.681	675.638	687.807
				30 main OD pairs	27.889.024	28.946.571	29.690.766	30.055.339
				Catchment area flows	60.247.412	59.280.555	61.921.467	64.561.855
				Market area flows	238.245.319	230.393.985	243.444.427	256.476.076

- 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 originally 5 Countries of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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.

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 Mediterranean Corridor - RFC 6 in terms of market share.
- distance, flow direction, weight, type of good and type of firm within Mediterranean Corridor - RFC 6 could be considered to achieve more detailed results, and would likely lead to an increase of the freight market share of rail Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 result. So far, the estimate of possible modal split for those flows between O/D pairs that could be connected by paths along Mediterranean Corridor - RFC 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.

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 originally 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6", that is the one reducing as much as possible the path along Mediterranean Corridor - RFC 6 feeders, is defined by:

- calculating shortest path from initial Origin (if outside the Corridor area) to the "Entrance point" in Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6;
- calculating shortest path from "Exit point" from Mediterranean Corridor - RFC 6 to final Destination (if outside the Corridor area) by using the Etis impedance database, using the same methodology;
- calculating length of path along Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 different ratios O-D 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 and crossing at least one of the borders between the originally 5 countries of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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		

3.4 Conclusions

The Transport Market Study on Mediterranean Corridor - RFC 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 originally 5 Countries of Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 the originally 5 different Countries, Mediterranean Corridor - RFC 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, Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 achieve the expected targets, Transport Market Study provides also really positive forecast about possible evolution of the rail freight market with specific regard to Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6 to increase its competitiveness and its market share compared to road. Interviewed people, representative of the most important organizations offering services on Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6.
Second type of survey, thanks to Revealed Preferences and Stated Preferences, allowed to properly define 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: Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 6;
- So far, even with this conservative approach the main findings of the Transport Market Study reveals that Mediterranean Corridor - RFC 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 Mediterranean Corridor - RFC 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.

3.4.1 Analysis concerning the extension of the Mediterranean Corridor – RFC 6 to the Croatian rail infrastructure

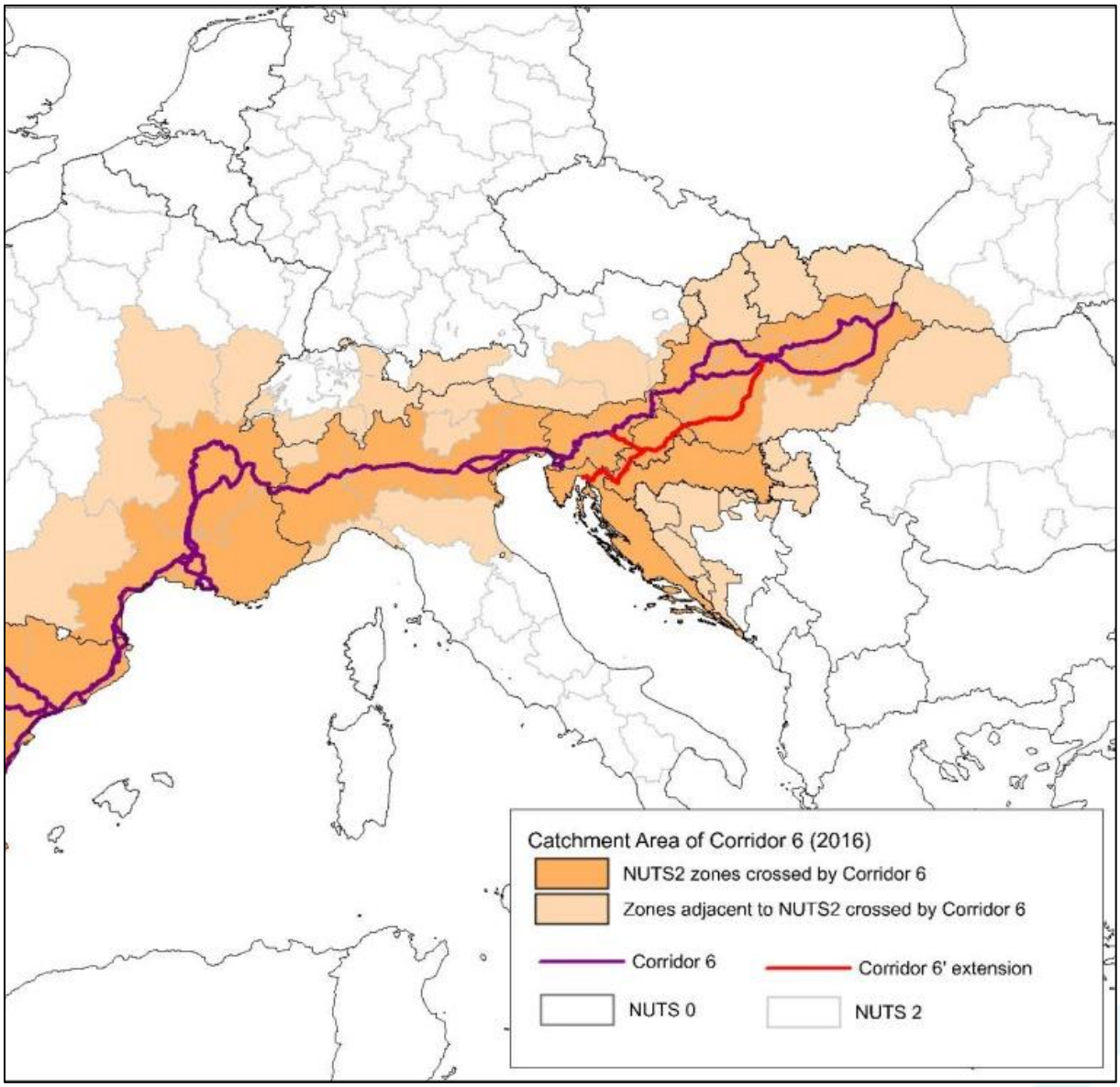
The extension of RFC 6 to the Croatian railway network makes it appropriate some thoughts on the effects or consequences on freight transport mobility that could be interesting for the Corridor itself.

Specific analysis has been conducted following these steps:

- definition of the new Catchment area of Mediterranean Corridor - RFC 6 and characterization of the freight transport demand associated to it;
- estimation of possible future freight transport demand interesting Mediterranean Corridor - RFC 6 in 2021, including its possible modal split road vs. rail, starting from main outcomes of the TMS but adopting a simplified methodology (i.e. without using Bayesian networks nor refined econometric model)
- main findings of the specific survey campaign conducted in Croatia to define behaviour and opinions of the freight transport service providers.

3.4.2 The extended Catchment area and its freight transport demand

According to the assumptions of the TMS, the extension of the Mediterranean Corridor - RFC 6 to the Croatian railways network determines some change in the Catchment area, considered as the area composed by all NURS2 zone directly crossed by the Corridor and all NUTS2 zone adjacent to these ones. The next figure highlights main changes, obviously regarding only the eastern part of the Mediterranean Corridor - RFC 6.



Before this extension, the Mediterranean Corridor - RFC 6 was crossing originally 5 Countries and 21 NUTS2 zones, while the NUTS2 zones adjacent to these were 33: so far, the Catchment area was made by 54 NUTS2 zones belonging to 12 Countries.
Following to the extension of the Mediterranean Corridor - RFC 6, the NUTS2 zones in the Catchment area are now 64: 24 directly crossed by the Corridor and belonging to its 6 Countries and 40 adjacent to these ones and part of 8 additional Countries[2].

[2] It is important to note that Croatia, formerly divided in 3 NUTS2 zones, includes now only 2 NUTS2 zones because HR01 "Sjeverozapadna Hrvatska" and HR02 "Sredisnja i Istocna (Panonska) Hrvatska" have been merged in HR04 "Kontinentalna Hrvatska".

	TMS 2012		Extension to Croatia	
	NUTS 2 adjacent to Corridor 6' NUTS 2	NUTS 2 adjacent to Corridor 6' NUTS 2	NUTS 2 adjacent to Corridor 6' NUTS 2	NUTS 2 adjacent to Corridor 6' NUTS 2
Spain	7	4	7	4
France	3	4	3	4
Italy	4	5	4	5
Slovenia	2		2	
Hungary	5	2	6	1
Croatia		3	2	
Austria		4		4
Portugal		2		2
Romania		1		1
Slovakia		4		4
Switzerland		3		3
Ukraine		1		1
Bosnia and Herzegovina				8
Serbia				3
Total	**21**	**33**	**24**	**40**

Updates and refinement of all analysis concerning the freight transport demand have been developed starting from the main assumptions of the TMS: the base reference point is the road and rail O/D matrix 2010 provided by Etisplus and the freight flows interesting for Mediterranean Corridor - RFC 6 are those crossing at least one of the borders between its Countries.
The allocation of transport demand and in particular the "type" of interesting freight flows has been revised according to the new Catchment area and to the fact that the Origin and Destination areas were or were not internal to it:
internal flows: international flows having both Origin and Destination zones within the Catchment area; exchange flows: international flows having Origin or Destination zone within the Catchment area; those flows having Origin zone in the Catchment area and Destination zone outside represents "generation", while those having Origin outside the Catchment area and Destination inside it represents "attraction"; transit flows: international flows having both Origin and Destination zone outside the Catchment area but for which at least one reasonable path between the two end zones is along the Mediterranean Corridor - RFC 6.

Depending on the new zoning adopted (some NUTS2 zones previously outside the Catchment area are now part of it) the type of flow between some OD pair has changed. Using the same reference database of the TMS, represented by the Etisplus Harmonized road and rail freight O/D matrix 2010 and by the CAFT database (used only to refine the road O/D matrix from Etisplus) the amount of transported goods for each type of flow has increased or decreased as summarized in next tables, referred respectively to road, rail and road + rail transport.
Overall, the enlargement of the Catchment area determines a 2% increase of international freight traffic flows interesting Mediterranean Corridor - RFC 6. This increase, more evident for rail traffic (+2.2%) than for road transport (+1.6%), is mainly due to the increase of internal flows (Origin and Destination inside the Catchment area).

ROAD international freight flows interesting Mediterranean Corridor - RFC 6 (thousands of tons) – Base year 2010			
Type of flows	**Mediterranean Corridor - RFC 6**		**Δ%**
	5 Countries	**6 Countries**	
Internal	49.452,0	53.395,4	7,97%
Exchanges	90.139,3	90.355,0	0,24%
Transit	42.867,3	42.187,3	-1,59%
Total flows interesting Mediterranean Corridor - RFC 6	*182.458,5*	*185.337,7*	*+1,58%*
Outside Mediterranean Corridor - RFC 6[1]	15.265.393,5	15.262.524,3	0,00%
Total	15.447.862,0	15.447.862,0	
[1] Origin and destination outside Catchment Area of Mediterranean Corridor - RFC 6 and path completely external Corridor to 6			

Source: Elaboration on Etisplus Harmonized road freight O/D matrix 2010 and CAFT database

RAIL international freight flows interesting Mediterranean Corridor - RFC 6 (thousands of tons) – Base year 2010			
Type of flows	**Mediterranean Corridor - RFC 6**		**Δ%**
	5 Countries	**6 Countries**	
Internal	10.800,9	13.252,4	22,70%
Exchanges	30.959,5	29.969,6	-3,20%
Transit	9.585,8	9.277,6	-3,22%
Total flows interesting Mediterranean Corridor - RFC 6	*51.346,2*	*52.499,6*	*+2,25%*
Outside Mediterranean Corridor - RFC 6[1]	1.217.329,8	1.216.176,4	-0,01%
Total	1.268.676,0	1.268.676,0	
[1] Origin and destination outside Catchment Area of Mediterranean Corridor - RFC 6 and path completely external Corridor to 6			

Source: Elaboration on Etisplus Harmonized road freight O/D matrix 2010

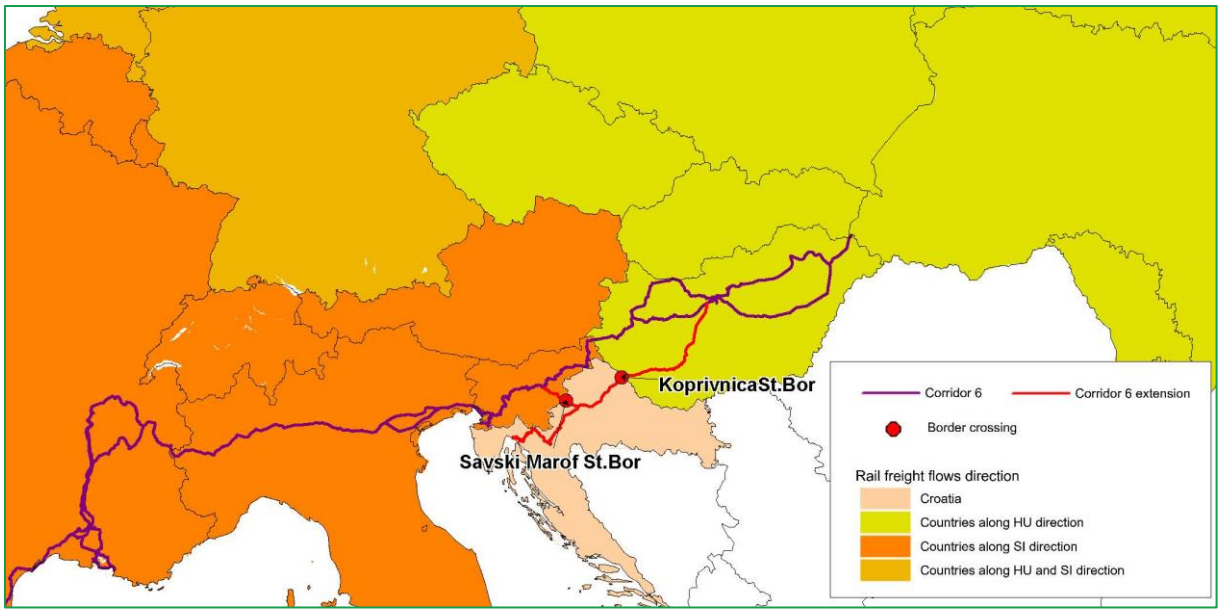
ROAD and RAIL international freight flows interesting Mediterranean Corridor - RFC 6 (thousands of tons) – Base year 2010			
Type of flows	**Mediterranean Corridor - RFC 6**		**Δ%**
	5 Countries	**6 Countries**	
Internal	60.252,9	66.647,8	10,61%
Exchanges	121.098,8	120.324,6	-0,64%
Transit	52.453,1	51.464,9	-1,88%
Total flows interesting Mediterranean Corridor - RFC 6	*233.804,8*	*238.437,4*	*+1,98%*
Outside Mediterranean Corridor - RFC 6[1]	16.482.733,2	16.478.100,6	-0,03%
Total	**16.716.538,0**	**16.716.538,0**	
[1] *Origin and destination outside Catchment Area of Mediterranean Corridor - RFC 6 and path completely external Corridor to 6*			

Source: Elaboration on Etisplus Harmonized road freight O/D matrix 2010

In this phase a specific analysis focused on freight flows from and to Croatia has been developed trying also to verify the reliability and consistency of the estimations provided by the TMS through a comparison with recent data available from different sources.
The only available data more recent than those used in the TMS were the number of freight trains observed to/from Croatia in last years and the preliminary results of a national transport study in Croatia referred to 2013. More precisely, the number of freight trains generated or directed in Croatia and effectively transited at the border crossings between Croatia and respectively Slovenia (Savski Marof) and Hungary (Koprivnica) in last 5 years were available, while from one national transport study in Croatia ([3]) it has been possible to retrieve the draft rail O/D matrix referred to 2013 while concerning.
Given the available data and trying to support a significant comparative analysis, it was necessary first of all to define the rail freight flows expected to transit in the border crossings of Savski Marof and Koprivnica have been used. So far, flows directed to or coming from Albania, Bosnia and Herzegovina, Greece, Kosovo, Montenegro, Former Yugoslav Republic of Macedonia, Serbia, Bulgaria, Romania, Cyprus, Malta and Turkey have been excluded.
All remaining rail freight flows have been assigned to the border crossing of Savski Marof and Koprivnica according to the following assumptions:

- exchanges between Croatia and Andorra, Austria, Belgium, France, Iceland, Ireland, Italy, Liechtenstein, Luxemburg, Monaco, Portugal, San Marino, Slovenia, Spain, Switzerland and United Kingdom have been assigned to the border crossing of Savski Marof;
- exchanges between Croatia and Azerbaijan, Belarus, Czech Republic, Estonia, Finland, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Norway, Poland, Russian Federation, Slovakia, Sweden, Turkmenistan, Ukraine and Uzbekistan have been assigned to the border crossing of Koprivnica;
- exchanges between Croatia and Denmark, Germany and Netherlands have been assigned 50% to each one of the border crossings of Savski Marof and Koprivnica.

[3] The transport study considered is still in progress and its results shouldn't be considered as definitive

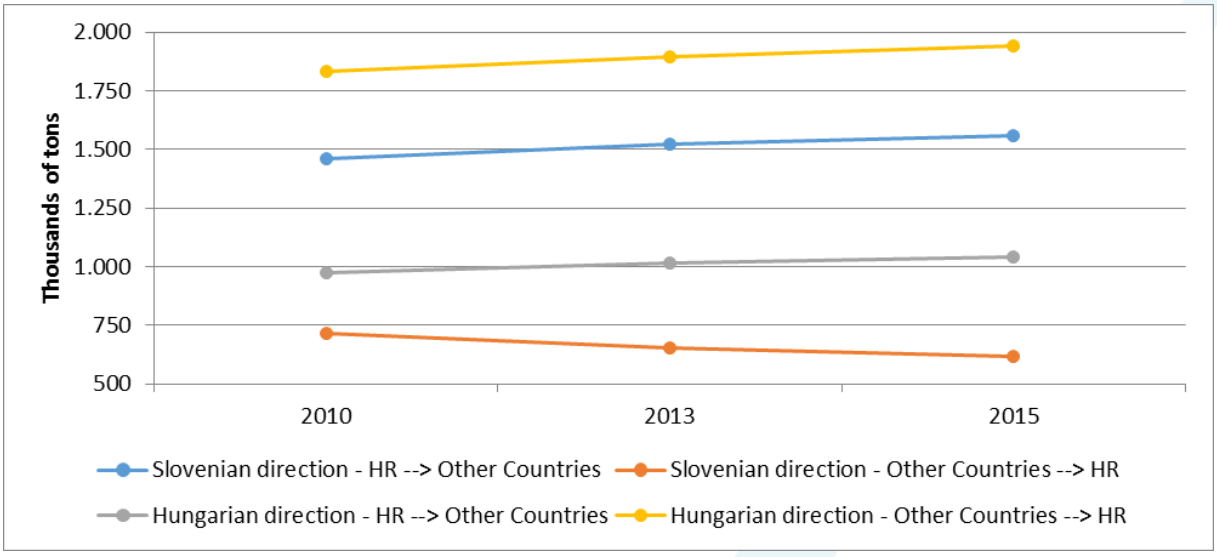


To complete a significant comparative analysis, it has been also necessary to obtain a retroactive estimation of freight flows in 2013 using the input data and the assumptions of the TMS and to define all rail flows expected to transit in the border crossing of Savski Marof and Koprivnica.

In the TMS, different Bayesian networks and econometric models calibrated using surveys and data collection campaign in the originally 5 Countries were used to provide the estimation of freight flows in 2015 and 2030 and their modal split. Given that it wasn't possible to use the same exact procedure, the theoretical estimation of TMS referred to 2013 have been defined using input and output data of the TMS but simply assuming a linear growth of freight flows between 2010 (base year for TMS) and 2015 (short term estimation of TMS), based on $CAGR_{2015-2010}$ defined during the TMS.

The results of this are presented in next tables.

The first table highlights that rail freight flows directed to Croatia (import) are really much higher than those generated from it (export) at the border with Hungary, while at the Slovenian border the balance is opposite.

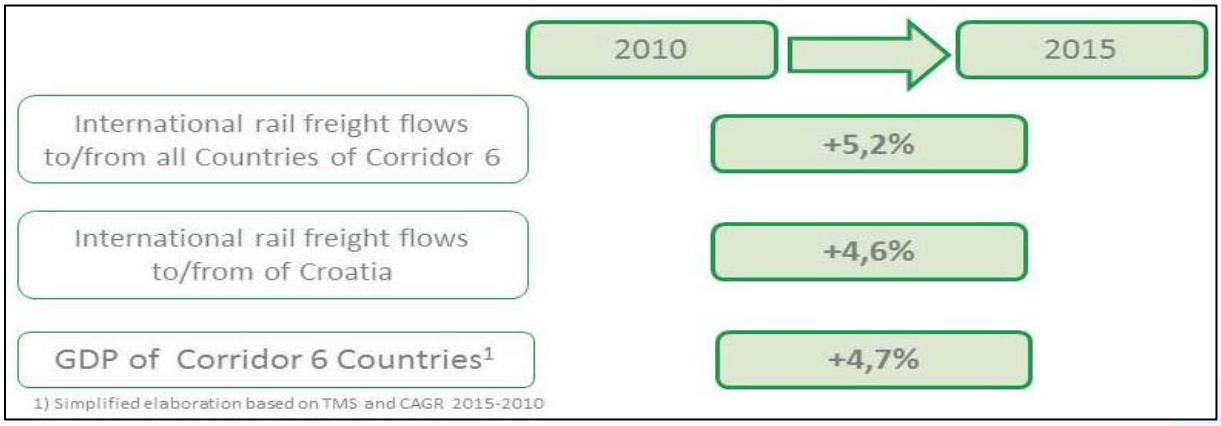


The distinction between flows to/from Slovenia and Hungary based on the assumptions presented above, required to better compare freight flows with available data about observed freight trains at border crossings, is presented in next table.

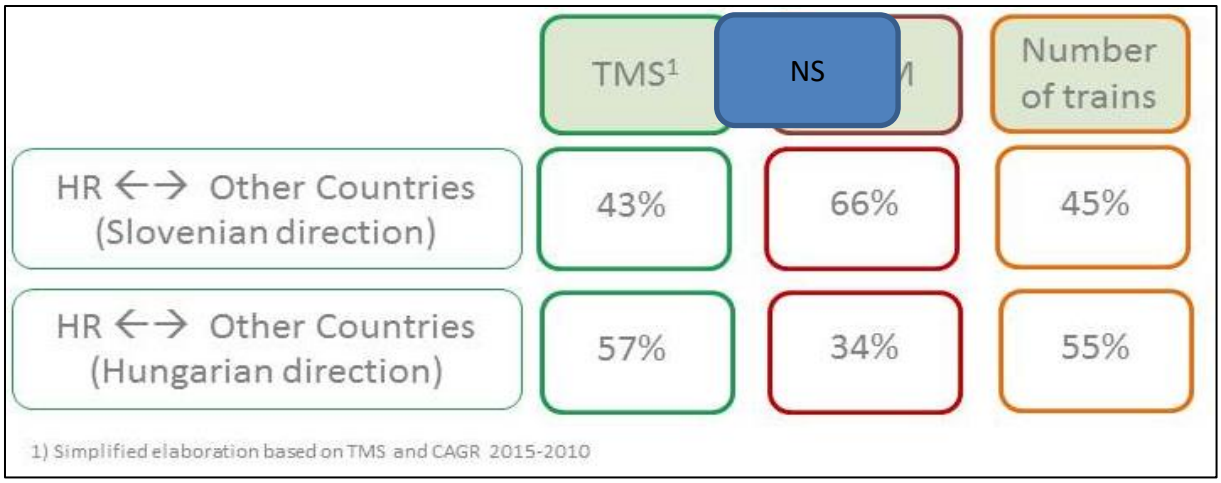
	Rail 2010	Rail 2015	CAGR$_{2015-2010}$	Rail 2013
Slovenian direction				
HR --> Other Countries	1.463	1.559	1,3%	1.520
Other Countries --> HR	717	616	-3,0%	654
Hungarian direction				
HR --> Other Countries	976	1.040	1,3%	1.014
Other Countries --> HR	1.830	1.942	1,2%	1.897
Total	4.986	5.158	0,7%	5.085

Thousands of tons

Due to the fact that the TMS confirmed the strong influence of the GDP on the evolution of freight transport demand, the first table is used to compare the observed evolution of the GDP of the Countries belonging to the Mediterranean Corridor - RFC 6 and the freight flows to/from any o these. As revealed by the table, the estimated evolution of freight flows to/from the Countries of Mediterranean Corridor - RFC 6 between 2010 and 2015 is in line with the real observed evolution of the GDP of the same Countries.

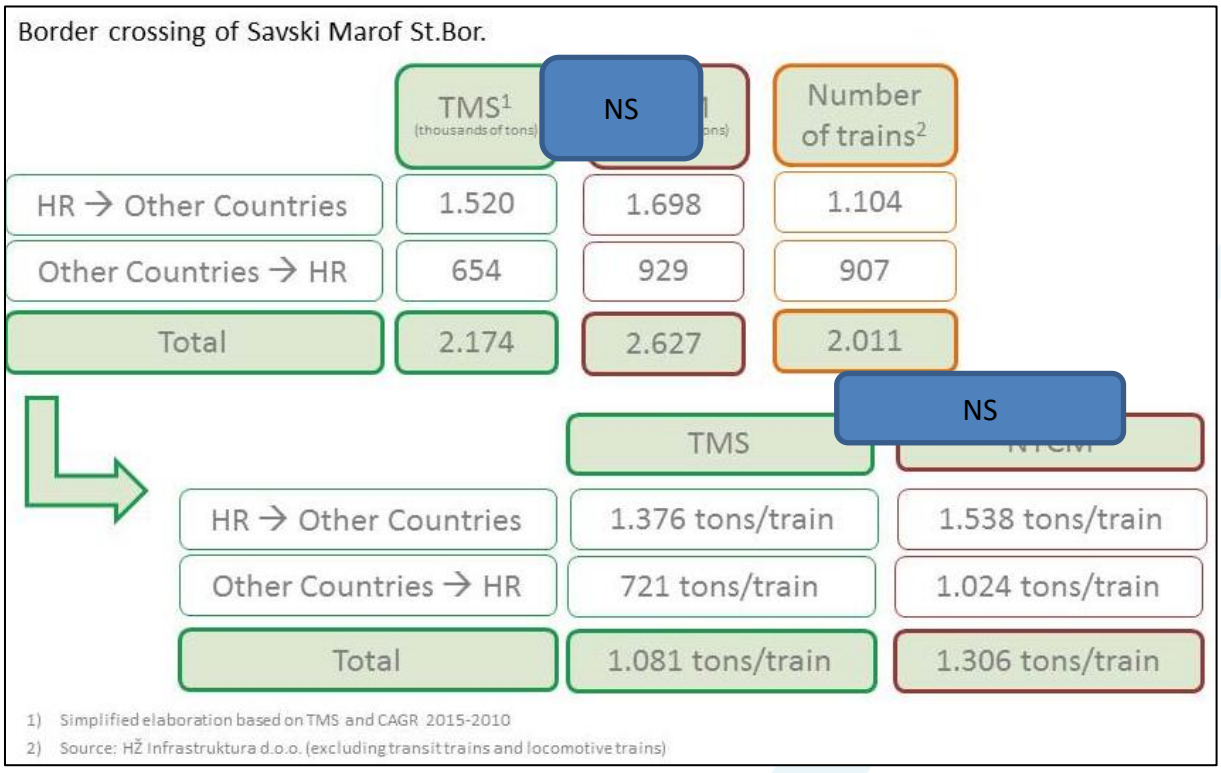


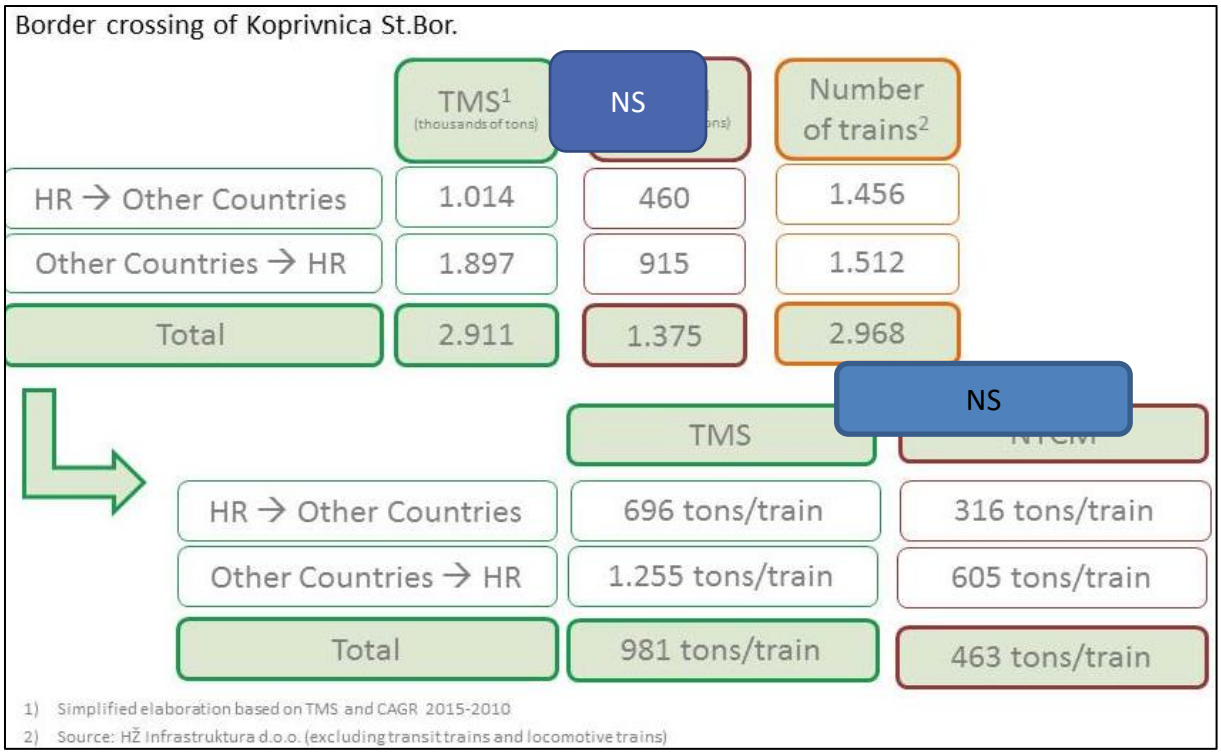
Next tables summarize the comparative cross analysis between the detailed results of this retroactive estimations, the rail O/D matrix of a given National Study and the number of trains effectively transited at the border crossings between Croatia and Slovenia or Hungary.
The first table reveals that the distribution of flows estimated by the TMS is in line with the distribution of freight flows effectively operated in the 2 considered borders in 2013, while data from a considered National Study are not balanced the same way.



The following tables, referred respectively to the border crossing of Savski Marof and Koprivnica, aims to analyse the expected average net load of freight trains transited in 2013, starting from freight flows data of the TMS and a National Study. Analysis conducted reveals that:

- the average net load based on TMS data are homogeneous in the 2 directions;
- the average net load based on a National Study date is low for freight trains to/from Hungary;
- Share of freight flows in TMS is clearly comparable to share of trains at borders;
- Share of freight flows in a National Study is less comparable to share of trains at borders.





The National Study considered is still in progress and its results could be shortly refined. The conducted comparison reinforces the reliability of the TMS and allows to use its methodology and its main results to provide an estimation of rail freight flows interesting the extended Mediterranean Corridor - RFC 6 in 2021, time horizon that was not considered in the TMS.

3.4.3 Freight traffic flows forecast in 2021

The TMS, using a Bayesian network model and an econometric model estimated the road and rail freight flows between all O/D pairs in 2015 and 2030, considering 3 alternative scenarios (Regular[4], Worst[5] e Best[6]) depending on the possible evolution of the GDP. The estimation of freight flows in 2021 is now provided starting from the results of the TMS and, in particular, from the estimated O/D matrices referred respectively to 2015 and 2030.
As for the retroactive estimation referred to 2013, also for the 2021 estimation is used a simplified methodology assuming a linear progression between 2015 and 2030, end points of the TMS estimations. As in the TMS, estimations are provided considering 3 possible evolutions (Regular, Worst e Best) of all factors influencing freight transport demand and in particular the GDP.
The road/rail modal spilt is estimated using the methodology adopted in the TMS:

- for all O/D pairs internal to the former 5 Countries of the Mediterranean Corridor - RFC 6, the modal split is determined using the results of the RPL model;
- for all remaining O/D pairs, including O/D pairs to/from Croatia and all exchanges and transits in respect to the Catchment area, rail and road share is that observed on the ETIS database 2010

To estimate the overall amount of goods (tons) that could be transported using the Mediterranean Corridor - RFC 6 or any part of it keeping in mind that interesting flows are only those crossing at least one of the borders between 2 Countries belonging to the Mediterranean Corridor - RFC 6, the following assumption are considered:

- for all O/D pairs internal to the Corridor and/or the Catchment area, it is considered that 100% of tons transported from any Origin to any Destination could (should) be shipped along the Mediterranean Corridor - RFC 6;
- for other O/D pairs as exchanges and/or transits in respect of the Catchment area, a specific ratio is derived from the comparison between:
- the "minimum railway distance using the Mediterranean Corridor - RFC 6": the sum of the distance between the Origin and the closest node along the Mediterranean Corridor - RFC 6 + the distance between the Destination and the closest node along the Mediterranean Corridor - RFC 6 + the distance between these 2 nodes of the Mediterranean Corridor - RFC 6
- the "minimum railway distance": data provided by Etis
- The ratio of goods that could (should) be transported along Mediterranean Corridor - RFC 6 is:
- "minimum railway distance using the Mediterranean Corridor - RFC 6" ≤ "minimum railway distance": 100%
- "minimum railway distance using the Mediterranean Corridor - RFC 6" > 1.5 * "minimum railway distance": 0%
- "minimum railway distance" ≤ "minimum railway distance using the Mediterranean Corridor - RFC 6" ≤ 1.5 * "minimum railway distance": decreasing linearly from 100% to 0%

The next table presents the international rail and road freight flows estimated by the TMS for 2015 and 2030 as well as the new simplified estimation to 2021. Data refers respectively to flows internal to the Catchment area (Origin and Destination in its NUTS2 zones) and other flows belonging to the interesting Market area (those flows having Origin and/or Destination outside the Catchment area but connected by at least one reasonable path along the Mediterranean Corridor - RFC 6), considering the 3 possible evolutions of the GDP.

[4] Official GDP forecast.
[5] Official -30%.
[6] Official +30%.

Year	Catchment area road and rail flows (tons)			Market area road and rail flows (tons)		
	Worst	*Regular*	*Best*	*Worst*	*Regular*	*Best*
2015	65.910.818	68.701.979	71.492.284	235.066.920	248.246.525	261.406.880
2021	70.001.987	78.625.039	86.203.334	256.837.961	287.534.988	315.384.334
2030	78.197.418	96.793.485	115.389.551	301.444.052	366.100.708	430.757.364

Coherently with the approach of the TMS, also for the simplified estimations to 2021, 3 different scenarios have been considered:
Base Scenario: all parameters characterizing the road and rail transport services remains at the same level observed or perceived by operators at present (2012, year of the surveys conducted for TMS), so that modal split remains the same even in future scenarios;

- "+ 20 road travel cost" scenario: a 20% increase of road travel cost id considered, so that rail/road modal split defined using the elaborated model changes (since the model is applied only to O/D pairs between the 5 Countries objective of the surveys, modal split changes only for these O/D pairs)
- "- 20 rail travel time" scenario: a 20% decrease of rail travel time is considered, so that similarly to the previous scenario the rail/road modal split defined using the elaborated model changes

In these 3 different scenarios, changes in road/rail modal spilt for the O/D pairs internal to the 5 Countries "represented" by the models elaborated during the TMS, lead to a different estimation of the potential market of Mediterranean Corridor - RFC 6, both in the market area and in the Catchment area, that is a part of it. In fact, the market area includes all NUTS2 zones that are Origins and/or Destinations of flows that could be reasonably made along the Mediterranean Corridor - RFC 6, because there is at least one rail route between the two end that is more than 50% longer than the shortest rail path between them.
For each one of these 3 scenarios, 3 different tables referred to 2021 are presented:

- First table summarizes the simplified estimation of the rail freight flows and the potential market of Mediterranean Corridor - RFC 6, respectively in the Catchment area and in the market area;
- The second table lists the 20 most important O/D pairs within the Catchment area (Origin and Destination in its NUTS2 zones) ranked by tons that according to the assumptions of the TMS could and should be transported along the Mediterranean Corridor - RFC 6;
- The third table lists the 20 most important O/D pairs in the overall market area of Mediterranean Corridor - RFC 6, ranked by tons that according to the assumptions of the TMS could and should be transported along the Mediterranean Corridor - RFC 6: due to the definition of the market area, exchange and transit flows are also considered.

Base Scenario (do nothing)

In this scenario the future rail freight transport demand is determined hypothesizing for each O/D pairs a linear growth between the estimations provided in the TMS referred to 2015 and 2030 and the modal split is derived from this calculations.

Area	Estimated Rail 2021 (tons)	Estimated Potential Market of Mediterranean Med,Corridor - RFC 6 (tons) - 2021
Catchment area flows	14.291.033	14.291.033
Market area flows	59.142.691	34.661.482

Obviously, all rail freight flows within the Catchment area (referred to O/D pairs having bot ends of the in the Catchment area) are considered as part of the potential market of the Mediterranean Corridor - RFC 6 because it represents one of the most important assumptions of the TMS, while concerning remaining flows within the "Market area" (so including exchange and transit flows) the potential market for Mediterranean Corridor - RFC 6 is less than the total estimated rail freight flows because for one or more O/D pair there is at least one path not along the Mediterranean Corridor - RFC 6 that is more shortest than the one along the Mediterranean Corridor - RFC 6.

Main international RAIL freight flows in the Catchment area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Estimated Rail	Estimated Potential Market
Code	Name	Code	Name	2021 (tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.167	737.167
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	689.735	689.735
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.554	650.554
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	458.420	458.420
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	457.316	457.316
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.388	430.388
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.067	392.067
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.690	387.690
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	384.615	384.615
HU22	Nyugat-Dunántúl	HR03	Jadranska Hrvatska	363.664	363.664
HU23	Dél-Dunántúl	HR04	Kontinentalna Hrvatska	288.658	288.658
FR71	Rhône-Alpes	ITC1	Piemonte	255.691	255.691
SK04	Východné Slovensko	SI02	Zahodna Slovenija	226.028	226.028
HU22	Nyugat-Dunántúl	HR04	Kontinentalna Hrvatska	211.356	211.356
FR26	Bourgogne	ITC4	Lombardia	210.424	210.424
ITC1	Piemonte	FR71	Rhône-Alpes	192.973	192.973
FR71	Rhône-Alpes	ITC4	Lombardia	181.371	181.371
HR03	Jadranska Hrvatska	ITD4	Friuli-Venezia Giulia	165.632	165.632
ITC4	Lombardia	HU21	Közép-Dunántúl	161.072	161.072
Total of 20 main potential market estimated freight flows within zones of the catchment area of Corridor				**7.764.230**	**7.764.230**
Total International freight flows interesting Corridor 6				**14.291.033**	**14.291.033**

Main international RAIL freight flows in the market area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Rail 2021	Estimated Potential Market
Code	Name	Code	Name	(tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
BE21	Prov. Antwerpen	ITC4	Lombardia	1.344.864	883.512
DEA1	Düsseldorf	ES51	Cataluña	782.924	782.924
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.167	737.167
NL33	Zuid-Holland	ITC1	Piemonte	826.008	730.302
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	689.735	689.735
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.554	650.554
ES51	Cataluña	DEA1	Düsseldorf	647.665	647.665
DE80	Mecklenburg-Vorpommern	ITD3	Veneto	711.086	576.709
ITC1	Piemonte	NL33	Zuid-Holland	615.262	542.755
NL33	Zuid-Holland	ITC4	Lombardia	712.970	489.295
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	458.420	458.420
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	457.316	457.316
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.388	430.388
DEA2	Köln	ITC4	Lombardia	967.322	403.956
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.067	392.067
ITD3	Veneto	DE80	Mecklenburg-Vorpommern	481.544	390.545
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.690	387.690
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	384.615	384.615
DEA2	Köln	ITD3	Veneto	806.620	379.898
Total of 20 main potential market estimated freight flows "along" the catchment area of Corridor 6				**13.403.625**	**11.334.921**
Total International freight flows interesting Corridor 6				**59.142.691**	**34.661.482**

Scenario "+20% ROAD travel cost"

In this scenario the future rail freight transport demand is determined hypothesizing for each O/D pairs a linear growth between the estimations provided in the TMS referred to 2015 and 2030 but the modal split of the O/D pairs within the originally 5 Countries initially part of the Mediterranean Corridor - RFC 6 (Spain, France, Italy, Slovenia and Hungary) is determined by the model developed during the TMS; modal split of flows to/from Croatia is not determined using the model developed during the TMS, because it was based and calibrated on data collected with direct interviews to operators of the other 5 Countries of Mediterranean Corridor - RFC 6.

Area	Estimated Rail 2021 (tons)	Estimated Potential Market Rail 2021 (tons)
Catchment area flows	15.098.750	15.098.750
Market area flows	59.950.408	35.469.199

Main international RAIL freight flows in the Catchment area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Estimated Rail	Estimated Potential Market
Code	Name	Code	Name	2021 (tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.931	737.931
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	690.396	690.396
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.805	650.805
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	459.320	459.320
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	458.338	458.338
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.606	430.606
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.251	392.251
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.986	387.986
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	385.164	385.164
HU22	Nyugat-Dunántúl	HR03	Jadranska Hrvatska	363.664	363.664
HU23	Dél-Dunántúl	HR04	Kontinentalna Hrvatska	288.658	288.658
FR71	Rhône-Alpes	ITC1	Piemonte	256.154	256.154
SK04	Východné Slovensko	SI02	Zahodna Slovenija	226.589	226.589
HU22	Nyugat-Dunántúl	HR04	Kontinentalna Hrvatska	211.356	211.356
FR26	Bourgogne	ITC4	Lombardia	211.139	211.139
ITC1	Piemonte	FR71	Rhône-Alpes	193.471	193.471
FR71	Rhône-Alpes	ITC4	Lombardia	182.467	182.467
HR03	Jadranska Hrvatska	ITD4	Friuli-Venezia Giulia	165.684	165.684
ITC4	Lombardia	HU21	Közép-Dunántúl	162.006	162.006
Total of 20 main potential market estimated freight flows within zones of the catchment area of Corridor				**7.773.395**	**7.773.395**
Total International freight flows interesting Corridor 6				**15.098.750**	**15.098.750**

Main international RAIL freight flows in the market area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Estimated Rail	Estimated Potential Market
Code	Name	Code	Name	2021 (tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
BE21	Prov. Antwerpen	ITC4	Lombardia	1.344.864	883.512
DEA1	Düsseldorf	ES51	Cataluña	782.924	782.924
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.931	737.931
NL33	Zuid-Holland	ITC1	Piemonte	826.008	730.302
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	690.396	690.396
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.805	650.805
ES51	Cataluña	DEA1	Düsseldorf	647.665	647.665
DE80	Mecklenburg-Vorpommern	ITD3	Veneto	711.086	576.709
ITC1	Piemonte	NL33	Zuid-Holland	615.262	542.755
NL33	Zuid-Holland	ITC4	Lombardia	712.970	489.295
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	459.320	459.320
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	458.338	458.338
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.606	430.606
DEA2	Köln	ITC4	Lombardia	967.322	403.956
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.251	392.251
ITD3	Veneto	DE80	Mecklenburg-Vorpommern	481.544	390.545
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.986	387.986
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	385.164	385.164
DEA2	Köln	ITD3	Veneto	806.620	379.898
Total of 20 main potential market estimated freight flows "along" the catchment area of Corridor 6				**13.408.471**	**11.339.767**
Total International freight flows interesting Corridor 6				**59.950.408**	**35.469.199**

Scenario "-20% RAIL travel time"

In this scenario the future rail freight transport demand is determined hypothesizing for each O/D pairs a linear growth between the estimations provided in the TMS referred to 2015 and 2030 but the modal split of the O/D pairs within the originally 5 Countries initially part of the Mediterranean Corridor - RFC 6 (Spain, France, Italy, Slovenia and Hungary) is determined by the model developed during the TMS; modal split of flows to/from Croatia is not determined using the model developed during the TMS, because it was based and calibrated on data collected with direct interviews to operators of the other 5 Countries of Mediterranean Corridor - RFC 6.

Area	Estimated Rail 2021 (tons)	Estimated Potential Market Rail 2021 (tons)
Catchment area flows	14.714.747	14.714.747
Market area flows	59.566.405	35.085.196

Main international RAIL freight flows in the Catchment area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Estimated Rail	Estimated Potential Market
Code	Name	Code	Name	2021 (tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.619	737.619
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	690.126	690.126
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.972	650.972
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	458.953	458.953
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	457.906	457.906
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.727	430.727
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.354	392.354
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.840	387.840
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	384.832	384.832
HU22	Nyugat-Dunántúl	HR03	Jadranska Hrvatska	363.664	363.664
HU23	Dél-Dunántúl	HR04	Kontinentalna Hrvatska	288.658	288.658
FR71	Rhône-Alpes	ITC1	Piemonte	255.966	255.966
SK04	Východné Slovensko	SI02	Zahodna Slovenija	226.301	226.301
HU22	Nyugat-Dunántúl	HR04	Kontinentalna Hrvatska	211.356	211.356
FR26	Bourgogne	ITC4	Lombardia	210.681	210.681
ITC1	Piemonte	FR71	Rhône-Alpes	193.269	193.269
FR71	Rhône-Alpes	ITC4	Lombardia	181.977	181.977
HR03	Jadranska Hrvatska	ITD4	Friuli-Venezia Giulia	165.683	165.683
ITC4	Lombardia	HU21	Közép-Dunántúl	161.525	161.525
Total of 20 main potential market estimated freight flows within zones of the catchment area of Corridor				**7.769.817**	**7.769.817**
Total International freight flows interesting Corridor 6				**14.714.747**	**14.714.747**

Main international RAIL freight flows in the market area - 2021

(O/D pairs based on the quantity of transported goods)

Origin		Destination		Estimated Rail	Estimated Potential Market
Code	Name	Code	Name	2021 (tons/year)	Rail 2021 (tons/year)
HR03	Jadranska Hrvatska	HU21	Közép-Dunántúl	919.408	919.408
BE21	Prov. Antwerpen	ITC4	Lombardia	1.344.864	883.512
DEA1	Düsseldorf	ES51	Cataluña	782.924	782.924
SI02	Zahodna Slovenija	HU10	Közép-Magyarország	737.619	737.619
NL33	Zuid-Holland	ITC1	Piemonte	826.008	730.302
HU10	Közép-Magyarország	SI02	Zahodna Slovenija	690.126	690.126
SI02	Zahodna Slovenija	SK03	Stredné Slovensko	650.972	650.972
ES51	Cataluña	DEA1	Düsseldorf	647.665	647.665
DE80	Mecklenburg-Vorpommern	ITD3	Veneto	711.086	576.709
ITC1	Piemonte	NL33	Zuid-Holland	615.262	542.755
NL33	Zuid-Holland	ITC4	Lombardia	712.970	489.295
SK04	Východné Slovensko	HR03	Jadranska Hrvatska	458.953	458.953
HR04	Kontinentalna Hrvatska	ITC4	Lombardia	457.906	457.906
SI02	Zahodna Slovenija	SK02	Západné Slovensko	430.727	430.727
DEA2	Köln	ITC4	Lombardia	967.322	403.956
SK02	Západné Slovensko	SI02	Zahodna Slovenija	392.354	392.354
ITD3	Veneto	DE80	Mecklenburg-Vorpommern	481.544	390.545
HR04	Kontinentalna Hrvatska	ITD4	Friuli-Venezia Giulia	387.840	387.840
HU22	Nyugat-Dunántúl	ITD4	Friuli-Venezia Giulia	384.832	384.832
DEA2	Köln	ITD3	Veneto	806.620	379.898
Total of 20 main potential market estimated freight flows "along" the catchment area of Corridor 6				**13.407.001**	**11.338.297**
Total International freight flows interesting Corridor 6				**59.566.405**	**35.085.196**

3.4.4 Analysis of opinions and behavior of Croatian transport operators

A specific survey campaign has been designed and conducted on site to know the opinions of the Croatian transport operators about the main characteristics of rail and road transport services and infrastructures and to better analyse their behaviour and willingness to switch to rail depending on hypothesized changes in relevant factors influencing their choices. Out of a total of 96 contacted stakeholders, only 12 accepted to complete the survey.
About 40% of the respondent operators have a yearly turnover lower than € 2.000.000 while for the remaining 60% the turnover is between 2 and 10 million €.

Annual turnover	
< 500.000,00 €	9%
500.000,00 - 2.000.000,00 €	33%
2.00.000,00 - 10.000.000,00 €	58%
10.00.000,00 - 20.000.000,00 €	0%
> 20.000.000,00 €	0%

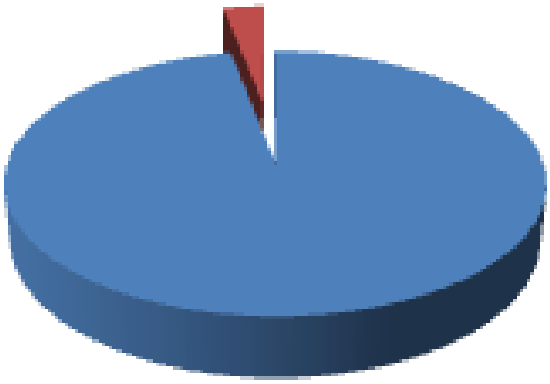
The number of workers of the interviewed operators is typical of the micro or medium enterprises: 50% of operators have less than 10 employees, 42% between 10 and 50 and only 8% of them have more than 49 (but, in any case, lower than 250).

Number of employees	
< 10	50%
10-49	42%
50-249	8%
250-1.000	0%
> 1.000	0%

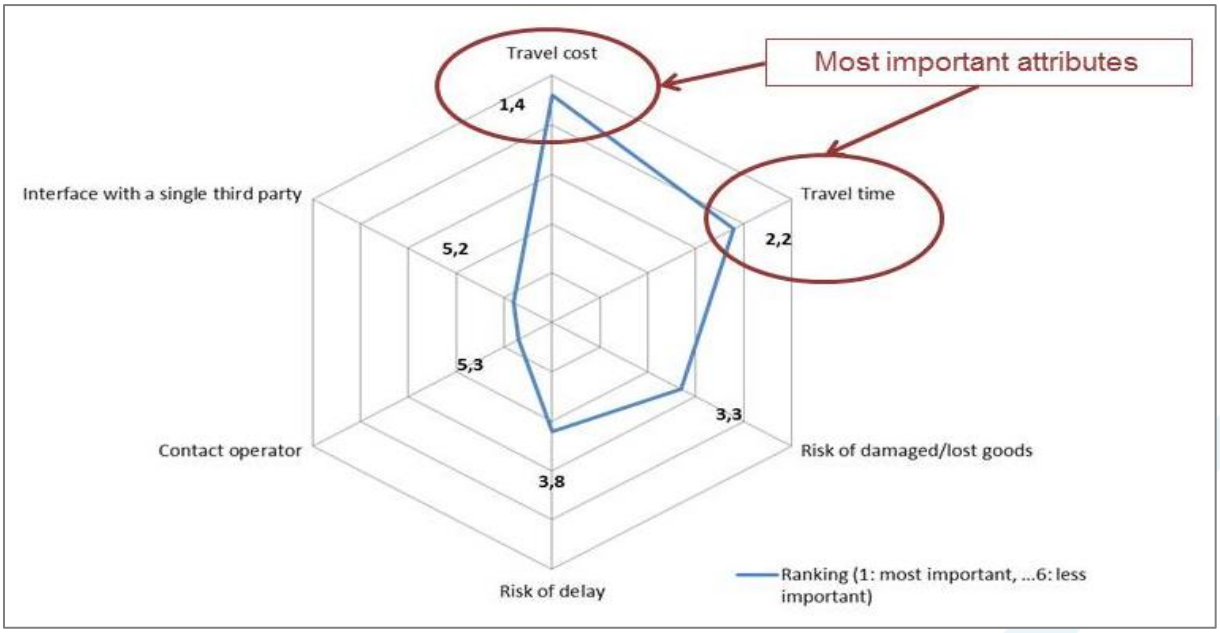
Even if most of the goods moved by respondents could be easily transported by rail, almost all shipments are made by road

Main type of transported goods
Products of wood and cork (except furniture)
Tubes, pipes, hollow profiles and related fittings
Non-ferrous metal and products thereof
Structural metal products
Other unidentifiable goods
Unidentifiable good in container or swap bodies

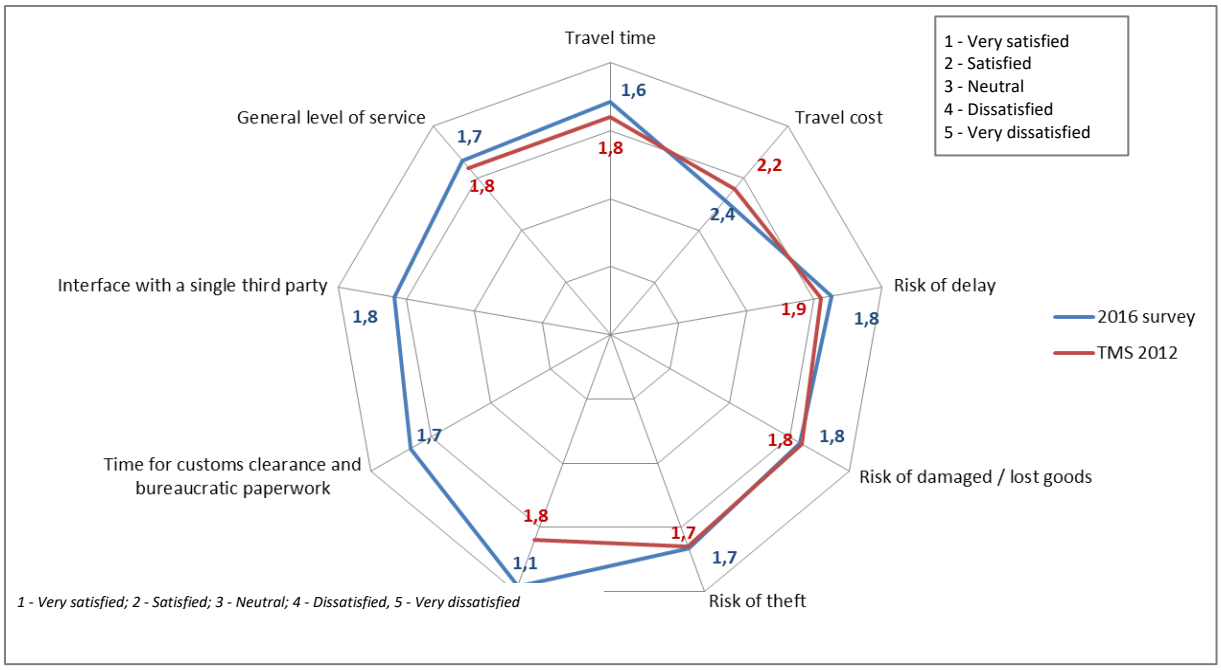
Mode transport	
Road transport	97%
Rail transport	3%



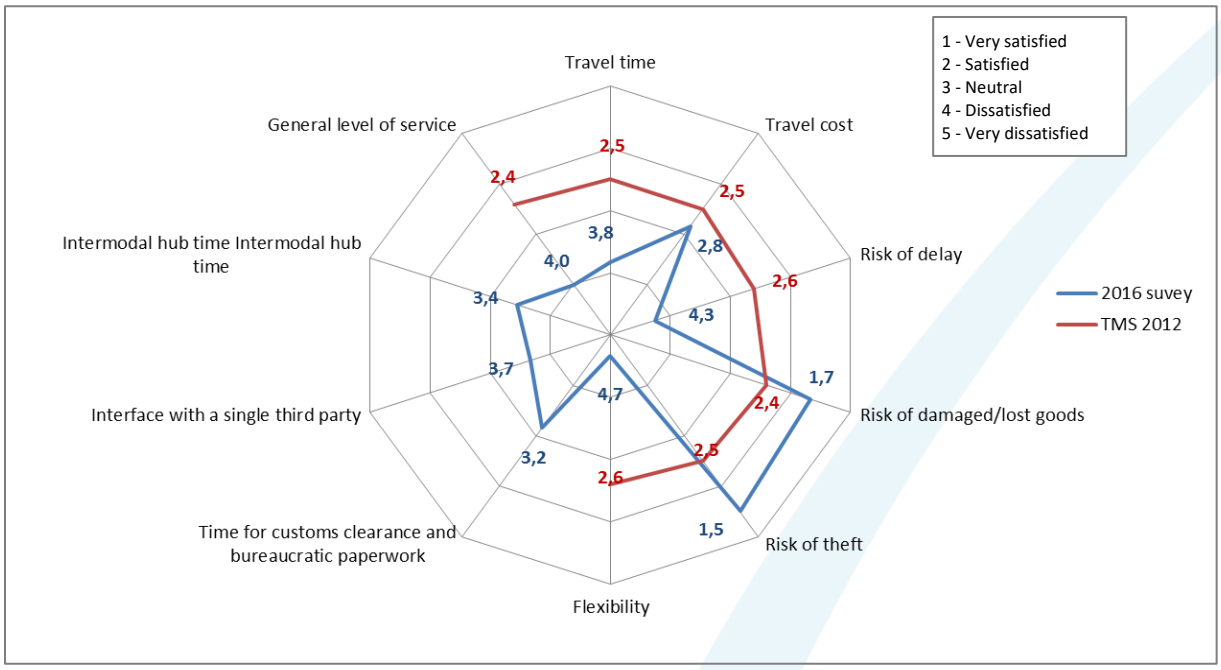
Among all attributes of freight transport, *travel cost* is the most important and *travel time* is the second. The *risk of damaged/lost goods* and the *risk of delay* are considered as quite relevant while the possibility to directly contact the transport service providers or to deal with a single operator have a low importance.



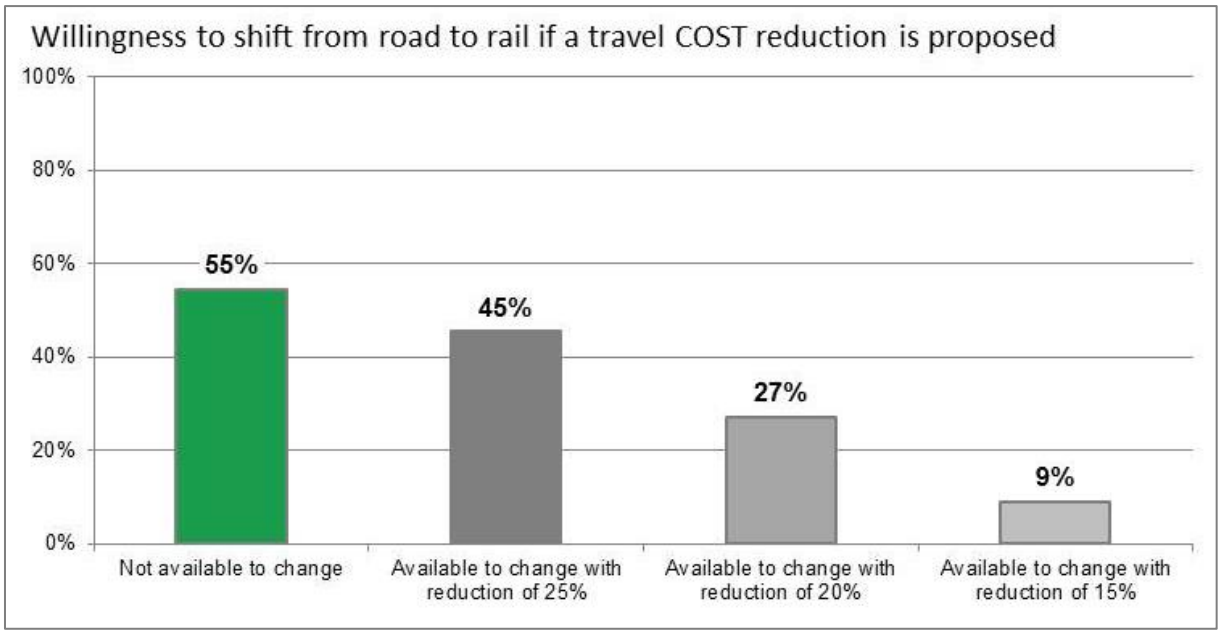
Concerning road transport, all respondents are satisfied by any attribute. *Flexibility* of road transport services is considered the most appreciated as highlighted by the fact that most of respondents are very satisfied about it. Interviewed people are satisfied by most of remaining parameters and only for the travel cost the average rating is between neutral and satisfied (but closer to the latter).
Main findings of this survey are similar to those of the campaign conducted during the TMS in 2012, addressed to the operators of the other 5 Countries of Mediterranean Corridor - RFC 6: major differences are observed concerning flexibility, much more appreciated by Croatian operators and travel cost rather little more appreciated by people interviewed in other Countries.



Concerning road transport, all respondents are dissatisfied by most attributes. Satisfaction is expressed only concerning the risk of theft and the risk of damaged/lost goods, appreciated as much as for road transport. Interviewed people are very dissatisfied by the flexibility of services, dissatisfied by the risk of delay and the general level of service. A comparison with results obtained in the survey of 2012 addressed to operators of the other 5 Countries of Mediterranean Corridor - RFC 6, reveals major differences concerning all parameters except for travel cost: the average is between neutral and satisfied for all. Remaining parameters obtain very different evaluations: compared to the others, Croatian people are more satisfied by the risk of damaged/lost goods and the risk of theft and really less satisfied by all other parameters.

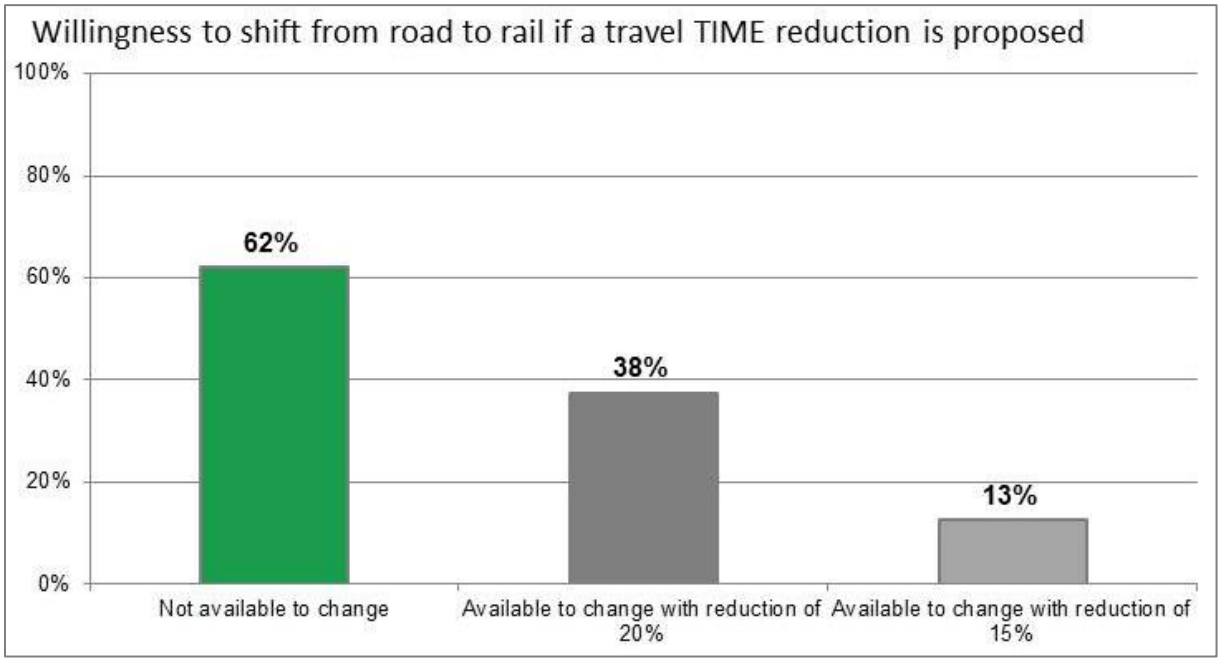


Last but not least, outcomes of the survey reveals that Croatian operators have a scarce willingness to shift to rail even in case an important reduction of rail travel time or rail travel cost (most important factors) should be proposed.



As revealed in the 2 graphs:

- 55% of operators wouldn't switch to rail independently to travel cost reduction proposed;
- 62% of operators wouldn't switch to rail independently to travel time reduction proposed;
- travel time is considered less important than travel cost and in fact the share of operators not willing to change if a travel time reduction is proposed is bigger than that of operators not willing to change if a travel cost reduction is offered.



4 List of Measures

4.1 Coordination of planned temporary capacity restrictions

"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 possessions 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".
All information concerning the coordination of possessions is available in the Corridor Information Document Book 4 chapter 4.

4.2 Corridor OSS

Background

According to the decision of the Mediterranean Corridor - RFC 6 MB, the parties agreed that the C-OSS of Mediterranean Corridor - 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 Mediterranean Corridor - 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.

Requirements

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 using prearranged paths on 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, of the Regulation n°913/2010 included in the Corridor Information Document drawn up, regularly updated and published by the RFC MB:

Information contained in the Network for national networks regarding the freight corridor

- A list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminal

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;
- RNE Related guidelines;

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. The Corridor OSS is available during regular office hours.

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.

All information concerning the establishment of a One-Stop-Shop is available in the corridor information document book 4 chapter 2.

4.3 Capacity Allocation Principles

The Executive Board adopted the new Mediterranean Corridor - RFC 6 Capacity Allocation Framework which was published on the Corridor website (11th of January 2016).
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;

Referring to Article 14.1 of the Regulation (EU) 913/2010, the Ministers of transport adopted a decision related to capacity allocation by the C-OSS on Mediterranean Corridor - RFC 6. For timetable 2016/2017, a revised version was drafted and adopted by the representatives of the Executive Board. The detailed text can be found on Mediterranean Corridor – RFC 6 WEB:
https://www.railfreightcorridor6.eu/RFC6/web.nsf/OnePager/index.html
The Framework for Capacity Allocation (FCA) constitutes the basis for capacity allocation via the C-OSS.

4.4 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 Mediterranean Corridor - RFC 6 C-OSS, by signing the "General Terms and Conditions" (GTC) for requesting international freight paths through the Mediterranean Corridor - RFC 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

Summary of possible situations for Authorized applicants

The applicant commits to comply with all relevant regulations regarding its path request via the Mediterranean Corridor - RFC 6 C-OSS, by signing the "General Terms and Conditions" (GTC) for requesting international freight paths through the Mediterranean Corridor - RFC 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.

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 Réseau

The article L.2122-11 of National Code of transportation indicates that «an applicant is a railway undertaking, international groupings or any other person having commercial reasons or public service

for applying for infrastructure capacity such as combined transport operators, port, shippers, freight forwarders or railway transport authority"
SNCF Réseau may ask applicants to provide information demonstrating their financial robustness before any contract may be signed.

SŽ-I
Regarding answer on this question we must give you short term description because in our legislation we don't have direct explanation »authorized applicant«:
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);

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
Non-RU applicant: natural person or legal entity seated in an EEC Member State, providing public service or having commercial interest in procuring infrastructure capacity, as well as shippers, freight forwarders and combined transport operators, who have concluded an agreement with the infrastructure manager on reserving infrastructure capacity.
In Hungary non-RU applicant is obliged to designate the RU actually using the rail network services required by and allocated to the non-RU applicant at least 10 days prior to the actual use of the service. Further rules for signing the above mentioned agreement and the RU appointment are stated in the NS under chapter 4 capacity allocation. A template for such an agreement will be available in the Annex part of the new NS.

HŽI
In accordance with the Railway Act of Republic of Croatia, there is no special definition for AA. There are only definition for "Applicant" which is in line with Directive 2012/34/EU.

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 Réseau
The network statement of SNCF Réseau indicates in chapter 4 the procedure
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 Réseau 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 Réseau of the name(s) of the railway undertaking(s) that will provide the transport service.
SNCF Réseau may have to ask applicants to provide: information demonstrating their financial robustness before any contract may be signed.

SŽ-I
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 Railway;
Transport Network Statement.

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:
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.
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
Ensuring the professional competence of its managerial and technical staff and the safety on the services that wants to provide.
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:

- Take the form of a corporation, in accordance with Spanish law, for an indefinite period, and with nominative shares;

- 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;
- Make a statement of activity, indicating the type of service and the annual traffic foreseen by applying for capacity;
- 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;
- 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;
- Sufficient resources to meet the fixed and operational costs, resulting from the operations of its business;
- Must have covered the civil liabilities that may be required;

SŽ-I

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.

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 Réseau

SNCF Réseau is responsible for it.

SŽ-I

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.

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 Réseau

No.

SŽ-I

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

4.5 Traffic Management

The Traffic Management related procedures are available in our CID Book 4, Chapter 5 Traffic Management.

4.6 Traffic Management in Event of Disturbance

The Traffic Management in Event of Disturbance related procedures are available in our CID Book 4, Chapter 5.3 Traffic Management in the Event of Disturbance.

4.7 Information Provided

Information on the conditions of use of the freight corridor is available in our Corridor Information Documents (CID), as follows:
CID Book 2 - all the information contained in the network statement for national networks regarding the freight corridor
CID Book 3 - the list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminals
CID Book 4 - the information concerning the procedures referred to Management of the Freight Corridor. These are the procedures of Capacity and Traffic Management.
CID Book 5 – The Implementation Plan.

4.8 Quality Evaluation

Quality of service on the freight corridor is a comparable indicator (set of indicators) to those of the other modes of transport. Service quality is evaluated as a performance. Performance is measured with Performance Indicators. These indicators are the tools to monitor the performance of a service provider. What regards the international rail freight services the obligation is based on the provisions of Article 19 of the EU Regulation 913/2010.

4.8.1 Performance Monitoring Report

Rail Net Europe has already developed a Guidelines for Freight Corridor Punctuality Monitoring. This document describes the basic processes needed to carry out a regular activity of quality monitoring and analysis within the framework of the Rail Freight Corridors (RFCs) established by the Freight Regulation. In particular, such processes are intended to fulfil the requirements stated in the articles of the Regulation. The explicit requirement of the Regulation is that the Corridor Organisations adopt common rules for punctuality targets and objectives in terms of performance. The algorithm of the complete is as follows:

- Collection and compilation of data to identify a development;
- Evaluation of the data, with regard to the past and in terms of a forecast for the future with the aspects:
  - Development of the traffic;
  - Framework conditions (how have the conditions changed, how will they change in the future; e.g. construction work, changes to the infrastructure?):
- Identification of the customer's viewpoint concerning punctuality targets;
- Consideration of political requirements (international or national);

The process described in the Guidelines focuses on the collection and analysis of reliable data, this information basis is essential in order to develop punctuality targets.

Process overview

The Performance Monitoring report brings major benefits, such as Transparency. Transparency is a motivator to improve performance and gives credibility. The Performance Monitoring report measures fulfilment of performance targets. It identifies also the needs for action and the identification of good practices. The general shape of the complete process presented in the TPM Guidelines has not been changed. The process is composed of 5 main phases, which will be described separately in the following sections:

- Definition phase;
- Data collection phase;
- Performance analysis phase;
- Action planning phase;
- Implementation phase;

Based on the above process flow Mediterranean Corridor - RFC 6 has already compiled and adopted its own TPM Manual and started its performance monitor activity accordingly.
In order to use the same quality of data and to reduce the overall efforts of the RFCs and RNE, the same IT tools are used for the calculation of the commonly applicable KPIs. The data are provided by PCS and TIS, while the data processing tool is OBI.

The KPIs of Capacity management, which mean the performance of the Mediterranean Corridor - RFC 6 in constructing, allocating and selling the capacity of the Mediterranean Corridor - RFC 6, monitored in terms of:

- Volume of offered capacity;
- Volume of requested capacity;
- Volume of requests;
- Volume of pre-booked capacity;
- Number of conflicts;

The KPIs of Operations, which mean the performance of the traffic running along Mediterranean Corridor - RFC 6 monitored in terms of punctuality and volume of traffic:

- Punctuality at origin;
- Punctuality at destination;
- Number of train runs;

The KPIs of Market development, which mean the capability of the Mediterranean Corridor - RFC 6 in meeting the market demands are monitored in terms of:

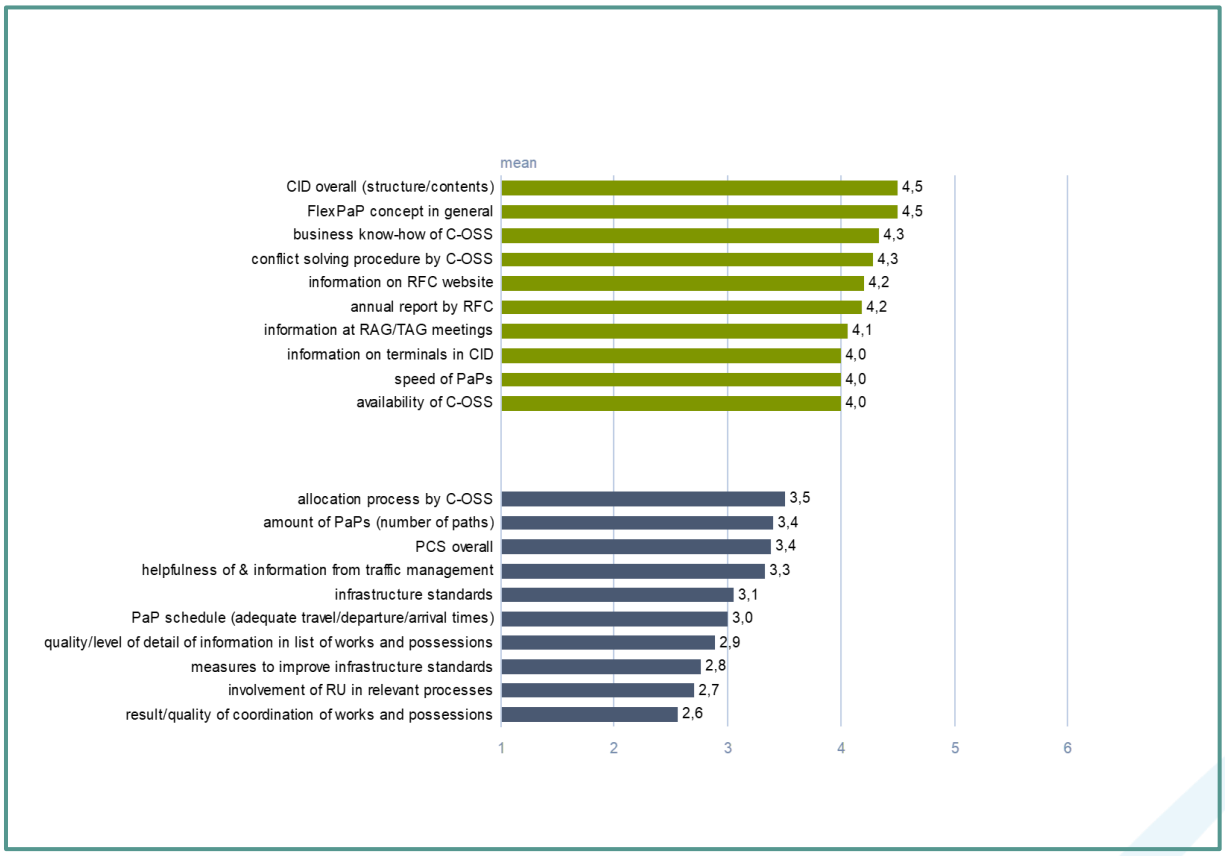
- Traffic volume;
- Relation between the capacity allocated by the C-OSS and the total traffic;

Publication of the results

The results of the performance monitoring (KPIs) together with the Performance Report (under Article 19.2 of the Freight Regulation) will be published once a year on the web site of Mediterranean Corridor - RFC 6, at:
https://www.railfreightcorridor6.eu/RFC6/Public/RFC6_Annual_Report_2016.pdf

4.8.2 User Satisfaction Survey

Under RNE coordination, a Customer Satisfaction Survey was held in 2017 for all Rail Freight Corridors. Having a common survey managed by RNE provided for comparable results and avoided that the same customers, operating on different corridors, could be subject to different questionnaires with different structures. As far as Mediterranean Corridor - RFC 6 is involved the study was conducted on 27 Mediterranean Corridor - RFC 6 users/potential users. Here below an overview of the results.



In-depth information on the Customer Satisfaction Survey are available on the Mediterranean Corridor - RFC 6 website.

5 Objectives / Performance

Punctuality objectives

In line with provisions of Article 9 of EU Regulation 913/2010 and improve quality of service Mediterranean Corridor - RFC 6 punctuality objectives were defined.

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, along Mediterranean Corridor - RFC 6. 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:
- Clarification of timetable behaviour;
- Uniform behaviour in rounding seconds;
- 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.

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 are 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 Mediterranean Corridor - RFC 6 specific situation and needs.

Interoperability objectives

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 CSS (control and command 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 telematics 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 Investment Plan

This Investment Plan is an updated version of the genuine one, agreed in early 2013. Now, as Mediterranean Corridor - RFC 6 was extended to Croatia (effective 10th November 2016), it includes that of HŽI.
The description of the plan is split by nature of projects.
Nature of the projects:

- Renewal of tracks;
- The renewal of signalling system;
- The renewal of tunnel, bridge etc.
- The electrification;
- The creation of siding, passing tracks, extra tracks;
- The creation of a new structure (line, bridge, tunnel, leapfrog);
- Adjustment of the gauge;
- The enhancement in signalling (especially ERTMS that will constitute a specific issue);
- The track enhancement;
- The level crossings;
- The noise reduction;
- Other projects;

This nature of projects has been split according to the following categories: renewal, enhancement and development.
Renewal of projects includes 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.

Benefits of the projects
Each project may have one or several benefits amongst these main benefits:

- Bottleneck relief in order to make the infrastructure more available;
- Safety/security;
- Environment in order to comply with national laws but also to make the projects more acceptable;
- Higher speed to increase competitiveness, especially regarding the road transportation;
- Interoperability to increase also competitiveness;
- Punctuality improvement, as provided by the surveys made for the TMS. It's one of the key point;
- Maintenance of performance: especially the renewal of tracks is essential to maintain the performance. If not the performance will become worst;

6.1 List of Projects

The list of projects includes all Projects foreseen for development of infrastructure along Mediterranean Rail Freigth Corridor – RFC 6 together with its financial requirements and resources.

6.1.1 List of projects in the overlapping sections

The list of projects has been drafted taking into account the **overlapping sections** (where it is relevant) as identified in chapter 2.2. of this document.

The Corridor members checked the coherence of the information included in the list of projects with the same information provided for other corridors sharing the same overlapping sections. The projects in the Overlapping sections are identified with this symbol under the country's symbol: OS-N (Number of Corridor having the section in common).

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		Barcelona Port	Access; Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2025	Works phase	120					
2	SP		Barcelona Port	Intermodal Terminal: Construction a new terminal in the ancient Llobregat riverbed including rail motorway	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2030	Technical study	200					
3	SP		Barcelona Can Tunis	Developing and upgrading freight rail road terminal in Barcelona Can Tunis Terminal	Bottleneck relief Interoperability Capacity improvement	2014	2016	Works phase	7.51					
4	SP		Barcelona La Llagosta	Implementation of intermodality and UIC gauge in Barcelona La Llagosta Terminal and connection to the corridor	Bottleneck relief Interoperability Capacity improvement	2017	2020	Technical study	36.80					

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5	SP		Tarragona Port	New rail acces and upgrading Rail connections in UIC gauge within the port (Muelles Química, Cantabria)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2017	2020	Technical study	13.92					
6	SP		Tarragona Port	Developing and upgrading freight rail road terminal in the Port of Tarragona	Bottleneck relief Interoperability Capacity improvement	2020	2022	Technical study	8					
7	SP		Valencia Port	New rail tracks in Principe Felipe Quay Rail connection and network of the Northern Container Terminals in the Port of Valencia Enlargement to the Mediterranean Corridor and by rail to the hinterland Implementation of standard gauge Enlargement of existing port terminals to attend 750m long trains Improvement of rail and road layout to reduce level crossings and improve trains transit times	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2014	2023	Technical study	226.5					

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8	SP		Valencia Port and Valencia - Fuente San Luis	Rail and logistics platforms of Port of Valencia. Developing and upgrading freight rail road terminal in Valencia Port and Valencia - Fuente San Luis	Bottleneck relief Interoperability	2018	2025	Technical study	60					
9	SP		Castellón Port Access	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2020	2030	Technical study	124					
10	SP		Sagunto Port	Access New rail connection from the corridor to the port of Sagunto (incl. siding tracks)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2017	2020	Technical study	42					
11	SP		Alicante Port	Access Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Works phase						

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12	SP		Cartagena Port (Escombreras)	Upgrading railway access: New rail access to the Escombreras facilities Rail upgrading within the port Upgrading Escombreras rail terminal (outside the port)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Technical study	39.5					
13	SP		Almería Port	Upgrading rail connection from the corridor to the port	Bottleneck relief Interoperability	2025	2030	Technical study	24					
14	SP		Madrid - Barcelona - Portbou (IB)	track enlargements (and the associated relocation of turnouts and signalling equipment) to enable the circulation of trains of up to 750 m. long in the railway line in two phases:	Bottleneck relief Interoperability	2015	2020	Technical study	50					
15	SP		Madrid - Barcelona - Portbou (IB)	Implementation of polyvalent sleepers. Change from 1,668 mm to 1,435 mm gauge	Bottleneck relief Interoperability	2015	2030	Technical study	50					

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16	SP		Corridor Mediterranean	ERTMS deployment on sections of the Mediterranean corridor in Spain - Phase 1	Interoperability	2014	2020	Technical study						
17	SP		Corridor Mediterranean	ERTMS deployment on sections of the Mediterranean corridor in Spain - Phase 2	Interoperability	2015	2030	Technical study						
18	SP		Barcelona–Tarragona Tarragona - Valencia	Castellbisbal Node - Tarragona-Vilaseca: Adaptation to TEN-T requirements (standard gauge, 750 m)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2013	2020	Approved and financed (works have not started yet)	386					
19	SP		Tarragona - Valencia	Vilaseca Node - Calafat branch (Vandellòs by-pass): New line compliant with TEN-T requirements	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Works phase	659					
20	SP		Tarragona - Valencia	Vilaseca Node - Perafort Node: New line compliant with TEN-T requirements	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Technical study	154.20					

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21	SP		Tarragona - Valencia	Calafat branch - Castellón: Adaptation to TEN-T requirements (standard gauge, 750 m)	Bottleneck relief Interoperability	2015	2020	Technical study	154.00					
22	SP		Tarragona - Valencia	Castellón - Valencia - Almussafes: Adaptation to TEN-T requirements (standard gauge, 750 m)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Works phase	313					
23	SP		Tarragona – Valencia	Vilaseca Node - Reus: Adaptation to TEN-T requirements (standard gauge, 750 m)	Interoperability	2015	2020	Technical study	19.83					
24	SP		Valencia - La Encina	Valencia - La Encina Node: Adaptation to TEN-T requirements (standard gauge, 750 m)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Works phase	1345					

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25	SP		La Encina - Alicante	La Encina - Alicante: Adaptation to TEN-T requirements (standard gauge, 750 m)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2015	2020	Technical study	145					
26	SP		Alicante - Murcia	Alicante - Port of Alicante branch (San Gabriel) - San Isidro: Adaptation to TEN-T requirements (standard gauge, 750 m, electrification)	Bottleneck relief Interoperability Capacity improvement Punctuality improvement			Technical study	66					
27	SP		Alicante - Murcia	Monforte del Cid - San Isidro - El Reguerón - Murcia El Carmen: New line compliant with TEN-T requirements and adaptation to TEN-T requirements (standard gauge, electrification)	Bottleneck relief Interoperability	2015	2020	Works phase	742					
28	SP		Murcia - Almería	New line compliant with TEN-T requirements. Electrification. New connection Almería - Pulpí.	Bottleneck relief Interoperability Capacity improvement Punctuality improvement Higher speed	2015	2030	Works phase	1672.38					

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29	SP		Murcia - Almería	Murcia El Carmen - Murcia Cargas: Adaptation to TEN-T requirements (standard gauge, electrification)	Bottleneck relief Interoperability	2015	2020	Technical study	21.80					
30	SP		Murcia - Cartagena	El Reguerón - Cartagena/Escombreras: Adaptation to TEN-T requirements (standard gauge, 750 m, electrification)	Bottleneck relief Interoperability	2015	2020	Technical study	143.70					
31	SP		Murcia	New terminal for development with road and rail connections in ZAL Murcia	Bottleneck relief Interoperability		2020	Technical study						
32	SP (OS-RFC 4)		Zaragoza	Developing and upgrading freight rail road terminals in Zaragoza	Bottleneck relief Interoperability	2017	2019	Technical study	18					
33	SP (OS-RFC 4)		Plasencia de Jalón - Zaragoza	New line Improvement of the rail access to Zaragoza PLAZA. Improvement of the maximum gradient of this section to achieve < 15‰	Capacity improvement Punctuality improvement	2015	2030	Technical study	175					

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34	SP (OS-RFC 4)		Vicálvaro-San Fernando	Creation of siding, extra tracks	Capacity improvement Punctuality improvement	2015	2030	Technical study	40					
35	SP (OS-RFC 4)		Madrid Vicálvaro Terminal	Terminal enhancement	Bottleneck relief Interoperability Capacity improvement			Technical study	357					
36	SP (OS-RFC 4)		Complejo de Aranjuez (sistema de concesión)	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Short term	< 50 m€					
37	SP (OS-RFC 4)		San Cristobal - Villaverde bajo - Pitis vía mercancías	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€					
38	SP (OS-RFC 4)		Incorporación a UIC terminales de Vicálvaro y Abroñigal	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Medium term	< 50 m€					

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39	SP (OS-RFC 4)		Algeciras – Madrid adaptación UIC		Bottleneck relief Interoperability			Medium term						
40	SP (OS-RFC 4)		Algeciras - Bobadilla - incluye nueva electrificación	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Medium term	From 50 m€ to 500 m€					
41	SP (OS-RFC 4)		Bobadilla - Córdoba – Linares	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€					
42	SP		Linares – Vadollano	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Medium term	< 50 m€					
43	SP		Vadollano - Santa Cruz de Mudela	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	< 50 m€					
44	SP		Santa Cruz de Mudela – Aranjuez	Track, electrification and signalling	Bottleneck relief Interoperability Capacity Punctuality improvement			Medium term	From 50 m€ to 500 m€					
45	SP		Aranjuez - San Cristobal - Villaverde bajo	Track, electrification and signalling	Bottleneck relief Interoperability			Medium term	From 50 m€ to 500 m€					

France – Italy

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1	FR-IT	RAA – Piemonte	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	2017	2029	Technical study	8,300	EU	French State	Italian State		

France

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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 (OS-RFC 2)	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 (OS-RFC 2)	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				

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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				
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 (OS-RFC 2)	RAA	Lyon Node I	Signalling 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	
8	FR	LR	Montpellier Perpignan	Signalling enhancement Track enhancement	Interoperability Capacity Improvement	<2020		Works phase	50 < x < 500	IM	State			
9	FR	PACA	Gauge for the railway highway	Adjustment of gauge, Track enhancement	Capacity and Performance Improvement	<2020		Works phase	x< 50	IM	State			
10	FR	RAA	Centralized Network Control System Rive Gauche	Signalling enhancement, Traffic control	Capacity and Performance Improvement	2013	2020	Works phase	50 < x < 500	IM				

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11	FR	RAA	Lyon - Valence	Track enhancement	Performance Improvement	2019	2019	Technical studies	75	IM				
12	FR (OS-RFC 2)	RAA	Valence - Avignon	Track enhancement	Performance Improvement	2020	2020	Technical studies	46	IM				
13	FR (OS-RFC 2)	RAA	Lyon - Marseille	Track enhancement	Performance Improvement	2020	2020	Technical studies	40	IM				
14	FR	RAA	Lyon - Ambérieu	Track enhancement	Performance Improvement	2021	2021	Technical studies	11	IM				

Italy

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1	Italy		BUSSOLENO	Signalling enhancement	Punctuality improvement		2018	Works phase	8	State				ACC (station traffic control and management system) Bussoleno
2	Italy		NOVARA-PADOVA	Signalling enhancement	Interoperability		2020	Technical study	49	State				ERTMS deployment
3	Italy		MILANO NODE	Infrastructure and technological enhancement	Capacity improvement		2020 **(*)**	Preliminary study	1.267	State				Technological upgrading for capacity increase
4	Italy		TORINO-PADOVA	Signalling enhancement	Punctuality improvement		2019	Works phase	771	State	EU			Technological upgrading Torino-Padova line
5	Italy (OS-RFC 5)		TORINO - TRIESTE	Infrastructure and technological enhancement	Train length		2021 **(*)**	Preliminary study	120	State				Increase of maximum track length 750 m

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6	Italy		VERONA	Signalling enhancement	Punctuality improvement		2020 (*)	Preliminary study	90					Technological upgrading Verona Porta Nuova
7	Italy		TORINO- ALESSANDRIA	Signalling enhancement	Punctuality improvement		2030 (*)	Works phase	132	State				ACC-M Torino-Alessandria
8	Italy (OS-RFC 5)		TRIESTE JUNCTION	Infrastructure and technological enhancement	Capacity improvement Train length		2020 (*)	Preliminary study	50	State				Railways infrastructure upgrading infrastructure Trieste Port
9	Italy		TORVISCOSA - MONFALCONE	Signalling enhancement	Capacity improvement		2021	Works phase	6	State				Technological upgrading VENEZIA – TRIESTE Line
10	Italy		TORINO - MILANO	Signalling enhancement	Punctuality improvement		2021 (*)	Preliminary study	50					Upgrade SCC AV TO-MI e RBC PC AV Settimo Torinese
11	Italy		MILANO SMISTAMENTO	Infrastructure and technological development	Capacity improvement Train length		2020 (*)	Preliminary study	50	State				Upgrade Terminal Segrate and Milano Smistamento

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12	Italy		PORTOGRUARO - TRIESTE	Signalling enhancement	Punctuality improvement		2020 (*)	Preliminary study	105					Potenziamento tecnologico Venezia Trieste
13	Italy		BRESCIA-VERONA	Infrastructure and technological development	Capacity improvement Higher speed		2025 (*)	Preliminary study	3.430	State				High Speed/High Capacity line Brescia - Verona
14	Italy		NOVARA	Infrastructure and technological enhancement	Capacity improvement Train length		2022 (*)	Preliminary study	91					Novara Boschetto Terminal Upgrade
15	Italy		MODANE – TORINO (first phase)	Infrastructure and technological development	Capacity improvement Higher speed		2025 (*)	Preliminary study	1.700	State				Avigliana-Orbassano e scalo Orbassano
16	Italy		VERONA-VICENZA	Infrastructure and technological development	Capacity improvement Higher speed		2027 (*)	Preliminary study	3.945	State				High Speed/High Capacity line Verona-Padova
17	Italy		VICENZA - PADOVA	Infrastructure and technological development	Capacity improvement Higher speed		2030 (*)	Preliminary study	1.316					High Speed/High Capacity line Verona-Padova
18	Italy-Slovenia		TRIESTE - DIVACA	Infrastructure and technological development	Capacity improvement Higher speed		>2030 (*)	Preliminary study	1 040	State	EU			New line AV/AC Trieste-Divača
19	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

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20	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
21	Italy (OS-RFC 5)		VENICE NODE	Infrastructure and technological enhancement	Capacity improvement		2027 (*)	Preliminary study	180					Bypass Venezia node
22	Italy		MODANE - NOVARA	Signalling enhancement	Interoperability		2030(*)	Preliminary study	25					ERTMS deployment
23	Italy (OS-RFC 5)		VICENZA/PADOVA-VILLA OPICINA Bivio d'Aurisina – Trieste	Signalling enhancement	Interoperability		2020 (*)	Preliminary study	22					ERTMS deployment
24	Italy		BORDER MODANE – BUSSOLENO (second phase)	Infrastructure and technological development	Capacity improvement Higher speed		>2030 (*)	Preliminary study	2.893	State	EU			Orbassano Settimo Torinese and Bussoleno-Avigliana

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

Slovenia

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1	SI		Zidani Most – Dobova	Signalling enhancement (ERTMS…)	Interoperability	2016	2020	Ready for works	15	EU	State			
2	SI (OS-RFC 5)		Sežana/Koper – Ljubljana – Hodoš	Telecommunication enhancement (GSM-R)	Interoperability	2006	2017	Works in final stage	149,55	EU	State			
3	SI (OS-RFC 5)		Trst – Divača	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2008	2017	Preliminary study	2	EU	State			End date means only for Preliminary study
4	SI (OS-RFC 5)		Divača – Koper	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2004	2023	Ready for works	903,51	EU	State			
5	SI (OS-RFC 5)		Divača-Ljubljana	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2016	2022	Preparation for works	80	State				

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6	SI (OS-RFC 5)		Ljubljana – Zidani Most	Renewal of signalling safety devices	Capacity improvement	2016	2022	Preparation for works	70	State				
7	SI (OS-RFC 5)		Poljčane – Slovenska Bistrica	Creation of siding, passing tracks, extra tracks	Capacity improvement	2015	2020	Preparation for works	50	EU	State			
8	SI (OS-RFC 5)		Station Pragersko	Creation of siding, passing tracks, extra tracks	Capacity improvement	2016	2020	Prepared for works	95	EU	State			
9	SI (OS-RFC 5)		Zidani Most – Celje	Partially creation of new structure, renewal of tracks, passing tracks, extra tracks, renewal of signalling safety devices	Bottleneck relief Capacity improvement	2016	2020	Prepared for works	282	EU	State			

Croatia

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1	HR		Dugo Selo – Križevci	Construction of second track	Bottleneck relief	2016	2020	Works in progress	198	EU	State			
2	HR		Rijeka Brajdica	Reconstruction of train station together with container terminal	Capacity improvement	2018	2019	Public procurement is in process	35,6	EU	State			
3	HR		Križevci – Koprivnica – State Border	Construction of second track	Bottleneck relief	2018	2022	Preparation phase	300	EU	State			
4	HR		Zagreb Gk – Savski Marof	Reconstruction, renewal of tracks	Bottleneck relief	2018	2020	Public procurement in preparation	63		State			
5	HR		Hrvatski Leskovac – Karlovac	Construction of second track	Bottleneck relief	2019	2023	Preparation phase	350	EU	State			

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6	HR		Rijeka	Reconstruction of the freight part of train station and building of new container terminal	Capacity improvement	2018	2020	Preparation phase Public procurement in preparation	22,5	EU	State			

Hungary

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1	HU		Boba – Székesfehérvár	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity Improvement Interoperability	2015	2019	Technical study	528	EU				
2	HU (OS-RFC 7)		Déli összekötő vasúti híd	Renewal of tunnel, bridge, etc.	Bottleneck relief	2018	2020	Preliminary study	109	EU				
3	HU (OS-RFC 7)		Szolnok station	Renewal of tracks Renewal of signalling system	Punctuality improvement Maintenance of performance Capacity improvement Bottleneck relief	2016	2019	Technical study	110	EU				
4	HU		Püspökladány – Debrecen	Renewal of tracks Renewal of signalling System Signalling enhancement (ERTMS…)	Safety/Security Higher speed Punctuality Improvement Maintenance of performance Capacity Improvement Interoperability	2017	2019	Technical study	379	EU				

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5	HU		Debrecen – Nyíregyháza	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2019	2020	Technical study	377	EU				
6	HU		Nyíregyháza – Záhony	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2019	2020	Technical study	482	EU				
7	HU		Győr – Pápa – Celldömölk	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	-	-	Technical study	245	EU				
8	HU (OS-RFC 7)		Budapest – Hegyeshalom	Signalling enhancement (ERTMS)	Interoperability	2015	2019	Preliminary study	44	EU				

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	HU		Biatorbágy – Tata	Renewal of tracks Renewal of signalling system	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement	2018	2020	Technical study	483					
10	HU		Rákos – Hatvan	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2015	2019	Technical study	501					
11	HU		Hatvan – Miskolc	Renewal of tracks Renewal of signalling System Signalling enhancement (ERTMS)	Safety/Security Higher speed Punctuality Improvement Maintenance of performance Capacity Improvement Interoperability	2015	2019	Technical study	1 087					

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
12	HU		Miskolc – Nyíregyháza	Renewal of tracks Renewal of signalling system Signalling enhancement (ERTMS)	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2017	2020	Technical study	743	EU				

6.1.2 Capacity Management in the overlapping sections

The Capacity management plan has been drafted taking into account the **overlapping sections** as identified in chapter 2.2. of this document. The Corridor members checked the coherence of the information included in capacity plan with the same information provided for other corridors sharing the same overlapping sections.

- (OS-RFC 4) Algeciras – Madrid;
- (OS-RFC 2) Marseille – Lyon;
- (OS-RFC 5) Trieste/Koper – Ljubljana – Pragersko;
- (OS-RFC 7) Győr – Budapest – Szolnok – Szajol;

6.2 Deployment Plan

The deployment plan related projects include all ERTMS Projects foreseen for development of infrastructure along Mediterranean Rail Freight Corridor – RFC 6.

Deployment plan related projects in the overlapping sections

The deployment plan related projects have been drafted taking into account the **overlapping sections** as identified in chapter 2.2. of this document. The Corridor members checked the coherence of the information included in the list of projects with the same information provided for other corridors sharing the same overlapping sections.

ERTMS strategy along the corridor

Mediterranean Corridor - RFC 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, Mediterranean Corridor - RFC 6 is currently deploying ETCS (European Train Control System) on its lines.

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 Mediterranean Corridor - RFC 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 LFP section is equipped only with ETCS. Trains using this infrastructure must be equipped with ETCS;
- In France, the national KVB legacy system will be decommissioned at some point in the future. The date of the decommissioning is not yet determined;
- In Slovenia, the mandatory use of ETCS on the Corridor is expected to be enforced 10 years after its installation in-track;
- In Croatia, the project started in 2013, the Study of ERTMS implementation completed and HŽI plans to apply for the 3rd CEF Call Project of implementation of GSM-R on the whole Mediterranean corridor (FS, CBA, design and build). HŽI is waiting the approval from the Ministry. The plan for the implementation of the 2023.
- In Hungary, it is expected that use of ETCS will be made compulsory on the corridors lines. No date has been set yet.

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.

The ERTMS deployment plan on Spanish part of Mediterranean Corridor - RFC 6 (RFC6) and LFP

Mixed Traffic Line (Barcelona-Figueres-Perpignan (FR))

ERTMS Level 1.

- Section Perpignan – Figueres Vilafant LFP: delivery in service in February 2009.
- Section Figueres Vilafant – LFP: Put in service in December 2010.
- Section Bif. Mollet – Figueres: Put in service in December 2012.
- Section Barcelona Sants – Bif. Mollet Put in service in April 2013.

ERTMS Level 2.

- Section Barcelona Sants – Figueres Vilafant: Pending the date of putting in service
- Section Figueres Vilafant – Perpignan (FR - LFP): Pending migration towards version 2.3.0d.

Conventional Line (Can Tunis – Castellbisbal – Nudo de Mollet – Bif. Gerona Mercaderies Villa Maya – Figueres Vilafant)

ERTMS Level 1.

- Section Can Tunis – Castellbisbal – Nudo de Mollet (double track with third rail): Pending the contracting of a project to solve the problems detected during the tests.
- Section Bif. Gerona Mercaderies – Villa Maya – Figueres Vilafant (single track with third rail): Pending the contracting of a project to solve the problems detected during the tests.

Conventional Line (Tarragona – Vandellós)

ERTMS Level 1.

- Section Tarragona – La Boella (double track, UIC): Date scheduled for completion of the works, 2018
- Section La Boella – Vandellós (double track, 1668 mm): Date Scheduled for completion of the works, 2018;

ERTMS Level 2.

- Section Tarragona – La Boella (double track, UIC): Date scheduled for completion of the works to be defined

Conventional Line (Vandellós – Valencia)

ERTMS Level 1.

- Section Vandellós – Castellón Pending date to be confirmed;
- Section Castellon – Valencia:(third rail) Date scheduled for completion of the works, 2018;

Conventional Line (Algeciras – Madrid (OS-RFC 4))

- ERTMS deployment on section Algeciras – Madrid, medium term;

The ERTMS deployment plan on French part of Mediterranean Corridor - RFC 6

In France, the line managed by LFP and the bypass between Nîmes and Montpellier are equipped with ETCS. The other lines of the corridor will be equipped after 2023, in accordance with the European Deployment Plan.

The ERTMS deployment plan on the Italian part of Mediterranean Corridor - RFC 6

The ERTMS deployment plan relevant to the Italian line sections designated to be part of Mediterranean Corridor - RFC 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.

Actually, the European Deployment Plan is not more realistic. In order to reach the objective of a realistic and committed plan, the Coordinator of the ERTMS Corridors proposed to update the old EDP with particular regard to the sections of the Core Network Corridors (CNC) to equip between 2020. This exercise started in September 2015 and should be finalised by mid-2016 at the latest.

More in detail, Italy will focus mostly on the deployment of the conventional line between Novara, via Milano, Verona, Padova and Mestre, till Trieste/Villa Opicina. The cooperation between Italy and Slovenia is already ongoing, to find solution for authorisation and technical related issues for the Trieste/Villa Opicina section before 2020 (Trieste – Ljubljana section, overlapping section with Baltic – Adriatic Corridor). Between Torino and Milano the high-speed line has been already equipped with ETCS, the HS line beyond Milano to Trieste is planned to be deployed beyond 2020.

In synthesis, the deployment of ETCS baseline 3 Level 2 between 2020, will be realized on the following sections of the RFC 6:

- Novara – Milano- Verona - Vicenza – Padova – Mestre (RFC6 principal route/CNC Mediterranean);
- Vicenza – Castelfranco V. – Portogruaro (RFC6 Alternative route) (OS-RFC 5);
- Portogruaro – Bivio d'Aurisina – Villa Opicina/Trieste (RFC6 principal route/CNC Mediterranean) (OS-RFC 5);
- in order to assicure between 2020 the link from Novara, Milano and Verona to the Slovenian cross-border.
- The deployment of ETCS will be realized beyond 2020 on the sections;
- Modane – Novara and (RFC6 principal route/CNC Mediterranean);
- Mestre- Portogruaro (RFC6 principal route/CNC Mediterranean) (OS-RFC 5);

On the technical side, ERTMS Level 2 will be implemented along the Italian sections of Mediterranean Corridor - RFC 6 on to the existing legal Class B systems. In basis at the financial resources available, RFI would renew all the existing interlockings to simplify the installation of ERTMS L2.

The Milano – Padova section for example, is part of the "Torino – Padova Upgrading Project" a significant project in progress aiming to renew all the existing interlockings with 5 multi-station interlocking's

(Italian acronimous : ACCM), all of them located in Milan and equipped with a specific ERTMS interface to simplify the installation of ERTMS L2. The goal of the Torino-Padova project is to install new and more efficient multi station computer based Interlockings (ACCM) that will manage the entire line section by means of commands received from the Central Place (PC) located in Milano node. Five ACCM are planned to be set up first of the ERTMS installation.
On lines with SCMT Stand Alone, RFI will install ETCS Level 2 with a specific module to interface the traditional interlocking with the RBC, operation more complex and expensive.
The ERTMS Baseline implemented Trackside will be the Baseline 3 because it offers better performance and it's particularly suitable for the freight traffic. (to take advantage from the optimised functionality specified for the freight traffic, as train categories, the Infill by Radio, ecc.).
The official publication of BL3 occurred on 6th November 2012.
The on-going activities of the ERTMS Pilot Line deployment will be taken into account for the realization of ERTMS on freight Mediterranean Corridor - RFC 6. The Pilot Line will consist in the installation of a fully interoperable system inside Mediterranean Corridor - RFC 6 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. The Pilot Line will be the first application completed of the Mediterranean Corridor - RFC 6.

The ERTMS deployment plan on Slovenian part of Mediterranean Corridor - RFC 6

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 RFC 6 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 (2014) 2858 of 24.4.2014 named as project no. 2007-EU-60120-P;
- with the Decision C (2010) 5873 of 20.8.2010 named as project no. 2009-EU-60122-P;
- with the Decision C (2014) 7670 of 17.10.2014 named as project no. 2013-EU-60017-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 10 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 (it is now Slovenian infrastructure agency – DRSI), created the conditions for the following tenders:

- The implementation of ETCS on the Slovenian part of RFC 6, which includes two pilot section (Italian border-Gornje Ležeče and Murska Sobota-Hungarian border) and other rail sections between the stations Gornje Leteče and Murska Sobota and Divača-Koper line.
- Notified Body (NOBO) for infrastructure project.

All tenders were published. 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, which is in line with the Decision under project no. 2013-EU-60017-P.
The contract with the NOBO is effective from the date of signing the contract for the infrastructure project in July 2012.
Current status of the project:

- (OS-RFC 5) Pilot line 1 (Pivka – Sežana – border ITA) – all the works are completed and we have an operation permit from NSA;
- Pilot line 2 (Murska Sobota – Hodoš – border HUN) – all the works are completed and we have an operation permit from NSA;
- (OS-RFC 5) Section 1 (Ljubljana – Pivka) – all the works are completed and we have an operation permit from NSA;
- (OS-RFC 5) Section 2 (Zidani Most – Pragersko) – all the works are completed and we have an operation permit from NSA;
- (OS-RFC 5) Section 3 (Zidani Most – Ljubljana) – all the works are completed and we have an operation permit from NSA;
- (OS-RFC 5) Section 4 (Divača – Koper) – all the works are completed and we have an operation permit from NSA;
- Section 5 (Pragersko – Murska Sobota) – all the works are completed and we have an operation permit from NSA;

Plans till end of 2020:

1. Bilateral meetings with RFI and MAV (in 2013/2014 both bilateral ERTMS working Groups were established)

The main activities which to be carried out:

- Coordination for establishing technical and traffic/operational rules on border section.
- Preparation of Test cases from both parties which have to be put together in a single document.
- Processing and entering ETCS on-board data.
- Execution of test runs with locomotive equipped with appropriate on-board ETCS equipment.

2. Deployment of ERTMS/ETCS (level 1, baseline 3 (set 2), on section Zidani Most – Dobova – border HR (last unequipped section with ETCS on Slovenian part of RFC 6, for which the European Commission approved funding for the CEF co-financing in the Republic of Slovenia with the agreement no. INEA/CEF/TRAN/M2015/1125663 for action no. 2015-SI-TM-0111-W

In this context, it will be necessary to establish the appropriate Bilateral working group composed by experts of Infrastructure Managers from Croatia (HŽI) and Slovenia (SŽ-Infrastruktura). Beginning of implementation of ETCS L1 baseline 3(Set2) on the section Zidani most – Dobova – SI/HR border in 2018.
GSM-R:
The GSM-R project is in the implementation stage. The contract was signed in 2013. Project completion is expected in mid-2017. All sections of the RFC6 will be equipped with GSM-R.

The ERTMS deployment plan on Croatian part of Mediterranean Corridor - RFC 6

ETCS
In Croatia, it is expected that use of ETCS Level 1 will be implemented on a section line Dugo Selo – Koprivnica by 2022 and on a section line Hrvatski Leskovac – Karlovac in 2023.

GSM-R
For now, at the corridor there is no GSM-R.

HŽI plans implementation of GSM-R on the whole Mediterranean corridor. The plan for the implementation of the 2023.

The ERTMS deployment plan on Hungarian part of Mediterranean Corridor - RFC 6

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.
ETCS L2 and GSM-R installation are ongoing on some section (detailed in following parts).

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.
This section serves as ETCS L2 pilot section (supplier: Thales). According to the ongoing contract, this section should have been ready for end of 2016, but, since its pilot features, expected date of ready-for-use is end of 2017.

Section Boba–Celldömölk–Győr (82 km) (alternative)

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.

Section Győr–Kelenföld (alternative)

(OS-RFC 7) This section is a common part of RFC 6 and RFC 7.

Section Boba – Székesfehérvár (excl.)

The rail link between Boba and Székesfehérvár is 114 km long. 90% percent of the stations are equipped with Domino55 relay interlocking system. Two branch stations are electro-mechanical with light signals. One station is a former Russian-style interlocking, another one is a Domino67 system. These four stations must be replaced by an up-to-date interlocking in order to a successful adaptation with RBC. Decision about Domino55 stations is in progress (replacement or complex renewal).
Speed will be 120 km/h after the complex reconstruction (estimated: 2016-2020), but, because of some curves, some section remains 100 km/h.
Now largest part of freight traffic coming from Slovenia is rolled on this section.
GSM-R is in second part GSM-R installation phase, up to 2020.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.

Székesfehérvár station (node)

Székesfehérvár is a large station (with 6 directions (two double-track connections)). The old electro-mechanical and relay interlocking has been recently replaced by Elektra electronic one; the project contains an RBC connected to the interlocking system, only for Székesfehérvár. Of course, RBC will be active if the line towards Budapest has active ERTMS/ETCS L2, too. Low-cost EVM (legacy) remains.

Székesfehérvár (excl.) – Kelenföld (excl.)

63 km long rail link. Its recent reconstruction happened between 2011 and 2014. All (6) stations with SIMIS IS electronic interlocking. ETCS L2 is part of the signalling reconstruction and it is ongoing. This section serves as ETCS L2 pilot section (supplier: Siemens). According to the ongoing contract, this section should have been ready for end of 2016, but, since its pilot features, expected date of ready-for-use is end of 2017.
Now largest part of freight traffic coming from Slovenia is rolled on this section.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.

Kelenföld, Ferencváros and Kőbánya-Kispest (large nodes in Budapest area)

Estimated ETCS L2 PIO: 2016. According to the ongoing contract, this section should have been ready for end of 2016, but, since its pilot features (adaptation to Domino70 relay interlocking), expected date of ready-for-use is end of 2017.
(OS-RFC 7) This section is a common part of RFC6 and RFC7

Kőbánya-Kispest (excl.) – Szolnok (excl.)

89 km long rail link. Its reconstruction happened recently. Its middle-sized stations are equipped with relay (Domino55 and Domino70) and electronic (Elektra 1/2, SIMIS IS) interlocking. Two RBCs will be in duty.
Normal EVM (legacy ATP) remain parallel with ETCS L2.
Estimated ETCS L2 PIO: 2016. According to the ongoing contract, this section should have been ready for end of 2016, but, since its pilot features (adaptation to several types of relay and Elektra 1 electronic interlocking), expected date of ready-for-use is end of 2017.
(OS-RFC 7) This section is a common part of RFC6 and RFC7.

Szolnok (incl.) – Szajol (incl.)

Section is 10 km long.
Szolnok is a large station with independent marshalling yard (m.y. is out of operation). Marshalling activity is in station area is active. Now Domino70 is in operation, but it will be replaced by an electronic/relay one. Independent RBC is planned for Szolnok.
Some block sections and a small station (equipped with a Domino55 system) between Szolnok and Szajol. ETCS L2 is part of the ongoing ETCS installation.
Szajol is the branch station between RFC6 and RFC7. Equipped with SIMIS IS electronic interlocking; RBC is part of ongoing ETCS L2 installation activities.
Estimated ETCS L2 PIO: 2016. According to the ongoing contract, this section should have been ready for end of 2016, but, since its pilot features, expected date of ready-for-use is end of 2017.
(OS-RFC 7) This section is a common part of RFC6 and RFC7.

Szajol (excl.) – Püspökladány (incl.)

67 km long track and interlocking reconstruction is ready just end of 2015. All (5) stations are equipped with Elektra electronic interlocking. The interlocking project contains RBC but not complex ETCS L2 installation.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.
Estimated GSM-R and ETCS L2 PIO: 2020.

Püspökladány (excl.) - Debrecen (incl.)

44 km long track and interlocking reconstruction is planned for 2016-2020. Domino55 relay interlocking remain on all (3) stations. Domino70 relay interlocking of Debrecen will be replaced by a new electronic/relay one.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.
Estimated GSM-R and ETCS L2 PIO: 2020.

Debrecen (excl.) – Nyíregyháza (incl.)

49 km long track and interlocking reconstruction is planned for 2016-2020. Old Russian-style relay interlocking and Domino55 of Nyíregyháza will be replaced on all stations by electronic one.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.
Estimated GSM-R and ETCS L2 PIO: 2020.

Nyíregyháza (excl.) – Záhony border (incl.)

66 km long track and interlocking reconstruction is planned for 2016-2020. Domino55 relay interlocking and some mechanical interlocking in Záhony area will be replaced by a new electronic one.
Low-cost EVM (legacy ATP) remain parallel with ETCS L2.
Estimated GSM-R and ETCS L2 PIO: 2020.

Budapest (excl.) – Miskolc – Nyíregyháza

270 km long railway line.

Between Budapest and Miskolc (180 km) track and interlocking reconstruction is planned for 2016-2020. Old relay interlocking between Budapest and Hatvan stations will be replaced (call-for tender is ongoing). Between Hatvan and Miskolc, Domino55 relay interlocking on middle-sized stations remain. Miskolc area will be replaced by a new electronic one.

Between Miskolc and Nyíregyháza (90 km) no reconstruction planned up to 2020. After 2020 overall track and interlocking reconstruction expected with replacement of old relay interlocking. The whole line is planned for ETCS L2. Estimated GSM-R and ETCS L2 PIO: after 2020.

Budapest (excl.) – Dombóvár – Gyékényes border (incl.)

265 km long railway line.

Between Budapest and Pusztaszabolcs (50 km) track and interlocking reconstruction is planned for 2016-2020. Old electro-mechanical interlocking between Budapest and Pusztaszabolcs stations will be replaced (call-for tender is ongoing).

Between Pusztaszabolcs and Dombóvár, Domino55 relay interlocking on middle-sized stations remain. Dombóvár area will be replaced by a new electronic one, but no other reconstruction is planned up to 2020.

Between Dombóvár and Kaposvár Domino55 relay interlocking on middle-sized stations remain.

Between Kaposvár and Gyékényes no reconstruction planned up to 2020. After 2020 overall track and interlocking reconstruction expected with replacement of old relay and mechanical interlocking. On Gyékényes station (large border station with some marshalling functions) Domino70 relay system remains.

The whole line is planned for ETCS L2. Estimated GSM-R and ETCS L2 PIO: after 2020 (on Budapest – Pusztaszabolcs up to 2020).

Cost Benefit Analysis

Costs

The costs are incurred at national level; when available, they have been described in the sections above.

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.

National legacy systems ("Class B") renewal

All the Infrastructure Managers of Mediterranean Corridor - RFC 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.

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

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.

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.

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.

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.

6.3 Capacity Management Plan

The Capacity Management Plan includes the management of capacity for freight trains, considering improvements of technical parameters, axle load, permitted train lengths, etc.

6.3.1 Capacity Management Plan 2025


TRAIN LENGTH 2025:
750 m
650 m
625 m
600 m
597 m
575 m
570 m
525 m
550 m
500 m
450 m
360 m
350 m
N/A
RFC 1 PRINCIPAL ROUTE
FRANCE
SPAIN
SLOVENIA
HUNGARY
CROATIA
ITALY
Paris
Lyon
Ambérieu
Culoz
Valence
Nîmes
Montpellier
Avignon
Miramas
Marseille
Fos Viguerat
Portbou
Figueres Vilafant
Figueres
Barcelona
Tarragona
Zaragoza
Madrid
Alcázar de San Juan
Castellón
Valencia
Alicante
Murcia
Cartagena
Córdoba
Lorca
Almería
Algeciras
Novara
Milano
Torino
Modane
Tortona
Vicenza
Verona
Padova
Venezia
Treviso
Trieste
Koper
Divača
Rijeka
Zagreb
Ljubljana
Zidani Most
Pragersko
Hodoš
Boba
Székesfehérvár
Budapest
Érd
Miskolc
Záhony
Nyíregyháza
Roma
MEDITERRANEAN
RAIL FREIGHT CORRIDOR
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6.4 Reference to Union Contribution

Mediterranean Corridor - RFC 6 was established thanks to the co-financing received by the European Commission. Currently, it is the recipient of the following funding awarded from the European Commission:

- Connecting Europe Facility (CEF) funding, Proposal 2014-IT-TM-0089-S, Action "Upgrade and Strengthening of Mediterranean Corridor - RFC 6 including Extension to Croatia";

In the past, it was co-financed by the European Commission under:

- TEN-T Programme 2007-2013, Decision C (2012) 7813 of the 26.10.2012 concerning "Studies, managerial structures and activities for the establishment of the Mediterranean Corridor - RFC 6 in line with Regulation No. 913/2010", Action 2011-EU-95093-S;
- TEN-T Programme 2007-2013, Decision C (2010) 5873 of the 20.08.2010 concerning "Deployment of ERTMS on Corridor D: Valencia to Budapest", Action 2009-EU-60122-P;
- TEN-T Programme 2007-2013, Decision C (2011)3250 of the 06.05.2011, which modifies Decision C (2008) 7888 of the 10.12.2008 concerning "ERTMS implementation on the Railway Corridor D (Valencia-Budapest)"; Action 2007-EU-60120-P

Annex 5.A – Consultation on the NEW Implementation Plan

On a TAG/RAG meeting in Montpellier on 26th of May 2016, the New Implementation Plan has been presented taking into account all the necessary inputs related to the inclusion of HZI (extension to Croatia, together with new principal routes in Croatia, Hungary and Slovenia) and the new RNE Guidelines.

A consultation (six month before the opening of the new part of the Mediterranean Corridor - RFC 6) procedure was initiated on the new version the Implementation Plan. The attendees of the TAG/RAG meeting were informed that, starting from this TAG RAG meeting (about six months before the official date for the extension of the corridor), the Consultation Phase was open to collect all the comments/remarks/recommendations. The Consultation Phase was concluded at the end of September 2016 when all the inputs were elaborated and incorporated in the final version of the Implementation Plan to be sent to the Executive Board for final approval.

Below, there is a summary of comments/remarks/recommendations by the attendees.

Topics	Features
1	Italian terminals list update;
3	Spanish terminals inclusions, Implementation plan;
4	PaP offers, Access to a terminal, Technical parameters in Slovenia, a connecting line to be added to Mediterranean Corridor - RFC 6;
1	Terminals in Rijeka and Zagreb;
1	A diversionary route to be added to Mediterranean Corridor - RFC 6
4	Technical parameters in Slovenia, Slovenian terminals inclusion, a connecting line to be added to Mediterranean Corridor - RFC 6