Study on the Mediterranean TEN-T Core Network Corridor

3rd Phase

Project Implementation Report 1/2023

May 2023

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Abbreviations

CNC	Core Network Corridor according to Regulation (EU) 1316/2013
DG MOVE	European Commission – Directorate General for Mobility and Transport
EC	European Commission
EIA	Environmental Impact Assessment
ERTMS	European Rail Traffic Management System
EU	European Union
GDP	Gross Domestic Product
IFI	International Financial Institutions
IWW	Inland waterway
km	kilometre
m	metre
mln	Million
MMTMS	Multimodal Transport Market Study
MoS	Motorway(s) of the Sea
MS	Member States of the European Union
n.a.	not available / not applicable
p.a.	per year / annual
PIR	Project Implementation Report
RFC	Rail Freight Corridor
MED	Mediterranean CNC
TEN-T	Trans-European Transport Network
TENtec OMC	TENtec Open Method of Coordination

1 Introduction & Scope

The present report is the ninth Project Implementation Report - I Project Implementation Report of 2023 - issued in the framework of Task 3 activities of Tender Specifications and Contract, for the III phase of Studies on the TEN-T Core Network Corridors.

Task 3 relies on the requirement that along with a biannual update on the entire project list and the Work Plan of the European Coordinators, there should be 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 project implementation phases and their financing were **monitored twice a year** during study phases III and IV (June 2018 - April 2022) and **once** during the contract extension that will cover the CNC study until December 2023 (Amendment 2: MOVE/B1/SER/2018-216/SI2.782834 - Prolongation of contracts for TEN-T Corridors, October 2002 - November 2023).

The present report is based on the **methodology** used to monitor the implementation of corridor projects in the framework of Task 3.1, 3.2 and 3.3 reported in the first Project Implementation Report (1/2018). It presents the results of the **analysis** on the monitoring, based on the 2023 MED Project List formally updated and transmitted to the Commission.

The report is one of the formal deliverables due in May 2023. It is prepared on the basis of the agreed methodology (chapter 1.1 of the Project Implementation report 1/18) and includes the presentation of the results obtained from the monitoring process. In order to present comparable results across the nine Core Network Corridors, the analysis presented in this report was agreed upon by all nine Core Network Corridors.

Moreover, accordingly with the request formulated by the Commission in the TOR and after, the present report has been enriched with a further and detailed analysis - also in graphical form - on the following aspects:

- Project contribution to indicators and update on KPI;
- Set of projects included in the list enhancing sustainable and future oriented mobility;
- Rail breakthrough projects.

Upon request, the results of the PL update will be also provided, accordingly with requirements of Task 3.3, in a Power Point presentation, which will show a quantitative analysis on the projects maturity and financing and a qualitative analysis highlighting projects with difficulties and impact on the corridor which require action from the European Coordinator.

This report is accompanied by the updated Mediterranean PL, including the User-Friendly Tool to analyse it.

2 Monitoring of Project Maturity

The following chapter presents the results from the monitoring of the project maturity - obtained following the application of the methodology presented in the first Project Implementation Report - where two parameters are relevant:

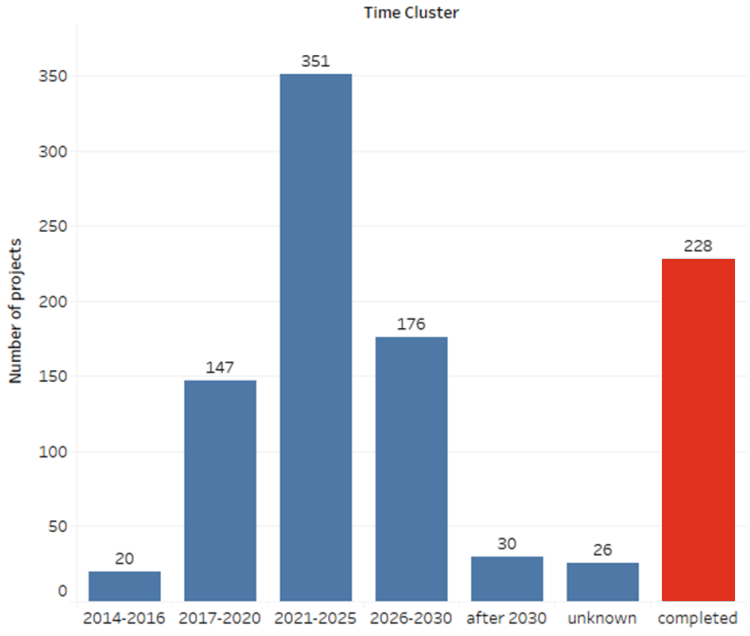
- The number of projects by completion time cluster;
- Other project maturity parameters (such as: planning stage, feasibility stage, detailed design, land acquisition, EIA results and CBA status).

The results showed below are based on the 2023 MED Project List, updated after a round of formal stakeholder involvement performed in March 2023. The update focused on the maturity and financing data included in the PL. The chapter contains the last data available and a comparison with historic data.

2.1 Projects completion evolution

The most important "maturity" parameter is the project completion, where the following figure visualizes the number of projects by envisaged completion time cluster.

Figure 1: Number of Projects by Completion Time Cluster (Reporting Date 03/2023)



Source: Analysis based on Project List 2023 updated of CNC MED

By the reporting date, 750 projects are included in the MED Project list. Out of 750 projects, 228 were already completed since the adoption of the TEN-T Guidelines - namely from 2013 up to December 2021 - 351 are to be completed by 2025 and 176 by 2030, the target date of the Regulation. However, 30 projects are said to be completed only after that target year and for 26 projects the completion end date is "not known".

In particular, the projects that, up to date, are known for being completed after 2030 are as follows:

- the upgrading and reconstruction of the section Ljubljana - Zidani Most (project ID 1137);
- the realization of the new section Primorska-Gorenjska - Western railway bypass assuring direct connection and increase capacity of train station in Ljubljana– 2nd phase (project ID 1139);
- the upgrading of the section Trieste-Divača (project ID 1144);
- the extension of pier (project ID 1301), the new pier construction (project ID 1302), the new berthing facilities in Basin I, II and III (project ID 1296) and on-shore power supply grid (project ID 1457) in the port of Koper;
- the construction of the 3rd track on the line Divača-Koper (project ID 1970);
- the upgrade of Lyon node and the realisation of the French access to the Lyon-Turin tunnel (projects ID 3002, 3100, 3109, 3114 – more explanation in a table below);
- the duplication of the line section Andorra-Finale Ligure (project ID 3088);
- the new railway line between Montpellier and Perpignan (project ID 3099);
- the LNPCA project: new line Provence Cote d'Azur (project ID 3112);
- the realization of the cross-border section of new Lyon Turin railway line (project ID 3213);
- the realization of the new HS Verona – Vicenza (project ID 3219);
- the upgrading of the existing line Bussoleno-Avigliana in connection with the Lyon-Turin (project ID 3224);
- the upgrade of the railway line "Linea dei Bivi" – Venezia node (project ID 3229);
- the speed upgrading of the line Venezia-Trieste (project ID 3232);
- the full electrification of the Milan's busses (project ID 3835);
- the centralized Network Control System Avignon-Marseille (project ID 3955);
- the development of Toulouse urban rail node (project ID 7739);
- the bypass of Arles (project ID 8450) and Avignon (project ID 8451);
- the upgrade and modernisation of the "cote bleue" line from Estaque (Marseille) to Mirams, Marseille node (project ID 3500);
- the connection between the underground railway station, the passenger terminal, public transports and car parking (project ID 3605), the expansion of the passenger terminal (projects ID 3706 - 3708), the construction of a new parking and bus terminal (projects ID 3045) at Venice airport.

The table below summarizes all the projects to be completed after the target year.

Figure 2 – Projects to be completed after the target year

TEN-T Project ID	Project name	Project promoter	Total cost (official) Amount in Million Euro
1137	Upgrading and reconstruction of the section Ljubljana - Zidani Most	Ministry of infrastructure	24
1139	Connection Primorska-Gorenjska, Western railway bypass (New section assuring direct connection and increase capacity of train station in Ljubljana) - 2. phase	Ministry of infrastructure	385
1144	Upgrading of the section Trieste-Divača (Divača-state border)	Ministry of infrastructure	53
1296	Port of Koper - New berthing facilities in Basin I, II and III	Luka Koper d.d.	110
1301	Port of Koper - Extension of Pier II	Luka Koper d.d.	100
1302	Port of Koper - Construction of Pier III	Luka Koper d.d.	50
1457	Port of Koper - On-shore-power-supply grid inside the port	Luka Koper d.d.	69
1970	Construction of the 3rd track Divača-Koper	Ministry of infrastructure	247
3002	Lyon node: Nœud Ferroviaire Lyonnais (NFL) improvements by 2030 and overall capacity increase beyond 2030	SNCF RESEAU	4,700
3045	Venice Airport: new Parking and Bus terminal Park B2	SAVE S.p.A.	17
3088	Completion of the dupling project of the line section Andorra-Finale Ligure	RFI S.p.A.	2,150
3099	New railway line between Montpellier and Perpignan (LNMP) - 1st phase between Montpellier and Beziers	SNCF RESEAU	2,040
3100	Lyon Railway node: Railway bypass of LYON node (CFAL)	SNCF RESEAU	3,500
3109	Lyon Node, Lyon <-> Avignon, Lyon <-> Modane: Centralised network command	SNCF RESEAU	370
3112	NEW LINE PROVENCE COTE D'AZUR (LNPCA project) phases 1&2: Improvements on the Marseille - Nice axis, new line and relieving capacity bottlenecks in Marseille and Nice nodes	SNCF RESEAU	3,644
3114	Phasing for the realisation of the French accesses to the Lyon-Turin tunnel between Lyon and Saint-Jean-de-Maurienne (for freight and passenger services), including complementarity of the existing line	SNCF RESEAU	8,592
3213	Cross-border section of new Lyon Turin railway line	TELT	11,080
3219	New HS line Verona - Vicenza	RFI S.p.A.	4,790

3224	Upgrading of the national line sections in connection with the New line Turin-Lyon: (Bussoleno-Avigliana-Orbassano)	RFI S.p.A.	1,900
3229	Venezia node: Upgrade of the "Linea dei Bivi" railway line	RFI S.p.A.	180
3232	Upgrading of Venezia-Trieste railway line (speed up works)	RFI S.p.A.	1,800
3500	Marseille node: Upgrade and modernisation of the "cote bleue" line (Estaque to Martigues) phase 2	SNCF RESEAU	192
3605	Venice Airport: new connection between the Underground railway station, the passenger terminal, public transport and car parking internal ref: MOVING WALKWAY 2	SAVE S.p.A.	26
3706	Venice Airport: Expansion of the passenger terminal	SAVE S.p.A.	351
3708	Venice Airport: Expansion of the passenger terminal	SAVE S.p.A.	302
3835	FULL ELECTRIC - MILAN	Azienda Trasporti Milanesi S.p.A.	1,200
3955	Avignon - Marseille: Centralised network command	SNCF RESEAU	350
7739	Development of Toulouse urban rail node	SNCF RESEAU	1,470
8450	Bypass of Arles. Resolution of physical bottlenecks	Ministry of Ecological Transition	800
8451	Bypass of Avignon	Ministry of Ecological Transition	489

Source: Project List 2023 updated of CNC MED

The main differences concerning the number of projects that will be completed after the time limit compared to the PIR 1/2022 are mainly due to postponements of the end date following the last update of the PL and regarding:

- the project concerning the upgrade and reconstruction of the section Ljubljana – Zidani Most, the completion date of which was planned for 2030 but was postponed to 2034;
- the project concerning the realization of the connection Primorska-Gorenjska, assuring direct connection and increase the capacity of the Ljubljana train station, which has been split into two projects (ID 1140 phase 1 and ID 1139 phase 2), phase 2 of which is now scheduled for completion in 2041 (phase studies 2031-2037, works 2038-2041);
- the project concerning the studies, design, construction and operation of the new base tunnel railway line and the new railway station of Susa and Saint Jean de Maurienne as well as the interconnections with existing railway lines, whose completion date was scheduled for 2029 but was postponed to 2032 due to delays caused by COVID-19 and administrative issues that have now been resolved;

- the project concerning the realization of the HS line Verona-Vicenza, the completition date of which was planned for 2030 but was postponed until after 2030;
- and the project concerning the upgrade of the railway line "Linea dei Bivi" in the Venice node, whose completition date was planned for 2027 but was postponed until after 2030.

The update of the Project List generates a modification of the number of projects so that it is possible to produce two graphical outputs:

- the absolute figures showing the quantity of projects and
- the standardized figure (showing the relative share cumulating to 100%).

The continuous update of the project list leads to complete the following table, which is the basis for implementing the charts used to map the abovementioned variables.

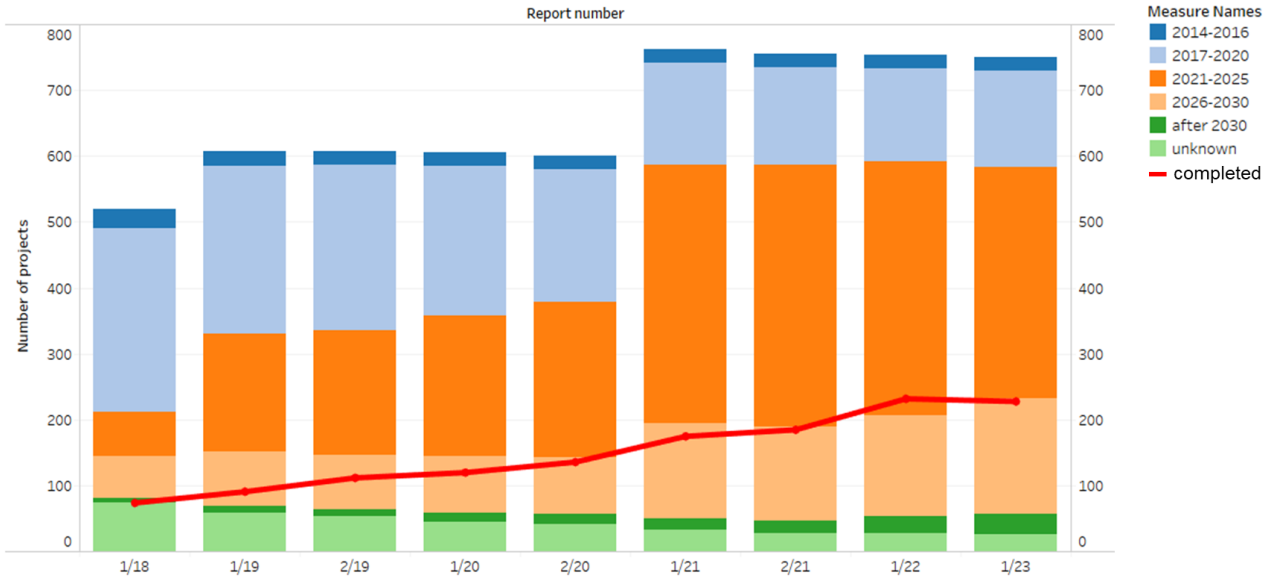
Figure 3 – Evolution of maturity criteria "expected completion time" since the first Project Implementation Report

Report N°	1/18	1/19	2/19	1/20	2/20	1/21	2/21	1/22	1/23
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	05/2023
List Status	11/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
2014 - 2016	29	22	21	21	20	20	20	20	20
2017 - 2020	279	254	250	228	202	155	148	141	147
2021 - 2025	67	179	189	213	236	392	397	386	351
2026 - 2030	64	84	84	85	85	145	143	153	176
after 2030	7	10	10	14	15	18	20	26	30
unknown	74	58	53	45	42	32	27	27	26
Total	**520**	**607**	**607**	**606**	**600**	**762**	**755**	**753**	**750**
Thereof Completed	74	91	112	120	136	175	185	232	228

Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

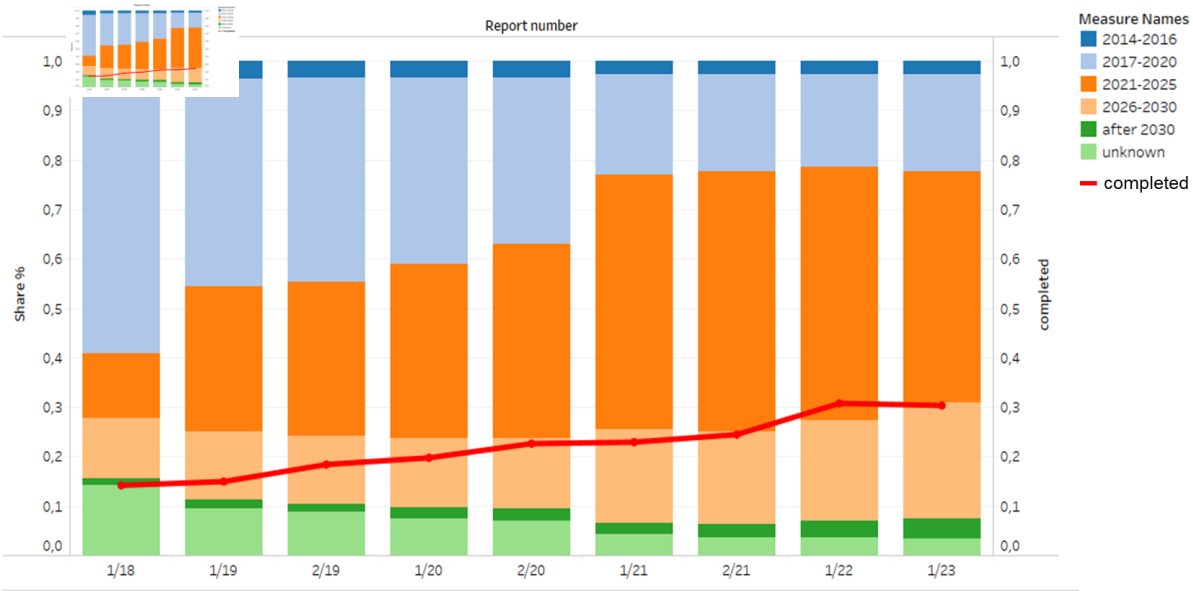
The following charts present the number of projects per completion time cluster and the number of completed projects at the time of each Project Implementation Report, providing a graphic analysis of the evolution across time of Project List maturity.

Figure 4 - Evolution of maturity criteria "expected completion time" since the first Project Implementation Report (N° of projects)



Source: Analysis based on 2017, 2019, 2020, 2021, 2022 and 2023 Project List updated of CNC MED

Figure 5 - Evolution of maturity criteria "expected completion time" since the first Project Implementation Report (share of projects)



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

The figures show how the **number of projects** included in the Project List has steadily increased since previous PIRs. However, the total number of projects has shown a slight decrease, amounting to a total of 750 projects during the last PIR subsequent to the stakeholder consultation held in March 2023.

In particular, comparing the figures from PIRs 1/2022 and 1/2023, a decrease in the number of projects expected to be completed by 2021-2025 (from 386 to 351) can be

noticed, while an increase in the number of projects with end date 2026-2030 is registered (from 153 to 176).

It must also be noted that the number of projects completed has also decreased to 228 from 232 in the last PIR (PIR 1/22), as a result of changes in the end date made in the last PL update performed in March 2023, which reported a general postponement of project completion.

During the 2023 update – performed in March – 4 projects were deactivated (they will no longer be monitored in the MED PL) while 1 new projects was added to the list.

The data regarding project completion was refined over successive PL updates, reducing the "unknown" percentage to 3%. As the figure illustrates, the completion of the majority of the projects is expected by 2025.

2.2 Analysis of project maturity parameters

A more detailed analysis of the maturity parameters of the present Project List structure would require a harmonisation of the values and their application in a stricter sense than before.

The harmonisation is based on the methodology proposed in the first Project Implementation Report (chapter 3.2) that was done in close cooperation with Task 2/3 Working Group involving all 9 Corridors Consortia.

For the present and further reports, the harmonisation is implemented by the consultant responsible for that project followed by an exchange of shared projects between the corridors following the principle agreed for the Task 2.1/2.2 Project List update.

The **harmonized values** allow the consortia to perform the same kind of analysis in all the 9 CNC project lists applying with certain "discipline" a "Pivot"-analysis to the respective columns so that the actual column of the table below can be completed. The figures below report for the present and further Project Implementation Reports the most recent "Pivot"-analysis applied to the updated Project List parameters.

The analysis on the seven Maturity Parameters is done in such a way that by each reporting time:

A. the total number of projects is provided (as a reference for orientation);

B. the number of ongoing or planned projects is provided (clear marking of MM/YYYY which distinguished "completed" projects);

C. for each parameter the number of projects for which that parameter is "not necessary" or has not been filled is counted;

D. and consequently the number of "relevant" ongoing or planned projects can be deduced (B – C = D);

E. for the relevant projects only the "highest" value class, e.g. "completed", "approved" is counted;

F. and finally the Ratio E / D * 100 can be calculated to demonstrate the maturity status per parameter.

Figure 6: Status for Maturity Parameters of CNC MED (N° of Projects)

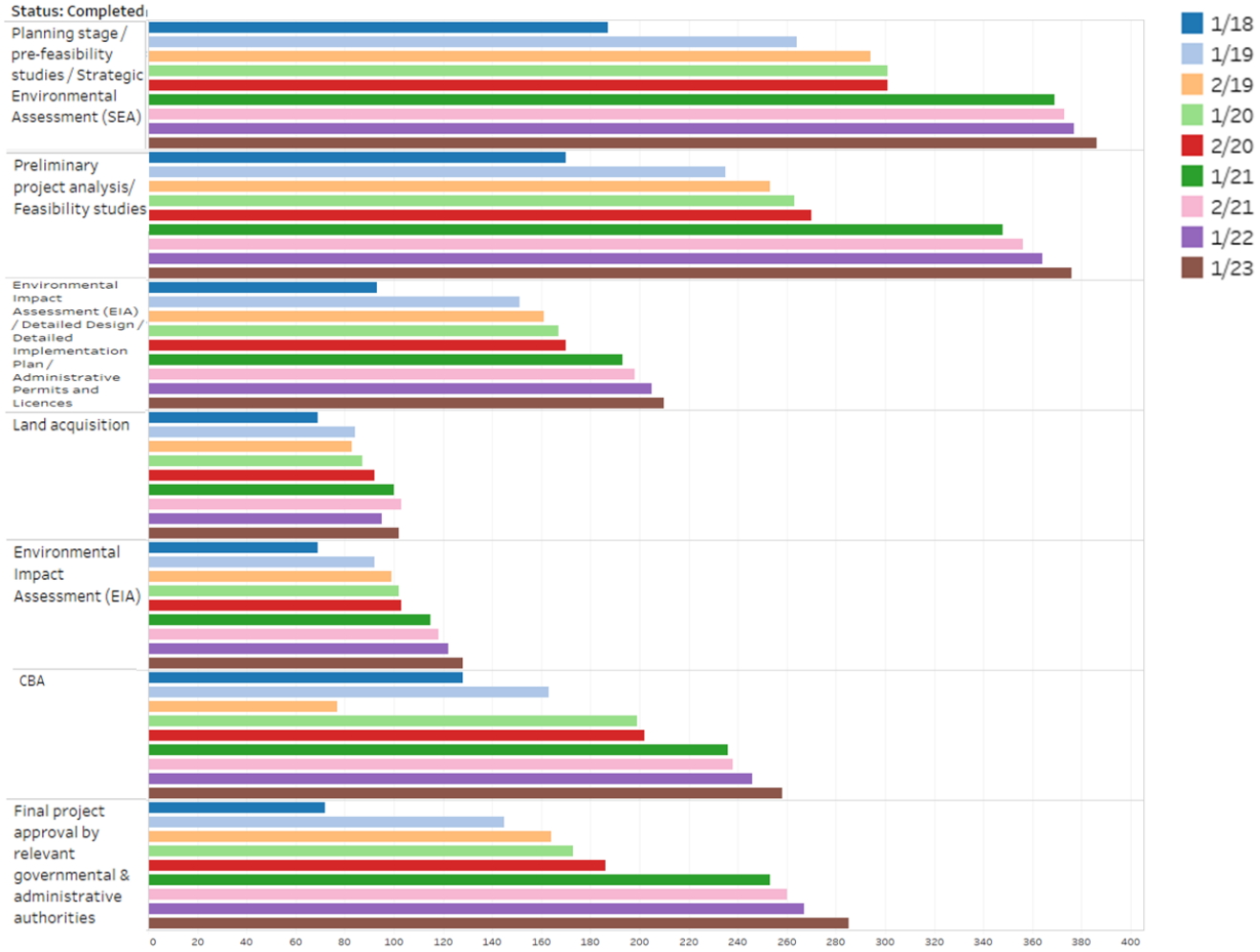
Report N°		1/18	1/19	2/19	1/20	2/20	1/21	2/21	1/22	1/23
Reporting Date		09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	05/2023
Parameter	Highest Value #	11/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
Total Project		520	607	607	606	600	762	755	753	750
Of which …										
… completed		74	91	112	120	136	175	185	232	228
… ongoing or planned		446	516	495	486	464	587	570	521	522
Planning Stage	Relevant	284	403	416	420	412	555	549	553	551
	Concluded	187	264	294	301	301	369	373	377	386
Feasibility Stage	Relevant	289	412	423	430	430	593	588	586	584
	Concluded	170	235	253	263	270	348	356	364	376
Detailed Design, …	Relevant	260	377	388	399	398	537	532	529	524
	Concluded	93	151	161	167	170	193	198	205	210
Land Acquisition	Relevant	173	289	255	254	252	320	316	307	305
	Completed	69	84	83	87	92	100	103	95	102
EIA	Relevant	172	317	297	301	301	388	380	376	376
	Approved	69	92	99	102	103	115	118	122	128
CBA	Relevant	206	371	351	340	358	465	451	438	447
	Performed	128	163	77	199	202	236	238	246	258
Final Approval	Relevant	198	388	395	401	405	557	548	547	549
	Approved	72	145	164	173	186	253	260	267	285

Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

The list presents the number of projects relevant for a certain parameter and the number of projects for which the "highest" maturity category is reached by the reporting time. From the 750 projects included in the 2023 list, 228 were already completed by the reporting date and 522 are ongoing or planned. For 386 projects the "planning stage" was concluded, 376 have passed the "feasibility" stage, for 210 the "detailed design" was concluded, for 102 the "land acquisition" was completed, for 128 EIA results approved and for 258 CBA was performed. Indeed, at the reporting date, only 285 projects had the final Approval accomplished.

The following figure shows a picture of the evolution of the maturity of the PL in comparison with the results reported in the first Project Implementation Report.

Figure 7: Status and evolution of Maturity Parameters (Share of Projects with Highest Maturity by Parameter)



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

More detailed information regarding the "evolution of maturity" status of the projects has been obtained during the 2023 Project List update.

As illustrated in the previous figures, the number of projects characterized by highest maturity and the related Share of Projects with Highest Maturity by Parameter grow for almost all harmonized values in comparison with the previous PIRs.

3 Monitoring of Project Finance

The following chapter presents the results of the monitoring from the project financial status where two groups of parameters are relevant:

- The total costs by completion time cluster;
- Other project finance parameters.

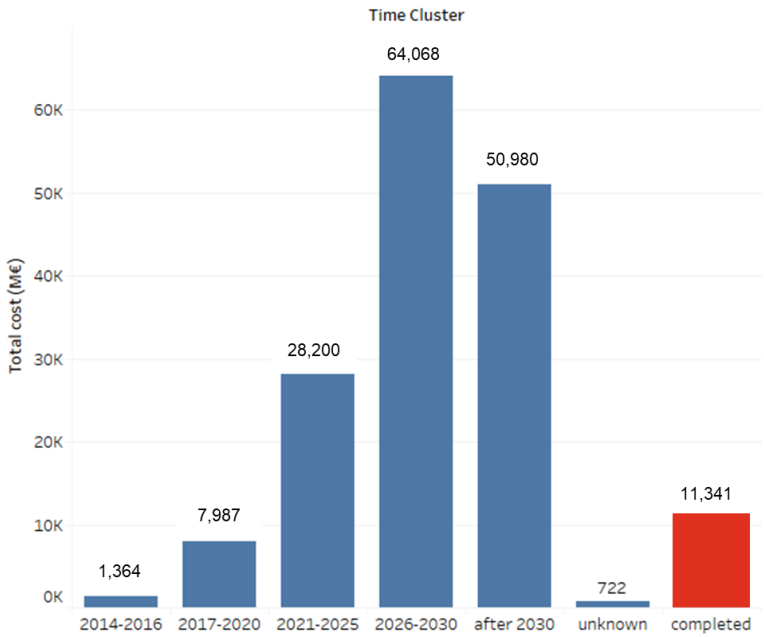
These results are based on the 2023 MED Project List data and are compared with an update of data reported in the Project Implementation Reports 1/18, 1/19, 2/19, 1/20, 2/20, 1/21, 2/21 and 1/22.

In the framework of Task 2, in September 2019 the PL was further refined with the **Cost estimation of projects with missing final total cost**. The estimation was carried out on the basis of the M-Five approach, as decided during the Management Meeting held in Brussels on 21st May 2019. It was applied on projects without any cost value in the Project List column "Total Cost (official)" and "Total Cost (estimated)" and applied only to the projects with at least one KPI achieved. Where an estimated cost (column "Total Cost (estimated)") was available, it was used as better proxy than the estimation procedure based on M-Five approach. For all the other projects – namely those for which the M-Five approach did not provide a unit estimation cost value or the projects with no KPI achieved – the cost remains "unknown".

3.1 Project completion evolution

The most important "financing" parameter is the total project cost, where the following figure visualizes the total costs by envisaged completion time cluster.

Figure 8: Total Cost (in Million €) by Completion Time Cluster



Source: Analysis based on Project List 2023 updated of CNC MED

By the reporting date, projects for 11,341 M€ result already completed since the adoption of the TEN-T Guidelines for a total cost amount of 153,321 M€ included in the MED Project list. Projects for 28,200 M€ are due to be completed by 2025 and projects for 64,068 M€ by 2030, the target date of the Regulation. However, 50,980

M€ are due to projects which are said to be completed only after that target year and for 722 M€ of projects the completion end date is "not known".

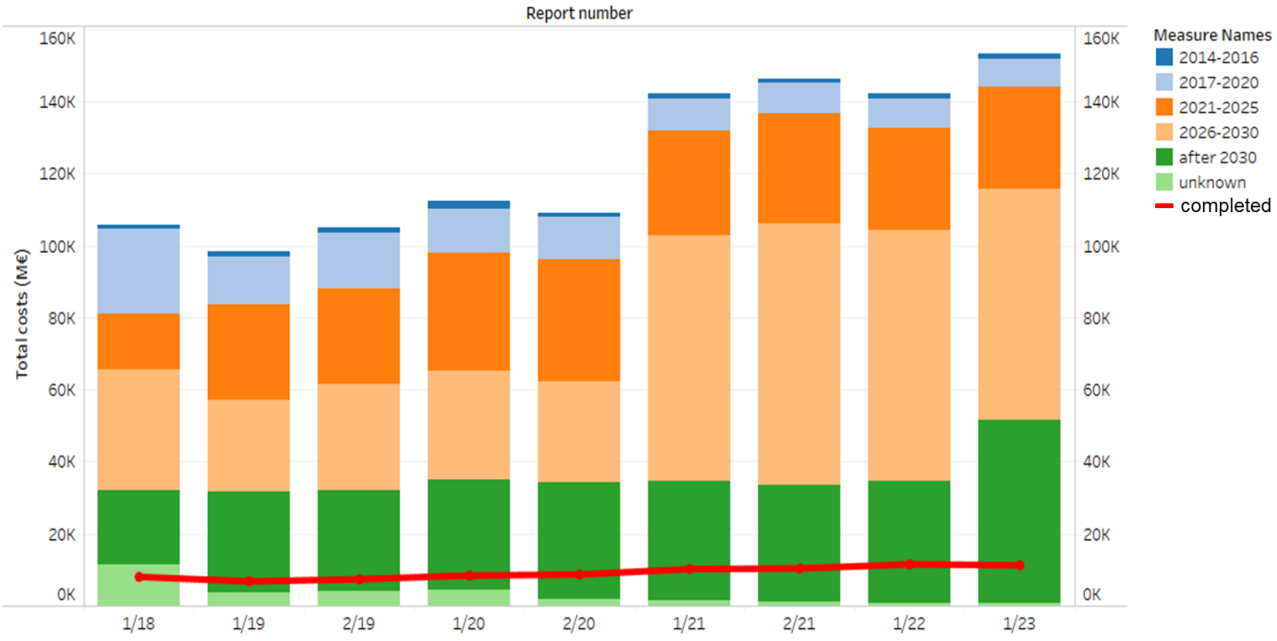
Figure 9: Evolution of Total Cost by completion time cluster since the first Project Implementation Report in Million €

Report N°	1/18	1/19	2/19	1/20	2/20	1/21	2/21	1/22	1/23
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	05/2023
List Status	11/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
2014 - 2016	1,274	1,426	1,394	2,050	1,364	1,362	1,362	1,364	1,364
2017 - 2020	23,480	13,390	15,469	12,349	11,527	8,929	8,523	7,951	7,987
2021 - 2025	15,701	26,213	26,592	32,774	33,956	29,080	30,477	28,360	28,200
2026 - 2030	33,183	25,569	29,359	30,079	27,985	68,151	72,415	69,889	64,068
after 2030	20,870	27,864	27,864	30,768	32,468	33,048	32,498	33,854	50,980
unknown	11,361	3,806	4,133	4,268	1,873	1,583	1,123	676	722
Total	**105,868**	**98,267**	**104,811**	**112,288**	**109,173**	**142,153**	**146,398**	**142,094**	**153,321**
Thereof	8,113	6,860	7,463	8,509	8,774	10,291	10,459	11,617	11,341

Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

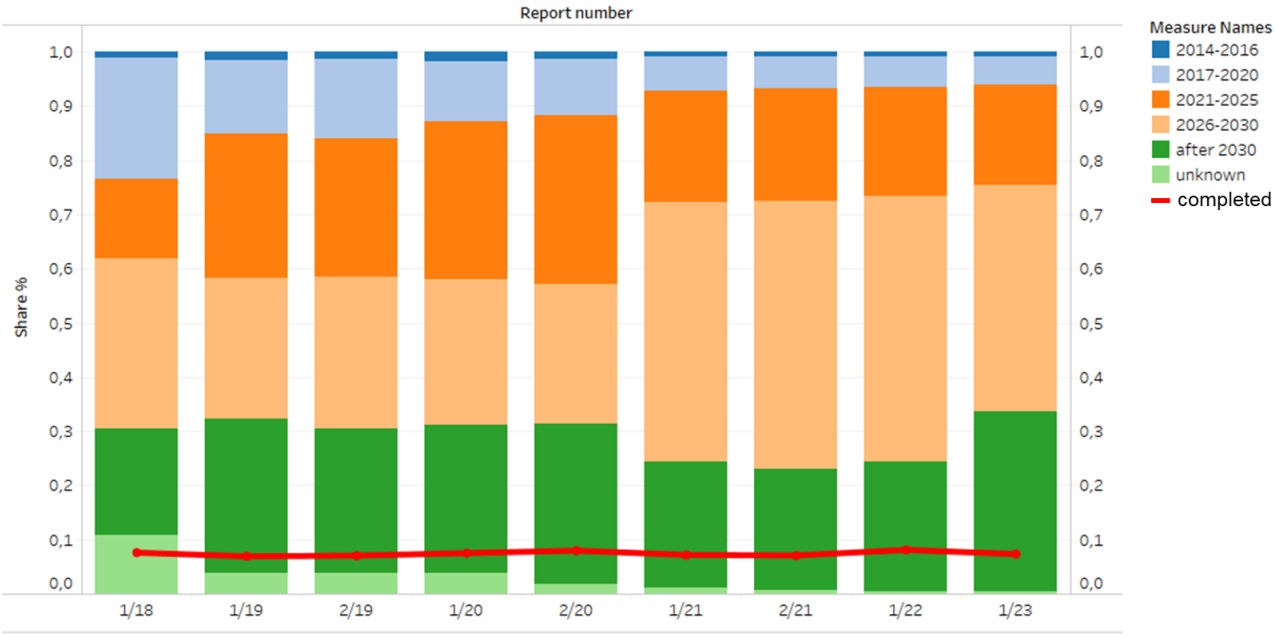
The table above aims to display the Evolution of Total Cost by completion time cluster since the first Project Implementation Report (1/2018). It has been partially completed in each subsequent Project Implementation Report and provides an incremental overview of the path followed by the MED Project List along time, until 2023. Moreover, it is the data source for the graphical analysis summarized in the following figures, which shows its evolution along time.

Figure 10: Evolution of Total Cost (in Million €) by completion time cluster since the first Project Implementation Report



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

Figure 11: Evolution of Share of Total Cost by completion time cluster since the first Project Implementation Report



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

Although there has been a decrease in the number of projects included in the PL in the last two years, the associated total cost has increased. Analysis of the figures suggests that the higher costs to be sustained are related to projects that will be completed between 2026 and 2030, followed by projects scheduled for completion beyond 2030.

3.2 Critical Review of Projects for the identification of funding gaps

A more detailed analysis of the finance parameters of the present Project List structure requires a harmonisation of the values and their application in a stricter sense than before, defined in close cooperation with Task 2/3 Working Group.

For the present and previous reports, the harmonisation is implemented by the consultant responsible for that project followed by an exchange of shared projects between the corridors following the principle as agreed for the Task 2.1/2.2 Project List update.

Further important financial information is the **financing source** with the clear aim of demonstrating progress by means of reducing the number of projects where the financing is "open" (not known). The figures which are aggregated herein do not differentiate the status of the financing, whether it is approved, potential or open.

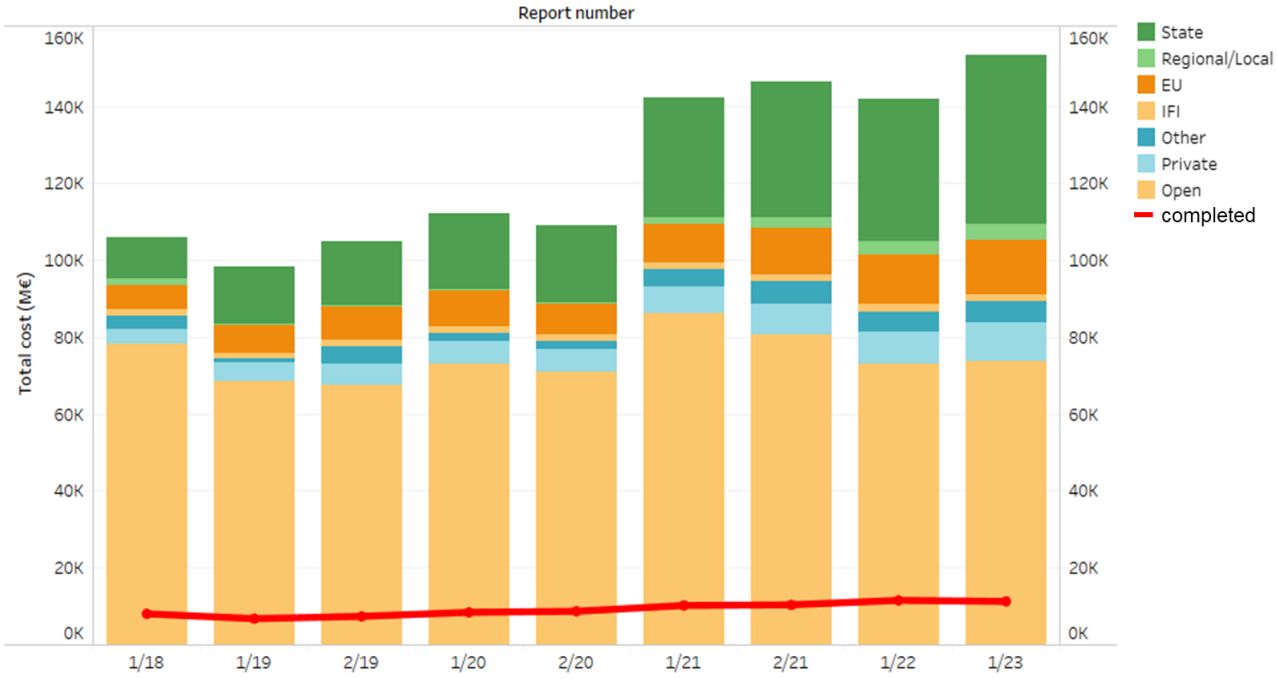
Further progress can be demonstrated by presenting the evolution of the value (in monetary terms) of completed projects, which is the purpose of the table below. Indeed, it will be partially completed in correspondence of each PIR and will be the data source for the graphic analysis displayed in the following figures.

Figure 12: Status for Project Financing Source in Million €

Report N°	1/18	1/19	2/19	1/20	2/20	1/21	2/21	1/22	1/23
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	05/2023
List Status	11/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
State	10,828	14,763	16,479	19,751	20,106	30,887	35,422	37,330	43,863
Regional/Local	1,533	546	373	411	417	1,884	2,485	3,370	4,344
EU	6,407	6,995	8,570	9,368	7,876	9,902	12,072	12,915	14,078
IFI	1,529	1,355	1,989	1,809	1,816	1,818	1,827	1,823	1,824
Private	3,680	4,615	5,635	6,010	6,065	7,142	8,144	8,303	9,934
Other	3,680	1,334	4,304	1,914	2,008	4,381	5,840	5,232	5,398
Open	78,212	68,658	67,461	73,025	70,886	86,138	80,607	73,121	73,878
Total Cost	**105,868**	**98,267**	**104,811**	**112,288**	**109,173**	**142,153**	**146,398**	**142,094**	**153,321**

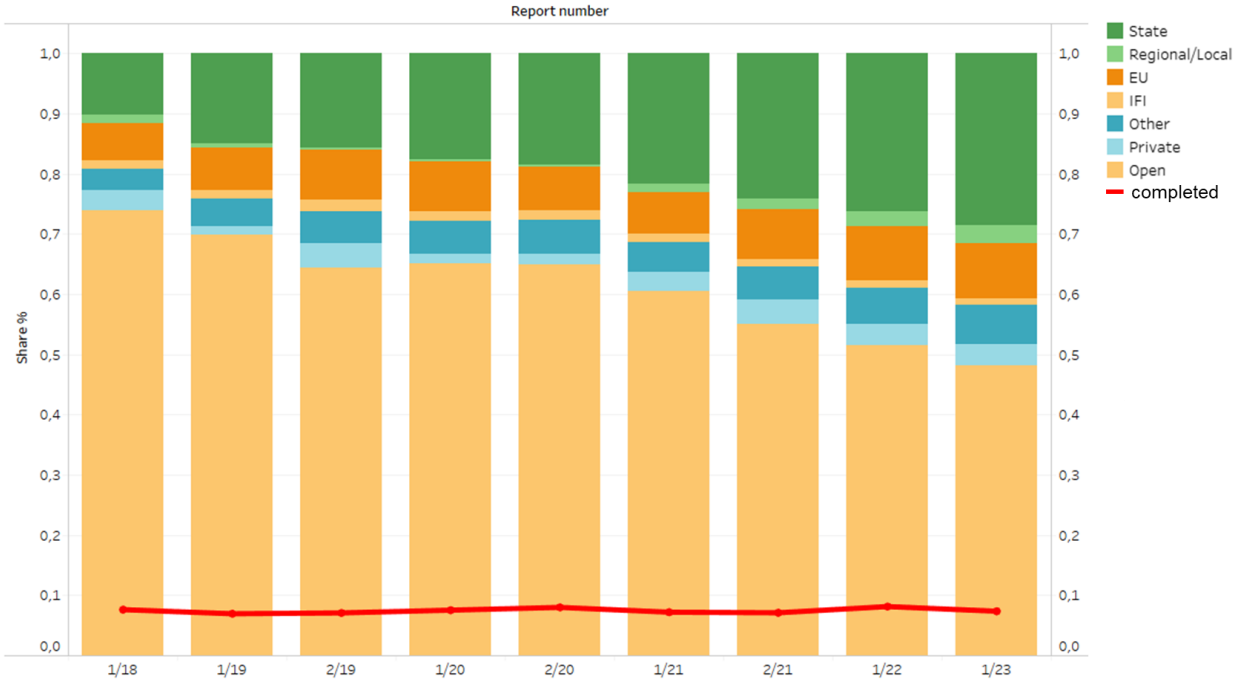
Source: Analysis based on Project List 2017, 2019, 2021, 2022 and 2023 updated of CNC MED

Figure 13: Evolution of Project Financing Source in Million €



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

Figure 14: Evolution of Project Financing Source (Share of Source) and value of completed projects in Million €



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

Depending on the willingness to harmonize the data further, an analysis on the approved or potential financing from respective sources could also be provided.

Like in the analysis of the maturity parameters, this is done in such a way that by each reporting time:

A. the total cost of projects is provided (as a reference for orientation);
B. the total costs of ongoing or planned projects is provided (clear marking of MM/YYYY which distinguished "completed" projects);
C. for each financing source the total value of finance figure provided for that parameter is provided as a reference;
D. for each financing source the total value of "approved" finance is cumulated;
E. and finally the Ratio D / C * 100 can be calculated to demonstrate the financial status per financial source.

Figure 15: Status of approved finance by source of CNC Med in Million €

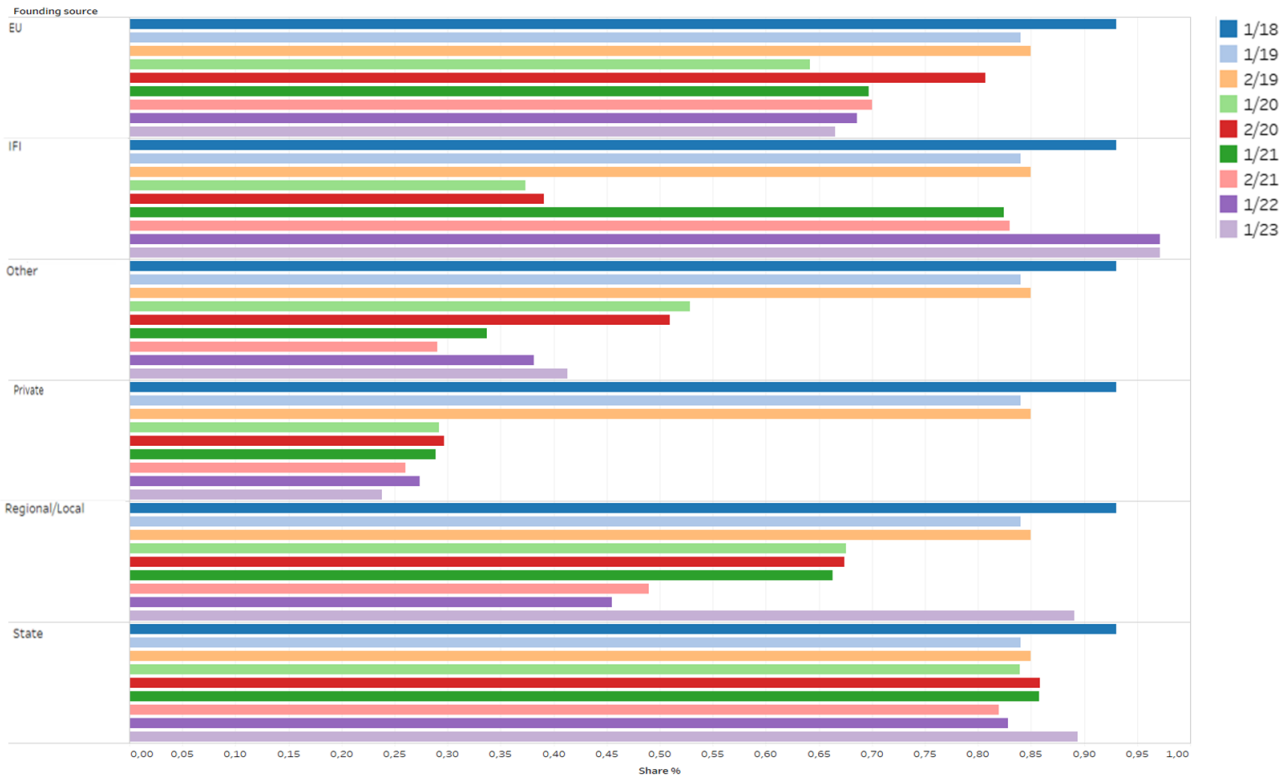
Report N°		1/18	1/19	2/19	1/20	2/20	1/21	2/21	1/22	1/23
Reporting Date		09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	05/2023
Parameter		11/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
Total Project Cost		105,868	98,267	104,811	112,289	109,172	142,154	146,399	142,094	153,321
Of which …										
… completed		8,113	6,860	7,463	8,509	8,774	10,291	10,459	11,617	11,341
… ongoing or planned of which financing…		97,755	91,408	97,348	103,780	100,398	131,863	135,940	130,477	141,980
… provided		14,878	27,847	33,492	39,262	38,286	56,015	65,790	68,973	79,443
… "approved"		13,677	19,644	23,840	26,314	27,419	39,666	44,158	47,368	58,826
State	Provided Approved	93%	84%	85%	84%	86%	86%	82%	83%	89%
Regional/Local	Provided Approved	93%	84%	85%	68%	67%	66%	49%	46%	89%
EU	Provided Approved	93%	84%	85%	64%	81%	70%	70%	69%	67%
IFI	Provided Approved	93%	84%	85%	37%	39%	82%	83%	97%	97%
Private	Provided Approved	93%	84%	85%	29%	30%	29%	26%	27%	24%
Other	Provided Approved	93%	84%	85%	53%	51%	34%	29%	38%	41%

Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

The list presents the costs and finance of projects relevant per financing category for which the "highest" category "approved" finance is reached by the reporting time. From the 153,321 M€ of total project cost included in the 2023 list, 11,341 M€ are already completed by the date of reporting and 141,980 M€ are for ongoing or planned projects. Out of these costs, a total of 79,443 M€ have an identified financing source and for an amount of 58,826 M€ the financing is already approved.

The report describes the evolution of financial sources, both provided and already approved. The following figure provides a graphical overview of this evolution over the time.

Figure 16: Status and Evolution of Approved Finance by Source in %



Source: Analysis based on Project List 2017, 2019, 2020, 2021, 2022 and 2023 updated of CNC MED

During the last update of the Project List, more precise information relative to the financing sources of the projects were collected.

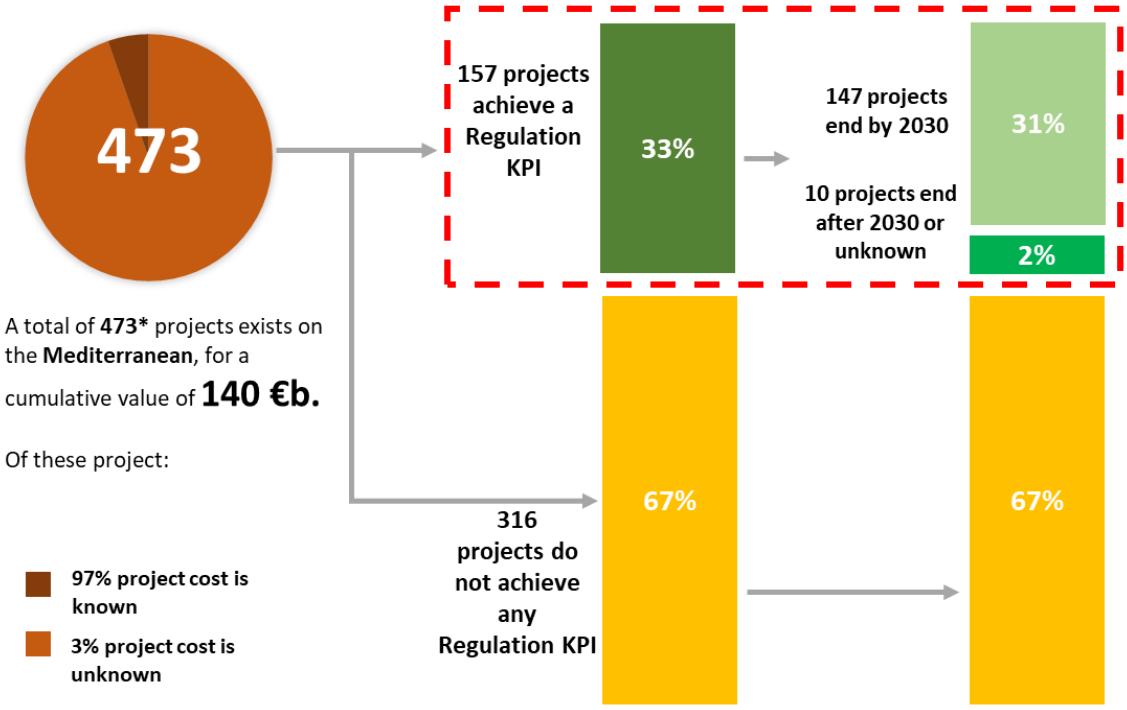
From this update, it is highlighted how - in comparison with the data reported in the first Project Implementation Report 2022 - the share percentiles of Status and Evolution of Approved Finance by Source are linked to a slight increase for all categories except for EU, IFI and Private funds, for which the rate has remained almost constant or slightly decreased.

According with Commission request, following the update of the cost estimation, applying M-Five approach, a critical review of projects was developed 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 assesses 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.

The following figures show the results of an analysis focused on identifying the share of projects of which the cost value is known (97% out of the 473 projects that were not completed by December 2022), and then the funding and financing sources.

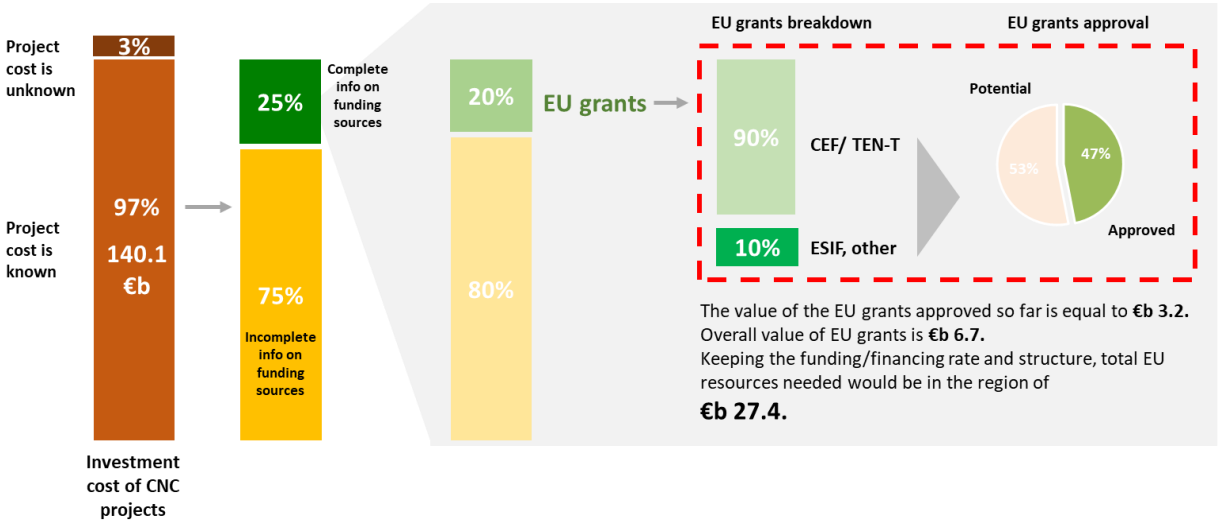
Figure 17: Number of projects and values by category



* The analysis does not consider projects ending before 31/12/2022

Given this foreword, the analysis was conducted on 473[1] projects worth a cumulative value of about 140,074 M€.

Figure 18: Funding and financing sources analysis



Out of the projects with a known cost value, 20% of the projects with complete information on funding sources are related to EU grant.

[1] The analysis does not consider projects ending before 31/12/2022.

The value of EU grants approved so far is equal to 3,162 M€, while the total value of EU grants is about 6,737 M€, if yet-to be approved grants are also considered.

Keeping the funding/financing rate and structure, total EU resources needed would be in the region of 27,385 M€.

4 Further results of the analysis on projects characteristics of official 2023 PL

In accordance with the request formulated by the Commission in the TOR and after, the present report has been enriched with the present chapter containing a detailed analysis - also in graphical form - on the following aspects:

- Set of projects included in the list enhancing sustainable and future-oriented mobility;
- Rail breakthrough projects.

4.1 Sustainable and future-oriented mobility

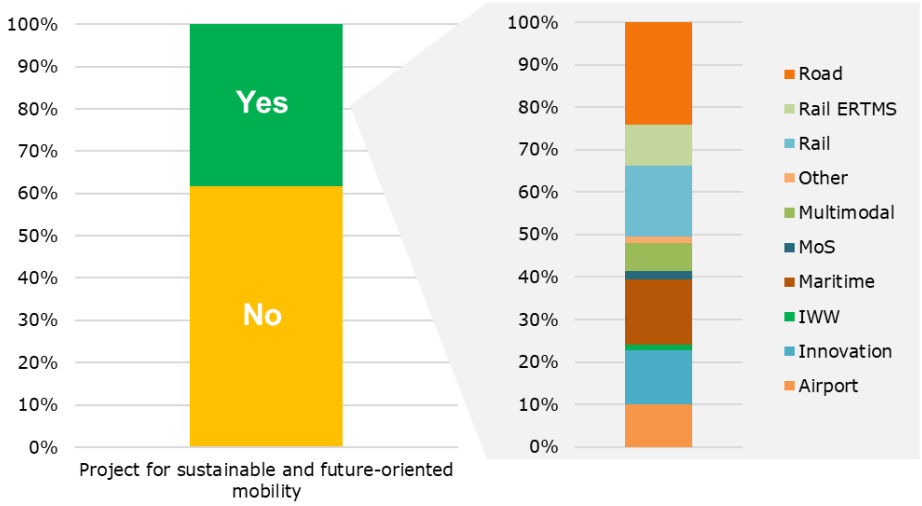
In the act of further refining the PL, the Commission asked building on the innovative flagship projects and pilot initiatives, to provide further identification of projects in fields such as the deployment of alternative fuels' infrastructure, ITS and digitalisation within all transport modes, in urban nodes and, as appropriate in other areas that contribute to a sustainable, smart and efficient transport system; ensuring continuity and coherence of such projects along corridors and facilitating their implementation; thereby promoting the development of core network corridors as forerunners of sustainable and future-oriented mobility.

With the aim of providing a clear overview on this typology of projects contained in the PL, the 9 Consortia agreed on the criteria for the clear identification of this kind of projects in the PL. In particular, for the purpose of the present loop of studies, it is considered that projects enhancing sustainable and future-oriented mobility are 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 to Reg. 1315, Article 32; excluding MoS.

Given the above definition, the MED CNC PL provides for the following results:

Figure 19: Sustainable and future-oriented mobility



Source: Analysis based on 2023 Project List updated of CNC MED

The previous figure shows an overview on the number of projects related to sustainable and future-oriented mobility contained in the PL. 38% of the projects of the list (287 over 750) are connected to this typology of investment.
The figure below shows the number of projects focused on sustainable and future-oriented mobility for each project category.

Figure 20: Project for category - Sustainable and future-oriented mobility

Project category	Number of projects
Airport	29
Innovation	36
IWW	4
Maritime	44
MoS	6
Multimodal	19
Other	4
Rail	48
Rail ERTMS	28
Road	69

Source: Analysis based on 2023 Project List updated of CNC MED

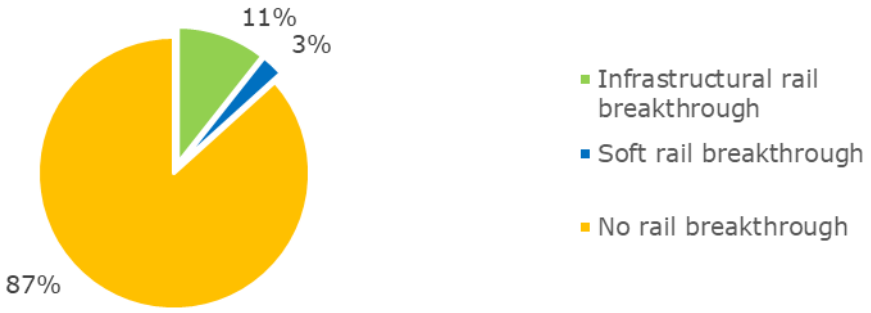
4.2 Rail breakthrough projects

In the 2019 PL update, the Project List has been completed with a new column dedicated to map investments that can be addressed to the category of rail breakthrough. In particular, the set of projects includes both infrastructure investments and "immaterial" projects, as shown as follows:

- Infrastructural rail breakthrough:
  - (1) Specific Investment in Infrastructure: e.g. ERTMS, Parking places for trains at borders, 740 m 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, …).

Given this classification, the 2023 MED PL shows the following results:

Figure 21: Rail Breakthrough project



Source: Analysis based on 2023 Project List updated of CNC MED

The figure shows the number of projects addressed to the category of rail breakthrough included in the 2023 MED CNC PL. In particular, 11% of the projects included in the list are infrastructural rail breakthrough projects, classified as follows:

- 10 projects in rolling stock investment, for a total cost of 613 M€;
- 70 projects related to specific investment in infrastructure, for a total cost of 50,237 M€.

The 3% of the projects included in the PL are classified as soft rail breakthrough projects, for a total cost of 2,297 M€:

- 7 projects focused on removal of administrative, regulatory and operational barriers and 9 projects related to traffic management/telematics applications/digitalization;
- 4 projects related to mixed investment (Infra + Soft).

The residual 87% of the projects are not addressed to the category of rail breakthrough.

5 Monitoring of Difficulties jeopardizing completion of the Corridor and Requesting EU Coordinator's action

This chapter provides results from the monitoring of difficulties jeopardizing completion of the Corridor and Requesting EU Coordinator's action.

During the PL updating stages, Corridor Forum Members were asked to state any difficulty in the implementation of any project by answering the following question:

"Does (a/this) project have any difficulty jeopardizing the completion of the Corridor by 2030 and where you are requesting action from the European Coordinator? Please describe the nature of the difficulty, why it jeopardizes the completion of the Corridor as well as why and how the European Coordinator should act!"

Following the request, the Corridor Forum Members and Stakeholders provided the following issues on the subject:

- with regards to the projects "New railway line between Montpellier and Perpignan (LNMP) - 1st phase between Montpellier and Beziers" (3099) and "New Provence Côte d'Azur railway line (LNPCA project) phases 1&2" (3112), the project promoter (SNCF Reseau) highlighted that EU financial support is necessary for the implementation of the project. Currently, both projects are financed by state and regional funds, but at least 20% of the resources are expected to come from EU funds (having applied to CEF funds).
- With regards to the project "Cross-border section of new Lyon Turin railway line" (3213), TELT underlined that there were difficulties in implementing the project, related to the COVID pandemic and bureaucratic barriers, but that these have now been overcome. However, the project is scheduled for completion in 2032.
- With regards to the project "Full electric - Milan" (3835), Azienda Trasporti Milanesi S.p.A. underlined that additional public contribution must be found to complete the project. At the moment depots and infrastructures are marginally covered by public funds (12€/mln found vs 414€/mln required for the total infrastructural part of the project).
- With respect to the project "GAINN4MED - Overall Project" (3658), the project promoter (MIMS) highlighted that there were delays in all the activities in 2020 due to the Covid pandemic. The beneficiary Liquimet, due to problems with authorisation, has not completed the activities for which it is responsible. As a result, the related activities were also not implemented.
- With respect to the project "GAINN4CORE" (6232), the project promoter (MIMS) pointed out that with the amendment No 1 to the Grant Agreement, a reduction of scope and budget has been stipulated in June 2019 between MIT and INEA, and the project termination has been anticipated to 31/03/2019.
- With respect to the project "Barcelona Port land accessibility and connections with the hinterland" (3806), the project promoter (MoT (DG Carreteras), Barcelona Port Authority and Adif) highlighted that the protocol signed in 2013 has to be renewed. Therefore, the signing of a new protocol is required.

KPI and New Indicators analysis

5.1 Project contribution to indicators and update on KPI

The analysis of the characteristics of the Corridor and the State of the Infrastructure has been further refined during the drafting of the V Work Plan, carried out in October 2022 according to the Task 4, following consultations with the Member States.

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.

The characteristics of the Mediterranean Corridor have been analysed also for the sections and the nodes added to the CNC due to CEF 2 entering into force. A summary of the compliance check provided, based on 2021 data, is given below:

Table 1 – 2022 KPI analysis

KPI	Member State						Total	
	ES	FR	IT	SI	HR	HU	2020	2030
Railways								
Electrification	84%	100%	100%	100%	100%	99%	**92%**	**100%**
Track gauge	>100%[2]	100%	100%	100%	100%	99%	**71%**	**84%**
Axle load	94%	100%	100%	100%	100%	27%	**91%**	**100%**
Line speed	100%	97%	92%	41%	100%	92%	**93%**	**99%**
Train length	17%	100%	4%	100%	0%	67%	**38%**	**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%**
Aiports*								
Connection to rail - all airports	57%	50%	43%	0%	0%	0%	**43%**	**67%**
Connection to rail (HS) – main airports	0%	100%	50%	-	-	0%	**33%**	**67%**
RRT								
Capability of intermodal units	71%	100%	100%	0%	0%	100%	**81%**	**90%**

[2] This percentage of Spanish rail MED Corridor applies only to lines built after the approval of the Regulation (2013) since pre-existing lines are exempt of being upgraded to UIC. All new lines are built in UIC or prepared for gauge migration. This does not mean 100% of the Spanish MED Corridor is physically in UIC gauge. The percentage of the network physically with UIC gauge in 2021 would be 43%.

KPI	Member State						Total	
	ES	FR	IT	SI	HR	HU	2020	2030
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%**

* 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 33% when applying the more restrictive criterion of rail connection with high-speed lines for the main airports of the core network (Connection to rail (HS) – main airports) with only Lyon and Milano Malpensa airports 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%).

5.2 Commercial Delivery Time

This last chapter provides an overview of the monitoring of the Commercial delivery time indicator.

In the framework of the Studies on the 9 Corridors of the trans-European Transport Network, the Commission decided to start monitoring the **operational transport time of selected international freight trains**.

This exercise intended to visualize rail cargo travel times as experienced by shippers (cargo interests) rather than detailed operational rail aspects. Moreover, the performance monitoring will measure over time the operational transport time variations faced by the end user.

The monitoring of Commercial Delivery Time will take place two times per year and the results will be provided in correspondence of the elaboration of each Project Implementation Report.

The PIR 1/2019 shows the methodology regarding this exercise. Hereafter is presented the state of the art of the activity.

5.2.1 State of art

Up to date, the following activities have been performed:

- Elaboration of the Guidelines for Commercial Delivery Time Monitoring;
- Coordination with Rail Freight Corridor 6 to engage Stakeholders.

Potential stakeholders were defined, and the process of reaching out to these was performed: contacts took place with Italian, French, Spanish stakeholders.

To this end, a new draft of mandate letter was prepared, and other intermodal operators were contacted, among the others:

- HUPAC;
- Kombiverkehr;
- VIAA;
- T3M.

Up to date no SHs showed interest in taking part in the study providing its sourcing data.

5.3 Structure Gauge

5.3.1 Methodology

The European Commission asked the Consultants to begin assessing the "intermodal capacity" to transport different formats of maritime/land containers or trucks/trailers/intermodal units on special wagons by checking the structure gauge of tunnels.

In order to monitor the Structure Gauge parameter, a new methodology was proposed:

- Analyse the data completeness of TENtec for the Structure gauge parameter (UIC encoding), considering that data is still under validation;
- Define a Matrix converter to estimate the project contribution to the section;
- Calculate the projects implementation effects on the structure gauge of each section;
- Optimum category: GC.

5.3.2 State of the art

The parameter is monitored in the PL (Task 2), where a new column has been added among KPIs to monitor the eventual project contribution to meet the target of GC Structure gauge.

Moreover, the analysis of the data collected for the TENtec update in relation to the Structure gauge parameter (UIC encoding) related to 2020 showed the results summarized in the table below.

Table 2 - % of km covered by structure gauge measurement

Member State	GA GAUGE[3]	GB GAUGE[4]	GC GAUGE[5]	Other[6]	Unselected
ES	-	-	-	-	100%
FR	8%	21%	2%	28%	40%
HR	-	67%	33%	-	-
HU	-	99%	-	-	1%
IT	-	29%	-	-	71%
SI	39%	61%	-	-	-

The analysis shows the percentage of km of line in each Member State for which the data is available and the related value in UIC encoding. In particular, given the 3 international gauges defined in EN 15273, UK gauges W9 and above defined in Railway Group standard GE/RT8073, the analysis underlined that a high percentage of data are not available.

[3] GA GAUGE: Total height 3.85 m above the rail and 1.28 m on either side of the track axis
[4] GB GAUGE: Total height 4.08 m above the rail and 1.28 m on either side of the track axis
[5] GC GAUGE: Total height 4.65 m above the rail and 1.45 m on either side of the track axis
[6] Other: to be noted according to the Standard EN15273 Annex C and D

5.4 Intermodal Gauge

5.4.1 Methodology

As of the additional indicators related to the development of intermodal transport, the Commission confirmed, once again during the 3rd Management Meeting held in Brussels on May 21st, that P400 is the main parameter to be analysed by the Consultants. In this context, the setting of P400 intermodal gauge as the target standard for intermodal traffic for the purposes of our study is particularly relevant, since the Regulation does not establish any specific requirements.

The possible sources and databases to be considered for the measurement of the standard include TENtec, RINF, Network Statements, "UIRR Map of Intermodal Loading Gauge". Nevertheless, no single source can however be used for the measurement of this indicator.

Given the fragmented situation presented above, a meeting was organized with UIRR in Autumn 2018 where was discussed the possibility to obtain data on the intermodal gauge for the CNCs. This collaboration did not happen yet. The Commission will provide Consultants with updates in terms of tangible data from UIRR to be used for CNC studies.

5.4.2 State of the art

The Intermodal parameter has been analysed on the basis of data collected for the update of TENtec referred to *Combined transport profile for semi-trailers*[7] for the year 2020. The percentage of km of line in each Member State covered by TENtec is showed in the table below.

Table 3 - % of km covered by Combined transport profile for semi-trailers measurement

Member State	Other	P 351	P 400	P 410	P 45	P 80	Unselected
ES	-	-	-	-	-	-	100%
FR	-	-	-	-	-	-	100%
HR	43%	-	-	57%	-	-	-
HU	-	-	99%	-	-	-	1%
IT	15%	3%	-	26%	17%	38%	1%
SI	50%	-	-	24%	-	26%	-

5.4.3 Next Steps

Following the meeting with UIRR held on August 5th 2019, the Commission provided CNC Consortia with an update on the absence of data availability coming from UIRR. Indeed, it was agreed that UIRR will very promptly ask to:

a. The RFC's RAG to provide info about loading gauges bottlenecks;

[7] Coding for combined transport for semi-trailers as defined in UIC Code596-6. The technical number is made up of the wagon compatibility code (1 letter) and the standard combined transport profile number (2 digits when width ≤ 2500 mm or 3 digits when 2500 < width ≤ 2600 mm). P 32 P 38 P 45 P50 P 55 P 60 P 65 P 70 P 80 P 90 P 341 P 349 P 351 P 357 P 380 P 385 P 390 P 395 P 400 P 405 P410 P 420 Other

b. The UIRR "operations interest group" to provide similar information.

Once UIRR will have collected the requested information, a meeting will be organized by MOVE B1 with the CNC consultants in order to integrate correctly the collected data in the alignment analysis. There has been no progress on the topic since PIR 2/2019.

6 Conclusions

The report shows the evolution of the Mediterranean Project list - accordingly with the methodology agreed upon by all 9 Corridor Consortia - on the basis of the last available update of the PL of March 2023.

By the reporting date, 750 projects are included in the MED Project list. The data shows how the number of projects included in the 2023 Project List updated in March has decreased in comparison to the data presented in the PIR 1/22. During the 2023 update – performed in March – 4 projects were deactivated while 1 project was added to the list. The data regarding the project completion was refined with respect to the previous PIRs, reducing the "unknown" percentage to 3%.

The completion of the majority of projects is expected by 2025, however 30 projects are said to be completed only after the target year. In particular, an increase in the number of projects that are supposed to be completed after 2030 has been registered, compared with PIR 1/2022.

In terms of financial distribution, by the reporting date, out of 750 projects, for a total cost amount of 153,321 M€, included in the MED Project list, projects for 11,341 M€ were already completed since the adoption of the TEN-T Guidelines. Projects for 28,200 M€ are due to be completed by 2025 and projects for 64,068 M€ by 2030, the target date of the Regulation. However, 50,980 M€ are due to projects which are said to be completed only after that target year and for 722 M€ of projects the completion end date is "not known". Despite the decrease in the number of projects included in PL over the last 2 years, the total cost associated has increased.