European Commission

DECEMBER 2016

Mediterranean

Second Work Plan of the European Coordinator

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Mobility and Transport

December 2016

This report represents the opinion of the European Coordinator and does not prejudice the official position of the European Commission.

The maps shown in this document are purely schematic as regards their shape, outline, borders, as well as the position of any location indicated. They do not claim any geographical precision, but are mere approximations.

Contents

1. Developing further the Mediterranean Corridor work Plan

On 1 January 2014 a new era has begun in European infrastructure policy with the setting up of nine Core Network Corridors (CNC) led by a European coordinator and the creation of the Connecting Europe Facility (CEF) as financing instrument.

This framework includes not only the Member States but also all other stakeholders of the Corridor: infrastructure managers (for road, rail, ports, inland waterways, airports and multi-modal terminals), regions and representatives of the transport industry as users of the infrastructure.

All these stakeholders come together in the Corridor Forum that serves as the "testing ground" of many of the findings and recommendations presented in this document and works as unique platform allowing a transparent and a constantly deepening dialogue. So far, four meetings of the Corridor Forum have been held in 2014 and three 2015/2016, and the participation of the stakeholders in the entire Corridor process is constantly increasing.

This work plan is largely based on the Study of the Mediterranean Corridor (the 2014 Corridor Study) carried out in 2014 and on the on-going analysis of the new Study for 2015-2017 (the 2015-2017 Corridor Study). It is the result of the collaborative efforts of the Member States, the European Commission and external consultants chaired by the European Coordinator.

The work plan has been elaborated in accordance with the provisions of Regulation (EU) No 1315/2013 which establishes Union guidelines for the development of the trans-European transport network (the Regulation)[1].

The concept of core network corridors rests on three pillars: modal integration, interoperability and the coordinated development of its infrastructure.

The Mediterranean corridor is the main east-west axis in the TEN-T network south of the Alps. It runs between the south-western Mediterranean region of Spain and the Ukrainian border with Hungary, following the coastlines of Spain and France and crossing the Alps towards the east through Italy, Slovenia and Croatia and continuing through Hungary up to its eastern border with Ukraine. The Mediterranean corridor's ports lie within very important global trade routes, such as traffics from the Sea of China through Suez channel.

This Corridor of about 3,000 km, integrating former Priority Projects 3 and 6, ERTMS Corridor D and corresponding to the Mediterranean Rail Freight Corridor, will provide a multimodal link for the ports of the western Mediterranean with the centre of the EU. It will also create an east-west link through the southern part of the EU, contribute to modal shift from road to rail in sensitive areas such as the Pyrenees and the Alps, and connect some of the major urban areas of the EU with high speed trains.

[1] Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010 (OJ L 348, 20.12.2013, p.1).

The regions along the Mediterranean Corridor represent an important socio-economic area within the EU. With 18% of EU's population, the Corridor regions generated 17% of the EU's 2014 GDP. Economically speaking the most important regions of the Corridor are Piedmont and Lombardy, the Rhone-Alpes region, Catalonia and Madrid.

The Mediterranean Corridor is intersecting with the Atlantic Corridor in Spain (Algeciras-Madrid), with the North Sea-Mediterranean Corridor in France (Marseille-Lyon), with the Rhine-Alpine Corridor in Italy (Novara/Milano), with the Scandinavian-Mediterranean Corridor in Italy (Verona), with the Baltic-Adriatic Corridor in Italy and Slovenia, with the Rhine-Danube Corridor in Croatia and Hungary and with the Orient-East Med Corridor in Hungary.

The key section of the Corridor is the new cross-border rail link between France and Italy (Lyon-Turin). In addition, the cross-border links with Slovenia, Croatia and Hungary need to be taken into account. Multimodal connections with the ports in Spain and France have to be developed and some railway sections in Italy and France need to be upgraded in order to remove key bottlenecks.

The coexistence of two gauges (1668 mm in Spain and 1435mm in the other countries) is another challenge for this Corridor, which needs to be tackled particularly as regards the financial aspects[2].

[2] The information shown in this document is based on the results of the Corridor Studies of 2014 and 2015-2017, including the definition of a Corridor project list with the details of main infrastructural projects needed for corridor implementation.

2. Characteristics of the Mediterranean Corridor

2.1 Corridor alignment

Figure 1 – Mediterranean Corridor alignment (TENtec 2016)

The Mediterranean Corridor links the ports in the south-western Mediterranean region to the centre of the EU, following the coastlines of Spain, France, and crossing the Alps towards the east. It runs across northern Italy and continues east, up to the Ukrainian border with Hungary.

The main branches of the Mediterranean Corridor are identified in Annex I of Regulation (EU) 1316/2013 as follows:

- Algeciras – Bobadilla – Madrid – Zaragoza – Tarragona;
- Sevilla – Bobadilla – Murcia;
- Cartagena – Murcia – Valencia – Tarragona;
- Tarragona – Barcelona – Perpignan – Marseille/Lyon – Torino – Novara – Milano – Verona – Padua – Venezia – Ravenna/Trieste/Koper - Ljubljana – Budapest;
- Ljubljana/Rijeka – Zagreb – Budapest – UA border.

Besides these rail, road and inland waterway (IWW) axes the Mediterranean Corridor comprises in total 70 core nodes distributed across the six Member States as shown in the table below.

MS	Urban	Airports	Ports	Rail Road Terminals	IWW nodes	Total nodes per MS*
ES	4	6	6	7	1	24
FR	2	2	1	3	2	10
IT	4	6	3	6	5	24
SI	1	1	1	1		4
HR	1	1	1	1		4
HU	1	1		1	1	4
Total	13	17	12	19	9	70

Table 1 – Nodes belonging to the Mediterranean Corridor

This table is based on the list of nodes as set out in Annex II of Regulation (EU) 1316/2014. A detailed description of the alignment of the various sections of the Mediterranean Corridor by transport mode is given in chapter 4.2.1.2 of the Corridor.

2.2 Compliance with the technical infrastructure parameters of the TEN-T guidelines (including KPI's analysis results)

In the TEN-T Regulation the transport infrastructure requirements have been defined for the core network which will have to be met by 2030 at the latest.

The 2014 Corridor Study (cf. chapter 4.2.1.4) contains an in-depth analysis as to how the current infrastructure in the six Corridor countries complies with the TEN-T Regulation's technical parameters set for each transport mode or infrastructure category.

Key Performance Indicators (KPIs) are used within the 2015-17 CNC studies to assess and monitor the evolution of the corridors and the potential effects of individual projects or groups of projects on infrastructure interoperability and performance. A common or "generic" KPI framework has been developed for all nine corridors, in order permit comparability across the whole network.

A summary of this compliance check is given below, on the basis of the updated information provided by the on-going 2015-2017 Corridor Study.

Rail

Electrification is ensured on 92% of the Corridor's railway lines; it is only lacking on some sections in Spain. On the rest of the Corridor three different voltages are in use, raising the issue of interoperability: 1.5kV DC (on conventional lines in France), 3kV DC (on conventional lines in Spain, Italy and Slovenia), 25 kV AC (on high-speed lines in France and Spain; conventional lines in Croatia and Hungary).

One of the main challenges of the Corridor are the different **track gauges**. France, Italy, Slovenia, Croatia and Hungary feature the 1435 mm standard UIC gauge, whereas in Spain, the standard gauge (used on the high-speed lines) coexists with the Iberian gauge 1668 mm on the large part of the remaining network. Currently, Spain is expanding the UIC gauge along the Rail Freight Corridor 6 (RFC6) as well.

In Spain, several projects listed in the Spanish implementation plan aim at solving this issue on most of the conventional lines of the Corridor, mainly by upgrading to mixed gauge, either through a third rail or a new track (e.g. Valencia-Port of Tarragona-Castellbisbal), and partly by establishing new UIC gauge lines.

In addition, several Spanish projects have been proposed in order to provide standard gauge access to some logistics and rail freight facilities along the Corridor. Among these projects are the project “Barcelona Port land accessibility and connections” (code 3806), the project “Developing and upgrading freight rail road terminal in Barcelona Can Tunis Terminal” (code 3830). Additional projects aim at providing the standard gauge for rail sections, such as the global project "Implementation of the standard track gauge between Castellbisbal (Barcelona) and Almería” and the project “Bobadilla - Villaverde Bajo - Implementation of UIC track gauge”.

In this case, the adaptation to UIC of the related rail connections will allow an increase of the share of freight rail vis-à-vis road in the short term all along the two main sections of the Mediterranean corridor.

ERTMS-ETCS is deployed only on high-speed lines in Spain and Italy, as well as on some short cross-border sections between Spain and France and between Hungary and Slovenia.

A **train length** of 740 m is only allowed in France and on half of the Hungarian network as well as and on small part of Spanish and Slovenian networks. On the rest of the Corridor, various train length restrictions apply, allowing a train length between 400m and 700m.

The Corridor's railway infrastructure allows the required **axle load** of 22.5 t on all of the sections in Spain, Italy and Croatia, while in France, Hungary and Slovenia[3] limitations still exist on some sections.

In France, on some sections the axle load is restricted to 17 t, but these sections are used for passenger services only. In Hungary and Slovenia, several interventions on rail sections are planned which aim at resolving these physical bottlenecks.

The required minimum **line speed** of 100 km/h for freight lines is achieved in Spain, France, Italy (except on the existing cross-border sections), Hungary, on about 41% of the rail sections in Slovenia and in some sections in Croatia.

[3] Axle load of 22.5 tons/axle is provided on 88.1% of the railway network on the MED corridor in Slovenia.

The table below gives an overview of the compliance rate as regards rail.

Rail technical parameters		2015
Parameter[4]	Requirement	
Electrification	Electrified rail network km as a proportion (%) of CNC rail network km	92%
Track gauge 1435mm	Standard (1435mm) track gauge as a proportion (%) of CNC rail network km	72%
ERTMS implementation	Length of Permanent Operation (excluding operational test lines) of both ERTMS and GSM-R on rail network, as a proportion (%) of CNC rail network km	13%
Line speed>=100km/h	Length of freight and combined line with allowing for a maximum operating speed greater than or equal to 100 km/h, as a proportion (%) of CNC rail network km without load restriction	92%
Axle load (>=22.5t)	Length of Freight and combined line with a permitted axle load greater than or equal to 22.5 tonnes, as a proportion (%) of CNC rail network km	76%
Train length (740m)	Length of freight and combined line with a permitted train length greater than or equal to 740m, as a proportion of CNC rail network km	23%

Table 2 – Rail technical parameters (source TENtec)

Road

The total length of the road network included in the Mediterranean Corridor is about 5500 km, with Spain covering more than 50% of the entire Corridor.

As regards the parameter "Motorway or Express roads" only a few sections are not motorways such as the Hungarian section close to the Ukrainian border.

The table below shows the compliance rate of the Mediterranean Corridor's roads.

Road technical parameters		2014	2015
Parameter	Requirement		
Express road/ motorway	Road network km classified as motorway or express road, as a proportion (%) of CNC road section km.	95%	98%
Availability of clean fuels (stations)	Number of fuel stations offering plug-in electricity, hydrogen, liquid biofuels, LNG/CNG, bio-methane or LPG along CNC road sections or within 10km from its junctions.	259	259

[4] KPI calculation for line speed, axle load and train length includes rail lines that serve passenger traffic.

Table 3 – Road technical parameters (Source TENtec)

Besides the requirements described in the previous paragraph, Regulation (EU) 1315/2013 also requires Member States improve the availability of clean fuels along the roads of the Core Network.

In this respect, the tables below show the number of refuelling points offering LPG and CNG (together with the density per country and Corridor) as well as the Corridor compliance with Art 39 of Regulation 1315/2013, which sets specific indications for parking space for commercial road users that shall be available approximately every 100 km, in order to guarantee an appropriate level of safety and security.

Country	Length (km)	N. of clean fuels LPG	N. of clean fuels CNG
ES	2855	43	19
FR	503	47	1
IT	823	86	31
SI	433	38	1
HR	243	20	0
HU	596	45	0
MED CNC	**5553**	**279**	**43**

Table 4 – Refuelling points offering LPG and CNG along the Corridor

Parameters	ES	FR	IT	SI	HR	HU	MED CNC
Km of road	2855	503	823	433	293	596	5503
Number of parking	25	19	15	24	1	3	87
Number of parking per 100 km	0,88	3,78	1,82	5,54	0,34	0,50	1,58
compliance with TEN-t requirement	88%	100%	100%	100%	34%	50%	79%
Target (n. of parking to be compliant)	29	5	8	4	3	6	55

Table 5 – Corridor density of safe and secure parking areas for commercial road users

Ports

Ports represent the main gateways for passengers and especially freight transport to core network Corridors.

There are 12 core ports in the Mediterranean Corridor, mainly located in the western part: Bahía de Algeciras, Sevilla, Cartagena, Valencia, Tarragona, Barcelona, Marseille/ Fos-sur-Mer, Ravenna, Venezia, Trieste, Koper and Rijeka. For ports, Regulation (EU) 1315/2013 requires the connection to the rail network by 2030.

All ports are reported to be fully compliant. Nevertheless, it shall be highlighted that several ports are further improving the rail connection with a view to improving the rail hinterland connection and thereby increasing possibilities for modal shift. The improvement of the rail connection is very important for those ports in Spain which are still connected only with Iberian gauge (exception: Barcelona port).

Inland Waterways (IWW)

The Inland Waterway system belonging to the Mediterranean Corridor consists of:

- 9 inland ports (Sevilla, Marseille/Fos-Sur-Mer, Lyon, Cremona, Mantua, Venice, Trieste, Ravenna and Budapest);
- the Rhône river, between Lyon and Fos sur Mer, with extensions to the Port of Sète (by the "canal du Rhône à Sète") and to the north (outside the Corridor) with the Saône river until Chalon-sur-Saône;
- the Po river and the IWW system of northern Italy, connecting the inland ports of Cremona and Mantua to Ferrara / Porto Garibaldi and Venice / Porto Nogaro / Monfalcone.

The Regulation (UE) 1315/2013 states the minimum requirement for the inland waterways of international importance: CEMT IV class, which means the fulfilment of the following parameters:

Class IV CEMT	Maximum length	Maximum beam	Draught	Tonnage
Motor vessels and Barges	80-85	9.5	2.5	1000-1500
Pushed convoys	85	9.5	2.5-2.8	1250-1450

Table 6 – IWW class IV CEMT

About 80% of the IWW network of the Corridor meet this requirement. The 20% not complying correspond to the sections Pavia-Casale Monferrato and Piacenza –Pavia covering about 150 km, where the minimum width is about 8 m instead of 9.5 m and a short IWW section to Sete.

Airports

The Mediterranean Corridor comprises 17 core airports: 6 are located in Spain (Valencia, Alicante, Sevilla, Malaga, Barcelona, Madrid – Barajas); two airports are in France (Lyon Saint-Exupery and Marseille-Provence); 6 in Italy (Bergamo-Orio al Serio, Milano – Malpensa, Milano – Linate, Venezia – Tessera, Torino – Caselle, Bologna – Borgo Panigale); and one each in the capitals of Slovenia, Croatia and Hungary.

Out of these 17 airports, six are considered main airports in the meaning of Regulation (EU) 1315/2013, and thus subject to the provisions of Art 41(3), which requires the connection to the trans-European transport network by 2050: Madrid, Barcelona, Lyon, Malpensa, Linate and Budapest.

According to EU prescriptions, only airports having direct rail services linking the airport with high-speed lines or long distance TEN-T railway lines shall be considered as properly "connected with rail". Local or regional/suburban rail connections, although improving accessibility, are not sufficient for the full compliance with the Regulation. Under such

assumption, only Lyon airport can be considered currently as directly connected to heavy rail.

2.3 Conclusion on the Corridor compliance

The current state of the Corridor compliance in 2016 underlines the need to increase Corridor performances for some rail parameters mainly, as shown in the following figure, presenting a selection of the most important requirements for the Corridor implementation.

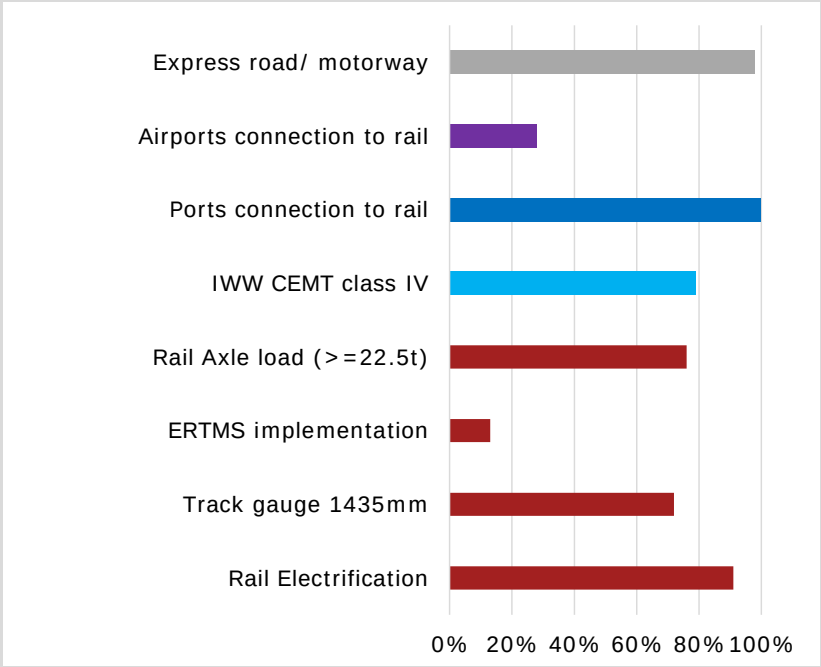

Figure 2 – Corridor KPI 2016 (selection)

As shown above, the Corridor compliance is about 100% for road, ports and IWW main parameters (i.e. respectively express/motorways, ports connection to rail and CEMT class IV), while airport connectivity to rail and some rail KPIs (e.g. ERTMS, axle load and track gauge) are not yet fully compliant.

In conclusion, the following main issues arise per mode:

For **rail**, electrification is needed in some sections in southern Spain as well as track gauge adaptation in the Spanish network. Yet, ERTMS deployment on the Corridor sections has to be implemented, as well as 740 train length that is not always ensured. Axle load is an obstacle to railway interoperability in Hungary and freight train speed limitations exist on the FR/IT border, and on sections in Croatia, Slovenia and Hungary.

For **IWW**, from Cremona Westward, CEMT IV class and full RIS are not available along the entire section and Sète IWW section is limited by CEMT class < IV[5].

As regards last miles, rail connection to ports is available but should be upgraded in order to meet the full interoperability; at the contrary **airport** rail connection is mainly not available.

[5] Several projects are in course of implementation to increase the capacity of the Padania-Veneto river axis, such as (among others) the RIS II and the INIWAS.

3. Results of the Multimodal transport market Study (MTMS)

3.1 Introduction

Despite the global context of relatively weak economic growth in the EU over the 2010 – 2014 period, there is no major element to reconsider the overall conclusions of the 2014 MTMS and its long-term forecasts for 2030.

First of all, in the absence of a new complete full set of origin/destination data at European level (such as the ETIS database), the base year for projection remains 2010 since more recent data are available for ports only. From this point of view, the traffic of the ports of the Mediterranean Corridor remains dynamic, with an average growth of 2.2% per year between 2010 and 2014 for global tonnage and 5% per year for containers.

Furthermore, recent studies at Corridor level (like the CLYMA project study or the RFC6 study) also arrive at conclusions that are in line with those of the MTMS. For example, the potential rail freight market share at the French-Spanish border is estimated 21% against road for 2030 in the CLYMA study, very close to the figure of the Mediterranean Corridor MTMS.

Most importantly, the mentioned studies agree on the general conditions to generate modal shift from road to rail, insisting on the necessity of attractive train paths (mostly in terms of reliability and precise schedules) and reasonable operating costs from door to door, thus clearly underlining the need for improving interoperability along the whole Corridor, including the last mile to main traffic generators.

The short-sea maritime dimension of the Corridor, currently mainly consisting in MoS services between Spanish, French and Italian ports on the Tyrrhenian side, will be tackled and further analysed in the framework of the MoS horizontal Corridor, especially with a study recently launched by DG Move ("Study on support measures for the implementation of the TEN-T core network related to sea ports, inland ports and inland waterway transport").

The MTMS

The Corridor Study, which has been published end of 2014[6] contains a detailed transport market Study (TMS) (cf. chapter 4.2.2) which analyses the transport flows along the Corridor by assessing the capacity and traffic flows on the respective parts of the infrastructure.

The results of the TMS presented in this chapter have been inserted in the Work Plan in order to illustrate the traffic flows, demands and future prospects. These results will be used and further deepened in the on-going works to be undertaken in the 2015-2017 Study.

[6]http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/Corridors/Corridor-studies_en.htm

(NB: Unless otherwise stated the figures given in the following chapters refer to the year 2010, which is the last year where a global set of data for the whole Corridor were available.)

3.2 Current flows in the Corridor's market area

In the 2014 Corridor Study, transport flows of goods and passengers were looked at from two different angles:

1. First, the flows of goods and the movement of passengers between the Corridor countries were described. This gives a good picture of the utilisation of the infrastructure along the Corridor for the transport modes road, rail and sea.

2. Then the flows of goods and passengers to and from the Corridor countries to the rest of Europe have been analysed based on origin-destination pairs that cross at least one common border of two Corridor countries. Thus the "market area" of the Corridor was captured allowing also a forecast for the year 2030, target date for the completion of the core network Corridors. (NB: due to the difficulty in obtaining origin-destination data for maritime transport, this mode is dealt with separately from the modes road and rail).

Goods

The six Corridor countries exchanged nearly 160 million tons of goods in 2010. The main flows are between Spain and France (45 million tons), and between France and Italy (36 million tons). These two flows represent 60% of the goods exchanged between the six Corridor countries (in terms of weight).

As shown in the table below the overall modal split for international freight flows between these countries is 66% for road, 9% for rail and 25% for maritime transport. More than two thirds of the goods exchanged between Spain and Italy are transported by sea.

Mode	1000 tons / year (2010)	%
Road	105,154	66%
Rail	13,866	9%
Sea	40,405	25%
Total (except sea)	**159,425**	

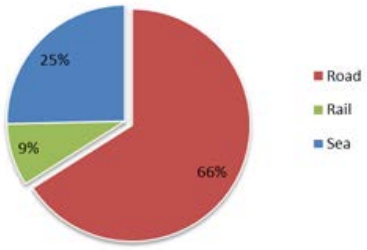

Figure 3 – Total freight demand between Corridor countries in 2010

In the "market area"[7] of the Corridor the freight flows (excluding maritime transport) for 2010 are shown below:

[77] Defined as flows which cross at least one border on the Corridor

Mode	1000 tons / year (2010)	%
Road	129,623	85%
Rail	22,206	15%
Total (except sea)	151,829	

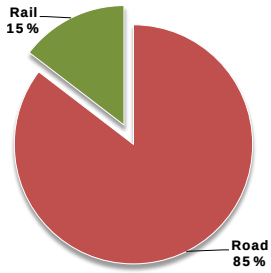

Figure 4 –Freight flows in the Corridor's market area in 2010 (1000 tons / year)

Two observations can be made at this point:

1. The freight flows in the "market area" of 150 million tons are of the same order as the freight flows within the Corridor.

2. The rail share is slightly higher in the market area as compared to the freight flows between the Corridor countries, but remains at a relatively low level when compared to other international flows in Europe.

An analysis of the trade flows shows that

- Corridor countries have strong cross-border exchange flows at regional level with each other and with the rest of Europe; in particular Catalonia and Lombardy appear as the predominant generators of trade flows;

- Road is the dominant mode for flows between Corridor regions, while rail takes a higher share in cross-Alpine freight (in a north – south direction) and in the eastern part of the Corridor.

Another source of major international flows on the Corridor are the freight flows generated by the **seaports**. The total volume of commodities passing through the sea ports of the Corridor amounted to nearly 400 million tons in 2010, of which about 100 million tons concerned goods shipped between EU countries. 327 million tons (80%) of goods generate flows to and from the hinterland, the rest being transhipped.

The map below shows the total volume of goods treated in each port and the rate of EU-internal flows.

Figure 5 –Volume of total goods handled by ports and rate of EU-internal flows (1000 tons / year)

As regards **inland waterways**, in 2010, freight traffic on the two waterways of the Corridor amounted to:

- 5.8 million tons on the Rhône;
- 1.6 million tons in northern Italy, from which 0.4 million on the Po river and 1.2 million between Venice and Porto Nogaro.

The main inland port on the Rhône is the Port Edouard Herriot of Lyon, which accounted for 1.3 million tons in 2010.

In Italy Mantua had 0.2 million tons, Cremona 0.08 million tons and Rovigo 0.09 million tons of IWW traffic in 2010. Porto Nogaro had 1.2 million tons. It is to note that IWW traffic in Italy has known a severe decrease between 2008 and 2010. In 2007 the port of Cremona had an IWW traffic of nearly 0.5 million.

Passengers

The total international passenger traffic between the six Corridor countries is 81 million passengers per year. The two main flows are between France and Spain, and France and Italy: these two relations represent 80% of the international traffic considered. The overall modal split is 64% for road, 33% for air and 3% for rail transport.

The Spain – France and Italy – France relations are characterized by strong road traffic, consisting mainly of short-distance trips around the respective border points of Le Perthus (ES-FR) and Ventimiglia (IT-FR). Regarding air traffic, the first country per

country relation is between Italy and Spain, with almost 10 million passengers per year. France – Italy and France – Spain have both similar air traffic volumes (7.5 million).

The rail market share is generally weak, in particular for flows with Spain; flows between Hungary and Slovenia / Croatia have significantly higher rail market shares (15-20%) than the other flows, but on relatively small volumes of demand.

Mode	1000 pax / year (2010)	%
Road	51,687	64%
Rail	2,514	3%
Air	26,627	33%
Total	80,828	

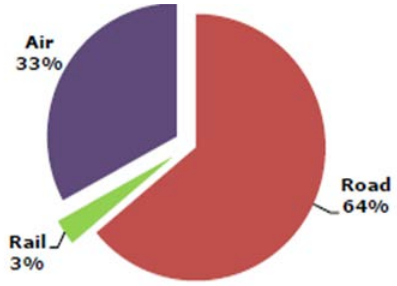

Figure 6 – Total passenger demand between Corridor countries

Passenger flows in the "market area" of the Corridor (i.e. based on origin-destination pairs that cross at least one common border of two Corridor countries) can be summarised as follows:

Total market (area 1000 pax / year)	2010
Road	46,261
Rail	3,001
Air	79,659
Total	128,921
Rail Share	2.3%

Figure 7 – Total passenger flows in the marker area of the Corridor

These international passenger flows in the Corridor's market of about 129 million passengers per year in 2010 are concentrated mainly in the western part of the Corridor. The low rail share can be explained by the fact that a large part of these passenger movements are short-distance cross-border trips, which are still carried out more efficiently by road than by rail.

The other important flows are the flows between major cities and to touristic zones of the Corridor countries or neighbouring countries ; the distance between these major nodes is generally really high (over 1000 km in most of the cases), which gives the air transport a tremendous market advantage for these type of flows.

3.3 Forecast of the overall transport demand

Freight

In order to assess the potential future traffic on Corridor rail infrastructure, in particular for cross-border sections, an assessment of the potential rail freight matrices at 2030 has been performed, considering Corridor implementation.

This assessment takes into account:

- The traffic growth derived from the analysis of the international flows on Corridor market area;
- The traffic generated by the ports, according to the consortium's forecasts;
- The traffic growth of national traffic on Corridor sections, estimated with a simplified assumption linking traffic growth and GdP.

The result of this assessment is shown on the map below:

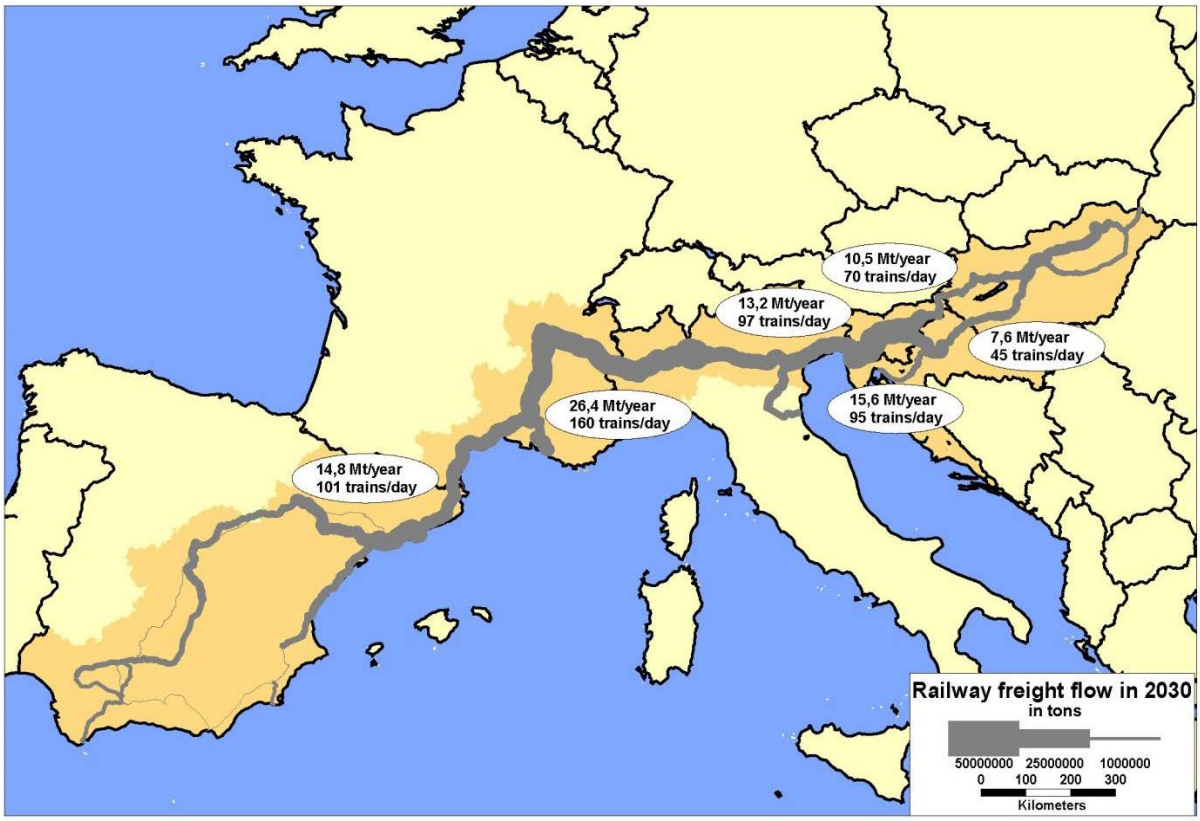

Figure 8 – Potential rail traffic on cross-border sections of the Corridor in 2030

According to the Study the total demand in the market area of the Corridor would increase from 151 million tons in 2010 to 267 million tons in 2030, with an average annual growth rate of 2.9%.

With the full implementation of the Corridor, the rail market share could potentially increase up to 27%, reaching about 72 million tons a year.

The table below summarizes the forecasting results for the Corridor's market area:

Mode	2010	2030 Trend (do-nothing)	2030 Corridor implemented	2030 Corridor implemented (+ accompanied rolling motorway)
Road	129,623	228,647	195,131	186,431
Rail	22,206	38,958	72,474	81,174
Total (except sea)	**151,829**	**267,605**	**267,605**	**267,605**
Rail share	**14.6%**	**14.6%**	**27.1%**	**29.4%**

Table 7 – Forecast for freight (thousand tons)

The forecasts in the 2014 Corridor Study show that there is a **strong potential** for international **rail traffic** development on the Mediterranean Corridor.

- The global demand can be expected to have a solid dynamic if GDP growth in Europe turns back to "normal" rates (as is expected in EC projections) on a long term average. It is particularly the case for the exchanges of goods with countries of Eastern Europe.

- Starting from a relatively low base in 2010, the final rail shares given by the forecasting model (between 20% and 30% for most of the relations considered) are not excessively high for international continental rail transport as long as it offers competitive performances; they remain below observed rail shares in Europe on the north – south direction.

- Thus, implementing the Corridor could potentially shift about 33 million tons per year from road to rail (about 2.3 million trucks/year equivalent) or even 41 million tons / year (3 million trucks) if we include accompanied combined transport (rolling motorway) on the Lyon – Turin axis[8].

- However, these forecasts express the *potential* market of the Corridor, meaning that reaching these effects imply the complete implementation of the Corridor with fulfilment of the TEN-T standards and the absence of bottlenecks, and imply also the creation of appropriate transport services along the infrastructure, particularly in combined transport.

As regards **maritime traffic**, all ports and all commodity types are expected to grow in the period 2010-2030, in particular container traffic (about 4% per year) without assuming shifts between ports and without specific growth of the transhipment traffic.

It is reasonable to expect that the level of rail traffic generated by the Corridor's ports could double by 2030 as compared to 2010 levels, even taking into account an increase of train length. The most important effects can be expected at the ports of Algeciras, Valencia and Barcelona, resulting of traffic growth and important modal shift expectations, as a result of the expected improvements of the ports' rail connections. Although to a lower scale, this can also be expected at ports of Sevilla, Tarragona and Cartagena (Dársena de Escombreras).

Taking into account potential additional growth from shifting traffic from the Northern European ports, this rail traffic increase could be even more important.

[8] The introduction of the rolling motorway could also consistently increase the environmental benefits associated with combined transport.

The maritime dimension of the Corridor is also expressed by a strong traffic of short sea shipping and RoRo services between the Corridor's countries or between Europe and northern Africa. This traffic is also expected to grow rapidly in the coming years with the further development of the motorways of the sea and with the economic and demographic growth of Africa.

Passengers

Implementing the Corridor will significantly reduce rail travel time, and consequently increase frequency of train services on various international relations along the Corridor, therefore generating shifts from road or air to rail but also, as already mentioned, traffic induction.

The Corridor's full implementation would **increase rail shares** in particular for traffic between France and Spain (from 2% today to 12% in 2030) and between France and Italy (from 4% to 8%).

The table below summarizes the forecast for the whole market area:

Mode	2010	2030 Trend (do-nothing)	2030 Corridor implemented	Corridor gain with respect to do-nothing
Road	46,261	63,539	61,125	- 2,414
Rail	3,001	4,061	10,011	+ 5,950
Air	79,659	110,179	108,153	- 2,026
Total (except sea)	**128,921**	**177,779**	**179,289**	**1,510**
Rail share	**2.3%**	**2.3%**	**5.6%**	

Table 8 – Forecast for passengers (thousand pax)

Implementing the Corridor could thus increase the international rail traffic by nearly 6 million passengers/year in 2030. This increase would come from modal shifts from air (2 Mpax), modal shifts from road (2.4 Mpax) and traffic induction (1.5 Mpax). Rail share would go from 2.3% to 5.6% on the overall market area, which represents more than a doubling of the rail traffic with respect to the do-nothing scenario.

3.4 Conclusions drawn from the transport market Study

The implementation of the Mediterranean Corridor represents a major opportunity to **shift important volumes of freight from road to rail**, with a potential shifting of 40 million tons of goods from road to rail by 2030. Nevertheless, the realization of this objective needs a fully upgraded and interoperable infrastructure with adapted services and rail-road terminals.

Developing the Corridor will also lead to an increased competiveness of rail in the international passenger traffic, with a potential increase of 6 million passengers per year by 2030, 2 million of which shifted from air traffic. This would more than double the rail share.

The connections to the ports are a key element for the success of the Corridor.

The IWW can play an important role in the future for the Mediterranean Corridor, despite the current low traffic volumes. Especially by connecting major industrial zones to

seaports, they could offer an interesting alternative to road or rail transport for certain types of goods.

The Corridor developments also likely to improve significantly the competiveness of rail for international passenger traffic, with a potential increase of 6 million passengers per year by 2030, 2 million of which shifted from air traffic.

The Corridor implementation will also have important effects for national and regional traffic, improving travel time on sections with strong national flows (Valencia – Barcelona, Nîmes – Montpellier - Perpignan, Lyon – Chambéry / Grenoble, Milano – Venezia - Trieste…) and creating opportunities for new performant regional services where congested nodes are relieved.

4. Critical issues on the Mediterranean Corridor

4.1 General

In order to fully develop of the Corridor certain aspects have to be addressed which are critical for ensuring the efficient and sustainable use of the infrastructure capacity and for guaranteeing the Corridor's full interoperability. These so-called critical issues relate to cross-border sections, capacity, interoperability, intermodality as well as administrative and operational barriers.

Experience has shown that the development of infrastructure is most difficult on cross-border sections when technical and financial difficulties are exacerbated by the fact that two Member States have to work together. This is why the European Coordinator's work needs to focus on these sections first, in order to enhance land and maritime connections between Member States.

The following picture can be drawn of the main critical issues of the Mediterranean Corridor, based on the analyses performed in the Corridor Studies (both 2014 and 2015-2017), the intensive consultation of stakeholders in the framework of the seven Corridor Forum held so far, the Working Groups active on specific topics as well as on consultations between the Coordinator and the Member States.

4.2 Cross-border sections

- **Spain-France**: The new HS line between **Figueres** and **Perpignan**, which opened on 1 January 2013, offers capacity, fluidity and safety; although traffic has significantly grown since then, it is still underutilized. On that specific topic, the Coordinator launched a meeting was held in March 2016 with the stakeholders to address the different issues. Main problems identified concern: lack of UIC gauge connectivity in ES (with last mile issues to main generators other than the port of Barcelona), three signalling systems and voltages required for long-distance trains running through the line[9], and night-time closure at Le Pertus, reducing the number of commercially attractive slots. All these issues are being tackled, mainly by actions listed in the Corridor's Project list.

- **France-Italy**: the steep gradient of the existing railway line on the French side of the border requires double push locomotives for regular sized freight trains (single loco trains are limited to 650 tons). In addition, the existing sidings and passing tracks restrict further the train lengths making the line uncompetitive.

  The **new railway link Lyon-Turin** with a 57km base tunnel as its main part is the main project of the whole Mediterranean Corridor. It is highly strategic, because it is the main missing link in the Corridor which aims at connecting south-western Europe with central and eastern European countries. Failing this high performance connection transport relations especially between Italy and France, Italy and Spain, Spain and Italy, and Spain and central and Eastern Europe are hampered. As a consequence freight flows are confined to road transport and deviated to other routes causing congestion and creating additional costs.

[9] This leads to a lack of available locomotives capable of running on the HS line.

- **Italy-Slovenia**: the existing line between Trieste/Aurisina and Divača needs to be up-graded to meet TEN-T standards. However, recent traffic forecasts suggest that the capacity of the up-graded line will be sufficient to accommodate traffic beyond 2030[10].

- **Slovenia-Hungary**: an up-grading of this cross-border section has been recently completed with the Pragersko-Hodos railway line projects and no particular bottleneck exists.

- **Slovenia-Croatia**: on the Croatian side of this cross-border section, which is part of the line connecting the two capitals Ljubljana and Zagreb, the line suffers from speed limitations as well as limitations on train length. The line is not in conformity with TEN-T standards and needs up-grading.

- **Croatia-Hungary**: this cross-border section (Botovo-Gyekenyes) is part of the main railway line connecting Zagreb and Budapest. As most of this important connection the cross-border section requires up-grading to TEN-T standards.

4.3 Interoperability and intermodality issues

- The **"last mile" connections** of main industrial sites, ports and intermodal logistics terminals to the main transport network (in particular via rail or IWW where appropriate) have to be guaranteed and/or need to be enhanced in order to ensure appropriate capacity and service level in comparison to their needs and assure that the development of the transport system has an impact on the socio-economic growth of regions. Thus, the issue of the last mile linking the core network to production, exchange or consumption sites is among the first priorities to be addressed.

- The realization of the international rail traffic potential in Spain can only be achieved by a **full UIC gauge connection** from the main traffic generators to the border.

- In order to enhance the modal shift, a **substantial improvement** of the Corridor **interoperability** has to be ensured removing the remaining restrictions in particular in terms of train length, axle load and signalling systems (especially on the Eastern part of the Corridor). While this effort can only be made gradually, this issue is only solved when the whole Corridor has reached the common standards, and even a very small section remaining with lower standards in the central part of the Corridor has enormous negative effects on the Corridor's potential on the whole.

- Particular attention needs to be given to **ERTMS** where the implementation rate is still very low in most of the Corridor countries. This issue will be dealt with in the new ERTMS deployment plan under definition.

[10] The Slovenian Government has not abandoned the plans to build a fast track in the future. Indeed, the new Trieste-Divača high speed line is considered as a priority project by the Government, since it would constitute Slovenia's only link to the high-speed railway networks of Europe.

4.4 Focus on the Capacity issues on the Mediterranean Corridor

The main problems relating to capacity and line saturation along the Corridor lie in the large urban areas and are summarised below.

- The realization of the new railway link **Lyon – Turin** aims at developing efficient passenger and freight services and contributing to modal shift from road to rail. Beyond the completion of the cross-border section including the 57 km base tunnel by 2030, the rest of the will need to be implemented depending on the evolution of the passenger and freight traffic, in order to benefit fully from the capacity offered by the new base tunnel.

- The **Lyon node** is already critical today and its situation prevents any significant development of rail traffic coming from Spain or from the port of Marseille to northern Europe, Switzerland or to Italy. An alternative path to Switzerland or Italy might be available in the short term via the newly electrified line between Valence, Grenoble and Chambéry but with quite limited capacity.

- The **Turin Node** is an essential point of the national railway system, both concerning its function as a node for the HS/HC system and for the Turin-Lyon Corridor and its metropolitan mobility value. The planned interventions for the node, both infrastructural and technological, are essential in order to increase its capacity and enhance the intermodal integration. In particular, rail projects are foreseen in order to allow better track occupancy and increase the capacity and the "Gronda" line in Torino Orbassano with joint in Settimo Torinese (including Orbassano interconnection).

- The **Treviglio-Brescia-Verona-Venezia** rail section is affected by punctual capacity limitations due to traffic promiscuity and to the high existing transport volumes, expected to increase in the future

- In relation to **other urban nodes** (i.e. Madrid, Barcelona, Valencia, Marseille, Milano, Venice, Ljubljana, Zagreb and Budapest), bottlenecks exist due to the overlapping of different types of rail traffic (metropolitan, regional, long distance and freight). The planned investments are necessary to relax such constraints. For example, once all major generators are connected, there could be some capacity issues in the urban area of Barcelona, with about 100 – 150 freight trains per day on some sections having to share tracks with heavy commuter rail traffic; this issue would require a more in-depth analysis of local traffic.

- The need for a new line is also clear in the **central part of Slovenia**, where freight traffic could reach over 200 trains a day. Such traffic does not appear to be easily mixed with the passenger traffic in the Ljubljana area. In particular, Ljubljana ring road could be considered as the main bottleneck, suffering from capacity limitations especially during peak hours.

- Regarding **Budapest** node, main issues derive from the missing rail link between Budapest Liszt Ferenc International Airport and MED/OEM/R-D CNC railway lines, the limited capacity of the Southern Danube Railway Bridge and the missing North-Western section of the ring motorway M0.

- Between **Montpellier and Perpignan** capacity issues could become critical at the latest once all connections to Spanish seaport, industrial plants and the other logistic terminals will be upgraded at UIC gauge. The new line will become necessary to realize the potential demand of the Corridor, clearly aiming at a strong development of rail freight transport on this axis.

- Given the present traffic and its potential development, the upgrade of the line between **Divača** and **Koper** is an absolute priority: there are 82 trains/day on this single-track line, with an expected increase to 142 trains per day by 2030.

The issues presented above, are being currently faced by Mediterranean Stakeholders and, in large majority, taken into due consideration in the definition of the Corridor Project list.

5. The identified planned projects

5.1 Overview

The previous chapters have a twofold purpose:

- Firstly, to provide a brief overview of the current status of the Corridor in terms of its compliance with the transport infrastructure requirements set out in the Regulation; which mainly represents the minimum quality standards established at European level for the Trans European Transport Network. In this respect, as anticipated above, a specific set of Key Performance Indicators – set on the basis of this compliance check- have been used with the aim of assessing and monitoring the evolution of the Core Network Corridors.
- Secondly, to present the current as well as the forecasted freight and passenger traffic volumes expected by 2030 with the fully Corridor implementation. In this respect, the Multimodal Transport Market Study, carried out in 2014, aimed at underlining the main capacity bottlenecks which may affect specific Corridor nodes or sections.

Stated that, the project list defined for the Mediterranean Corridor as a major task of the 2015-2017 Study enables to understand to which extent and in which way the identified critical issues will be addressed and to design how the Corridor will be developed in the future after the realisation of the projects proposed by the Ministries, the Infrastructure Managers and other relevant Stakeholders.

The time horizon of the project list is 2030, in a way to align project timing with the technical objectives defined under the Regulation. The project list, which is composed of 407 projects, is here briefly analysed following a primary categories (i.e. mode of transport and other categories), cost classes, project typologies (i.e. bottlenecks, cross-borders and last-miles) and projects maturity approach.

General Statistics

The Mediterranean Project list is composed of 407 projects, for a total cost of about 104 billion €. The following figure shows the total number of projects and the associated cost per each project category.

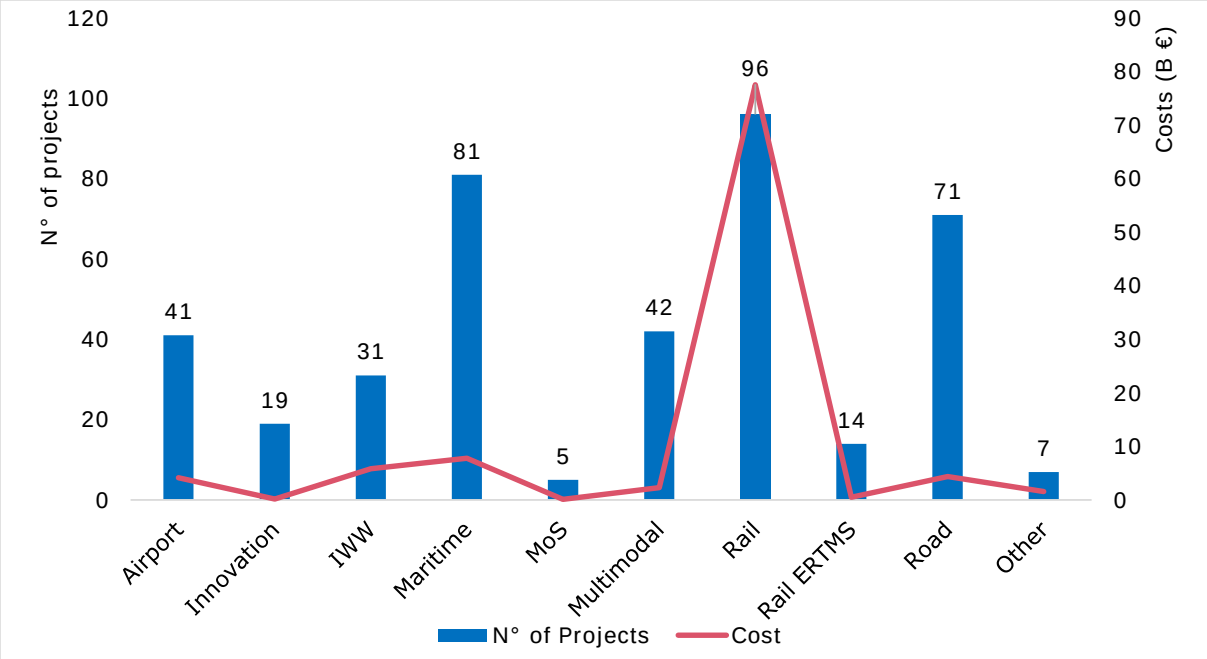

Figure 9 – Total number of projects and related cost per each project category

NB – The costs shown in the figure reflect the financial needs expressed by projects with fully available cost information only.

As shown in the figure above, rail is by far the most represented mode in the Project list for the corridor, with about 24% of projects addressing rail works (corresponding to about 77 billion €).

Other modes, such as road, maritime and multimodal and airport categories follow in terms of number of projects (with respective percentage amounting to about 17% of total projects for road, 20% for maritime and 10% both for multimodal and airport) and much lower figures for project cost (approximately below 10 billion €).

This allocation of costs presented above reflects both the general objectives of the Regulation (EU) N°1315/2013 and corridor specific objectives, as specified in the 2014 corridor study, such as:

- providing the infrastructure network with the capacity required, by eliminating the existing bottlenecks and creating the "missing links", in particular for the rail network;
- assuring the adoption of EU standards for each mode (interoperability); and
- guaranteeing coordination between different modes of transport and a smooth connection between nodes and road / rail network.

The number of projects and the cost[11] per each MS are shown in the following figure.

[11] There are projects without defined project costs, and hence those projects do not contribute to the figures shown.

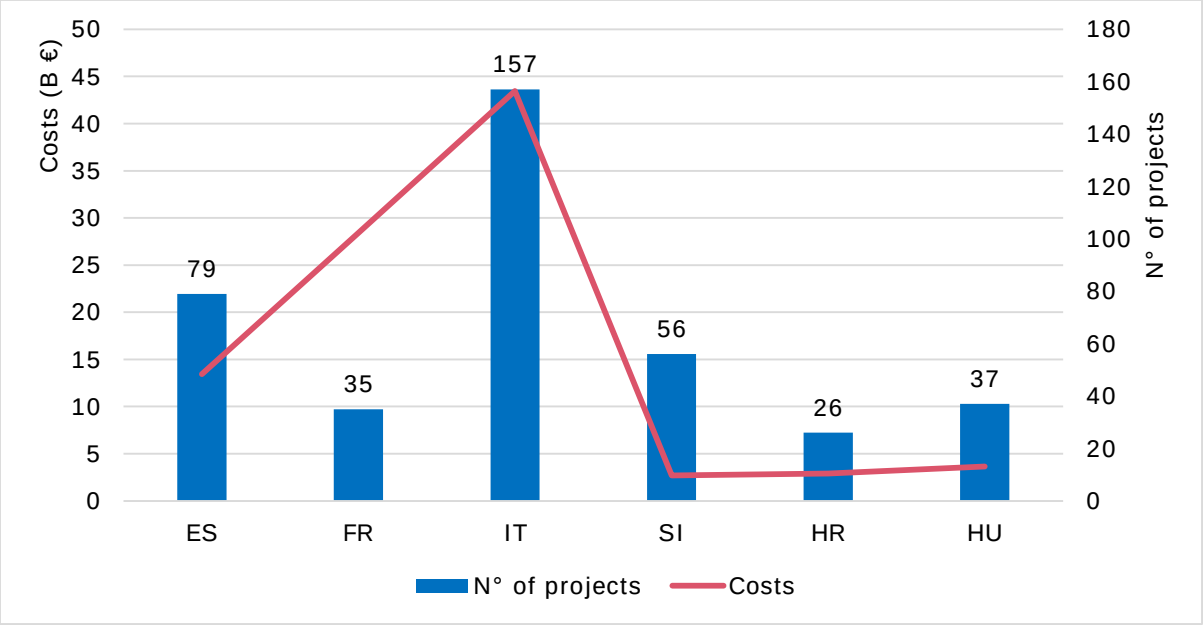

Figure 10 – Total number of projects and related cost per each MS (excluding cross-border projects)

As shown in figure 10 Italy, France and Spain record higher costs (respectively, about 43, 28 and 13 billion €), while Hungary, Croatia and Slovenia follow with lower amounts.

The repartition of costs and number of projects among Member States also reflects the different number of nodes belonging to each country, as set out in Annex II of Regulation (EU) 1316/2014[12], as well as the extension of the corridor within the State, in terms of km of road, rail and IWW sections.

5.1.1 Cross Border projects

Cross Border projects are crucial to the Corridor development due to their high European added value and should thus be the subject of priority intervention by the Union in order to ensure their implementation.

Figure 16 shows the 17 cross-border projects belonging to the corridor.

[12] According to the Regulation, Spain has 24 nodes, France 10, Italy 24, Slovenia, Croatia and Hungary 4 nodes, for a total amount of 70 core nodes belonging to the Mediterranean Corridor.

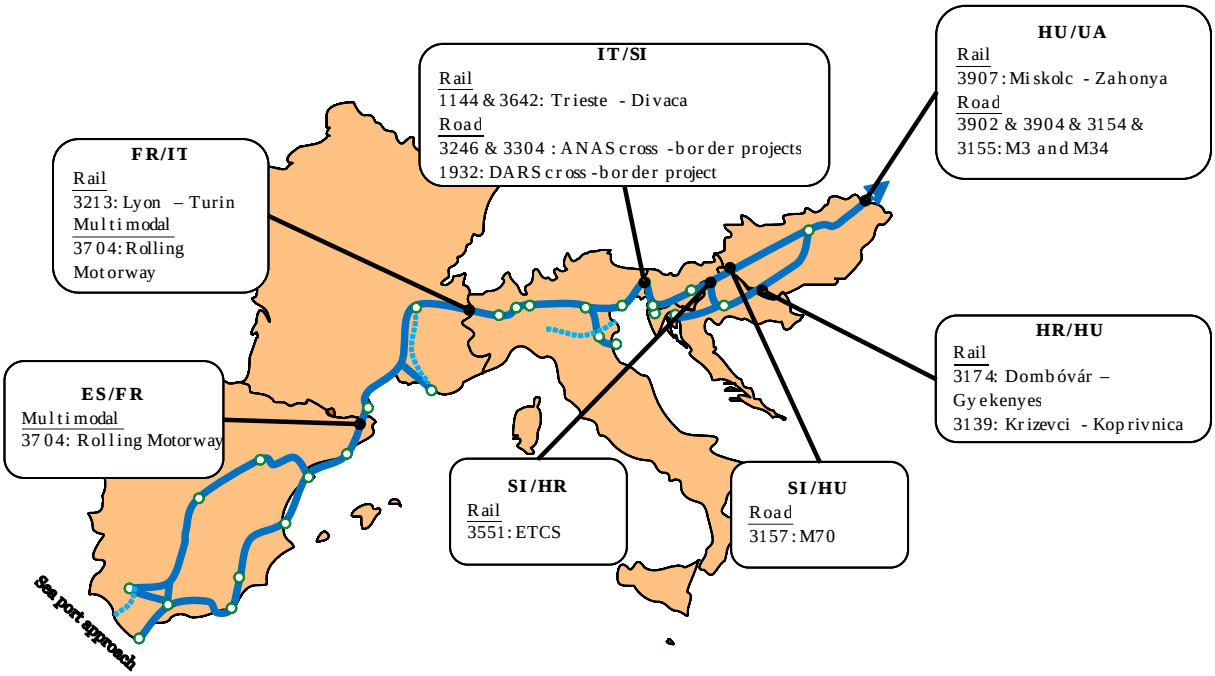

Figure 11 – Cross-border projects

Table 8 provides detailed information on the cross-border projects in terms of category, promoter, geographical localisation, total costs, current status and expected end date.

TEN-T ID	Project name	Project category	Project promoter	MS	Section or node	Total costs (M €)	Status	End date
3213	Tunnel Euralpin Lyon Turin - works	Rail	TELT	FR/IT	IT Border-Torino	8,609.70[13]	planned	By 2030
1144	Upgrading of the section Trieste-Divača (Divača-state border) – works	Rail	Ministry	IT/SI	Trieste-Divača - State Border	61.92	planned	By 2020
3642	Upgrading of the railway line Trieste-Divača - works	Rail	Ministry	IT/SI	Trieste-Divača	40.00	planned	By 2030
3139	Križevci –Koprivnica - State border. Core network - works	Rail	Croatian Railways Infrastructure Ltd.	HR/HU	Križevci – Koprivnica - State border	297.11	On-going	By 2030
3174	Dombóvár - Gyékényes rail line, HU-HR border - works	Rail	Ministry	HR/HU	Dombóvár - Gyékényes	174.19	planned	n.a.

[13] External certification for costs according to the bilateral France - Italy agreement (January 2012). Costs in constant Euro 2012.

TEN-T ID	Project name	Project category	Project promoter	MS	Section or node	Total costs (M €)	Status	End date
3907	Miskolc – Nyíregyháza approaching HU-UA border - works	Rail	Ministry	HU/UA	Miskolc – Zahony	n.a.	planned	n.a.
3551	Signalling enhancement (ERTMS/ETCS…) and implementation of the ETCS Zidani Most-Dobova-state border - works	Rail ERTMS	Ministry	SI/HR	Zidani Most-Dobova-state border	7.00	planned	By 2030
3246	Cross-border Road section between Italy and Slovenia - works	Road	ANAS	IT/SI	IT/SI Cross border section	3.50	planned	By 2020
3304	R.A.13 Interventions - works	Road	ANAS	IT/SI	Trieste node	2.97	planned	By 2020
1932	Arrangements for MW and HW in the context of land on the former MMP - works	Road	DARS	SI/cross bord.	Cross Border Sections	16.05	planned	By 2030
3157	M70 expressway section between Letenye and Tornyiszentmiklós HU-SI border - works	Road	Ministry	SI/HU	Budapest - Letenye	60.00	On-going	By 2020
3904	M34: section between Vásárosnamény - Zahony - works	Road	Ministry	HU/UA	Budapest – Zahony	240.40	planned	n.a.
3902	M3: section between Vásárosnamény - Beregdaróc HU-UA border – works	Road	Ministry	HU/UA	Budapest – Zahony	280.00	planned	n.a.
3154	M34 expressway between Vásárosnamény and Záhony (M34 Vásárosnamény- Záhony) HU-UA border - study	Road	Ministry	HU/UA	Budapest – Zahony	28.40	On-going	By 2030
3155	M3: section between Vásárosnamény - Beregdaróc HU-UA border (2x1 lanes) – preparation - works	Road	Ministry	HU/UA	Budapest – Zahony	17.50	On-going	By 2030

TEN-T ID	Project name	Project category	Project promoter	MS	Section or node	Total costs (M €)	Status	End date
3865	Barcelone - Paris Rolling motorway - works	Multimodal	VIIA	ES/FR	Barcelona Aulnay & Rungis	75.00	On-going	By 2020
3704	Calais / Paris - North Italy Rolling motorway - works	Multimodal	VIIA	FR/IT	All Corridor Sections	n.a.	planned	By 2020

Table 9 – Cross border projects

Source: Elaboration on the Mediterranean Corridor Transport Market Study 2014.

5.2 Country focus

The Corridor study carried out in 2014 already provided a detailed overview of the main critical bottlenecks, also in terms of interoperability, of each section or node part of the Mediterranean Core Network Corridor.

In the last two years such issues have been revised and updated. The following paragraphs present a brief resume of the main compliance gaps (especially with respect to railway interoperability issues) per country which still characterise the infrastructure components of the Corridor. Moreover, on the basis of these technical bottlenecks, all the related projects with the biggest KPI contribution will be presented. Finally, infrastructural bottlenecks that are not expected to be solved by 2030 are listed.

SPAIN

Current status

The most relevant critical issues related to the Spanish sections and nodes that may hinder the Corridor efficient and effective development are summarised in this paragraph. This analysis is particularly focused on all those rail bottlenecks that limit the Corridor interoperability and inter-modality, such as:

a) **Railway missing link** between Murcia and Almeria

b) the **lack of standard gauge** (UIC 1,435 mm) on a significant part of the conventional railway lines belonging to the Corridor

c) the **existing limitations to train length (550 to 600m)** does not allow, in most of the Spanish part of the Corridor, the operation of freight trains with the maximum interoperable length of 740 m., which penalizes the rail transportation competitiveness

d) the **non-electrified sections**: Alicante-Murcia-Cartagena, Almeria-Moreda-Granada-Bobadilla-Utrera, Algeciras-Bobadilla conventional lines

e) the majority of the **rail last mile connections to seaports and rail-road terminals shall be upgraded** in order to meet the fully interoperability

f) **rail connection of airports** to TEN-T is in most cases not sufficient according to EU prescriptions

g) the **disparity in the signalling systems** (ERTMS in UIC gauge tracks and ASFA in conventional Spanish network). Therefore, currently none of the conventional railway lines is equipped with the ERTMS signalling system.

On-going and planned main interventions

Some of the critical issues underlined in the previous paragraph will be tackled by specific interventions proposed by the involved stakeholders. Between these, concerning railway projects, the ones with the biggest KPI contribution have been selected and presented in the following map.

Figure 12 –Spanish sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions with the biggest KPI contribution	Critical issue addressed
1	Madrid Puerta de Atocha – Chamartín: New tunnel to tackle current missing HSR link	Missing link
2	HSR Access to Madrid Barajas Airport (Chamartín - Barajas)	Last mile connection to Airports
3	Madrid – Barcelona – FR Border: Enlargement of max. train length to 740 m	Interoperability
4	Castellbisbal Node - Murcia: Implementation of standard gauge, Enlargement of max. train length to 740 m., Electrification (Alicante – South), Removal of single track section (Tarragona – Vandellós)	Interoperability
5	Murcia – Almería: New line to tackle current missing link	Missing link

6	Antequera-Granada: HSR Access to Granada	HS access to urban node
7	Algeciras - Bobadilla: Electrification	Interoperability
8	Madrid – Algeciras: Enlargement of max. train length to 740 m, UIC gauge implementation	Interoperability
9	ERTMS deployment on the entire alignment of the Mediterranean Corridor	ERTMS Deployment
10	Rail/Road improvements in Tarragona, Barcelona, Cartagena, Valencia, Sevilla and Algeciras Seaports	Last mile connections to Seaports

Remaining critical issues

Despite Spain's efforts to expand the UIC gauge on its conventional rail network, it is not to be expected that the UIC track gauge will be deployed completely by 2030 on the conventional lines.

In addition, connecting the Spanish core airports with the TEN-T railway network as recommended by the EU represents another challenge that shall be addressed.

FRANCE

Current status

The most relevant critical issues are related to:

a) **missing HS railway link** between **Montpellier and Perpignan**, as well as the foreseen **HS line Lyon-Turin**

b) **the low standards** of the conventional line Lyon-Turin that penalise especially the freight trains in terms of productivity

c) the urban nodes of **Lyon and Marseille** are characterized by a high promiscuity of rail traffic due to overlapping of metropolitan, regional, long distance and freight traffic

d) the need of upgrading road and rail last mile links to the **port facilities of Fos and Marseille in order to accommodate the forecasted traffic flows**

e) **the lack of capacity on the railway lines:** ES border- Perpignan – Montpellier – Nîmes and Valence-Grenoble- Chambéry

f) currently **none of the existing lines is equipped with the ERTMS** signalling system except for the cross border high speed line Le Pertus -Perpignan.

g) The canal linking the Rhône near Fos-sur-Mer and the port of Sète needs several improvements to reach TEN-T standards (from CEMT class III to IV) and to increase its performances.

On-going and planned main interventions

The following map depicts the matching between the identified critical issues and the on-going and/or planned interventions included in the Corridor Project list. Between these, concerning railway projects, the ones with the biggest KPI contribution have been

selected and presented in the following map. As specified in the legend, all those cases in which works are not yet planned or agreed for completion by 2030 are marked in red.

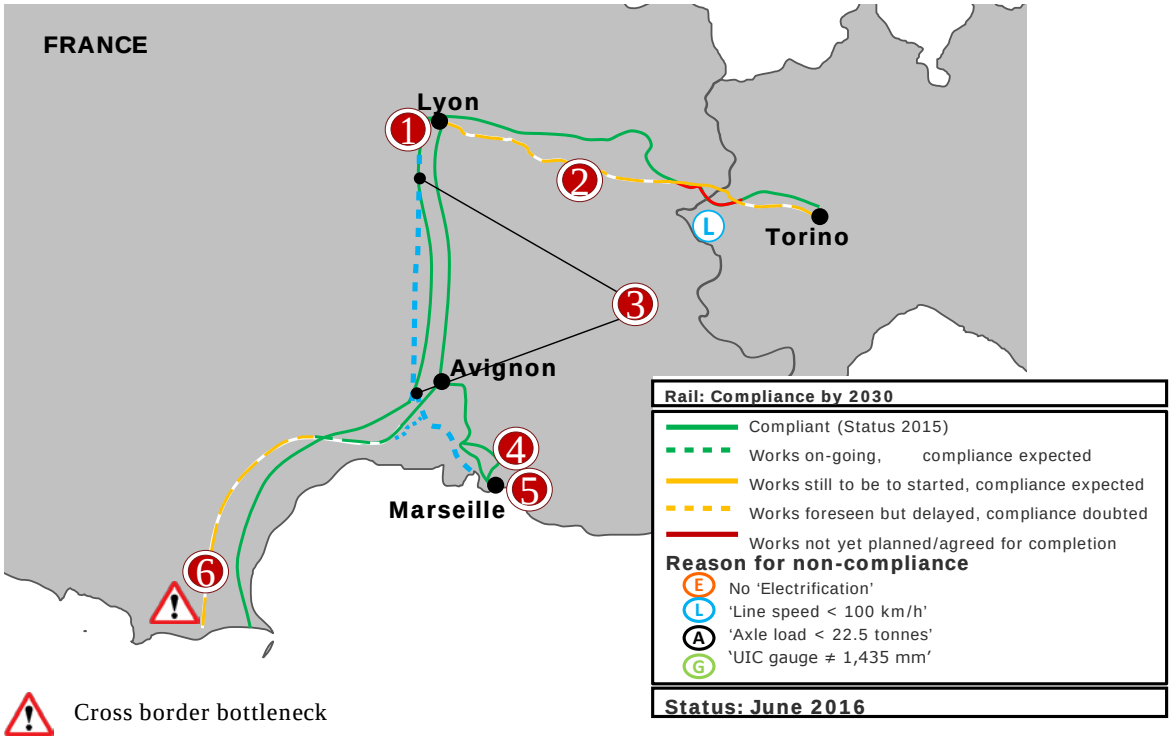

Figure 13 –French sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions with the biggest KPI contribution	Critical issue addressed
1	Lyon Railway node (NFL). Works on the existing network aiming to increase reliability, security and capacity of train operations. Possible creation of new tracks through Lyon on the long term	Capacity bottleneck
2	Lyon – Turin new rail connection: French section	Missing link
3	IWW: Increasing capacity of Canal du Rhone a Sete (global project) - phase 2 and the upgrade of the Port of Lyon	Upgrading to CEMT Class IV
4	Marseille Railway node: new underground tracks and station to increase capacity and quality of service	Capacity bottleneck
5	Port of Marseille / Fos: works to improve rail, IWW and road access to the port , creation of new intermodal facilities	Last mile
6	Montpellier/ Perpignan: Creation of a new high-speed line	Missing link

Remaining critical issues

Nevertheless, as depicted in the figure above, the most critical bottlenecks which are not expected to be solved by 2030 are: the realisation of the new HS section Montpellier-Perpignan, the upgrading of the conventional cross-border line St-Andre-Le-Gaz-Chambery, as well as the completion of the new rail link Lyon – Chambéry – St-Jean-de-Maurienne. Finally, the implementation of the ERTMS will be not ensured by 2030.

ITALY

Current Status

The most relevant critical issues related to the Italian sections and nodes of the Corridor are presented hereunder:

a) the **missing HS railway link** between Turin and Lyon
b) the **low standards of the conventional lines** Turin-Lyon and Venice-Trieste that penalise especially the freight trains in terms of productivity

c) the **existing limitations to train length (400 to 600m)** does not allow, in the most part of the Italian corridor, the operation of freight trains with the maximum interoperable length of 740 m., which penalizes rail transportation competitiveness

d) the **lack of capacity** on the railway line Treviglio-Brescia and Brescia – Verona – Venezia section

e) the **loading gauge restriction** on the conventional railway lines: Italian/French border up to Pioltello (limited to PC45)

f) the **urban nodes** of Venice, Turin, and Milan that are characterized by a high **promiscuity of rail traffic** due to overlapping of metropolitan, regional, long distance and freight traffic

g) the urban node of **Milan** is characterized by intense traffic flows, in particular crossing flows and long distance flows, causing **congestion** in particular in ring roads **around the town**

h) the need of upgrading **road and rail last mile links** to the port facilities of Venice, Trieste and Ravenna

i) **Missing rail last mile links** to the main airports of Milano Linate, Milano Malpensa and Milano - Bergamo Orio al Serio

j) **the conventional rail lines are not currently equipped with the ERTMS signalling system**

k) With respect to inland waterways: **limited draught** subject to seasonal variations, limited accessibility of the western part of the Corridor due to a missing lock and the low navigability reliability due to the constant variations in the hydraulic conditions.

On-going and planned main interventions

The following map depicts the matching between the detected critical issues and the on-going and/or planned interventions reported in the Corridor Project list.

Between these, concerning railway projects, the ones with the biggest KPI contribution have been selected and presented in the following map. As specified in the legend, all those cases in which works are not yet planned or agreed for completion by 2030 are marked in red.

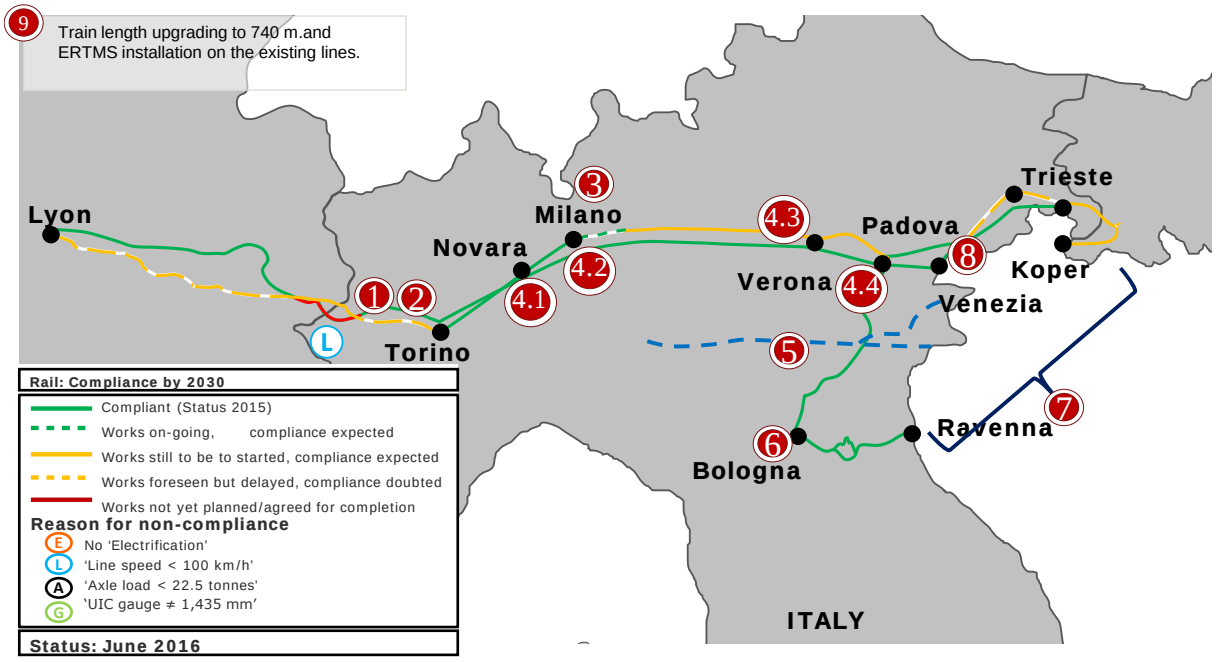

Figure 14 – Italian sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions	Critical issue addressed
1	Lyon – Turin rail connection: Italian section of the new High speed line.	Missing link
2	Bussoleno – Avigliana: Max. Gabarit upgrading	Loading gauge
3	Rail last mile connections to Malpensa (upgrading) and Bergamo (realisation) airports	Last mile
4.1,2,3,4	Rail/Road Terminals upgrading and realisation of new infrastructures	Capacity
5	IWW interventions: Connected ports, Connected rivers, RIS, new locks and Class V adaptation	CEMT IV
6	Bologna Airport: People mover between Railway station and Bologna Airport	Last mile
7	Interventions aimed at upgrading ports road/rail last mile connections.	Last mile
8	Rail last mile connection to Venice Airport	Last mile
9	Enhancing of the signalling system to ERTMS on the Italian corridor sections	ERTMS

In addition to these interventions, and as specified in the map, the new high speed rail section from Treviglio to Padua will be completed by 2030, as well as the works foreseen for the full compliance of Italian rail sections to train length 740m. and loading gauge parameters.

Remaining critical issues

As shown in the map above, main remaining bottlenecks concern the Italian rail sections close to the borders, that are likely to be implemented after 2030 (i.e. yellow dotted in the map), in particular Lyon – Turin (Italian section) and the Trieste – Venezia as well as the missing rail connection with Milano Linate airport (no project is foreseen indeed).

SLOVENIA

Current status

The most relevant critical issues are presented hereunder:

a) the **existing limitations to train length (570 to 700m)**: the Slovenian railway network allows the use of trains with a length of 740 m on the sections: Divača - Koper, Pragersko - Hodoš (SI-HU border-crossing). For other sections of the Slovenian railway network, train length limitation exist (expected to be overcome by 2020 or 2030);

b) the current restrictions on the **maximum admissible operating speed**: 41.2% of the Slovenian railway network on the Mediterranean corridor allow maximum speeds for freight trains of 100 km/h or more. The remaining sections have speed limitation issues;

c) the **axle load limitations**: 88.1% of the Slovenian railway network on the Mediterranean corridor allow an axle load of 22.5 tons. There are on-going activities which will increase the permissible axle load to 22.5 tons on the entire corridor by 2020;

d) the **low standards of the conventional line Divaca –Koper**, characterised by a lack of capacity (utilisation rate about 92%), allowed speed below 70 km/h;

e) the need of upgrading road/rail **last mile connections to the port of Koper**;

f) ERTMS has been deployed on the Mediterranean corridor in Slovenia, except on the section of the Zidani Most - Dobova (SI-HR border-crossing);

g) the **lack of capacity in the Ljubljana node.**

On-going and planned main interventions

The following map depicts the matching between the detected critical issues and the on-going and/or planned interventions reported in the Corridor Project list.

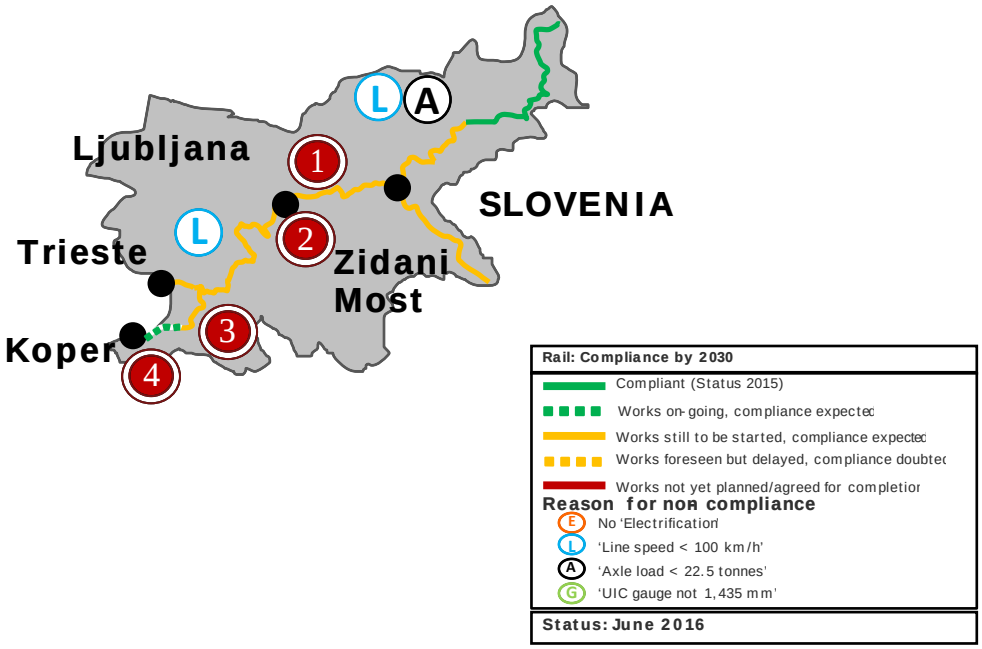

Figure 15 –Slovenian sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions	Critical issue addressed
1	New section assuring direct connection and increase abilities of train station in Ljubljana (project called Tivoli Arch)	Capacity
2	Upgrading and modernization of Ljubljana RRT	Capacity
3	Realisation of the second track on the railway line Divača - Koper	Last mile
4	Connection of Luka Koper to motorway: extension Bertoška artery and implementation Srmina access	Last mile

In addition to the project mentioned above, the upgrading of railway line on the section Poljčane - Slovenska Bistrica is planning, as well as the upgrading and reconstruction of the section Zidani Most-Dobova.

Remaining critical issues

The main remaining critical issues for Slovenia will be the maximum operating speed for rail section east of Divača, with the exception of the Pragersko -Hodoš Railway line and the rail connection to the Ljubljana Airport that is not amongst the projects identified so far. In addition, ERTMS level 1 in Slovenia will be completed on the Mediterranean Corridor except on the section Zidani Most and Croatian border (to Zagreb).

As regards the railway line speed the Slovenian authorities are fully committed to develop a compliant network by 2030, either by adopting project solutions to reach 100 km/h or applying for an exemption based on Art. 39 (3) of Regulation 2013/1015.

CROATIA

Current status

The most relevant critical issues are related to:

a) the existing **limitations to train length** (360 to 600m) on all the sections belonging to the Corridor, especially on the stretch from Rijeka up to Zagreb, where maximum admissible train length is limited to 360 meters

b) the only railway lines that **allow train speed above 100 km/h are Dugo Selo-Koprivnica and Moravice-Ogulin**

c) the **urban node of Zagreb** suffers from a lack of capacity in the short-medium term

d) **rail last mile interconnections to Rijeka Port** shall be enhanced; in particular Zagreb-Rijeka railway line suffers from low technical standards with unfavourable route characterised by hard ascents, sharp and low radiant curves

e) the **missing railway last mile connection to Zagreb airport**

f) the entire Corridor railway alignment in Croatia is **not equipped with ERTMS,** the available signalling system is APS.

On-going and planned main interventions

The following map below shows the matching between the detected critical issues and the on-going and/or planned interventions.

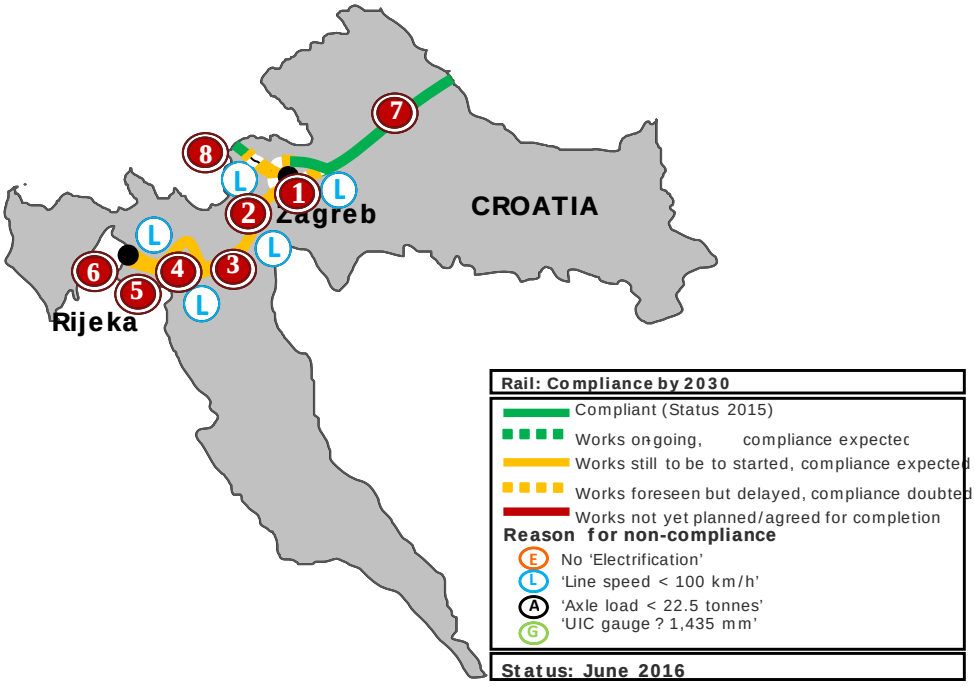

Figure 16 –Croatian sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions	Critical issue addressed
1	Zagreb node: building freight railway bypass resolving physical bottlenecks	Capacity
2	Hrvatski Leskovac – Karlovac: Improvement of single track and construction of 2nd track	Interoperability and Capacity upgrading
3	Goljak – Skradnik: construction of new double-track line, electrified line 25 kV	Capacity
4	Ogulin – Delinice – Škrljevo: Improvement and foreseen upgrade to 2nd line	Interoperability and Capacity upgrading
5	Škrljevo - Rijeka - Jurdani: 2nd track and modernization	Interoperability
6	Rijeka Port: upgrading of railway tracks inside the port area	Last mile
7	Križevci - Koprivnica: Improvement of single track and construction of 2nd track	Last mile
8	Zagreb – Savski Marof rail line: track renewal project expanded with the upgrading of max. admissible speed (100 km/h).	Interoperability and Capacity upgrading

In addition, several interventions aimed at increasing Rijeka operational capacity. Finally the majority of the railway upgrading projects presented in the table above includes the deployment of ERTMS.

Remaining critical issues

As depicted in the above picture, the most critical bottlenecks whose compliance is in doubt by 2030 concern the improving of the railway node of Zagreb as well as the last mile rail connection to the Airport of Zagreb that is still not planned.

HUNGARY

Current status

The most relevant critical issues are presented hereunder:

a) the existing **limitations to train length** (about 600 meters) on the sections Gyekenyes- Budapest and Boba- Szekesfehervar;

b) the current restrictions on the maximum admissible operating speed on several sections;

c) the **axle load limitations** on the following sections: Boba- Szekesfehervar, Gyekenyes - Budapest, Budapest-Miskolc-Nyíregyháza, Püspökladány-Nyíregyháza, Nyíregyháza- Zahony (UA Border);

d) the **urban node of Budapest which suffers from a lack of capacity**, and overlapping of different types of rail traffic; in this respect the southern railway bridge and the connected railway line shall be widened to 3 tracks and the road Western section of the “M0” motorway shall be upgraded;

e) the **disparity in the signalling systems** (ERTMS level 1 in the SI/HU cross-border section and EVM on the remaining part of the Hungarian corridor);

f) Missing **rail last mile connection to the airport of Budapest**.

On-going and planned main interventions

The following map depicts the matching between the detected critical issues and the on-going and/or planned interventions reported in the Corridor Project list.

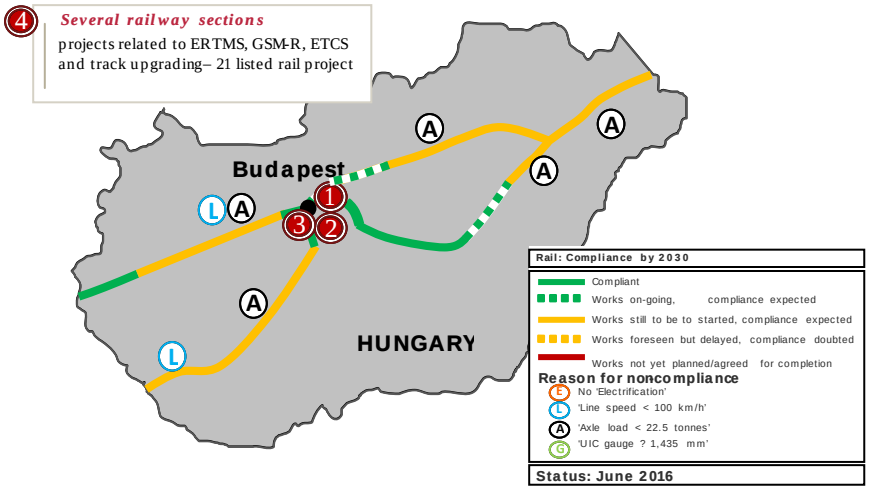

Figure 17 –Hungarian sections compliance by 2030 and main project impacting on KPI

Project n.	General description of the interventions with the biggest KPI contribution	Critical issue addressed
1	Completion of the full Western section of the "M0" motorway ring around Budapest	Capacity bottleneck
2	Budapest Liszt Ferenc International Airport: building planned railway connections;	Last mile connection
3	Budapest Southern Danube Railway Bridge and connected line – reconstruction & extension to 3 tracks	Capacity bottleneck
4	Several railway projects related to ERTMS, GSM-R, ETCS and track upgrading (i.e. Budapest – Gyékényes and Budapest -Záhony).	ERTMS Deployment, capacity bottleneck, interoperability

Remaining critical issues

Nevertheless, as depicted in the above image, the most critical bottlenecks which are not expected to be solved by 2030[14] concern the upgrading of the railway sections Gyekenyes- Pusztaszabolcs and Boba – Szekesfehervar to EU standards. In addition, this estimation allows understanding if the selected projects contribute significantly to reach the targets set by the Regulation for 2030, or if additional projects are still needed to meet the infrastructure requirements defined under the Regulation.

[14] It should be noted that some projects with a planned end date close to 2030 have a low maturity level and also unsecure financing, which could lead to delays in the project, meaning that the KPIs presented might have lower compliance rates when compared to the figures presented in the following tables.

5.3 Expected overall Corridor compliance by 2030

The analysis of the Project list presented in the previous Chapter also permits to estimate the KPIs for 2030. The calculation done is based on the existence or not of a project that address the identified critical issues by 2030[15]. In addition, this estimation allows to understand if the selected projects contribute significantly to reach the targets set by the Regulation for 2030, or if additional projects are still needed to meet the infrastructure requirements defined under the Regulation.

Rail

The analysis of the Project list regarding contributions to rail KPIs (electrification, track gauge, ERTMS, axle load, train length and line speed) shows that a good progress can be expected by 2030. Although the only KPI reaching full compliance is the electrification, positive results can be achieved in terms of:

- Track gauge 1435mm (90% in 2030)
- ERTMS implementation (77% in 2030)
- Axle load (>=22.5t) (84% in 2030)
- Train length (740m) (64% in 2030)

Looking to the full picture for rail, it is possible to underline, that the targets for 2030 will nearly tend to the full compliance. Nevertheless, although ERTMS implementation is the KPI with a higher progress, only 77% of the rail network will be equipped with this signalling system. Also limitations to train length will penalize about 65% of the Corridor sections.

Rail KPI	Forecast 2030
Electrification	100%
Track gauge 1435mm	90%
ERTMS implementation	77%
Line speed>=100km/h	94%
Axle load (>=22.5t)	84%
Train length (740m)	64%

Table 10 - Expected progress in the rail network until 2030

IWW

For inland waterways, the identified projects contribute to reach the full compliance for all the infrastructure requirements set by the Regulation

Road

The road network is already very near compliance for all countries in 2015 and the selected projects are expected upon completion to increase the relative share of motorway/express road sections to 100% of the total Corridor length. Nevertheless constant improvements seem to be a concern of the road infrastructure managers and therefore some projects for this are presented in the Project list in terms of secure parking, availability of clean fuels as well as the deployment of intelligent transport system.

[15] It should be noted that some projects with a planned end date close to 2030 have a low maturity level and also unsecure financing, which could lead to delays in the project, meaning that the KPIs presented might have lower compliance rates when compared to the figures presented in the following tables.

Airports

Connection of main airports with rail network is fundamental to achieve the intermodality objective set by the Regulation. About 66% of the main airports (4 out of 6) belonging to the Corridor, are currently not connected with heavy rail.

For the corridor airports the progress to provide capacity for alternative fuels for aircrafts shall be monitored in the coming months, as no project is in place yet.

Seaport

Bottlenecks identified for seaports will be solved by 2030. The provision of alternative fuels for maritime transport as well as the deployment of operational single window/e-maritime services in order to achieve interoperability will be further investigated in the coming months.

Inland ports

All inland ports will be connected by rail as required by the Regulation (EU) N 1315/2013. The connection by CEMT Class IV waterway will be achieved by projects solving this bottleneck by 2030.

Corridor compliance maps

At Corridor level, the aggregation of the information provided by the Stakeholders in the Project list permits to draw the following compliance maps for 2030 for rail and IWW.

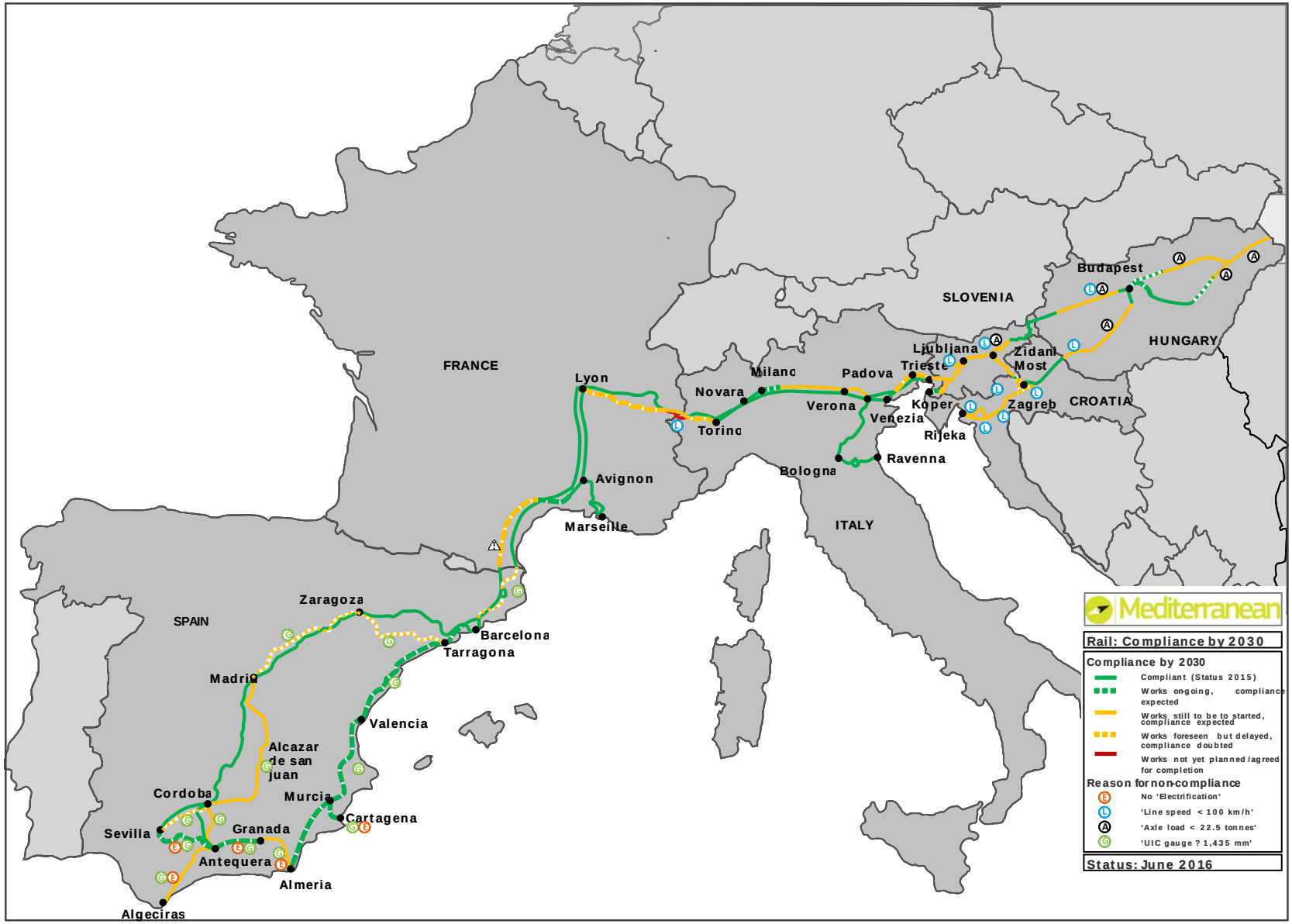

Figure 18 – Corridor compliance map 2030 (rail)

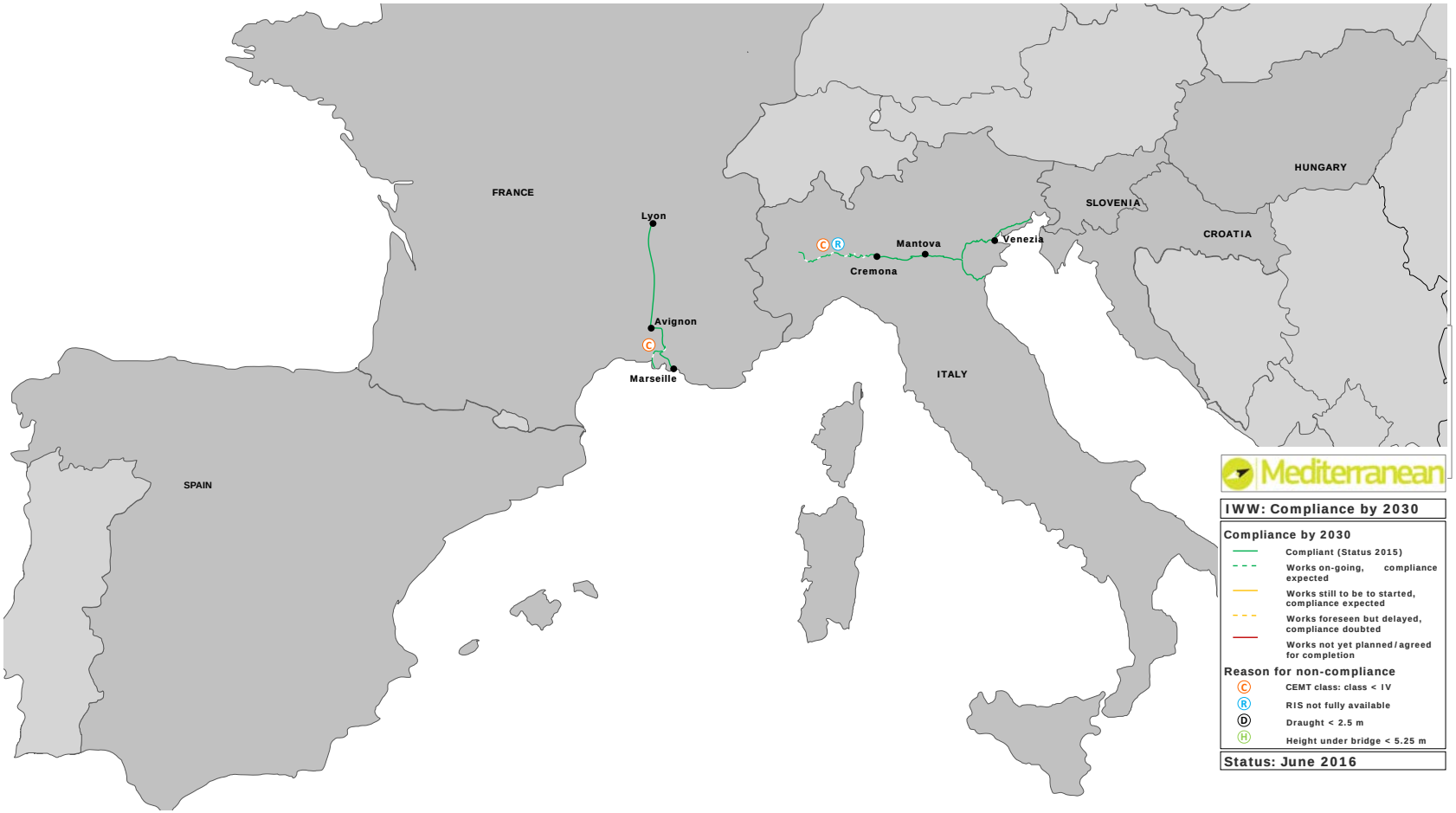

Figure 19 – Corridor compliance map 2030 (IWW)

6. Financing issues and tools

As stated in previous Chapters, the Project list of the Mediterranean Corridor foresees investments amounting to about 103 billion €, on time horizons going from 2016 to 2030 for the large majority of projects and overpassing 2030 for others.

Considering that the information of projects' total cost is available for 90% of the projects listed in the Corridor list, the financial need for Corridor implementation may risk to present even higher figures for cost.

Accordingly, the effective implementation of the Corridor will surely need the definition of a set of modern financial instruments too. This chapter briefly deals with the identification of projects financing tools – different from budgets lines under national/regional jurisdiction – that are currently available to Stakeholders and Member States.

6.1 The Connecting Europe Facility (CEF Transport)

The Connecting Europe Facility (CEF Transport) supports trans- European networks and infrastructures in the sectors of transport, telecommunications and energy. Under the CEF, 26.25 billion € are made available from the EU's 2014-2020 budget to co-fund TEN-T projects in the EU Member States (of which 11.3 billion € is earmarked from the Cohesion Fund and therefore applies to eligible Member States only[16]).

From a transport point of view, besides allocating part of its budget to the CEF for the development of the TEN-T transport networks, the Cohesion Fund supports transport projects which clearly benefit the environment and/or develop and rehabilitate comprehensive, high quality and interoperable railway systems, and promote noise-reduction measures. Under this context, the projects listed in the Mediterranean Project list have benefited from the results of the latest 2015 CEF call, as described in the following paragraph.

6.2 Projects generating revenues

In the Project list there is a specific indicator used to select those projects that can potentially generate revenues, with 63 projects matching this definition.

The "project with potential revenues" is defined as a project whose expected revenues are capable of completely covering the maintenance and operational costs that follow the construction of the infrastructure, and (at least) partially pay back the construction costs.

As shown in the following figures, a relevant majority of revenue-generating projects belong to the Maritime and Road categories, but Rail category is the predominant one in terms of cost for project realisation.

[16] The Cohesion Fund is aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90% of the EU average, i.e.: Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia. For additional information on the Cohesion Fund please refer to Regultation (EU) N° 1303/2013

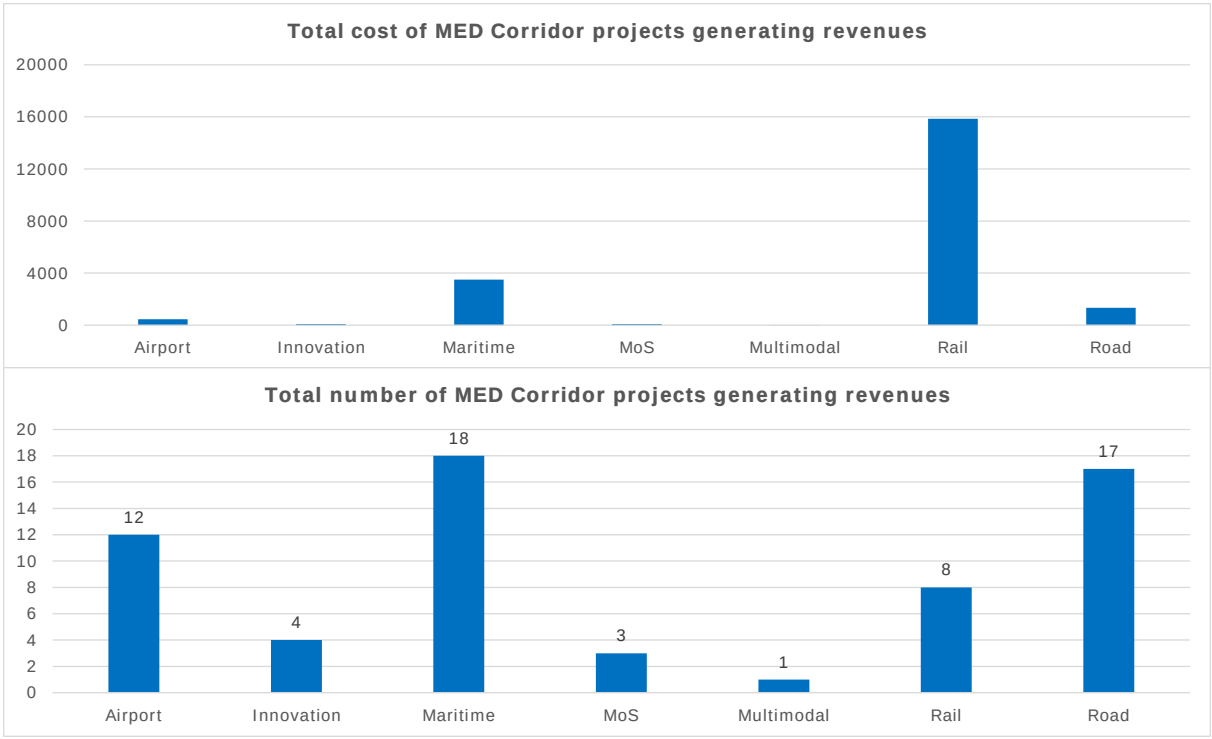

Figure 20- Number and amount of revenue generating projects by modal category

7. Recommendations and outlook by the European Coordinator

The analyses presented in the above chapters show that the Mediterranean is facing multiple challenges, notably in terms of node capacity and infrastructural bottlenecks. The consolidated project list and the Corridor maps show how the Member States and the relevant stakeholders intend to solve them to ensure a future smooth functioning of the Mediterranean Corridor.

Since 2014, the first year of the new Corridor approach, considerable progress has been made:

- There is agreement on the alignment and we have gained a detailed overview of the state of compliance of the Corridor infrastructure with the TEN-T requirements.
- The transport market Study analysed the socio-economic situation of the Corridor as well as its transport flows.
- For the first time there is a clear picture of the investments needed on the Corridor for all modes to reach the EU targets of 2030.
- The definition of a Corridor project list (updated in 2016) offers a first picture of the individual measures to be taken, together with timing, financial requirements and funding sources.

It is against this background that my recommendations should be read. It will not come as a surprise that they flow from the critical issues discussed earlier on in the Work Plan. As a general rule all interventions which resolve critical issues need to be tackled. In addition, it is the duty of the European Coordinator to recommend certain priorities, given that not all critical issues can and should be addressed at the same time.

For these reasons, the following paragraphs will deal with the identification of Corridor priority objectives and my recommendations for the future of the Mediterranean Corridor.

7.1 Identification of Corridor priority objectives

It almost goes without saying that developing the Corridor as the backbone of international exchanges between the Eastern and Western parts of Europe will contribute to the economic growth and competitiveness of these countries. Furthermore it will facilitate the connection of the Corridor countries with third countries (in particular with countries in North and West Africa as well as in the East).

The TEN-T Regulation defines the general objective of the TEN-T network as to strengthen the social, economic and territorial cohesion of the Union and to contribute to the creation of a single European transport area. It shall demonstrate European added value by contributing to the objective in the categories: (i) territorial and structural cohesion; (ii) efficiency between different networks; (iii) transport sustainability; (iv) and increasing the benefits for the users.

Based on this general objective, 8 operational objectives can be identified for the Mediterranean Corridor:

- Removal of infrastructure bottlenecks and bridging of missing links;
- Upgrading of infrastructure quality to TEN-T level;
- Efficient use of infrastructure;
- Optimal integration and improved interconnection of transport modes;
- Optimal interconnection of national transport networks;
- Promoting economically efficient and high-quality transport;
- Promoting resource-efficient use of infrastructure;
- Reduction of congestion.

The relevant indicators linked to the specific objectives are listed below.

Operational Objective	Indicator
Removal of infrastructure bottlenecks and bridging missing links	Number of identified bottlenecks (infrastructure, capacity)
Upgrading of infrastructure quality	Improved technical standards per mode of transport (% of electrification, double track, standard gauge, etc.)
Efficient use of infrastructure	Freight and passenger flows Infrastructure utilisation rate
Optimal integration and improved interconnection of transport modes	Modal split (amount of freight (tons) or travellers (pax) transported by a particular mode of transport) Use of common traffic management systems Presence and use of intermodal terminals Availability of last mile infrastructure
Optimal interconnection of national transport networks	Border waiting time Use of common standards and procedures
Promoting of economically efficient and high-quality transport	Transport time Mean speed Frequency Freight security – availability of secured parking Road safety
Promoting resource-efficient use of infrastructure	Emissions (NOx, SOx, PM in terms of gr/tonkm) Availability of refuelling infrastructure for alternative fuels
Reduction of congestion	Mean speed

7.2 Overall considerations for the Mediterranean Corridor

Within the context specified above, and based on the analysis of the Corridor and on the wide consultation with stakeholders in the Corridor Forum, a few considerations shall be given, which represent the areas where efforts to develop the Corridor shall be primarily concentrated.

Continuity of the Corridor alignment

The continuity of the corridor alignment should be guaranteed in terms of long-distance or cross-border flows. In this respect, it is very important to encourage projects with the highest added value aiming at solving bottlenecks constraints as well as improving or maintaining the quality of infrastructure in terms of safety, security, efficiency and sustainability.

In particular, the Corridor crosses some of the most developed region of Europe (Cataluña, Rhone-Alpes, Northern Italy), but nevertheless all its territories suffered considerably during the economic crisis of last years as shown by socio-economic data. The re-launch of the growth of the economic potential of the Corridor's regions will certainly be boosted by better connections between them and to other European market areas. This will also improve the function of ports as essential links for the longer distance exchanges with other continents.

Advanced technological and operational concepts allowing interoperability, tracking & tracing of goods, better intermodal integration are among the accompanying measures to be implemented in order to achieve such targets.

This continuity can be implemented only if the works along the Corridor will be coordinated and harmonized, especially at cross-border sections and in the urban nodes.

In particular, the fulfilment of an agreed time table for cross border projects should be ensured in order to avoid serious delays in the expected benefits arising from the investments made.

As a consequence, the importance of bilateral Working Groups and coordination meetings for the development of the Mediterranean Corridor should be promoted.

Furthermore, without the adequate financing for the development of the infrastructure, only slight progress can be achieved. Three of the six Member States are beneficiaries of the Cohesion Fund. A good financing mix between the different available funds will be necessary to ensure that the available means are used in the best possible way, providing the highest European added value.

Priority to inland navigation, railways and crossing-borders improved practices

Given the socio-economic characteristics of the territories involved, the Corridor is especially relevant for the international trade of goods, given the strong economic relationship between the Countries of its Western part and the development – in perspective – of the ones with the Countries on the Eastern part.

Due to the crossing of environmentally sensitive areas, such as the Pyreneens and the Alps, the objectives of "low-carbon and clean transport, and environmental protection" can be met only by developing efficient rail or maritime freight transport supply (in terms of both services and infrastructure), well interconnected by efficient "last mile" links with relevant freight transport nodes (sea and IWW ports, intermodal rail-road terminals). The latter shall provide sufficient capacity and efficient operations, in order to avoid that the removal of bottlenecks at network level will create new ones on nodes.

Removal of existing localised bottlenecks on the infrastructure, as well as the alignment of it to suitable technical standards for freight (e.g. 7540 m allowed length for trains, maximum gradients for new lines 12.5 mm/m, 22.5 axle load, loading gauge UIC C) appears also key Corridor development measures.

Coordination of the transport development plans

In order to ensure a harmonized development of the Mediterranean Corridor, transport development plans of the MS affected by the Corridor shall be coordinated and harmonised.

Member States eligible for co-funding from the cohesion funds should use these financing instruments towards the logic of the transport core and comprehensive networks development aiming at an efficient inter-modality approach.

Maintain a multimodal transport network

The maintanance and promotion of multimodal transport infrastructures for people and goods shall be seen as a primary objective for evolving the demand for mobility in highly populated and intense economic developped areas of the Corridor.

A much better integration of the various modes remains a challenge for many ports, industries and airports along the corridor. In particular the combination of high numbers of short distance passenger rail services and freight services remains a major challenge mainly in the urban nodes, hampering the development of freight transport in these sections of the Corridor.

Projects evaluation

The evaluation of projects should focus more on their viability and should also incorporate cost-benefit assessments and economic impacts.

The project maturity is relevant as well and should be evaluated in terms of:

- Project Identification (objectives, investment type)
- Technical readiness (Spatial Planning and technical documentation)

- Institutional readiness (institutional framework and capacity)
- Financial/Economic maturity (coverage of costs)
- Social/Environmental maturity (EIA, social/environmental impacts)

Operational and administrative bottlenecks

Special attention should also be paid to the operational and administrative barriers that can have a negative impact on the profitability of the investment and on the efficiency of the Corridor on the whole.

In particular, a specific study of these bottlenecks on the borders and along the corridor should be carried out and focus especially on the following items:

- Harmonising national procedures regarding authorisation and certification of rolling stock,
- Traffic management,
- Management of terminals.
- Access to the market and services

Links to third countries

The corridor shall provide economically efficient and clean transport options to the flows of passengers and goods between those territories as well as the other Countries that will take benefit from the Corridor's development for their international flows (e.g. Balkan countries, Ukraine etc. on the Eastern side).

Expecially in relation to Western Balkans regions, but also considering Northern African and Eastern European countries, the Corridor should include the links with third countries.

The important growth potential of these territories, where the transport connections remain still very weak, requires a particular attention in terms of development of transport infrastructure as well as of regulatory reforms and convergence.

After the adoption of the work plan a better understanding of the needs to connect the different parts of the Mediterranean Corridor will be obtained.

Communication and promotion

It is important to continue the multilateral, cross-border cooperation between Member States. For the main missing links, Lyon-Turin and Trieste-Divača, this cooperation should be intensified.

Synergies will be sought with the Rail Freight Corridor 6 (RFC6), notably in addressing the administrative and operational barriers on the historic lines, especially on sections where new cross-border projects are being developed and the historic lines need to serve still as main line in the medium term.

The cooperation with the RFC6 should be strengthened on a regular basis.

Finally, as foreseen by the TEN-T Regulation, the following working groups will be proposed on:

- urban nodes useful to have a local or regional point of view
- ports and RRT.

Due to the maritime dimension of the corridor the working group for ports should be institutionalised and organized on regular basis and focused on last miles investments as well as non-infrastructure nature issues (i.e. administrative and custom procedures).

Importance of the cross-border cooperation

A common Corridor methodology should address those cross-border challenges, including for other Corridors, without prejudice for existing particularities of specific cross-border sections.

Meetings related to specific cross-border issues should be organized on regular basis. This process would help to achieve a smoother implementation of the Corridor.

Importance of investing not only in new infrastructure and upgrades but also in maintenance of the networks to keep them efficient and reliable

The investments foreseen for the Corridor shall also be oriented at the ordinary and extraordinary maintenance of the networks, in order to guarantee efficient and reliable functioning of the Corridor axes. Accordingly, maintenance strategies and associated financial costs shall be considered when defining the future financial needs for Corridor implementation.

7.3 Specific recommendations by mode for the Mediterranean Corridor

Railway network improvements

Completion of missing key sections

The new railway link Lyon-Turin is the key section on which the optimal functioning of the whole Corridor hinges. Without this new link the Corridor will not be able to perform its role of the major east-west axis south of the Alps.

Similarly, the Montpellier-Perpignan section will become crucial to utilise the full potential of the newly built railway connection in UIC gauge between France and Spain. The further development of this section will be looked at in the light of the traffic evolution in order to avoid that the section becomes a bottleneck in the medium term, at the latest once all connections to Spanish seaport, industrial plants and the other logistic terminals will be upgraded at UIC gauge.

Several cross-border rail and also road connections in the eastern part of the Corridor need to be addressed under this heading as well.

Implementation of ERTMS

In order to reach our final target to achieve an interoperable and competitive railway network, three conditions need to be fulfilled along the Corridors: sufficient infrastructure quality, harmonisation of national rules throughout Europe and introduction of ERTMS. To speed up this process and to show tangible results in the railway sector, we need to accomplish quick wins through implementing short-term and less costly projects. Implementation of interoperability actions, such as the 740m train length standard, harmonisation of operation and authorisation rules would have a direct impact on productiveness.

Detailed ways how to accelerate ERTMS equipment along the core network shall be evaluated according to the current European Deployment Plan and the related strategy for ERTMS equipment by 2030, as laid down in Regulation (EU) 1315/2013.

Ensuring full interoperability

The completion of the new HS line between Figueres (Spain) and Perpignan (France) was a historic event, creating the first interoperable link with the Iberian Peninsula. However, for the above explained reasons, this interoperability, in practice, appears to be only partial. To overcome this situation, the structured cooperation between the two Member States should be intensified.

In general, the realization of the rail potential international traffic in Spain can only be achieved by a full UIC gauge connection from the main traffic generators to the border. But also on the remaining railway sections of the Corridor, delivering interoperability means agreeing on the full deployment of the UIC gauge.

In order to enhance the modal shift, a substantial improvement of the overall interoperability of the Corridor has to be ensured by removing the remaining restrictions in particular in terms of train length, axle load and signalling system needed to meet the market needs (especially on the Eastern part of the Corridor). While this effort can only be made gradually, this kind of issue is only solved when the whole Corridor has reached the common standards, and even a very small section remaining with lower standards in the central part of the Corridor has enormous negative effects on its potential.

Maritime ports improvements

Ensuring full connectivity of maritime ports

Major investments have been made over the last few years, all resulting in a significant growth in the use of ports and of their influence areas (hinterlands). In order to complete the hinterland connections and therefore achieving the highest returns from the measures implemented, it is necessary to complete the pending road and railway accesses.

In particular, as regard rail, proper connections with hinterland are the most relevant critical issue. Rail connection should be addressed in terms of: (1) developments inside the port in order to connect the different terminals with the port rail access; (2) connection between port and rail network (i.e. “last mail connection”); (3) long distance connections because of their bottlenecks and missing sections affect the development of services with origin and destination in the port.

Inland waterways improvements

Ensuring full reliability of IWW

Full reliability for inland waterways sections is very important for Corridor implementation, both in terms of 365 day navigability and absence of physical constraints. Furthermore, the considerations presented for ports full connectivity can be extended to inland ports.

Airport intermodality improvements

Increasing rail connections to the airport

The development of heavy rail connection to the airports shall be set as primary objective for airport intermodality, both for passenger and freight. Specific projects presented in the Mediterranean Project list go to that direction (e.g. rail connection to Venice airport, People Mover construction in Bologna airport and Rail connection to T1 Terminal of Barcelona airport).

Road projects improvements

Reaching the TEN-t targets

Road network needs to be fully compliant with the criteria set by the Regulation (EU) No 1315/2013 both for the establishment of express road or motorway and the availability of clean fuels along the Corridor. This is very important in cross-border sections.

In this respect, the project Vásárosnamény - Beregdaróc (HU-UA border) will permit to upgrade the Eastern road section of the Corridor to the desired standards. Similar road projects exist (e.g. IT-SI road cross border section) and others shall be supported.

Urban node projects improvements

Development of urban nodes

It became quite apparent in the Corridor Study that the main urban areas along the Corridor constitute sometimes serious bottlenecks for rail hampering not only local and regional traffic but also restricting severely international traffic. Attention must not only be given to passenger services but equal treatment should be given to freight services using the same infrastructure. While the general problem is similar in all urban nodes, the specific situations of the various urban nodes differ and need to be studied individually.

Particular attention needs to be paid to urban nodes which form the crossing points with other core network Corridors, in order to allow a seamless flow of high-speed passengers and freight flows. This concerns first of all the major nodes like Madrid, Lyon and Milan, but also Verona, Venice and Budapest.

8. Outlook

The Mediterranean Corridor has high potential to develop into a major transport axes serving all corridor countries with better connections among each other, but also towards the other EU Member States. The task ahead is to fully tap into this potential by developing the corridor to a maximum. This will also help stimulate growth in times when and countries where economic development is stagnant.

As European Coordinator for the Mediterranean Corridor, I see it as my main task to bring all Member States and other stakeholders together in a transparent and constantly deepening dialogue. The Forum is the ideal place for this, but I will also directly address the Member States and other stakeholders in bilateral meetings, visiting them and witnessing the progress on the ground.

When building the Corridor and thus creating a truly European Core Network a change of minds has to take place: we need to depart from national perspectives and adopt a corridor and a network perspective where priorities are set to achieve the common goal: implementing the core network in Europe by 2030.

One way to do this is to improve the governance: I will thereby continue to particularly value the multilateral, cross-border cooperation between Member States, like in the case of Lyon-Turin and Trieste-Divača. As regards Lyon-Turin the setting up of the new public promoter is a major step forward. Also in the case of Spain and France, where important issues regarding the cross-border section are at stake, such an intensified cooperation would be conducive to effectively addressing the questions at hand.

I will continue to seek synergies with the Mediterranean Rail Freight Corridor, notably in addressing the administrative and operational barriers on the historic lines, especially on sections where new cross-border projects are being developed and the historic lines need to serve still as main line in the medium term. The use of the infrastructure will need to be improved at best possible terms to make the corridor not only a distant dream but rather an immediate reality, serving citizens and business alike.

Finally, I will propose that the work of the Mediterranean Corridor will be seen in the longer framework set by the TEN-T and CEF Regulations and therefore continue to be monitored and fine-tuned over the years to come, making the results of 2014 irreversible through the progress on the ground and the realisation of concrete projects.

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http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/med_en

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Design & Layout by TENtec