



Study on Mediterranean TEN-T Core Network Corridor

Final Report *3rd Phase – Loop II*

May 2022



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List of abbreviations

CBA - Cost Benefit Analysis

CEF - Connecting Europe Facilities

CNC - Core Network Corridor

EC - European Commission

EIA - Environmental Impact Assessment

ERTMS - European Railway Traffic Management System

ESIF - European structural and investment funds

ETCS - European Train Control System

GDP - Gross domestic product

GHG - Greenhouse Gas

IWT - Inland Water Transport

IWW - Inland Water Ways

MED - Mediterranean Corridor

MS - Member State

RRT - Rail Road Terminal

TEN-T - TransEuropeanNetwork - Transport

Disclaimer

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Abstract

The Mediterranean Corridor is one of the TEN-T Core Network Corridors linking 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, through Slovenia, Croatia and Hungary up to the Ukrainian border.

The Final Report of the II loop of the 3rd Phase of the Mediterranean Corridor Study presents the results of the work accomplished so far in order to further elaborate the corridor knowledge base, refine the Project List and monitor and analyse the state of the project implementation and reporting.

The analysis elaborated show that ongoing and planned investments on the Mediterranean Core Network Corridor will improve the functioning of the Corridor and enhance the modal shift from road to rail. At the same time the full completion of the Core Network Corridor still faces multiple challenges, mainly due to uncompleted investments, infrastructural bottlenecks, insufficient network capacity and persistent lack of interoperability. High level of cooperation among relevant stakeholders, Member States and the European Commission is necessary to complete the Corridor in line with requirements of the Regulation 1315/2013. The main findings of the study will help the decision makers to focus on the most important elements necessary to further improve the functioning of the corridor.

Introduction

Since 1 January 2014 significant effort has been placed on developing European transport infrastructure policy, as set in the TEN-T Regulation 1315/2013. The nine Core Network Corridor (CNC) led by a European Coordinator have been set up and the Connecting Europe Facility mechanism, as stated in regulation 1316/2013, has been extensively employed to deliver transport infrastructure to European citizens.

The Mediterranean multimodal TEN-T core network corridor is one of the most important rail axes at European level, linking 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, through Slovenia, Croatia and Hungary up to the Ukrainian border.

The Final Report of the II loop of the 3rd Phase of the Mediterranean Corridor Study - in accordance with the tender specifications - describes the progress of the Contractor's work in the period June 2020 – May 2022. More specifically, it presents the results of the work accomplished so far under tasks 1, 2 and 3. In addition, it contains a summary of the activities related with the preparation of the V Work Plan (task 4) and takes account of the contribution emerged during corridor Working groups and Fora (task 5). The report is organized as follows:

- **Chapter 2:** presents the results of Task 1, namely the further elaboration of the Corridor knowledge base.
- **Chapter 3:** focuses on the activities developed so far in the framework of Task 2, to refine the Mediterranean Corridor project list.
- **Chapter 4:** summarizes the results of the activities undergone to monitor and analyse the state of project implementation, coherently with the provision of Task 3.
- **Chapter 5:** describes the activities carried out to deploy the V Work Plan and summarizes the main results highlighted in it;
- **Chapter 6:** provides an overview of the meeting held and of the contribution provided to the corridor knowledge base and further development.
- **Chapter 7:** sets out conclusions.

The report describes the efforts of the Consultant in the past 12 months, since the Final Report for Phase I was issued.

The results presented in this report were analytically developed in the following deliverables, presented to the Commission during the last year:

1. Inception Report – phase II (July 2020);
2. Project Implementation Report 2/2020 (October 2020);
3. Corridor Study Update 2 (March 2021);
4. Project Implementation Report 1/2021 (May 2021);
5. 2021 Project List (May 2021);
6. Project Implementation Report 2/2021 (October 2021);
7. V Work Plan (April 2022);
8. Project Implementation Report 1/2022 (April 2022);
9. Monthly Reports;
10. Monthly Press Review;
11. Tailor-made notes on Corridor related matters.

Task 1 - Further elaborating the Corridor Knowledge base

Task 1.1 – Multimodal Transport Market Study Update

Previous studies (3rd phase - loop I)

As defined in the tender specifications, during the I loop of studies, an update of the 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.

The MTMS provided 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 considered 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.

A corridor specific scenario (Mediterranean corridor-specific scenario) has also been analyzed 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 Mediterranean 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.

Current activities & results

It is worth mentioning that for the team involved on the activity a large extent of time was dedicated to the collecting of data on base-flow. The data collected were mostly statistical data, available with two years of delay. In other terms, repeating the exercise of Task 1.1 during the current phase would have not provided any relevant results in terms of estimating Covid-19 effects on traffic flows.

Given the above, it was agreed during Managing meeting held on June 25th 2020 and confirmed on January 20th 2021¹, to suspend the MTMS analysis.

Task 1.2 – Updated Analysis of the Characteristics of the Corridor and the State of the Infrastructure

Previous studies (3rd phase - loop I)

During the I loop of the 3rd Phase of MED CNC Study, a number of reports with different scopes have presented analyses on the characteristics of the Corridor. The most recent one being the IV Work Plan, published in August 2020, included a KPI data estimation and quantitative analysis of the results through a multitude of tables, statistics and maps.

Current activities & results

The analysis of the characteristics of the Corridor and the State of the Infrastructure has been further updated in the current loop of studies.

¹ E-mail from Silke Brocks of Wednesday, Jan 20, 2021

Key Performance Indicators (KPIs) are being used to assess and monitor the evolution of the corridors and the potential effects of individual projects or groups of projects.

A common KPI framework has been developed for all nine corridors, in order to allow for a cross-corridor comparison.

The Corridor Study 2 as well as the V Work Plan presented a quantitative assessment of the abovementioned parameters in order to provide the current status of compliance per mode and nodes along the Mediterranean Corridor by 2020 (Corridor Study) and by 2021 (V Work Plan) and to highlight the critical issues, namely the missing links of the infrastructure and the non-compliant sections and hubs, according to the infrastructure targets and definitions set out in the Regulation No. 1315/2013, Article 39.

The characteristics of the Mediterranean Corridor have been analyzed also for the sections and the nodes added to the CNC due to CEF 2 entered into force.

Table 1 shows the status of analysed KPI per mode and Member State by 2021 and the criteria according to which the compliance is checked.

Table 1: Compliance per Member States with TEN-T requirements by 2021

KPI	Member State						Total	
	ES	FR	IT	SI	HR	HU	2021	2030
Railways								
Electrification	84%	100%	100%	100%	100%	99%	92%	100%
Track gauge	>43% ²	100%	100%	100%	100%	99%	70%	83%
Axle load	94%	100%	100%	100%	100%	27%	91%	100%
Line speed	100%	97%	91%	26%	100%	92%	93%	99%
Train length	17%	100%	4%	100%	0%	67%	39%	72%
IWW								
CEMT class	-	77%	80%	-	-	-	79%	88%
Draught > 2.5 m	-	100%	80%	-	-	-	88%	93%
Bridge height	-	63%	70%	-	-	-	67%	82%
RIS	-	96%	62%	-	-	-	75%	75%
Road								
Type	100%	100%	100%	100%	100%	97%	100%	100%
Ports								
Rail connection	100%	100%	100%	100%	100%	100%	100%	100%
RRT								
Capability of intermodal units	71%	100%	100%	0%	0%	100%	81%	90%
740 m train terminal accessibility	57%	0%	75%	0%	0%	100%	55%	65%
Electrified train terminal accessibility	57%	100%	75%	0%	0%	100%	67%	67%
Airports*								
Connection to rail – all airports	57%	50%	43%	0%	0%	0%	43%	67%
Connection to rail (HS) – main airports	0%	100%	0%	-	-	0%	17%	67%

*The KPI "Connection to rail – all airports" has been calculated considering all the airports of the core network directly connected with the railway network. The compliance value in 2021 decreases to 17% when applying the more restrictive criterion of rail connection with high speed lines for the main airports of the

² This figure shows the percentage of Spanish rail MED Corridor with UIC gauge. However, it is important to note that pre-existing lines in Iberian gauge cannot be enforced to change their gauge, so from the perspective of the Regulation those lines would be compliant. For this reason, although the percentage of the railway network belonging to the MED Corridor and physically with UIC gauge is 43%, the level of compliance is higher.

core network (Connection to rail (HS) – main airports) with only Lyon airport currently compliant. By 2030 all main airports will be compliant with this KPI except for Budapest airport where completion of the work is in doubt and Milano Linate for which an underground connection is planned (67%).

Task 1.3 – Identification and analysis of other EU studies and relevant policy action

Previous studies (3rd phase - loop I)

The main objective of this task is to continuously identify, collect and analyse the external activities (i.e. other EU studies and relevant policy actions) that are relevant and impacting on the functioning and the further development of the CNC.

In order to achieve these goals, the following work steps were foreseen as a common approach among CNCs:

- identification of relevant EU studies and policy actions;
- analysis of filtered EU studies and policy actions.

In the I loop of studies, the conclusions and findings of 27 studies, in terms of their impact on the functioning and the further development of the Corridor, have been summarized in a specific chapter of the Corridor Study issued in November 2018.

Current activities & results

A literature review of completed and approved studies and policy actions relevant for the Corridor functioning and its further development has been undertaken and summarized in a dedicated chapter of the Corridor Study 2 issued in March 2021.

Out of 28 European studies and policy documents, 17 have been marked to be relevant for the MED Core Network Corridor. Eight of these were completed in 2020, five in 2019, three in 2018 and one in the year 2017.

These EU studies are related to the development and operation of transport infrastructure. Figure 1 shows the specific topics that are considered relevant for the corridor knowledge database (please consider that one study can cover multiple topics). The topic “Green Deal” is the most common topic with 7 markings, followed by “Cross-border” and “Climate change resilience” with 6 markings. Also important are the topics “ERTMS” and “ITS”. Regarding the environmental issue, another important topic is “Alternative Fuels” with 4 markings. “Good navigability status”, “KPIs parameters (current)” and “CBA” are covered to a smaller extent.

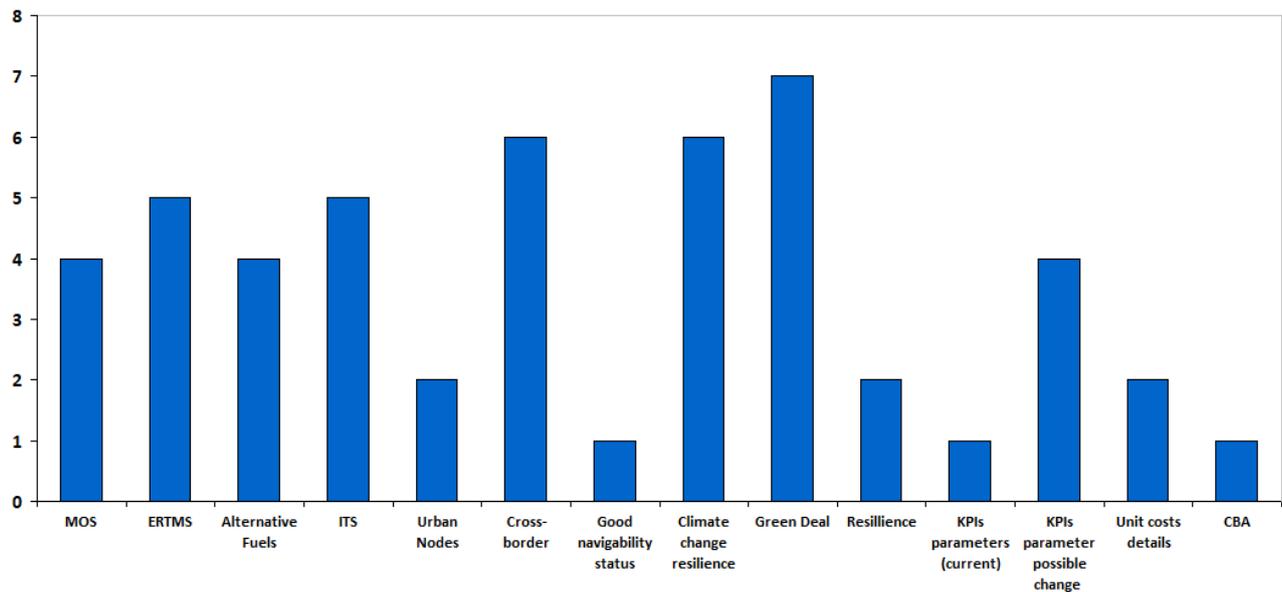


Figure 1: Specific topics covered by the study

The distribution of the transport modes covered by the studies is depicted in the chart below. The most common coverage is for “All modes” of transport altogether with 7 studies, followed by “Rail” and “Road-ITS” both with 3 studies. Just one EU study is focusing on “Maritime”, “Inland Waterways (IWW)” and “Urban Transport”. It can be said that almost most of the studies do not focus on one particular mode of transport, but rather on different modes.

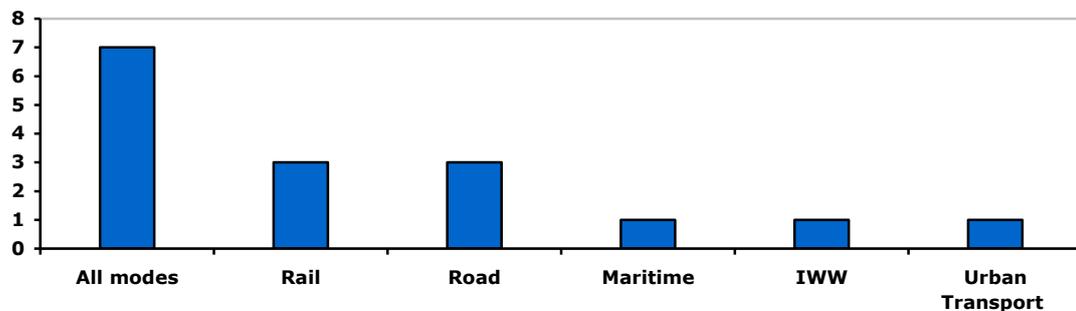


Figure 2: Transport modes covered by the study

Task 1.4 - Expert review of main national policy document

Previous studies (3rd phase - loop I)

For the period 2018-2020, national policy documents were continuously analyzed to ensure the compliance of MSs policies and strategies with the corridor implementation.

A critical and expert review of the current state of Member States’ main national policy documents was provided in the November 2018 Corridor Study.

In addition, significant updates were provided to the European Commission in the monthly **Press Review** and in the **tailor-made information for the Coordinator**, which serve as background documents for the Coordinator’s meetings and missions.

Current activities & results

The national literature review was performed for all corridor Member States, in terms of studies and national policy documents, as an update of the review done in previous corridor studies and summarized in a dedicated chapter of the Corridor Study 2 issued in March 2021.

For the MED corridor all six countries have been included in the study knowledge base, which corresponds to a total of 39 studies. In the table below, it is presented how many studies per country it is possible to find in the knowledge base.

Table 2: Overview of country coverage by the studies

State	N°
Spain	4
France	5
Italy	9
Croatia	5
Slovenia	9
Hungary	7
Total	39

Most studies or policy documents cover all modes of transport. In smaller quantities are the studies relating to a single mode of transport with 5 studies for the Railway sector, 3 for the Maritime and Airport sectors and just 1 for road.

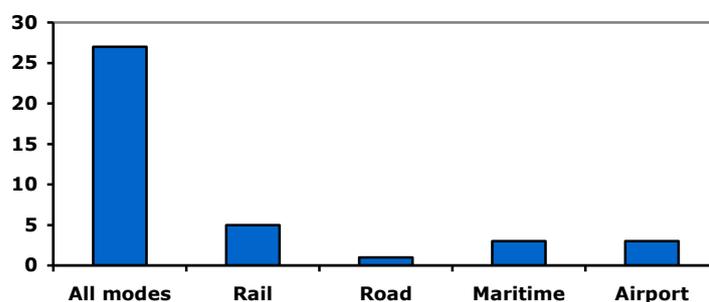


Figure 3: Transport mode covered by the study

As concerns the topics, Spain has the widest coverage of topics given by the investigated studies. But generally, all countries have quite a broad coverage of topics. It is important to highlight that, due to the corridor characteristics, it is predetermined that not every country shall necessarily deal with each topic. The topics "Alternative fuels", "ITS", "Urban nodes", "Cross border", "Good navigability status" and "Climate change resilience" are covered in each country.

Table 3: Study coverage of selected topic per country

Country	Spain	France	Italy	Croatia	Slovenia	Hungary	Total
MOS	1	-	-	-	-	-	1
ERTMS	1	-	4	1	3	5	14
Alternative Fuels	3	5	4	3	3	5	23
ITS	1	5	4	1	3	5	19
Urban Nodes	2	2	3	1	5	7	20
Cross-border	1	-	3	3	3	3	13
Good-navigability status	1	1	1	3	1	2	9
Climate change resilience	2	5	5	3	3	7	25

Military Mobility	1	-	-	-	1	2	4
Resilience	1	5	3	-	2	7	18
Green Deal	3	5	4	-	3	7	22
KPIs parameters (current)	1	-	2	-	2	5	10
KPIs parameter possible change	1	-	-	1	4	5	11
CBA	1	-	1	-	1	3	6

Task 2 – Refinement of the Project List

Previous studies (3rd phase - loop I)

The Tender Specifications of the third loop of studies included new requirements to be enveloped in the analysis for monitoring the projects, thus determining modifications to the Project list structure. As confirmed by the Commission, MS Excel is the format for delivery of final project lists, which has been accompanied by a user-friendly tool to dynamically and timely interrogate the dataset and display main statistics by graphical means to ease data analysis and understanding.

The methodology for the updating of the project list, once again agreed upon by the 9 consortia (which coordinated in a specific set of Working Group on Task 2 and 3), followed the same approach for the organisation of work that has been successfully established in the first and particularly second phase of the TEN-T corridor studies. It, basically, consists of the following main steps:

- (1) check and possible adaptation of the project list structure;
- (2) transfer data from the 2017 project list into this modified structure;
- (3) elaborate the 2019 project list by updating and completing the 2017 database;
- (4) analyse and exploit the 2019 project list;
- (5) repeat step (3) and (4) in order to generate the 2021 project list with respective results.

The results derived from the updated project list provide an overall picture of the project status (e.g. project fiches, KPI fulfilment) on the Corridor. On the other hand, they constitute the substantial input to other tasks, particularly the critical issues/project ranking (Task 1.2), the monitoring of project implementation (Task 3) and the development of the Corridor Work Plan (Task 4).

The Inception Report, issued in July 2018, explains in detail the above-mentioned methodology.

The application of the methodology provided the 2019 official Project List for all the 9 TEN-T CNC. The official PL was approved by the responsible Member States and shared with the Commission in September 2019 performing the objective of Task 2.

Following the transmission of the 2019 official Project List for all the 9 TEN-T CNC to the European Commission, a specific tool was implemented to facilitate the visualization of the project list (User Friendly Tool). The UFT was shared with:

- European Commission. The not protected version of the tool was transmitted including the complete project list and the additional list of projects;
- Member States. The protected version of the tool was shared among all the MS representatives including the complete project list and the additional list of projects;
- Corridor Forum Members. The short version of the tool was transmitted to all CF Members. This short version of the project list doesn't present the costs figures & sources neither the implementation difficulties column.

User Friendly Tool for the TEN-T Corridors project list

VERSION: v1.3
DATE: 7-11-2019
PROJECT LIST VERSION:
CNC Project List TOTAL 08112019

Tool developed by:
Panteia
Research in Progress

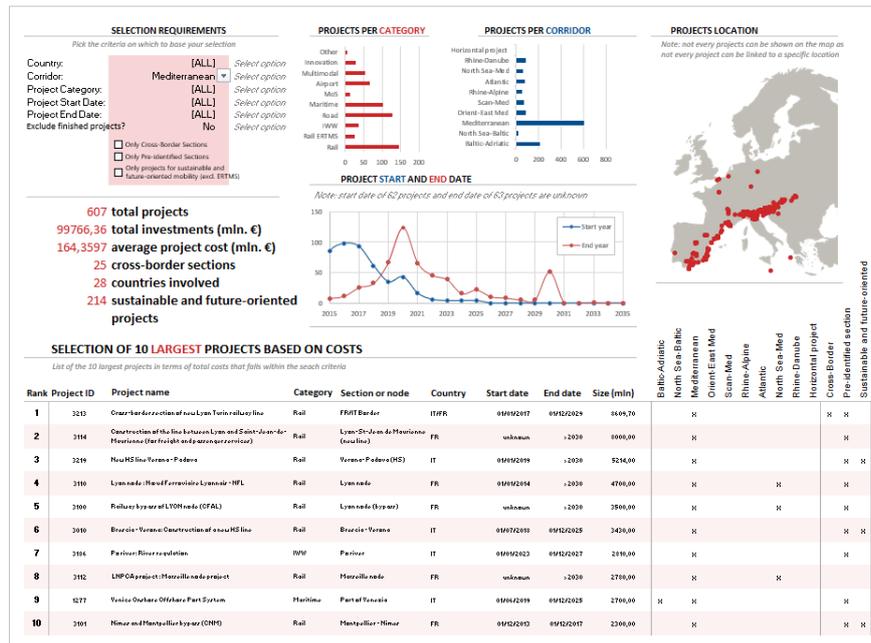


Figure 4: Example of User-Friendly Tool for the TEN-T Corridor Project List

Current activities & results

For the first refinement of the PL of the current loop of studies, the activities described below were implemented:

Task 2.1 "Review of the composition of the list by adding new projects or deleting projects": starting from the 2019 official Project List, the following activities were performed:

- a "narrow" update of the 2019 project list – aimed at updating the Maturity/Finance information of the list – was implemented. The update was used as input for the PIR 2/2020;
- in order to generate the 2021 version of the overall project list for all TEN-T Corridors, the PL was shared again with Stakeholders and Member States for the relative updating of the whole Project List. To minimize SHs effort, avoiding double counting and distorted information in different lists, Consortia agreed on exclusive responsibility for each project, for those projects monitored in more than one list, given Corridor alignment overlapping;
- the results of SHs update were merged, assessed and homogenized by Consultants in Corridor PLs and in a complex PL, including all 9 Corridors;
- the updated PL was transmitted to all Corridor's Member States representatives and all Corridors' Advisors, in order to validate the list and collect their feedback;
- the 2021 Project List was shared with the European Commission for their approval. At this stage the PL constituted the input data for the PIR 1/2021;

- f. following the transmission of the PIR 1/2021, the 2021 official Project List for all the 9 TEN-T CNC was shared with the European Commission together with a specific tool to facilitate the visualization of the project list (User Friendly Tool).

Once consolidated the 2021 official Project List, in order to continuously update the PL, the Consultants performed the following activities:

- g. "narrow" updates of the 2021 project list – aimed at updating the Maturity/Finance information of the list – were implemented every six months. The updates were used as input for the PIRs 2/2021 and 1/2022. During the "narrow" update the following tasks were performed:
 - i. cost estimation for projects without an estimated cost (limited to those projects that are required to complete the corridor, i.e. the ones impacting on the KPIs - *Task 2.2*);
 - ii. critical Review of Projects for the identification of funding gaps (*Task 2.3*) with the aim of providing evidence of the financial status of the projects forming the TEN-T network. In particular, the outcome of the analysis assessed the financial status of the projects composing the PL, targeted to identify:
 - the investment requirement & share of project analysis,
 - the funding sources to sustain the investment costs of the project analysed,
 - the application of the funding ratios to the overall investment cost.
 - iii. identification of additional projects - not submitted by Member States or stakeholders - but relevant to complete the corridor (*Task 2.4*);
 - iv. coordination and synchronization of projects included in the PL regards their contribution to the corridor development, with special emphasis on cross-border sections and on projects aiming at removing a bottleneck (*Task 2.8*);
 - v. detailed analysis of project for sustainable and future-oriented mobility (*Task 2.9*). In particular, for the purpose of the present loop of study are considered project enhancing sustainable and future oriented mobility those projects linked to:
 - clean fuels (IWW/Maritime, Road, Air) or
 - telematics application according to Reg. 1315, Article 31 or
 - sustainable freight transport services according Reg. 1315, Article 32; excluding MoS.
 - identification of Rail breakthrough projects (*Task 2.10*). In particular, the set of projects includes both infrastructure investments and "immaterial" projects, declined as follows:
 - infrastructural rail breakthrough:

- (1) specific Investment in Infrastructure: e.g. ERTMS, Parking places for trains at borders, 740m-long trains, loading gauge adaptations,
- (2) rolling stock investment: e.g. ERTMS, wagon/train tracking systems, interoperability;
- soft rail breakthrough:
 - (1) removal of administrative, regulatory and operational barriers (including at borders): e.g. waiting times reduction
 - (2) traffic management/telematics applications/digitalization
 - (3) removal of language barriers
 - (4) contingency plans of the IMs
 - (5) mixed (Infra + Soft): If mixed actions are merged in one project
 - no rail breakthrough: Default value (e.g. for Road, Airport, ...)
- vi. definition of the geographical coordinates per project in order to store the relevant data in the TENtec OMC (Task 2.11).

Task 3: Monitoring and analysing the state of the project implementation and reporting

Previous studies (3rd phase - loop I)

Task 3 builds on the requirement that biannual updating of the entire project list and the work plan of the European Coordinators should be accompanied by a more frequent status analysis of the projects which will allow the Commission and the Coordinator to counteract in case of inconsistencies and delays. Therefore, the implementing stages of projects and their financing shall be monitored twice a year throughout the study phases III and IV.

The main results of Task 3 were summarized in four Project Implementation Reports (PIR 1/2018, PIR 1 & 2/2019 and PIR 1/2020). In order to present comparable results across the nine Core Network Corridors, the type of analysis presented in the reports were agreed upon by all nine Core Network Corridors.

Current activities & results

The monitoring and analysis of the project implementation and reporting was performed every six months, accordingly with the timetable presented in the Inception Report – loop II.

While Task 2 covers the update of the entire project list (adding/deleting projects and improving the quality of data per project) biannually, Task 3.1 focuses on monitoring the implementation of the projects included in the agreed project list in the subsequent periods every six months. In fact, the PL update contributes to the provision of up-to-date information on the various stages of project implementation (planning, financing, public consultation, impact assessments, permitting and administrative procedures, tendering, construction, testing, opening) and assesses information on the EU involvement in the implementation of the projects under the various funds and financial instruments, such as CEF, ESIF, EFSI.

On the other side, Task 3.2 requires for an analysis of the progress of the projects with respect to the updated data, reported under Task 3.3. In the framework of tasks 3.2 and 3.3, four Project Implementation Report (PIR 2/2020 PIR 1&2/2021 and PIR 1/2022) have been built. The methodology used to monitor the implementation of corridor projects in the framework of Task 3.1, 3.2 and 3.3 is that reported in the first Project Implementation Report (1/2018). In particular:

- **Project Implementation Report 2/2020:** presents the results of the analysis on the monitoring, based on the Maturity/Finance update of the 2019 Project List performed in September 2020.
- **Project Implementation Report 1&2/2021:** present the results of the analysis on the monitoring, based on the 2021 Project List, already including the formal stakeholder feedback and the MSs and EC validation.
- **Project Implementation Report 1/2022:** presents the results of the analysis on the monitoring, based on the Maturity/Finance update of the 2021 Project List performed in March 2022.

In extreme summary, it is possible to observe an evolution in the composition of the Project List between the PIR 1/2018 and the PIR 1/2022. Project included in the list increased from 520 to 753, due to:

- the addition of CEF “hard infrastructure” projects recommended after the call concluded in 2016, 2017 and 2018;
- the addition of other projects relevant for the completion of the MED Corridor by SHs, with the agreement of MSs;
- the disruption of projects of major dimension in multiple phases/lots. This allows for a more precise survey on maturity and financial information for each “piece” of the whole initial project.

In addition, Task 3 is completed by the provision of inputs for the Coordinator’s missions and the preparation of further documents including results from other tasks. Both Task 3.4 and 3.5 were subject to specific request.

Finally, Task 3.6 (Use and Update the Technical Parameter Data in TENtec), is two-fold and related to the:

- use the technical data contained in the TENtec OMC for the KPIs and the
- update of technical parameter data in TENtec OMC.

Clearly, infrastructure data of the TENtec system have been used for updating the current corridor characteristics (Task 1.2), as far as these data are available on time. Nevertheless, Task 3.6 primarily deals with data exchange in the opposite direction, towards the TENtec system: infrastructure projects change the status (characteristics) of the corridors by the date of their finalisation. In this respect, the project list contains information, if formerly insufficient corridor sections have achieved compliance with the requirements of Regulation 1315/2013 by dedicated projects. This information - change of infrastructure parameter(s) at a given time - was transferred to the TENtec system to provide information on the change of corridor characteristics.

For the execution of this process it has been observed that data source (project list) and data destination (TENtec) show structural differences:

- the project list provides information for the geographical scope of the projects, while TENtec stores data section-wise. Project scope and TENtec section are not always congruent;
- the impact of the project regarding the KPI is a “yes/no” selection (“KPI achieved” or empty data field). In contrast, TENtec often expects specific values from a selection list or exact figures as free data input.

In order to cope with these challenges, the following procedure was performed:

- (1) assignment of TENtec sections to each completed project that shows at least one entry “KPI achieved”; According to the Tender Specifications, project completion refers to the years 2016-2017 (third project phase) and 2018-2019 (fourth project phase). The assignment was done by the respective country or category experts. Only TENtec sections that are covered completely by a project were considered (no splitting of TENtec sections or projects).
- (2) Assignment of KPI achievement to the respective attributes in TENtec. This was performed for all projects fulfilling the conditions of step (1) (i.e. completed, at least one “KPI achieved” entry and complete coverage of a TENtec section).
- (3) Compilation of TENtec sections with infrastructure parameters to be modified due to finalised projects (including year of becoming effective). Such modifications were made by applying the methodology agreed in (2) to TENtec

data assigned to “KPI achieved” project parameters. All other TENtec entries remain unchanged. This work step was performed by the respective country/mode experts of the consortium.

- (4) Transfer of data gathered under (3) into TENtec. According to information of the TENtec consulting team and collaboration with key stakeholders, this transfer was executed by manual input. This work step was executed by the leader of Task 3.6.

Task 4 – Provide the elements for the update of the Work Plan

The Corridor Work Plan is the key document of each CNC. The No.1315/2013 assigned to each European Coordinator, for the core network corridor under his/her respective responsibility, the task of preparing the Work Plan – which summarises the current state of infrastructure along the Corridor and sets out the challenges for future infrastructure development – and submit it to MS for approval.

The Work Plan, once approved, is the steering document for guiding the development of the Corridor in the short and longer term, with a time horizon looking to 2030.

Previous studies (3rd phase - loop I)

The first Corridor Work Plan was presented by the European Coordinator to the Member States in December 2014 and it was approved in February 2015. Following this, a second, third and fourth editions of Work Plans were adopted and published in 2016, 2018 and 2020.

Current activities & results

In the framework of the contracts signed with the Commission, the Consortium provided the needed support to develop the 5th edition of the Work Plan. The elaboration of the 5th WP was based on the last one set in 2020, as well as on the progress achieved by ongoing infrastructure projects, the results of the corridor study, Corridor Fora and Working Groups' meetings in close cooperation with relevant stakeholders.

The Consortium developed a comprehensive updated document, fully exploiting all relevant inputs received from the analysis of the data, the examination of relevant literature, the consultation of the stakeholders, as well as from the project activities themselves (all findings of Tasks 1-3).

It is important to underline that all foreseen activities have been carried out in a corridor perspective framework avoiding a collection of data/information only focused on individual Member states.

For the elaboration of the fifth Work Plan (formal adoption to be expected in June 2022) a coordination work among the consortia and the Commission took place to align on structure and contents to be included in the document. The agreed common structure of the WPs, shorter and with a more communicative soul, as designed, to go to the essentials of the information, using key messages and clear graphs instead of long explanatory texts. This led to the elaboration of a document with the following contents:

- the way ahead to the Mediterranean Corridor 5th Work Plan, included the achievements along the Corridor since the last Work Plan (4th Work Plan – September 2020);
- overview on the characteristics of the Corridor, ranging from the new alignment under CEF2, to the compliance – in 2021 and expected for 2030 – with the technical infrastructure parameters of the TEN-T guidelines per single Member State;
- the way forward for the Corridor full deployment with a deeper understanding of the action to be put in place for RAIL & RRT, ERTMS, IWW & inland ports including RIS deployment plan, Road transport (including ITS deployment), Airports and Maritime Ports with the illustration and the analysis of the persisting bottlenecks and missing links;

- the deployment plan of Motorways of the Sea, alternative fuels infrastructures and nodes, elaborated in close cooperation with MoS consultants;
- funding and financing needs for the Corridor completion, assessing the state of the art and the foreseen necessity of resources, included the EU expected contribution and a description of the innovative financial tools that will be available in the EU fan;
- the European Coordinator's recommendations and outlook, for which the consultants provided technical insight and contributions.

To consistently collect the feedback from the relevant stakeholders, namely Member States representatives and relevant infrastructure managers, their continuous involvement in the process of deployment of the fifth Work Plan was ensured. In particular, the following steps took place:

- a draft version of the WP was sent to the Advisor on December 23rd and its feedback on it were embedded in the text in the following weeks;
- a revised draft version of the V Work Plan was transmitted to the European Commission on February 3rd;
- the updated version was sent by the Commission to the MS representatives on February 15th;
- an updated version of the V Work Plan was issued to the European Commission on 14th April, incorporating the feedback collected from the MS representatives;
- the final draft version of the document was sent, for their approval, to the Ministers by the European Commission.

The process of formal approval of the fifth Work Plan of the Mediterranean Corridor is currently ongoing: the conclusion is expected at the end of June, beginning of July. The Work Plan, together with an explanatory ppt, will be sent to all stakeholders and it will be published online.

Task 5 – Preparing, supporting and following up of the meetings of the Corridor Forum and its working groups

The Corridor Forum is the consultative body for the Corridor, chaired by the European Coordinator, involving Member States, regions, infrastructure managers, ports, airports, rail-road terminals, users and other stakeholders. On average there are between 60 and 80 participants at the meeting. The Corridor Forum is supported by several working groups, e.g. the working group on ports (and inland waterways); on urban nodes; on cross-border issues or on regions.

Current activities & results

Task 5 consists in supporting the Commission for the organization of corridor fora and working groups. For each meeting, the Consultant supported the Commission performing activities as invitation of relevant stakeholders, definition of a proposal of participant list, drafting of minutes, short flash reports, etc.

Consultants organized a first restricted meeting involving all Members States representatives on 24th June 2020. The meeting was the occasion to update the Members States on the following topics:

- main elements of the 4th work plan of the Coordinator;
- difficulties related to the COVID-19 and its impact on the Mediterranean Corridor on-going works and future investment planning;
- measures proposed in the field of transport by the European Commission;
- CEF co-financed key projects along the Corridor.
- conclusions and overview of the activities for the next period.

Due to the pandemic, Corridor Forum meetings were organized in remote (via Webex). Specifically, a first Corridor Forum meeting (**Forum XV**), for the current loop of studies, was organised on **March 26th, 2021**. It was the occasion for updating the Forum Members on the state of play and main results addressed in the CNC studies:

- overview on the studies on MED CNC & support of MED Coordinator;
- characteristics of the Mediterranean Corridor;
- compliance with the technical infrastructure parameters of the TEN-T guidelines by 2030;
- projected state of play by 2030;
- literature review;
- conclusions and overview of the activities for the next period.

A second Corridor Forum meeting (**Forum XVI**) was held on **November 24th, 2021** via Webex and was the occasion to present the main items of the Recovery and Resilience Plans drawn up by the individual Member States and the potential benefits for the Mediterranean Corridor. During the meeting, Consultants elaborated the following contributions:

- update to the Forum Members on the main results achieved so far in the Corridor studies and overview of the activities for the second period of the contract with the European Commission;

- presentation by Consultant to the Forum Members on the following issues:
 - monitoring and analysing the state of the project implementation and reporting;
 - further elaborating the Corridor Knowledge base;
 - providing the elements for the updates of the Work Plan;
 - conclusion and overview of the activities for the next period.

On the other hand, the period 2020-2022 was fruitful for the Organization of Corridor Working Groups. Indeed, on **5th of November 2020** a first WG was issued (via Webex) on the extension of the Mediterranean Corridor (extended when the CEF II Regulation enters into force). The meeting was considered as a welcome and introduction for all the new stakeholders who will be involved in various Corridor's activities, including Forum meeting and Working Groups.

A **second WG** on the COVID-19 impacts was held via Webex the **10th of December 2020**, focusing on:

- exchange of views with MED Corridor's stakeholders on the COVID-19 impacts on the Mediterranean Corridor traffic;
- COVID-19 impacts on the mobility.

The **third WG** was held on **6th May 2021** via Webex and focused on how to complete the Corridor by 2030 paying attention to:

- update on the sections with potential issues;
- update on the Budapest Suburban Railway Node Strategy.

The **fourth WG** was held on **4th March 2022** in Milan (Milano Malpensa airport), focusing on the freight transport in the Mediterranean Corridor, post-Covid-19 market perspectives and TEN-T infrastructure development.

For each WG Consultants, among the other activities, supported the Commission in defying the agenda and select the speakers, provided tailor-made information on the speakers and a summary of their interventions, collected and organized in advance the contributions to be presented and took care of the minutes of the meetings.

Finally, in the coming months, it is planned the organisation of:

- a further Corridor Working Group focusing on passenger transport to be held on Barcelona on 9th June 2022;
- a Mediterranean Corridor Meeting to be held on 28th June 2022 during the Connecting Europe Days in Lyon;
- and the last Forum meeting scheduled for the 28th September 2022 in Brussel in order to conclude the II loop of study.

Conclusions

The activities presented above are the result of the second 24 months of works on the III loop of studies for the Mediterranean Corridor, namely the second phase of the 2018-2022 loop.

During these two years, as extensively explained above, the Consultants provided the Commission – performing the activities of the already mentioned 5 tasks – the relevant information concerning the technical and operational enhancements along the Corridor (Corridor Study and further reports) and collected the most recent information on the projects completed and to be completed and the evolution of their deployment in terms of maturity and finance (Project List updates and Project Implementation Reports).

All this information, together with those emerging in the meeting held in the framework of the Corridor life (Fora and Working Groups), constitute the basis for the systematization of the relevant facts, figures and recommendation within the V Work Plan of the Coordinator of Mediterranean Corridor.

In particular, the analysis undertaken shows that ongoing and planned investments on the Mediterranean Core Network Corridor should improve the Mediterranean completion compared with current situation but overall the CNC full deployment still faces multiple challenges, mainly due to insufficient node capacity and infrastructural bottlenecks. Homogeneity in the achievement of regular technical standard and requirements is a key factor for success in increasing connection and shifting traffic through environmental-friendly modes: to this extend, great progress was achieved on the Spanish real network to further deploy UIC gauge not only in railway lines but also in the port accesses, but still much needs to be done.

Cross-border sections deployment – above all the Lyon-Turin link – deserve dedicated attention, with plan and construction of access lines to be implemented timely and accordingly. Without this new link the Corridor will not be able to perform its role of the major east-west axis south of the Alps.

Furthermore, the challenges that ports and airports – as key infrastructures of the Corridor – will have to face are not to be underestimated as the completion of hinterland connections (and heavy rail connection for the airports), the digitalization of processes and the assurance in the supply of alternative fuels.

All the above is extremely necessary to reach the full compliance of the Corridor within the time lapse to 2030.