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Fourth Work Plan of the European Coordinator

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Table of Content

1 Towards the Mediterranean Corridor 4th Work Plan 6

1.1 Introduction 6

1.2 Achievements along the Corridor since 2014 7

2 Characteristics of the Mediterranean Corridor 9

2.1 Alignment 9

2.2 Compliance 2019 and 2030 with the technical infrastructure parameters of the TEN-T guidelines by 2030 10

2.3 Compliance maps 13

2.4 Persisting bottlenecks and missing links 17

3 Transport Market Study 20

3.1 Current flows along the Corridor 20

3.2 Transport and economic impacts of the TEN-T core network implementation – results for the Mediterranean corridor 22

4 What has still to be realised by 2030 25

4.1 General description 25

4.2 Rail & RRT 27

4.3 The ERTMS deployment 2023 27

4.4 IWW & inland ports including RIS deployment plan 28

4.5 Road transport (incl. ITS deployment) 28

4.6 Airports 28

4.7 Maritime Ports on the Mediterranean Corridor, interactions and complementarity with the MoS Coordinator Implementation Plan for the Mediterranean Corridor 29

4.8 Innovation and deployment of alternative fuels infrastructure 29

5 Funding and Financing 31

5.1 The funding needs 31

5.2 The innovative financial tools 32

6 The European Coordinator's recommendations and future outlook 34

Figures

Figure 1: Project completed by 31.12.2018, by country, with requirements achieved. 7
Figure 2: Project completed by 31.12.2018, by category 7
Figure 3: Alignment of Mediterranean Corridor 9
Figure 4: ETCS deployment per each MS 12
Figure 5: Rail compliance map by 2030 overview (data status December 2018) 14
Figure 6: IWW compliance map by 2030 overview (data status December 2018) 17
Figure 7: Bidirectionnal road traffic (cars and heavyweights) on the MED CNC (left) and traffic intensity (right) 20
Figure 8: Annual trains on the MED CNC (left) and track use intensity (right) 21
Figure 9: Port traffic (2017 data - Eurostat) 21
Figure 10 : Total number of projects per each project category 25
Figure 11 : Total cost of projects (€ billion) per each project category 25
Figure 12 : Total number of projects per each MS 25
Figure 13 : Total cost of projects (€ bn) per each MS 25
Figure 14 : Total number of projects by competition time cluster 26
Figure 15 : Total cost of projects (€ billion) by competition time cluster 26
Figure 16 : Total number of additional projects per each MS 26
Figure 17 : Total number of additional projects per each project category 26
Figure 18 : State of play and deadlines for the ERTMS deployment in the MED corridor 27
Figure 19 : ERTMS deployment for each MS 28
Figure 20 : Total number of projects per each project category 30
Figure 21 : Total cost of projects (€ billion) per each project category 30
Figure 22 : Number of projects and values by category 31
Figure 23 : Funding and financing sources analysis 31
Figure 24: Statistics by transport mode 33
Figure 25: Corridor funding (€ million) per each MS 33
Figure 26: Corridor funding (€ million) per type 33

Tables

Table 1: Nodes belonging to the Mediterranean Corridor 9
Table 2: Compliance with TEN-T requirements by 2018 10
Table 3: Relative difference between reference and baseline scenario over the period 2017-2030 23

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Abbreviations

bn	Billion
CEF	Connecting Europe Facility
CNC	Core Network Corridor
DG MOVE	European Commission – Directorate General for Mobility and Transport
EC	European Commission
EIA	Environmental Impact Assessment
ERTMS	European Rail Traffic Management System
ERDF	European Regional Development Funds
EU	European Union
GDP	Gross Domestic Product
INEA	Innovation and Networks Executive Agency (EU)
IWW	Inland waterway
km	kilometre
KPI	Key performance indicator
m	metre
mm	millimetre
mn	Million
MoS	Motorway(s) of the Sea
MoT	Ministry of Transport
MTMS	Multimodal Transport Market Study
MS	Member States of the European Union
n.a.	not available / not applicable
MED	Mediterranean (Corridor)
p.a.	per year / annual
RFC	Rail Freight Corridor
t	tonne
TEN-T	Trans-European Transport Network
TMS	Traffic Management System
WG	Working Group
WP	Work Plan

Country Codes after ISO 3166:

IT	Italy
FR	France
HR	Croatia
HU	Hungary
SI	Slovenia
ES	Spain

1 Towards the Mediterranean Corridor 4th Work Plan

1.1 Introduction

I have been appointed the European Coordinator responsible for the Mediterranean Corridor in September 2018. The present document is my first Work Plan. However, I would like it to be seen as a natural continuation of the efforts undertaken by the preceding Coordinator Mr. Laurens Jan Brinkhorst.

This 4th Work Plan falls in a specific moment, we are close to the end of the current financial perspective with a lot of constructions ongoing and nearly 700 CEF projects contributing to the completion of the TEN-T network. At the same time, 2020 is the first year of the new Commission with the European Green Deal as the most strategic initiative.

Transport is a key enabler of economic growth and jobs; on one side it increases European competitiveness and trade, on the other it is a negative contributor to EU's greenhouse emissions. A serious commitment to EU's climate neutrality means achieving 90% reduction in transport emissions by 2050. I strongly believe that the TEN-T policy is a beneficial instrument allowing for a gradual achievement of the climate goal.

My Work Plan aims to present the state of implementation of the Mediterranean Core Network Corridor. My ambition is to show good example of progress achieved, to inform about the state of progression with regard to key standards agreed by the TEN-T Regulation, to point out the challenges and weak points that still have to be addressed if we want to achieve full compliance of the network along the MED Corridor by 2030.

My Corridor, the main east-west axis of the TEN-T network south of the Alps, features economically dynamic regions, with significant exposure to internal movements of cargo and passengers, proximity to global trade routes (the Suez channel), key interlink between land transport and short sea shipping along the Mediterranean coast. I am sure that the proper construction and inter-connection of all key projects along this 3000 km long Corridor will contribute to modal shift from road to rail and maritime. It will have a positive impact on preservation of environmentally sensitive areas such as the Pyrenees and the Alps and will connect some of the major urban areas of the EU with high speed trains, with intelligent transport systems, wide availability of alternative fuels and transport modes that are friendly for both users and environment.

The Mediterranean Corridor development and completion is essential for the deployment of the Trans-European Transport Network, aiming at creating a well interconnected, interoperable and efficiently managed transport system in Europe, able to support EU economic growth and global leadership. The EU has been at the forefront of international efforts towards the Paris global climate agreement and keeps working through its internal and external policies in order to enhance the transition to a climate resilient low-carbon future as emphasized and outlined by the European Commission Communication on the Green Deal.

This report is a result of collaborative efforts of the Member States and the European Commission.

My special thanks goes to the team of my consultants who provide guidelines, data and dedicated materials with the overall objective to help us all to reach the ambitious goals the EU has with regard to its transport infrastructure policy.

1.2 Achievements along the Corridor since 2014

Since the adoption of the TEN-T Guidelines - among the monitored projects - 147 have been fully completed on the Corridor. Twenty-two of them contributed to the full achievement of compliance with TEN-T standars as indicated in the map below[1].

Figure 1: Project completed by 31.12.2019, by country, with requirements achieved

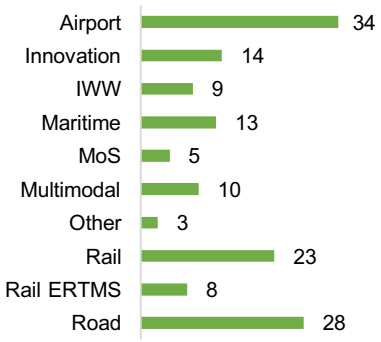


Figure 2: Project completed by 31.12.2019, by category

Nevertheless, I would like to mention some of the common success stories we achieved so far on the Meditterranean Corridor:

- The *elimination of the bottleneck in Bivje on the* railway section *Divača-Koper*: it addressed the rehabilitation/upgrade of the section between the Dekani sub-station and the Bivje junction and is part of the Global Project covering the construction of the new second track along the entire Divača-Koper line to increase capacity and interoperability in order to meet the growing traffic demand;
- The railway section Pragersko-Hodoš: Modernisation of this railway line was a priority task when setting up a competitive railway connection between western and eastern parts of Europe for Slovenia. This was the biggest Slovenian infrastructure investment in the field of railway (cohesion funds and national budget) until the start of the second railway track Koper – Divača. The main achieved goals are the elimination of bottlenecks, the increase of speed up to 160 km/h and the fulfilment of all TEN-T standards in accordance with full compliance with the TEN-T Regulation 1315/2013;
- In France freight services have been increased with the completion of the high-speed bypass line Montpellier – Nimes, freight trains run since December 2017 and services for passengers are active since July 2018;
- The high speed line between Treviglio and Brescia, which was completed in Italy.
- Interporto Padova reinforced its intermodal capablities thanks to the installation of high-efficiency fix rail based gantry cranes and the increase and the extension of the rail tracks, in order to accommodate 750 m-long trains;
- In Spain, significant upgrades of the rail sections were concluded recently. This included the high-speed line Antequera-Granada, with ERTMS level 2 equipped in this new line (with the Loja bypass still requiring a further upgrade) and the Vandellòs bypass, which entered in operation in Iberian gauge in January 2020

[1] Cut off date for the database analysed - December 2019.

and will be further migrated to UIC gauge thus reducing the travel times between Valencia and Barcelona by 30 min; furthermore, two rolling highway services have been put into operation, both connecting Barcelona with Bettembourg and Antwerp.;

- The upgrade of the Rijeka Port, namely the improvements in general cargo terminal preparing the port to adequately respond to the current growing trend of traffic.

2 Characteristics of the Mediterranean Corridor

2.1 Alignment

The Mediterranean Corridor links the ports in the south-western Mediterranean region to the center of the EU, following the coastlines of Spain, France, and crossing the Alps towards the east. It runs across northern Italy and continues east, through Slovenia, Croatia and Hungary up to the Ukrainian border.. The MED CNC is one of the most interconnected in Europe, since it is crossed by other six corridors (Atlantic, North Sea – Mediterranean, Rhine – Danube, Rhine – Alpine, Orient / East - Mediterranean, Scandinavian-Mediterranean and Baltic-Adriatic).

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.

Figure 3: Alignment of Mediterranean Corridor

Besides these rail, road and inland waterway (IWW) axes, the Mediterranean Corridor comprises in total also 71 core nodes distributed across Member States as shown below.

Table 1: Nodes belonging to the Mediterranean Corridor

MS	Urban	Airports	Seaports	Rail Road Terminals	Inland ports	Total
ES	4	6	6	7	1	24
FR	2	2	1	3	2	10
IT	4	6	3	7	5	25
SI	1	1	1	1	-	4
HR	1	1	1	1	-	4
HU	1	1	-	1	1	4
Total	13	17	12	19	9	71

It is worth mentioning that following a new financial perspective and entering into force the Connecting Europe Facility II (CEF) Regulation (2021-2027), the following sections were proposed as additions to the Mediteranean Corridor[2]:

- Madrid – Valencia – Sagunto – Teruel – Zaragoza,
- Cartagena – Murcia – Valencia – Tarragona/Palma de Mallorca – Barcelona,
- Tarragona – Barcelona – Perpignan – Narbonne - Toulouse/Marseille – Genova/Lyon – La Spezia/Torino – Novara – Milano – Bologna/Verona – Padova – Venezia – Ravenna/Trieste/Koper – Ljubljana – Budapest.

2.2 Compliance 2019 and 2030 with the technical infrastructure parameters of the TEN-T guidelines by 2030

TEN-T Regulation defines the transport infrastructure requirements for the Core Network that have to be fulfilled by 2030. A common Key Performance Indicators (KPIs) framework has been developed for all nine corridors, in order to allow for a cross-corridor comparison. Below is the table illustrating progress achieved so far on the MED CNC.

Table 2: Compliance with TEN-T requirements by 2019

KPI	Member State						Total	
	ES	FR	IT	SI	HR	HU	2019	2030[3]
Railways								
Electrification	79%	100%	100%	100%	100%	100%	90%	100%
Track gauge	39%	100%	100%	100%	100%	100%	72%	87%
Axle load	100%	100%	100%	100%	100%	37%	92%	99%
Line speed	100%	97%	78%	71%	75%	99%	95%	97%
Train length	3%	78%	0%	70%	0%	39%	20%	63%
ERTMS	25%	2%	8%	100%	0%	0%	16%	79%
IWW		77%	80%				79%	100%
CEMT class	-	100%	80%	-	-	-	88%	100%
Draught > 2.5 m	-	63%	70%	-	-	-	67%	100%
Bridge height	-	96%	62%	-	-	-	75%	100%
RIS	-	77%	80%	-	-	-	79%	100%
Road								
Type	100%	100%	100%	100%	100%	97%	100%	100%
Ports								
Rail connection	100%	100%	100%	100%	100%	100%	100%	100%

As shown above, the following main issues arise per mode:

Railways network

[2] European Parliament legislative resolution of 17 April 2019 on the proposal for a regulation of the European Parliament and of the Council establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014 (COM(2018)0438 – C8-0255/2018– 2018/0228(COD)) – More information available here: https://eur-lex.europa.eu/legal-content/EN/HIS/?uri=COM:2018:438:FIN

[3] The expected compliance levels by 2030 are based on the Work Plan Project List from September 2019.

Electrification is ensured on 90% of the Corridor's railway lines; it is only lacking on some sections in Spain, such as the line Bobadilla-Algeciras. On the rest of the Corridor three different voltages are in use, raising the issue of interoperability, a point particularly visible at the cross-border sections:

- 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).

It shall be highlighted that, at the moment, beetween the end of Le Perthus section and Le Soler trackyard, the spanish freights trains always need a pair of locomotives due to 1.5KV DC voltage.

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 (39% of the Spanish Network feature the 1435 mm standard UIC gauge). This operational incompatibility is being addressed in Spain by putting in place a long-term investment plan with the objective of expanding the UIC gauge along the Mediterranean Corridor. The investments are ongoing or planned on most of the conventional lines of the Corridor. Several technical solutions are applied depending on the case: the installation of mixed gauge, the upgrade to UIC gauge, or the construction of new UIC gauge lines, such as the new high-speed line between Antequera and Granada, in operation since June 2019.

The Corridor's railway infrastructure allows the required axle load of 22.5 t on all of the sections in Spain, Italy, Croatia, Slovenia and France while limitations still exist on some Hungarian sections[4], where several interventions are planned aiming at resolving these physical bottlenecks.

A train length of 740 m is only allowed on the French network (except cross-border tunnel between FR and IT), on 70% of the Slovenian network, on 40% of the Hungarian network as well as on a small part of the Spanish network. On the rest of the Corridor, various train length restrictions apply, allowing a train length between 400m and 700m.

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) and Hungary, while in Croatia and Slovenia respecrively 75% and 71% of the rail sections.

ERTMS/ETCS is fully deployed in Slovenia as well as on high-speed lines in Spain and Italy, and on some short cross-border sections between Spain and France and between Hungary and Slovenia. On 16% of the corridor ETCS is in operation while on the 45% of the corridor GSM-R is in operation. Only 32% of the corridor is planned to be equipped before 2023 according to the EDP. The following graph shows the status of ETCS deployment by MS in the MED:

[4] Among Hungarian sections non compliant in terms of axle load requirement the following can be fund: Pusztaszabolcs - Budapest Kelenfold, Budapest Ferencvaros - Budapest Rakos, Szolnok - Szajol, Budapest Rakos - Hatvan, Fuzesabony - Miskolc, Boba - Szekesfehervar, Nyiregyhaza - Zahony (HU-UA border).

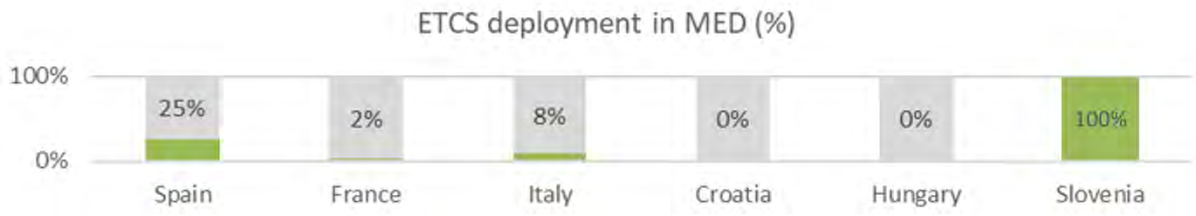


Figure 4: ETCS deployment per each MS

No section has been equipped with ERTMS yet on MED corridor in Hungary and Croatia. Moreover, the following bottlenecks still persist:

- The line Córdoba – Antequera – Granada of Spain, which is in operation, would be connected to the rest of the MED corridor after 2023 when together with the sections Córdoba – Madrid, also the section Murcia – Granada will be put into operation. The implementation of ERTMS in Barcelona node and Madrid rail commuter lines is expected to be completed by 2021;
- In France no new section is going to be deployed between the end of Le Perthus section and the Italian border by 2023;
- No section is planned to be deployed in Croatia before 2023;
- Boba – Székesfehérvár is planned to be in operation beyond 2023, as well as Debrecen/Hatvan - UA border, while the rest of the Hungarian sections will be deployed by 2023. Most sections are delayed in Hungary because of the delayed installation of the GSM-R system on the supplier side, such as the Budapest node (from 2018 to 2019), Hodoš – Boba (from 2018 to 2021), Székesfehérvár – Budapest – Debrecen (from 2018 to 2021) and Pusztaszabolcs – Budapest – Hatvan (from 2020 to 2022);

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;
- About 80% of the IWW network of the Corridor meet this requirement. The 20% not complying corresponds 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.

Road

The road network included in the Mediterranean Corridor is about 5,700 km, with Spain covering more than 50% of the entire Corridor.

As regards the parameter “Motorway or Express roads” only a few kms are not compliant such as the Hungarian section close to the Ukrainian border. Actually, the missing express road links between HU and UA is the main missing road link of the Corridor crossing an EU external border.

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 latter includes for example: the works at the Port of Rijeka (Brajdica new intermodal terminal for containers), the Port of Koper (2nd rail track between Koper and Divača), the investment in the Port of Valencia to improve the rail connection of the port and its terminal to the corridor by enabling UIC gauge train of maximum length of 750m to reach the port terminals, the new railway south access to Barcelona Port, the port of Venice (upgrading rail and road infrastructure and railway network inside the port area), the port of Trieste (upgrading the port railway system to operate longer trains and railway works inside and outside the port area) and also the port of Ravenna (Ro-Ro terminal and railway link to the port upgrading).

Airport

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.

According to EU guidelines 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 Compliance maps

The Corridor compliance maps illustrate the amount of work still necessary in order to reach targets set for the Corridor implementation by 2030.

2.3.1 Rail compliance maps

The figure below shows the level of expected compliance of the rail network along the Mediterranean Corridor in 2030.

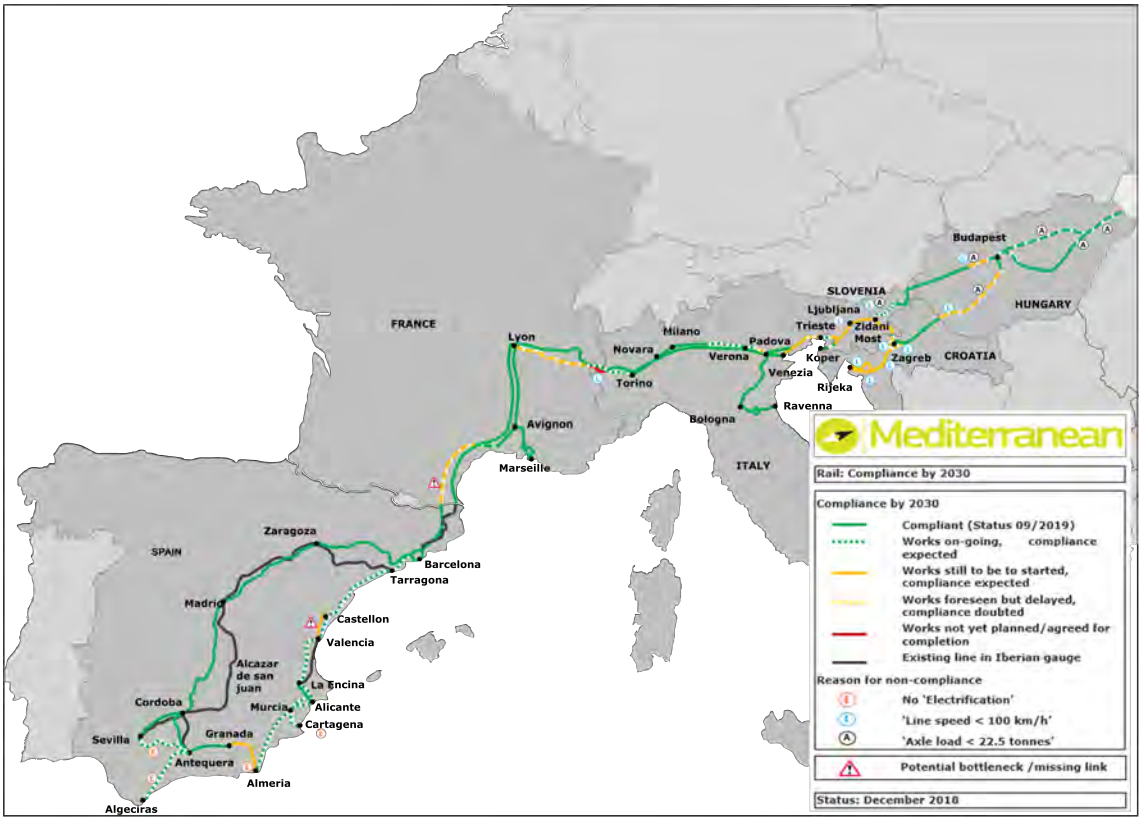


Figure 5: Rail compliance map by 2030 overview (data status December 2019)

As showed in the map, the following main issues arise per country:

Spain:

Most ongoing and planned investments are aimed at upgrade to UIC gague. Two solutions are applied:

- Upgrade of existing lines
- Construction of parallel new platforms in most congested sections.

A progress can be noted between Valencia and Alicante (in Iberian gauge between Valencia and La Encina and in UIC gauge between La Encina an Alicante). The second platform between Castellón and Valencia is under planning to increase capacity on it. Currently this section is shared by freight services (it feeds ports of Castellón, Sagunto and Valencia), commuter and regional services and high-speed services Madrid-Valencia-Castellon and Valencia-Barcelona. The two future UIC tracks, currently under informative studies, will be dedicated to high-speed services, releasing additional capacity for freight traffic on the existing tracks. The Vandellos rail bypass, which solves the bottleneck caused by the single-track section between Vandellos and Tarragona, is in operation since the beginning of 2020 it reduced the travel time between Valencia and Barcelona by 30 minutes. The bypass operates in Iberian gauge, but it will be migrated to UIC gauge in the near future. Moreover, between Tarragona and Barcelona the works are on going installing third rail in the existing conventional tracks.

The line between Granada and Almería will be electrified and upgraded to UIC gauge by 2025. Regarding the Antequera-Algeciras line, in March 2019 preparatory works started with the drafting of the engineering project for the construction of the two electric supply substations required for the electrification of the line. In relation to the

upgrade to UIC gauge, the works are also ongoing. Finally, the new infrastructure is almost finished for the connection of Murcia with the High Speed network.

France: In France, the corridor sections are already compliant with TEN-T standards except for ERTMS. The only exception regards the cross-border section with Italy, which will be solved with the completion of the new base tunnel under the Mont-Cenis (international section of Lyon-Turin) expected by 2030. Delays can be noted however with regard to a new high-speed line Montpellier – Perpignan or the access line to the Lyon-Turin base tunnel. Studies are on-going to define possible financements and phasing of these projects, but also on the improvement of urban rail nodes in Marseille and Lyon.

Italy: To ensure compliance to TEN-T requirements, works are on-going on both cross-border sections: Lyon-Turin connection with the related Italian acces line to the tunnel (compliance estimated by 2029 although design and construction works are partly not financed, expecially for the section Bussoleno - Avigliana) and Trieste – Divaca existing line for which upgrading is foreseen and compliance is estimated to be reached by 2026. The works have also started on the Brescia – Verona new high-speed line whose completion is planned by 2025 (financing is hower not entirely secured).When taking into consideration a full line between Milan-Venice, looking to the all line Milan-Venice the compliance is in doubt. The section Verona – Vicenza is scheduled for completion in 2028, however for the section Vicenza – Padova, currently in the planning phase, compliance with TEN-T parameters at 2030 cannot be confermed since, for the time being, design and construction works are not financed. Finally, the works on the conventional railway line Venezia – Trieste continue with the intention to upgrade the line to TEN-T requirements.

Slovenia: the bottleneck Bivje was removed on the section Divača-Koper in the end of 2018. The preparatory works on the second track Divača-Koper are mainly in progress or concluded, while public procurement for the executive design was concluded with the signature of the contract on 17 June 2019. Beginning of the executive design and of the construction are respectively predicted for April 2020 and autumn 2020. The First phase (prequalification phase) of the public procurement procedure for the main construction works is in progress. After selection of the qualified bidder, the second phase will start (planned for April 2020). Finally, works should start in 2020 and will be concluded between the end of 2023 or early 2024. Last part of the project (track and track devices, ICT and other equipment) should be installed by the beginning of 2026, ending the contruction phase of the project.Works on the section Zidani Most - Celje are progressing according to plan and are estimated to be concluded at the end of 2020. Upgrade and reconstruction of the section Zidani Most – Dobova will begin in January 2020 and will be essential for the overall improvement of the connections to Croatia. It is also worth mentioning that the succesfull upgrade of the Pragersko railway station (planned to be completed ty 2022) would enable improved railway conditions, hence, eliminating bottlenecks and improving KPIs (line speed, axle load and train length), while also ensuring better living conditions for local population by shortening waiting times at railway passages (underpass construction)The project is in preparatory/permitting phase that is expected to be completed by the end of 2020. Upon completion of the project, the track category will be increased from C3 (load 20t/axis) to D4 (load 22,5t/axis), rail-road crossings will be managed, access to platforms will be improved and two new platforms will be built.

Croatia: Works on the Hrvatski Leskovac-Karlovac section are expected to be completed by the end of 2023. The grant contract has been signed, and a procurement process is in preparation to select a contractor. This work includes building 44 kilometres of electrified track, seven overpasses and underpasses, as well as all upgrading crossings, stations and stops and installation of a modern signalling and security system. Despite the delays, project Dugo Selo – Križevci (Railway Section Upgrade and Construction of Second Track) is in the implementation phase, and it's expected to be completed no later than the end of the 2023. For the Oštarije – Škrljevo project (Designs for the upgrade of the railway section) a public procurement process is underway to select the conceptual design provider. It is expected that the design for the upgrade of the railway section will start in spring 2020. Upgrade of the Rijeka port regarding infrastructure, especially upgrading the terminals and related connections is underway. Most of works will be completed by end of 2020. When it comes to the Križevci - Koprivnica - Hungary state border project, it is currently the largest construction venture in the Republic of Croatia. The project started with a considerable delay and was unstable for years. With total length of the rail – 42.6 kilometres, the plan is to upgrade the second track, as well as reconstruct the existing track, which will enable train speed up to 160 kilometres per hour. The public procurement procedure is ongoing.

Hungary: Some sections are not complient with TEN-T requirements yet. There are missing application of ERTMS on lines belonging to the Corridor, a number of sections not corresponding to the 22.5 tons axle load and the 740 m train length requirements are not ensured in all Hungarian sections. Severeal on-going projects aim at improving the situation in these respects (as the project "Upgrade of the Budapest, Rákos - Hatvan railway section", the works "Püspökladány - Debrecen: upgrading of the railway line", the project "Bajánsenye - Boba: ETCS 2 deployment", and "Budapest Ferencváros - Székesfehérvár railway line: ETCS2").

2.3.2 Inland Water Ways compliance maps

For the inland waterways network, the full compliance for all the infrastructure requirements set by the Regulation is expected by 2030. At present TEN-T requirements are not achived on the Casale Monferrato-Pavia-Piacenza and Milano-Cremona sections.

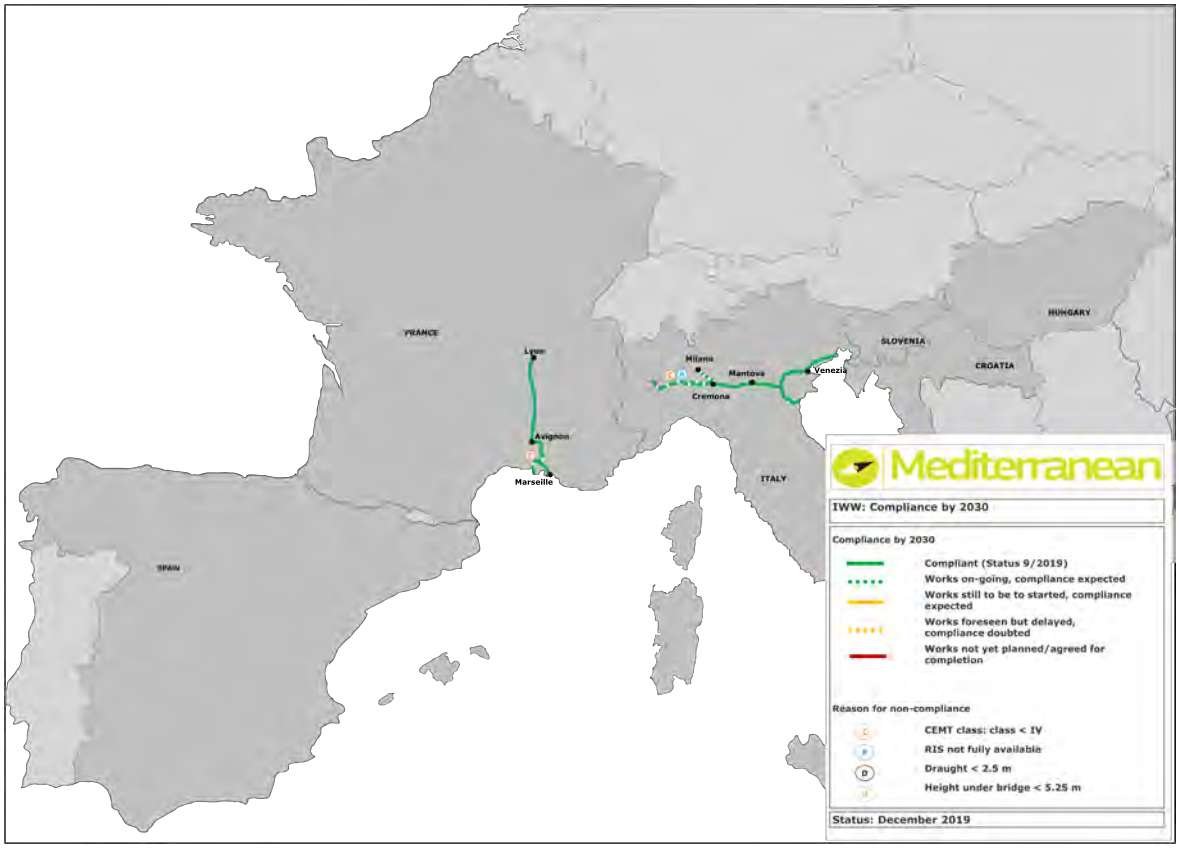


Figure 6: IWW compliance map by 2030 overview (data status December 2019)

2.4 Persisting bottlenecks and missing links

The following section will present an analysis of the critical issues and the administrative and operational barriers that could have a negative effect on transport activities in the MED corridor.

Cross border sections have the highest impact on proper functioning of the Corridor as a whole. In particular, the following specific sections are affected:

- Italy - France: The new railway link Lyon-Turin is the key section on which the optimal functioning of the whole Corridor hinges. Without the modern base tunnel and high capacity access routes the traffic flow across the Alpine border will be confined to road transport affecting this sensitive area. They will also be deviated to other routes (such as Ventimiglia) causing unnecessary congestion and creating additional costs. The completion of the Mont-Cenis base tunnel is not at risk. However the benefits and the potential modal shift are strongly dependent on the quality and capacity of the rail network nodes of Turin and Lyon and the Lyon and Saint-Jean-de-Maurienne section. While the Turin connection with the base tunnel is foreseen for 2029, the construction of the French access line from Lyon to St-Jean-de-Maurienne and necessary adaptations around Lyon are at risk of not being completed on time and in line with TEN-T standards. The French Government conducted a number of studies to find an optimal phasing of the new lines and ensured some capacity improvements by 2030 with the base tunnel in operation. This is a key aspect for the good functioning of the Corridor since the current alpine lines have structural bottlenecks, limiting line's capacity;

- France – Spain: The UIC rail cross-border connection between Spain and France is achieved through the Le-Perthus tunnel. However, the usage level of this infrastructure has not reached expected levels yet mainly due to the lack of connectivity in UIC gauge to traffic generators and lack of interoperability (different voltage and signalling systems, limited number of adapted locomotives, ect). Both the extension of the UIC gauge to the south up to Algeciras, currently ongoing in different sections, and the construction of the missing link between Montpellier and the end of the Le Perthus section are very important to realise the potential of the tunnel. The implementation of both projects would contribute to increasing the attractiveness of the Corridor to rail freight operators and increasing usage levels. Currently, the national investment scenario set out in the French Mobility Law plans the beginning of the construction of a first section of the new line (Montpellier – Beziers) between 2028 and 2032, and the second phase after 2033. Discussions with Occitanie Region and other stakeholders are on-going with the aim of accelerating this planning;
- Italy-Slovenia: the existing line (two tracks) between Trieste/Aurisina and Divača needs to be upgraded to meet TEN-T standards. The capacity of the upgraded line will be sufficient to accommodate traffic beyond 2030, this is why only the upgrade of the existing line is planned on the Italian side of the border and should be concluded in 2026[5];
- Slovenia-Croatia: on this cross-border section, which is part of the line connecting the two capitals Ljubljana and Zagreb, the line suffers from speed limitations (on the Slovenian side, only on one part of the section Ljubljana – Zidani Most) as well as limitations on train length on the Croatian side. The line is not in conformity with TEN-T standards and needs upgrading. On the Slovenian side the line is expected to be upgraded to TEN-T standards by 2030.

In addition, it became quite apparent that the rail in main urban areas faces serious bottlnecks, which hampers development and efficient co-existence of local, regional and international traffic. 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 the major nodes like Valencia, Madrid, Barcelona Lyon, Milan, Verona, Venice and Budapest.

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 whole Corridor.

In terms of railway infrastructures limitations, the following main points can be noted:

- the existing limitations to train length (average train length allowed is in the range of 400-700m, except France), which is far from the TEN-T requirement of 740 m;

[5] 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.

- the Spanish sections with non-electrified lines, requiring, when appropriate, the exchange of the locomotive. In particular, the disparity of the power supply (3KV in mixed gauges and 25 KV in high-speed in Spain and 1.5 KV in France) requiring new tri-standard locomotives or the adaptation of the existing ones. Therefore, the short-term problem is the lack of adapted locomotives to the special features of rail link from Spain to Perpignan;
- the limited loading gauge, to PC45-50, from the Italian/French border up to Turin, while from Turin up to the Italian/Slovenian borderthe available loading gauge is up to PC80;
- the limitation with regards to speed standards in Slovenia – to be completed by 2026 - and Croatia, specifically on the core sections linking the national network to the ports of Koper and Rijeka and in Italy on the connection Venezia-Trieste;
- ERTMS signalling system has to be deployed on the majority of Corridor railway lines.

In conclusion, in order 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.

The most important technical bottleneck regarding rail road terminals on the corridor is the length of the tracks, which often prevent train assembly from making 740m long trains, therefore affecting productivity and competitiveness of combined transport. It is also worth mentioning the importance and necessity of improving of fostering adaptation to European standards for connections to maritime ports and terminals and factories that generate freight traffic by rail.

Major investments have been made over the last few years, all resulting in a significant growth in the use of ports. Nevertheless, significant investments are still necessary to complete the hinterland connections.

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

The development of heavy rail connection to the airports shall be set as primary objective for airport intermodality, both for passenger and freight.

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 important in cross-border sections. In this respect, the project Vásárosnamény - Beregsurány (HU-UA border) will permit to upgrade the Eastern road section of the Corridor to the desired standards.

3 Transport Market Study

Since the first Transport Market study[6], transport demand and flows over the Mediterranean Corridor Regions and infrastructure have significantly evolved. Thus, an update of base flow data has been performed for the year 2016/2017, together with a global exercise of traffic projection by 2030, assessing the global impact of the TEN-T on jobs, growth and decarbonization of transport.

3.1 Current flows along the Corridor

Road, rail and ports trafic flows

The following maps are exposing traffic flow levels for road in 2016:

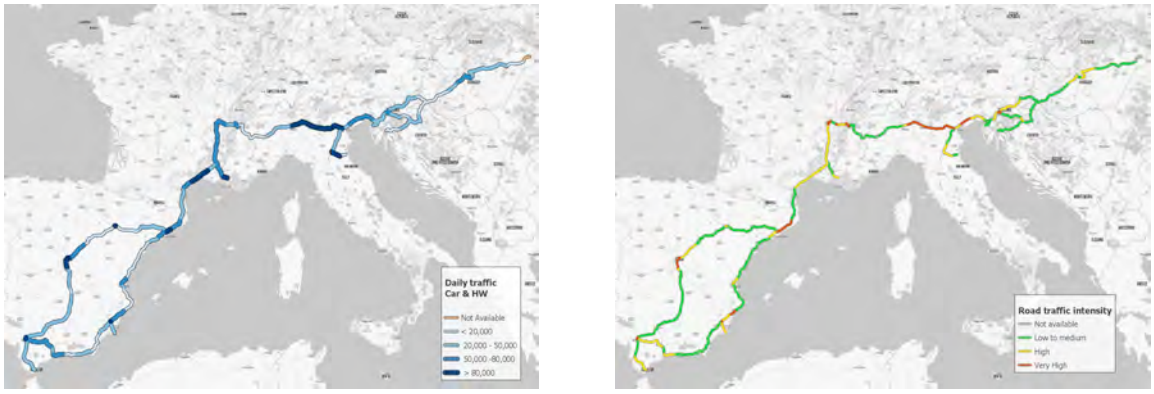


Figure 7: Bidirectionnal road traffic (cars and heavyweights) on the MED CNC (left) and traffic intensity (right)

Left map shows several sections with high levels of traffic, especially in northern Italy on the widely used Milan – Brescia – Verona – Venice axis or on the French A9 highway between Beziers and Nimes. Traffic intensity[7] (right map) reveals critical sections, mainly around primary cities (Madrid, Barcelona[8], Lyon, Milan) but also on longer interurban links like between Milan and Venice. The following maps show the same approach for rail traffic in 2016:

[6] The first TMS was based on data from the year 2010.

[7] The traffic intensity represents the total number of vehicles divided by the number of lanes gives an indication on the level of use of the infrastructure and helps identifying potential bottlenecks given the actual capacity of the roads.

[8] No TENTec data available for the section crossing Barcelona. Altough – based on qualitative assesments – Barcelona was defined as a critical section due to its high traffic intensity

Figure 8: Annual trains on the MED CNC (left) and track use intensity (right)

Railway traffic is dense around the biggest cities crossed by the Corridor, including Lyon, Marseille, Venice or Budapest.

The intensity map displays an indicator taking into account the traffic and the number of tracks of each section. Although rail capacity is more complex to define, it reveals that several busy sections (especially around main cities: Barcelona, Lyon, Turin, Milan, Venice and Budapest) are reaching high levels of track use and will represent potential bottleneck issues in the future. Global traffic for the 12 core network seaports of the Mediterranean Corridor has increased from 423 Mt in 2007 to 485 Mt in 2017, which represents a moderate growth of +1.4% per annum. After a clear decline linked to the 2008 crisis, the traffic rise again after 2010. Over the 2010-2017 period, the global growth is around +3% per annum, supported by a major development of the containers market (+5.3% per annum over the same period).

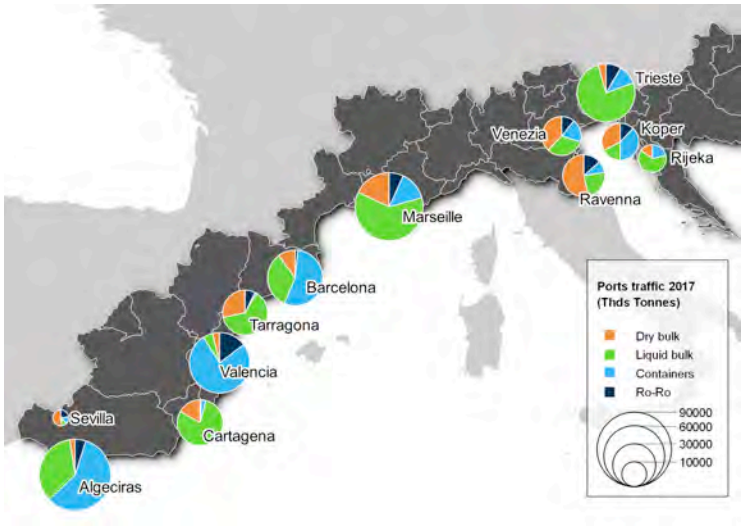


Figure 9: Port traffic (2017 data - Eurostat)

Analysis of main trends and conclusions

The observation of the updated data and trends over the recent period highlights the following points:

- Despite a global context of weak economic growth, the exchange of goods between corridor countries is still growing. Whereas exchanges between France, Spain and Italy remain preponderant in the corridor, flows between eastern countries are growing faster;
- Port traffic is still very dynamic, especially for containers. The growth observed between 2010 and 2017 in the ports of the Mediterranean Corridor is higher than the average growth observed in the North Sea ports over the same period. It should also be considered that market study does not address the potential of the Short Sea Shipping to transfer cargo from roads (the maritime part is limited to port traffic, not maritime traffic). However, rail and inland waterway share for land access to the ports can still be improved with better rail and inland waterway connections and more efficient terminals;
- Modal split for freight traffic at the France – Spain border is slightly improving for rail: the market share has increased from 3% in 2010 to 5% in 2017 for the rail, thanks to the Perpignan – Figueras new line. Road freight volumes remain stable at the 2010 level, which means that the growth of goods transportation crossing the border is absorbed by the rail;
- With regard to French-Italian border, rail modal share for the freight transport has slowly decreased since 1999 for the benefit of the road. In 2017, rail market share at border points was 7,6%, showing that the competitiveness of rail on this axis is very weak, due to the constraints on the existing line, including structural problems of the Mont-Cenis tunnel;

- Finally, an increasing demand for regional passenger rail service can be observed. For example, regional rail passenger traffic has grown by 23% in Lyon between 2012 and 2017. High growth of such traffic is also observed around Barcelona, Milan, Budapest and other main cities. This particular phenomenon creates an increasing pressure on infrastructure in urban nodes, creating conflicts between freight, passenger long-distance and regional trains.

In conclusion, together with cross-border missing links, interoperability issues and improvement of rail connections of the ports, the resolution of major bottlenecks in urban nodes is one of the main challenges for the development of the Mediterranean Corridor by 2030.

3.2 Transport and economic impacts of the TEN-T core network implementation – results for the Mediterranean corridor

The objective of the ongoing Multimodal Transport Market Study (MTMS) is to determine the impact of implementing the projects in the Work Plan Project List on the Corridors network. The MTMS provides an estimation of the prospective traffic flows on the Corridors in 2030, while also offering a view on the associated effects on the economy and the environment. It does so by considering two different scenarios, the *Baseline Scenario* and the *Reference Scenario*. In the Baseline Scenario, it is assumed that the implementation of the core TEN-T network stops at the end of 2016 and no further investments are made. In the Reference Scenario, the core TEN-T network is assumed to be fully implemented by 2030, in line with the requirements of Regulation 1315/2013 on the development of the TEN-T.

Transport results

According to the study in the baseline scenario, the global passenger traffic is expected to grow by 35% between 2016 and 2030. Compared to this baseline scenario in 2030, the reference scenario assuming the implementation of the whole TEN-T core network would lead to an increase of 12% of passengers using the rail on the Mediterranean corridor, whereas road would lose 1.6% of its traffic (in terms of passenger.kms on the corridor network). The modal share of the rail would switch from 21% to 23%.

Concerning freight transport, the global volume of goods transport would grow by 27% between 2016 and 2030 in the base scenario.

Focusing exclusively on rail, the implementation of the whole TEN-T core network (reference scenario in 2030) would induce an increase of 29% of rail traffic (in tonnes-km) compared with the do-nothing situation in 2030 (where it is assumed that the implementation of the core TEN-T network stops at the end of 2016 and no further investments are made, so-called the baseline scenario in 2030).

Rail is, indeed, the largest beneficiary of the implementation of projects, as its share grows to 22% in the reference scenario in 2030, that - considering the overall growth of the market between 2016 and 2030 - means an increase of 78% of the tonnage moved by rail. It should be underlined that estimates of the impact of the implementation of TEN-T should be seen as a minimum, especially for freight, since some effects (gauge, train length etc) are not considered in the applied models.

Environmental Results

The ASTRA model calculates the total CO_2 emissions of the transport sector by countries in both baseline and reference scenarios. Due to modal shift from road to rail and the electrification of some railways, the total emissions in the 6 countries crossed by the Mediterranean corridor are decreasing by -1.5% in the reference for the year 2030. It represents a total reduction of 5.5 million tonnes of CO_2 globally for the six countries involved, in other terms, the average annual total CO_2 emissions of a population of 400.000 Europeans with today's rates. The results are considering the cumulative effect of all the corridors and not only the Mediterranean.

Economic results

The table below displays relative difference between reference and baseline scenario over the period 2017-2030 for the countries crossed by the Mediterranean Corridor. These figures are taking account of the cumulative benefits of all the corridors, not only the Mediterranean.

[9]	Spain [2]	France [4]	Italy [4]	Slovenia [2]	Croatia [1]	Hungary [3]
Cumulated GDP	2.22%	0.80%	1.15%	1.10%	2.23%	0.58%
Cumulated Jobs	0.53%	0.20%	0.29%	0.20%	0.49%	0.11%

Table 3: Relative difference between reference and baseline scenario over the period 2017-2030

In cumulated values over the period 2017-2030, the implementation of the core TEN-T results in a gain of 850 bn€ of GDP and more than 2.6 million jobs in the 6 countries concerned.

Corridor - Specific scenario results

A corridor specific scenario (Mediterranean corridor-specific scenario) has also been analysed as a third case for the MTMS. In the Mediterranean corridor-specific scenario all the core TEN-T projects are supposed to be implemented by 2030, except for a selection of important rail projects of the Mediterrean corridor on which MS governments' commitment on implementation, based on the national priorities, was or is under discussion (Lyon-Turin, Montpellier-Perpignan, Venezia-Trieste and also projects in Spain, Slovenia and Croatia) in order to estimate the specific impact of these projects on the final results. Under this scenario, as a result of the fact that key MED rail projects are not implemented by 2030, cumulated GDP is expected to decrease by 7.3% and the employment by 9.3% compared with the reference scenario. These results underline the importance of completing rail projects extremely relevant for the efficiency of the whole corridor, but also for the positive economic impact they show to have on the involved Member States, especially France and Italy.

As a conclusion, the results of the updated analyses on the impact of the implementation of the TEN-T policy and CNCs show :

- That passenger and freight demand on the Mediterranean corridor is expected to grow significantly by 2030;

[9] Brackets behind the country names indicate the number of corridors the country belongs to

- That the implementation of the TEN-T core network would have a positive impact on rail modal share vs. road, and would in particular lead to a strong increase (+29%) of the number of tonnxkm carried out by rail on the Mediterranean corridor;
- That the investment in the corridor's infrastructure and the consequent travel time reduction would induce jobs and GDP growth.

Furthermore, the structuring rail projects of the Mediterranean corridor, and in particular the new rail line Lyon-Turin, appear to have an important impact in terms of economic benefits of the investments. The non-implementation of this "backbone project" would reduce the benefits of the all core TEN-T projects.

4 What has still to be realised by 2030

4.1 General description

The following chapter discusses the investments required for the development of the Mediterranean Corridor infrastructure by 2030 addressing the main problems and issues.

The analyses reported below are based on the 2019 Project List (projects necessary for the full completion of the Corridor), updated in cooperation with national and regional authorities, infrastructure managers and other relevant stakeholders. The time horizon of the project list is 2030. By the reporting date of 2019, 607 projects are included in the MED Project list. They can be cathegorized as shown in the graphs below.

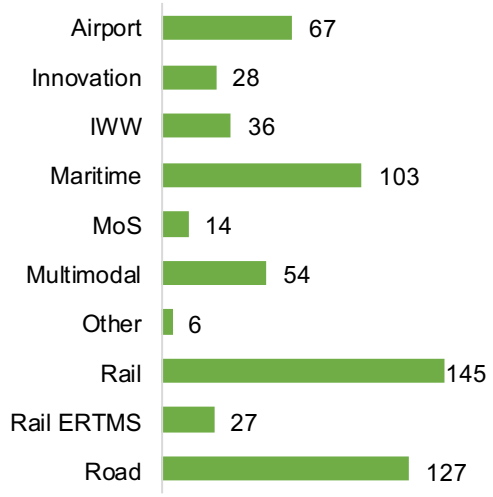


Figure 10 : Total number of projects per each project category

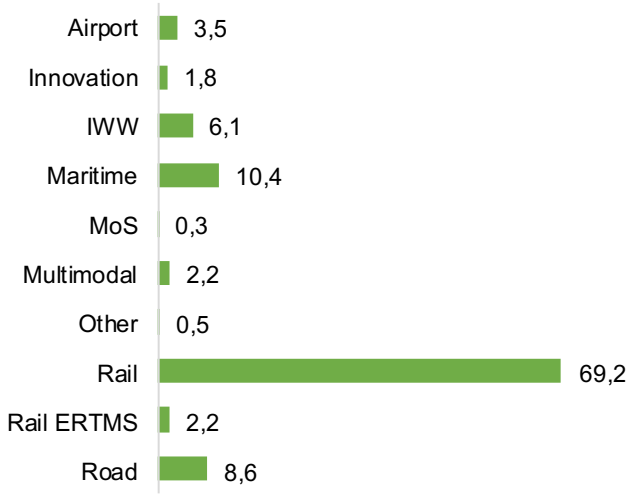


Figure 11 : Total cost of projects (€ billion) per each project category

As represented in the figure above, rail is by far the most represented mode in the Project list for the Corridor, with about 28% (rail and rail ERTMS) of projects addressing necessary works (€ 71.4 billion).

The global number of projects and the cost per each MS are shown in the following figures.

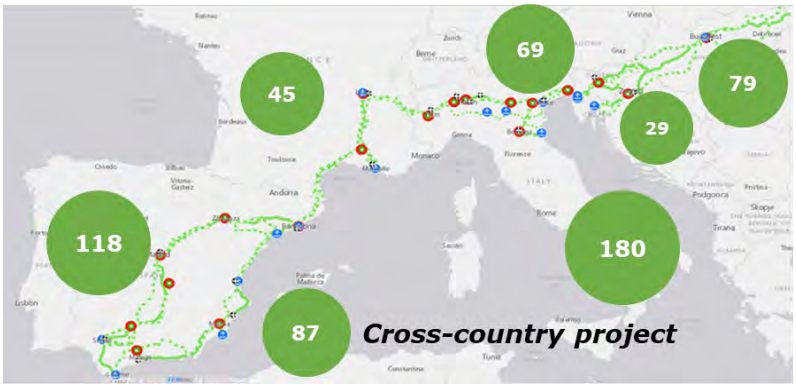


Figure 12 : Total number of projects per each MS

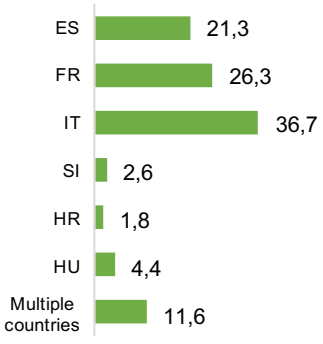


Figure 13 : Total cost of projects (€ bn) per each MS

Italy, France and Spain record higher costs (respectively, about 37, 26 and 21 billion €), while Hungary, Croatia and Slovenia follow with lower figures.

Out of 607 projects: 112 were completed in the period between 2013-September 2019, 159 are to be completed by 2020, 189 by 2025 and 84 by 2030, the target date of the Regulation. Additionally, we estimate that 10 projects are programmed to be completed only after that target year and for 53 projects the completion end date is “not known”.

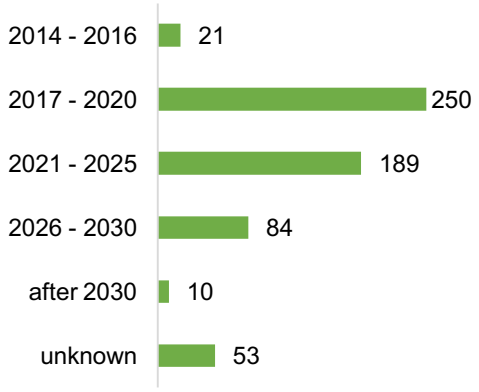


Figure 14 : Total number of projects by competition time cluster

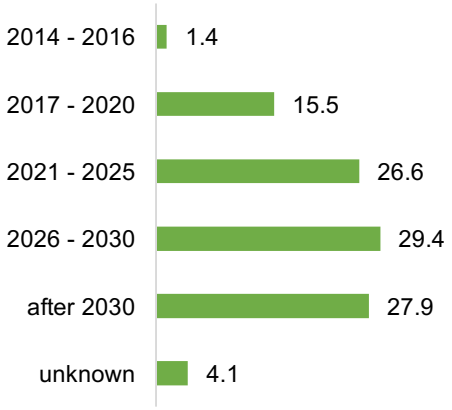


Figure 15 : Total cost of projects (€ billion) by competition time cluster

The figure above highlights how a considerable part of costs has to be sustained for projects that will be completed after the 2030 target year (27%).

Proposal for additional projects

An analysis of the sections currently not compliant with the TEN-T requirements but not covered by any infrastructure investment plan until 2030 was performed to identify the additional projects necessary to complete the Mediterranean Corridor.

The additional projects were identified based on country expert analyses on existing infrastructural gap on the corridor (not covered by projects already included in the Project List of Member States but considered, in our opinion, necessary to implement the Corridor).

The following figures summarize the additional projects proposed on the Corridor per each project category and Member States.

Figure 16 : Total number of additional projects per each MS

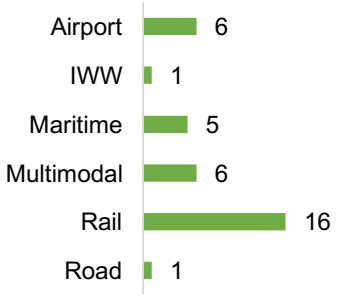


Figure 17 : Total number of additional projects per each project category

Cost estimation

Total cost of projects included in the Project List is 104,8 Billion of Euro. It should be underlined that projects already completed since 2013 account for 7,5 bn€ out of the total value of the Project List.

4.2 Rail & RRT

Out of 607 projects included in the MED project list, 172 are related to Rail + Rail ERTMS mode for a total cost of € 71.4 billion. The analysis of the Project list shows that 91 projects are connected to the achievement of a specific rail KPI, expecting a good progress to be reached by 2030 on the whole rail network. Although the only KPI reaching full compliance is electrification, positive results can be achieved in terms of:

- ERTMS implementation (76% in 2030);
- Axle load (>=22.5t) (99% in 2030);
- Train length (740m) (63% in 2030);
- Track gauge (87% in 2030).

4.3 The ERTMS deployment 2023

The following scheme shows the state of play and deadlines for the ERTMS deployment in the MED corridor:

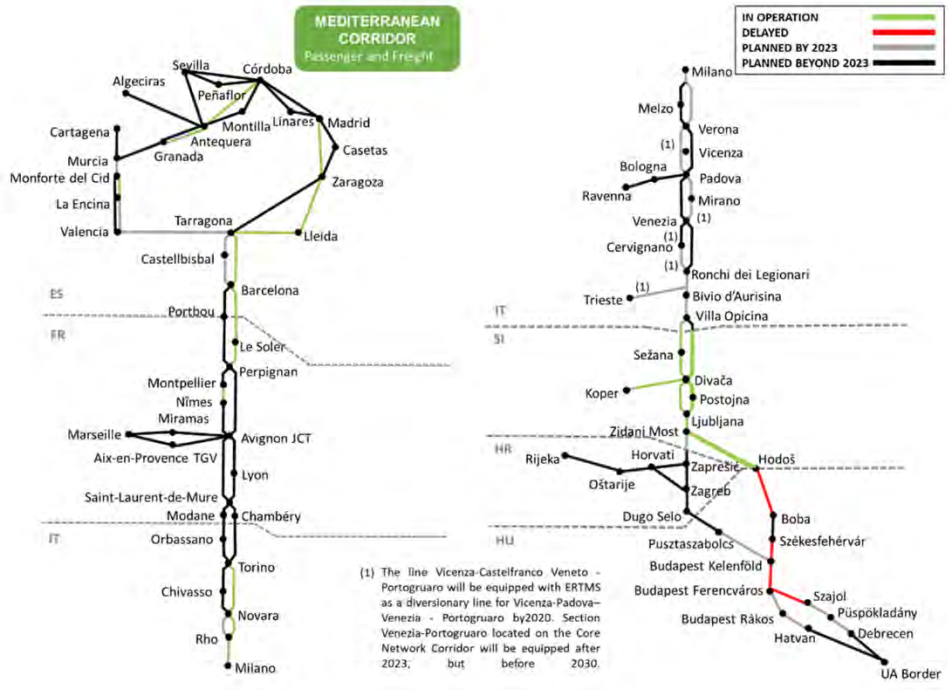


Figure 18 : State of play and deadlines for the ERTMS deployment in the MED corridor

The MED corridor is the one from the core network in which many kms are planned to be equipped before 2023 (3.103,67 kms) with Spain being the absolut leader. On the other hand, both France and Croatia do not have any plan to equip any section with ERTMS by 2023. Spain, Italy and Hungary will start the remaining ETCS deployment soon to guarantee the ERTMS functionality before 2023, even if not on all national

corridor sections. While – since September 2019 - in Slovenia the rail network is fully equipped with ERTMS

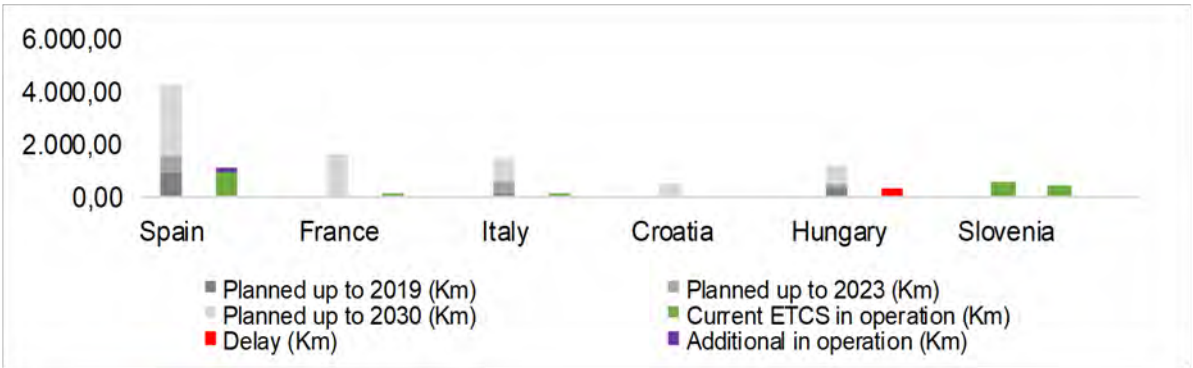


Figure 19 : ERTMS deployment for each MS

4.4 IWW & inland ports including RIS deployment plan

For inland waterways, the identified projects (36 for a total amount of € 6.1 billion) contribute to reach the full compliance for all the infrastructure requirements set by the Regulation.

4.5 Road transport (incl. ITS deployment)

In the MED project list, 127 road projects were included for a total cost of € 8.6 billion.

The road network is already very near to the compliance with respect to the parameter "motorway/express road" and the compliance of the whole road network is expected by 2030 with the completion of the section Vásárosnamény – Záhony.

An improvement along the corridor is necessary in terms of secure parkings, availability of clean fuels as well as the deployment of intelligent transport system – important contributors to efficient, clean and economically viable transport. 35 projects in the list relate to the ITS development.

4.6 Airports

The connection of main airports with rail network is fundamental to achieve the intermodality objective set by the Regulation. Out of 67 airport projects (€ 3.5 billion), 9 are connected to the achievement of the "connection to rail" KPI (€ 1.8 billion).

Regarding the 6 main airports of the corridor, only one (Lyon) is currently considered compliant to the characteristics of "Main airports", according to Annex II of the Regulation (EU) N° 1315/2013. For other main airports, that according to article 41.3 shall be connected with railway transport infrastracture by 2050, the following information can be summarized:

- Madrid Barajas airport: the airport is currently connected with conventional rail in its main terminals. High-speed connection is currently under study, which is expected to be provided by 2030;
- Barcelona airport: the airport is connected with conventional line in one of its terminals (out of two) and the high-speed connection is currently under study. The conventional rail will be extended to the second terminal by 2030 but no project for connecting the airport to the high-speed rail network is foreseen so far;

- Milano Linate: the airport does not have a connection with conventional and/or heavy rail. A project is foreseen to connect the airport by underground to be linked to the conventional/heavy rail line. No project is foreseen by 2050 for heavy rail connection;
- Milano Malpensa: the airport is connected by conventional rail from Milano via Ferrovie Nord line. A connection to heavy rail is planned to be realised (from north via Gallarate on RFI line and from south) aiming at establishing a new high-speed railway connection between the airport and the high-speed rail line Turin-Milan;
- Budapest airport: the Budapest Liszt Ferenc International Airport is not connected to the main Hungarian railway network. This bottleneck is expected to be eliminated by 2030.

4.7 Maritime Ports on the Mediterranean Corridor, interactions and complementarity with the MoS Coordinator Implementation Plan for the Mediterranean Corridor

The ports of the Mediterranean Core Network Corridor (CNC) handled 490 million tonnes of cargo in 2018 (around 12% of all cargo transiting through EU ports), of which roughly 80 million tonnes are transhipment traffic. Hence, around 80%, or 400 million tonnes of cargo are actually moving between the ports and the corridor, making it the third-most important CNC in terms of maritime traffic. The CNC has a balanced mix of large ports (>50 million tonnes: Algeciras, Barcelona, Valencia, Marseille, and Trieste), medium-sized ports (10-50 million tonnes: Cartagena, Tarragona, Ravenna, Venezia,Koper and Rijeka[10]) and a smaller port (<10 million tonnes: Sevilla).

A modal shift from road to less carbon-intensive modes is one way to reduce the carbon emissions of the transport sector. The Mediterranean corridor is a typical coastal corridor, and there are various regular maritime ro-ro and container services in parallel, e.g. between Barcelona and Valencia, Genoa, Savona and Civitavecchia, as well as Barcelona and Koper. Therefore, maritime transport is an alternative on certain routes. The Mediterranean CNC also includes sections typically used for port hinterland transport, e.g. the connections between Madrid and Barcelona, Lyon and Marseille as well as between Koper and Budapest. Regular ro-ro and container services feed the corridor with maritime traffic. The respective sections of the Core Network Corridor must hence be developed in line with growing port hinterland traffic demand.

It is also important emphasising the need of facilitating the availability of clean fuels in ports, in order to be aligned with the requirements stablished by the Regulation.

4.8 Innovation and deployment of alternative fuels infrastructure

Implementation of projects in fields of deployment of alternative fuels' infrastructure, ITS and digitalisation within all transport modes, in urban nodes and, as appropriate in other areas that contribute to a sustainable, smart and efficient transport system, should be facilitated. The Core Network Corridors can be adequate platforms of sustainable and future-oriented mobility. According to the MED Project List, about 214

[10] Data based on Rijeka Port Authority statistics: https://www.portauthority.hr/en/traffic-statistics/

projects are connected to this typology of investment[11]. It amounts to about 29% (€ 30.1 billion) of the total investments allocated to the MED CNC, as summarized, per project category, by the following figures.

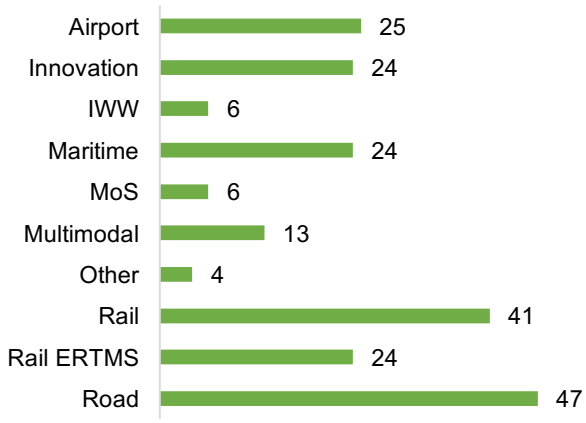


Figure 20 : Total number of projects per each project category

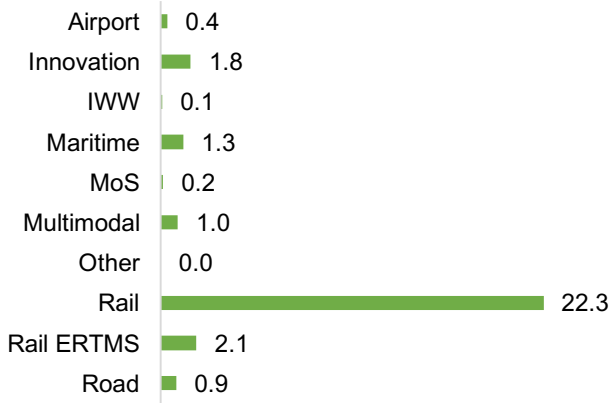


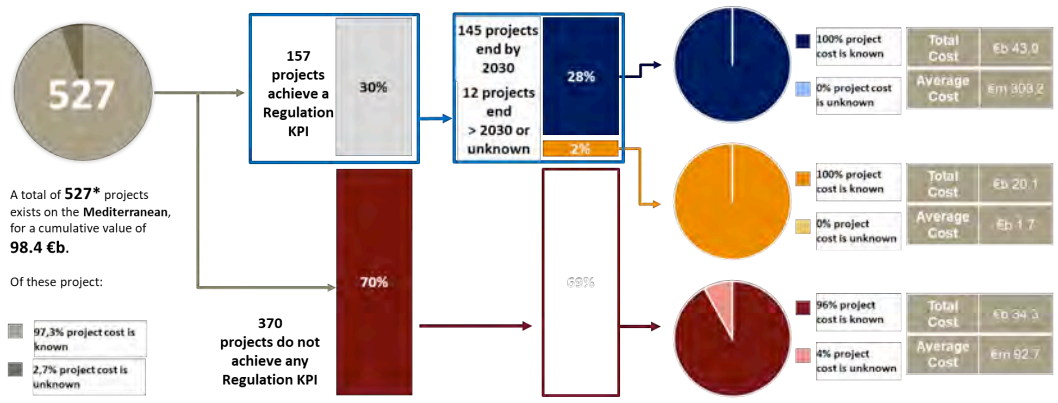
Figure 21 : Total cost of projects (€ billion) per each project category

[11] Innovative projects are considered those involving some form of sustainable and future-oriented mobility, such as: (i) Clean fuels (IWW/Maritime, Road, Air) or (ii) Telematics application according Reg. 1315, Article 31 or (ii) Sustainable freight transport services according Reg. 1315, Article 32; excluding MoS.

5 Funding and Financing

5.1 The funding needs

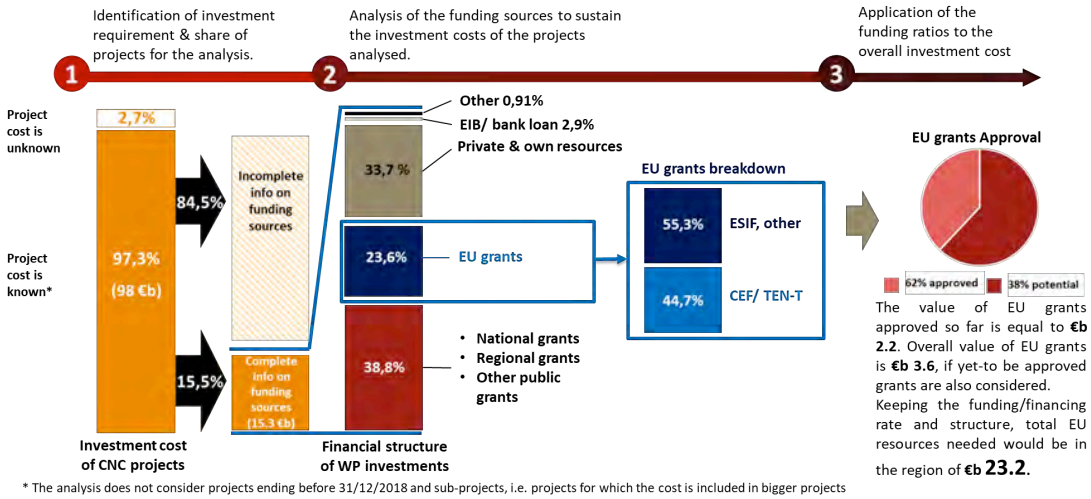
The vast majority (97%) of the projects included in the MED CNC Project List have information on cost.



* The analysis does not consider projects ending before 31/12/2018 and sub-projects, i.e. projects for which the cost is included in bigger projects

Figure 22 : Number of projects and values by category

As observable in the diagram below, we have clear and complete information on the funding sources of projects accounting for € 15.3 billion, or 15.5% of the list's value, out of which € 3.6 billion (23.6%) come from EU funding, with a quasi-equal split between CEF/TEN-T grants and ESIF grants. EIB loans to MED CNC account for 0.3% (roughly € 50 million) covered by 7 ongoing projects - the maturity of which allows for complete and reliable information, as the EIB only include mature projects in its pipeline - resulting in a final figure possibly undervaluing the overall contribution of the EIB to the CNC development. The same is applicable to other financial institutions.



* The analysis does not consider projects ending before 31/12/2018 and sub-projects, i.e. projects for which the cost is included in bigger projects

Figure 23 : Funding and financing sources analysis

The final step of the analysis consists in determining the number and value of MED projects able to generate returns from the market to cover the operating and possibly a share of the capital expenditure. According to our findings more than 40.2% of the projects are potentially financially sustainable. More specifically:

- 36,1% of the projects, for a total value of € 53.2 bn, are financially sustainable. This estimation is based either on a direct assessment from the project owner promoter or a subsequent analysis of the consultants;
- 4,1% of the project list, for a total value of € 15.7 bn, present good potential for financial sustainability. Projects included in this category, are considered appropriate for it based on consultants' assessment;
- 59,8% of the project list, for a total value of € 30.4 bn, have low to non-existent potential for financial sustainability. This was based either on a direct assessment from the project owner or on a subsequent analysis of the consultants.

Financially sustainable projects are relevant because they can be developed with less - or no - impact on public finances, and/or supported with softer support measures (i.e. soft loans, blending instruments, de-risk instruments, etc), as detailed below. The more infrastructure is developed through projects generating returns from the market, the less the amount of grants and MSs public finance is needed to complete the TEN-T network.

5.2 The innovative financial tools

The aggregate demand for investment in the TEN-T corridors represents a total cumulated value of about € 640 billion, which can only be supported with a substantial contribution of private financing. To improve the quality and bankability of TEN-T projects, DG MOVE and the EIB tested in the current multiannual financial framework (MFF) the blending approach, setting up the CEF Blending Call and Facility. Under the first CEF Blending Call, 72 projects were supported, of which 33 already reached full finance close, with EUR 1.4 billion of CEF funding mobilizing close to EUR 8 billion of overall investments. In the next MFF (2021-2027), the InvestEU will cover all financial instruments, as well as blending. The InvestEU will also offer a broader risk spectrum than the EFSI, allowing for both lower and higher risk projects to be financed. This, together with blending, is expected to lead to a higher uptake of innovative financial instruments for the financing of the TEN-T.

The CEF funded actions - since 2014 - contribute to the implementation of the Mediterranean Corridor. 147 actions are co-funded along the Corridor[12] following the 2014-2018 CEF Transport calls for proposals for a total ammounts of €2.9 billion in CEF funding for a total investment of €6.3 billion.

The following figures summarize the CEF contribution for the Mediterranean Corridor divided by category, MS and type of investment.

[12] Data based on 2014-2018 CEF call provided by INEA

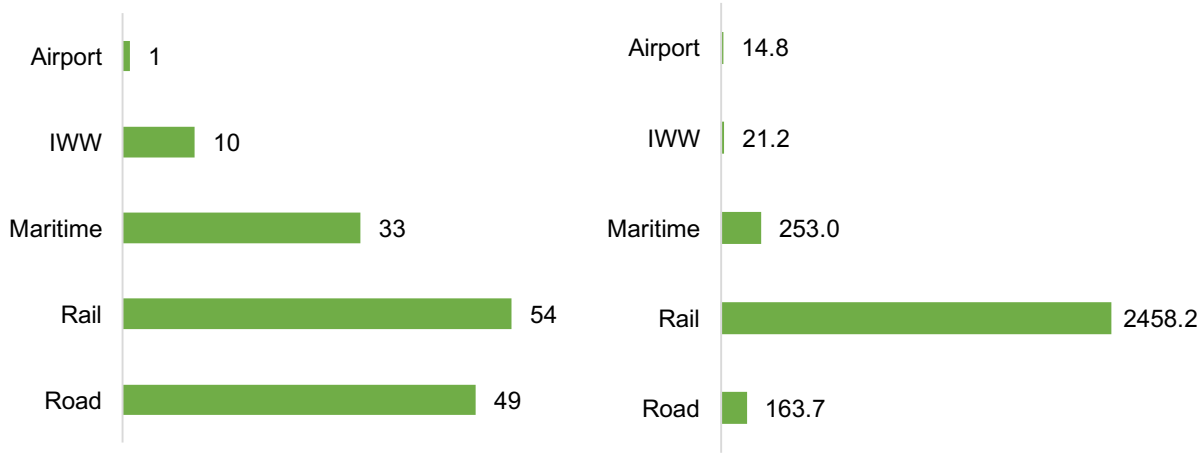


Figure 24: Statistics by transport mode

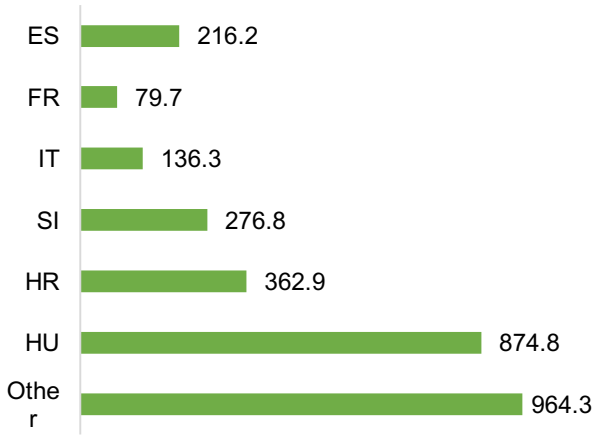


Figure 25: Corridor funding (€ million) per each MS

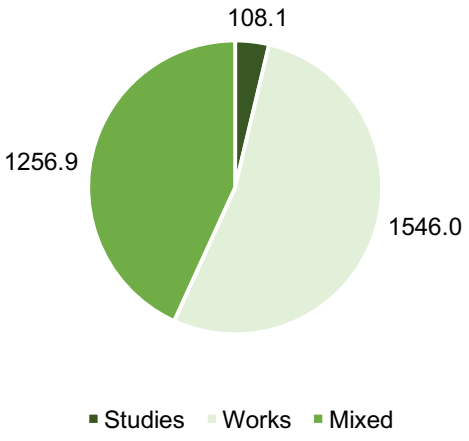


Figure 26: Corridor funding (€ million) per type

The 3rd CBS report of September 2019 by Coordinators Bodewig and Secchi "Enabling the uptake of the TEN-T pipeline by the financial market"[13] gives a more detailed insight into financing issues for the TEN-T networks.

[13] https://ec.europa.eu/transport/sites/transport/files/2019-09-cbs3-report.pdf

6 The European Coordinator's recommendations and future outlook

Transport is a key part of today's world everyday life: it affects everyone in Europe, independently from its age or the activity undertaken. The European Commission is strongly committed to promoting efficient, safe, secure, climate change resilient and environmentally friendly mobility and this is why the time for further reflection on the TEN-T policy has come.

To this end, the European Commission has started the review of the TEN-T process in April 2019, with the finalization date expected to be mid-2020. Depending on the outcomes, it will be determined whether the TEN-T policy and guidelines require adjustment, and, therefore, a possible revision of the guidelines might start in the second half 2020. An additional "Proposal for a regulation on streamlining measures for advancing the realization of TEN-T" has been put forward by the European Commission, in order to facilitate permitting procedures for TEN-T core projects.

During the Third Work Plan period, many important studies have been carried out. Most are already completed, while some are still ongoing and nearing finalization. The EC strives to complete the TEN-T Core Network by 2030, and most of the studies have been devoted to supporting this goal. An example is the "Study on permitting and facilitating the preparation of TEN-T Core Network projects" (2016) and the subsequent impact assessment that led to the European Commission's "Proposal for a Regulation on streamlining measures for TEN-T implementation" (2018). Another priority was improving efficiency – infrastructure usage optimization and removing bottlenecks – as demonstrated by the EC policy document "Transport in the European Union: Current Trends and Issues" (2018), as well as the study on "Comprehensive analysis of the existing cross-border rail transport connections and the missing links on the internal EU borders" (2018). A crucial aspect of improving efficiency is digitilisation and facilitation of (automated) communication, which became the focus of a significant number of studies, including "Digital Inland Waterway Area: Towards a digital inland waterway area and digital multimodal nodes" (2017) and the "Study on the Deployment of C-ITS in Europe" (2016). Improving transport safety remains a key focus, as demonstrated by the "Preparatory work for an EU road safety strategy 2020-2030" (2018) and a myriad of ERTMS-related studies. Finally, a number of sustainability studies have been completed related to both modal shift and clean energy. Respective examples are "Consultations and related analysis in the framework of the impact assessment for the amendment of the Combined Transport Directive (92/106/EEC)" (2017) and "Clean Power for Transport Infrastructure Deployment" (2017).

Nevertheless, the presentation of the state of the art of the TEN-T network deployment is the core of this document, notably with respect to the MED CNC.

The analysis proposed above, framing the situation to December 2018, show that ongoing and planned investments on the Mediterranean Core Network Corridor will improve the situation but overall the Corridor is still facing multiple challenges, mainly due to insufficient node capacity and infrastructural bottlenecks. Continue effort is necessary to complete on time the Lyon-Turin cross-border international section and plan and construct modern and adequate access lines; While significant progress was achieved on the Spanish network further investments are necessary to upgrade the Corridor to UIC gague and make the network fully compliant with TEN-T requirements.

Continue at full speed with the construction of second track between Koper and Divaca. Improve cross-border crossing along all countries of the Corridor.

At the same time, there are still some sections or nodes on which compliance is not expected within the TEN-T Regulation deadline, as the Variante Ronchi-Aurisina foreseen only for early 2031, the new line between Perpginan and Montpellier, questionable timing of access lines between Lyon and Saint-Jean-de-Maurienne or inadequate connectvity of the main core airports still missing heavy rail connections.It is necessary to further strength collaboration among the involved parties to ensure further reflection and creation of commitment to plan and deploy projects able to absorbe this missing links. All the above is extremely necessary to reach the full compliance of the Corridor within the time lapse agreed with MS who subscribed Regulation 1315/2013.

While implementation of the Mediterranean Corridor requires long-term investments in infrastructure projects, a number of short-term actions, requiring a lower level of investment could be prioritised. I call them “rail breaktrhougs”, which can be summsarised as operational and administrative solutions.

Furthermore, the challenges that ports - as key infrastructures of the Corridor - will have to face by 2030 are not to be underestimated as the completion of hinterland connections, the digitalization of processes and the assurance in the supply of alternative fuels.

Maximum committement, thus, needs to be placed on network deployment, since TEN-T implementation is a key enabler of investment, growth and jobs. As presented in the 2018 study “The impact of TEN-T completion[14]” the GDP multiplier for MED CNC is above 3,5, meaning that every euro invested in the Mediterranean core network creates 3.5 euros of GDP on average. In terms of additional jobs created, one billion of euro invested provides for 15.000 more jobs on average for MED CNC countries.

In 2018, a proposal for the establishment of the legal basis for Connecting Europe Facility (CEF) funding after 2020 has been laid by the EC. The Connecting Europe Facility will contribute to Corridor deployment also in the future years. Following adoption of the EC Proposal by the Council and the Parliament for the Revision of Annex 1 of CEF Regulation, in January 2021, the MED CNC will have extensions in terms of its network, having therefore a new alignment. At present, even if the legislative process involving European Parliament and the Council, based on the Commission Proposal COM(2018) 438 final of 6th June 2018, is still ongoing, it is possible to state that the MED CNC will extend its Spanish, French and Italian branches. In the future it is necessary to analyze the possibilities of Corridor extension to other member states.

Moreover, in terms of resources, for the next financial period, 2021-2027, even if the decision on the budget is not taken yet, the Commission proposed a significant budget for transport sector. Majority of the budget will still be dedicated to the TEN-T completion (85% to core network and 15% to comprehensive), which is the reason for targeting great importance on the enlargement of the alignment to add branch of the Corridor in the core TEN-T network.

Besides this, since the adoption of the Action Plan on Military Mobility, the Commission is working to improve movements of military forces by addressing shortcomings in the

[14] The impact of TEN-T completion on growth, jobs and the environment, 30 November 2018

transport infrastructure. Under the military mobility envelope in the Connecting Europe Facility 2021-2027, the Commission will fund transport infrastructure built or upgraded for military purposes provided it is also useful for civilian transport (so-called dual-use infrastructure). It is a win-win initiative for both defence and transport in the sense that it will allow a smooth mobility of armed forces within and beyond the EU while contributing to the completion of the TEN-T network.

Great attention also in the allocation of CEF funds will be placed on decarbonization, that shell attract a relevant amount of resources, attracting 60% of the budget. Climate change is, indeed, an important challenge for transport infrastructures and it is no possible to delay further high reflection on how make existing and programmed infrastructure resilient to it, contextually keeping fighting and preventing its worsening. The implementation of the TEN-T Mediterranean Core Network Corridor aims to highly contribute to the necessary mitigation of environmental impacts of transport in Europe. The reduction of GHG, NOx, SOx & particles emissions is primarily linked with modal shift from road to rail and maritime, in particular for international freight transport. The Corridor deployment is also targeted to contribute to a more efficient rail transport, with total electrification and higher load factors thanks to the implementation of the TEN-T standards. Contextually, Corridor development needs to ensure mitigation of other environmental impacts such as noise and air pollution. In other terms, transport policy contribution to climate change can be both preventive - reducing contribution of transport to it – that defensive, namely investing on increasing transport infrastructure resilience to climate change.

In conclusion, achieving a well interconnected, interoperable and efficiently managed transport system in Europe, able to support EU economic growth and global leadership, requires a coordinated long-term approach at EU level.

Transport seen through the lenses of connectivity, mobility, investment is a major driver to strengthen the prosperity and cohesion in the Union. Adequate infrastructure, innovative intelligent transport systems (ITS), measures to improve the safety, security and environmental performance of the transport sector are essential.

This Fourth Work Plan has been prepared since November 2019 and was finalised in May 2020. In the meantime, the world has been affected by the SARS-CoV-2 pandemic and with great impact on our lives, our health systems and our economies.

We know only part of the pandemic‘s dramatic effects on people and economies so far.

The transport sector has been heavily impacted by the containment measures in Europe and worldwide. Continuity of service has been ensured by transport workers under difficult conditions, showing their critical function in serving the population’s basic needs. The transport sector will also be crucial in supporting the economic recovery.

It is too early at this stage to undertake a thorough analysis and to draw conclusions in this work plan. Nevertheless, I propose to start, in the coming weeks, together with Member States and relevant Stakeholders, an initial analysis on our Corridor, to gather insights on the impact of the crisis and related recovery plans on transport infrastructure investments, as well as views on the future possible orientation of the Corridor work and Work Plan priorities.

Without jeopardising the final objective of the realisation of the Mediterranean Corridor, this approach is intended to further align our activities with current events, which have considerably changed our social and economic life and will affect our approach towards mobility and transport, along with the climate and digital transitions.

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