



Study on the Orient/East-Med TEN-T Core Network Corridor

3rd Phase – 2nd part

Project Implementation Report 1/2023

April 2023

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Disclaimer

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Version

No.	Date	Editor	Checked	Comment
1.0	28 April 2023	Jan Hildebrandt/ Hacon	Malcherek / iC	First delivery

Abbreviations

bn	Billion
CBA	Cost-Benefit Analysis
CEF	Connecting Europe Facility
CNC	Core Network Corridor according to Regulation (EU) 1316/2013
EC	European Commission
EFSI	European Fund for Strategic Investments
EIA	Environmental Impact Assessment
ESIF	European Structural and Investment Funds
EU	European Union
IFI	International Financial Institutions
KPI	Key Performance Indicator
mn	Million
MM	Format for Month encoding
MS	Member States of the European Union
n.a.	not available / not applicable
PIR	Project Implementation Report
SEA	Strategic Environmental Assessment
TEN-T	Trans-European Transport Network
TENtec OMC	TENtec: European Commission's information system to coordinate and support the Trans-European Transport Network (TEN-T) policy OMC (Open Method of Coordination-platform): Collects and continuously updates technical and financial data for the entire TEN-T on a section basis.
YYYY	Format for Year encoding

1 Introduction & Scope

Task 3 builds on the requirement that biannual updating of the entire project list as well as the Work Plan of the European Coordinator 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 was monitored twice a year throughout the study phases 3.a and 3.b (June 2018 – May 2022).

Regarding frequency, scope, work steps included and main applications, “big” and “narrow” updates of the project list have to be distinguished: the “big” updates are executed every two years and comprise an overall revision and update of the project list as well as several dedicated verification and approval loops by Member States and the European Commission.

In contrast, “narrow” updates are performed every six months between the “big” updates in order to trace the implementation progress of existing projects. Member States and other stakeholders are then requested to update selected project parameters, which are particularly relevant for the semi-annual monitoring. These refer to project maturity and implementation as well as to project costs and financing/funding.

Figure 1-1 compiles the main characteristics and differences between “big” and “narrow” updates.

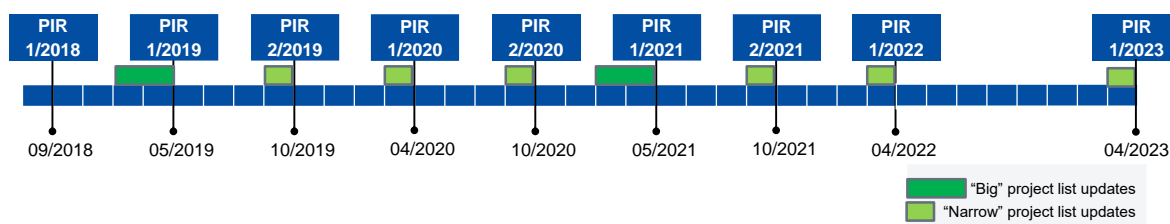
Figure 1-1: Comparison between “Big” and “Narrow” updates of the project list

	“Big” update	“Narrow” update
Frequency	Every two years (begin of 2019/2021)	Every 6 months (between “Big” updates)
Scope	Overall review: new projects, deactivation of projects, check/update of project list structure and data (all parameters)	Update of existing projects and selected parameters (maturity, finance); exceptionally: new projects, deactivation of projects
Main work steps	<ol style="list-style-type: none"> 1. Preparation of overall project list by consultants: additional projects from recent CEF calls, National Transport Master Plans; check/correction of existing project list structure and data 2. Splitting-up overall project list into ~ 40 MS/stakeholder related sub-lists → send out sub-lists to MS/stakeholders → check/update of project data by MS/stakeholders 3. Compilation of updated sub-lists to overall project list 4. Final check by MS/EC 5. Final approval by EC 	<ol style="list-style-type: none"> 1. --- 2. Splitting-up overall project list into ~ 40 MS/stakeholder related sub-lists → send out sub-lists to MS/stakeholders → check/update of project data by MS/stakeholders 3. Compilation of updated sub-lists to overall project list 4. --- 5. ---
Main applications	PIRs, Corridor Forum presentations, EC internal analyses, Project Fiches, User Friendly Tool, extended analyses (e.g., additional projects), TENtec	PIRs, Corridor Forum presentations, EC internal analyses

Source: HaCon

This Project Implementation Report (PIR 1/2023) has been performed based on a contract amendment to study phase 3.2. This amendment inter alia foresees an additional “narrow” project list update to be executed between February and April 2023. This update follows a sequence of eight reports elaborated during project phases 3.1 and 3.2 (see also Figure 1-2). It is important to consider that - due to contract vacancy - the time gap between this and the previous PIR is one year instead of half-years before. This at least partially explains above-average changes of the analysed indicators, as will be shown in the following chapters.

Figure 1-2: Sequence and timing of project list updates and Project Implementation Reports (PIRs) since 2018



Source: Hacon

According to the Tender Specifications, Task 3 is broken down into six subtasks:

- The monitoring process of the projects’ implementation status is the content of subtask 3.1;
- Subtask 3.2 analyses the progress of the projects with respect to the updated data;
- Subtask 3.3 compiles the results of subtasks 3.1 and 3.2 (reporting);

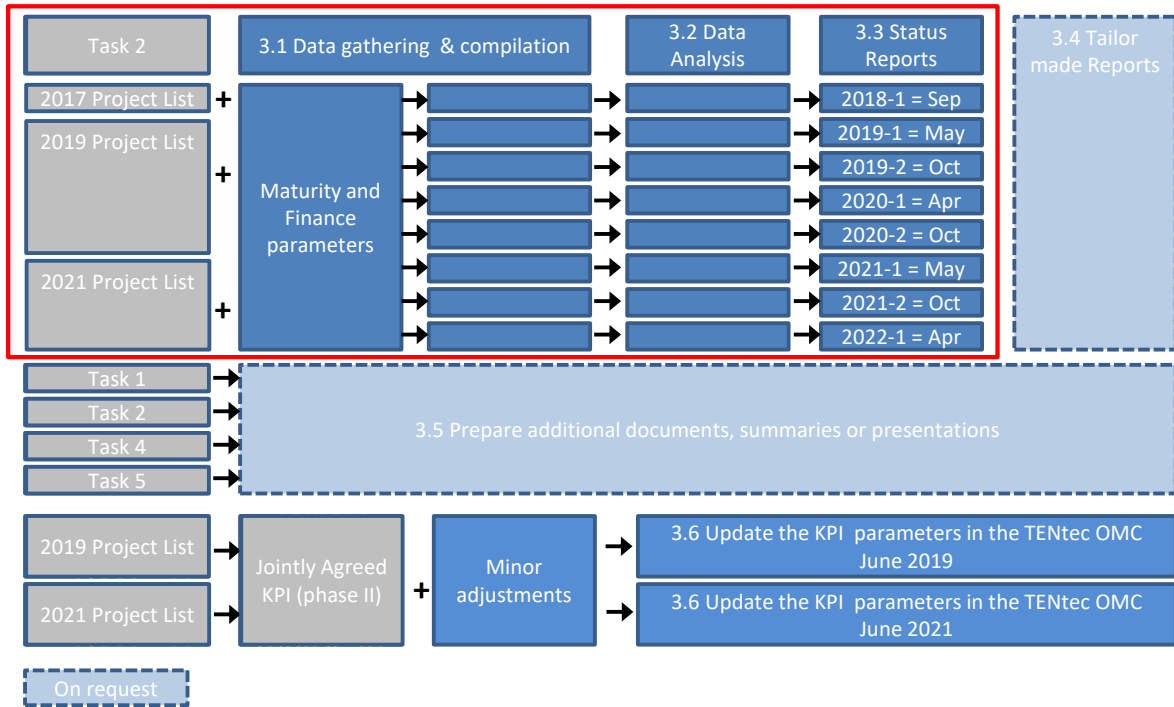
The methodology and detailed work steps of these three subtasks – as described in the following chapters of this report – have been harmonised amongst the nine CNC study consortia (red frame in Figure 1-3). In contrast, subtasks 3.4 and 3.5 are subject to specific requests and are treated individually in the Corridor teams:

- Subtask 3.4 provides input to the Coordinator’s missions;
- Subtask 3.5 prepares further documents including results from other tasks.

Additionally, subtask 3.6 is foreseen by the Commission to derive the KPIs’ update based on the “TENtec OMC” database and to update this database with data of completed projects. This is also based on a cross-corridor methodical approach, but not subject of this report.

The relation of the subtasks to Task 2, the updating of the entire project list (within Task 2), the monitoring of progress on maturity and finance within subtasks 3.1, 3.2 and 3.3, as well as the other three subtasks of Task 3 are shown in Figure 1-3.

Figure 1-3: Task 3 - Detailed work programme and interrelations



Source: Consultant's presentation at Kick-off meeting, updated for Working Group Meeting on 12/7/2018

The first Project Implementation Report (PIR) focused on the methodology and the way in which the results should be presented. It has been agreed with the Commission that the 2nd and all subsequent PIRs will be prepared on the basis of this methodology and will thus only include the presentation of updated results (chapters 3 to 5).

2 Methodology

This chapter is identical to the one of the 1st Project Implementation Report (1/2018). According to the procedure described therein, it will not be repeated in this and in the subsequent PIRs.

3 Monitoring of Project Maturity

This chapter presents the results of the monitoring of the project maturity, where two groups of parameters are relevant:

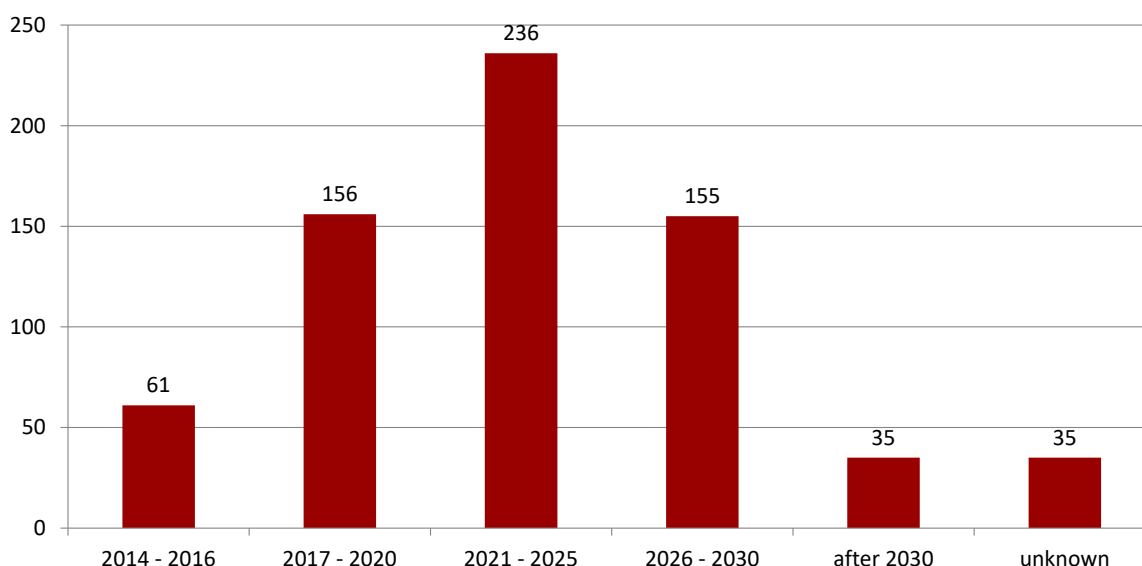
- the number of projects by completion time cluster and
- other project maturity parameters, as listed in chapter 3.2.

These results are based on the 2023 project list of the Orient/East-Med Corridor, including the “narrow update” as described in chapter 1.

3.1 Completion Time Cluster

The most important “maturity” parameter is the project completion time. Figure 3-1 depicts the number of projects by envisaged completion time cluster.

Figure 3-1: Number of projects by completion time cluster, total = 678 projects



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

By the deadline of this Project Implementation Report, 678 projects are included in the Orient/East-Med project list. This project list is the result of a “narrow” update performed between February and March 2023, in cooperation with Member States and other stakeholders.

In comparison to the previous Project Implementation Report 1/2022, the total number of projects has increased by 17, resulting from:

- 26 new projects provided by the Member States and other stakeholders, of which the lion’s share (18) results from the German “Deutschlandtakt” program¹;
- 1 existing project additionally allocated to the Orient/East-Med corridor;
- 10 project deactivations initiated by the respective promoters.

¹ “Deutschlandtakt’, also known as ‘Deutschland-Takt’ or ‘D-Takt’ for short, refers to a concept for an integrated interval timetable coordinated throughout Germany, with which a target timetable for local and long-distance rail passenger transport is drawn up and on the basis of which new lines and other infrastructure measures are to be implemented. In contrast to the previous practice of planning the timetable on the basis of the given infrastructure, the D-Takt first defines the target timetable and then derives the necessary adjustments to the rail network to make this target timetable feasible (“timetable-based infrastructure”). The target timetable provides for a half-hourly service on the most important long-distance connections. The service concept for the Deutschlandtakt assumes a doubling of passenger numbers in local and long-distance rail transport.” (wikipedia)

Of the total of 678 projects, 320 projects (47%) were already completed, thereof 61 projects between 2014 and 2016, 156 projects between 2017 and 2020 and 103 projects between 2021 and 12/2022 (relevant deadline for this PIR).

Compared to the previous PIR, the number of finalised projects increased by 58. This is notably higher than in the former PIRs and partially due to the extended 12-month reporting period. The 320 completed projects along the OEM are still included in this report in order to document the progress made on the Core Network Corridor since the implementation of EU Regulations 1315/2013 and 1316/2013.

The overall picture of the projects' completion time clusters is of similar shape as in the previous PIRs. However, considering the overall development during the last years, significant shifts from 2017-2020 to 2021-2025 and also to the subsequent time clusters have taken place (see also Figure 3-4 below). In consequence, the number of projects, which have been already concluded or were foreseen to be finished by 2020, has continuously decreased: from 310 (PIR 2/2019) to 218 in PIR 1/2021².

A similar tendency can be observed for projects to be finalised until 2025. This number decreased from 496 (PIR 1/2019) to 453 (PIR 1/2023). In turn, the share of projects to be finalised in the "critical" time window 2026-2030 increased to a new peak level of 23% (against 20% in the previous PIR).

The number of projects without known completion date is further decreasing, following a general trend since 2019. Currently, 35 projects (= 5%) remain without such information. Generally, this missing information is partially due to actual uncertainty about the end date ("open") and partially due to non-existing data.

With a dedicated view on the year 2030, it can be stated that 90% (same as in the previous PIRs) of the projects are expected to be completed until then. However, 35 projects have a finalisation date after 2030. They are located in Austria (4), Bulgaria (2), Cyprus (1), Czech Republic (5), Germany (20) and Slovakia (3). The large number of projects in Germany results almost exclusively from Maritime projects in Hamburg port and from Airport projects in Berlin. Postponement of these projects must be seen in context with the Corona pandemic.

Compared to the previous PIR, the number with expected finalisation after 2030 has increased by six. The difference results on the one hand from the postponement of the following eight projects, of which six are promoted by Hamburg Port Authority:

- #2311 ("Magdeburg node (DE), upgrade of railway infrastructure"): end date postponed from 12/2028 to 12/2033;
- #4075 ("Reconstruction of freight station Waltershof (all phases)"); end date postponed from 12/2030 to 12/2035;
- #4078 ("Southern rail connection Altenwerder / Alte Süderelbe"): end date specified from "unknown" to 12/2035;
- #4079 ("New tracks in Hohe Schaar station including connection to new Kattwyk rail bridge"): end date postponed from 12/2030 to 12/2033;
- #5605 ("Renewal of interlockings and integration of ETCS"): end date postponed from 12/2029 to 12/2032;
- #5606 ("Construction of locomotive stabling sidings at Mühlenwerder railway station"): end date postponed from 12/2029 to 12/2034;
- #5702 ("Optimization of track infrastructure in the freight station Hohe Schaar"): end date specified from "unknown" to 12/2036;
- #9906 ("Sustainable airport area - CO2 neutral [Vienna] Airport"): end date postponed from 12/2023 to 12/2033;

² Since then, changes in finalisation time clusters 2014-2016 and 2017-2020 are due to retrospective data corrections by the stakeholders.

On the other hand, two Rail projects do not appear in the “after 2030” cluster anymore:

- #1098 (“Upgrade Nordbahn Wien Süßenbrunn - Bernhardsthal”): end date advanced from 12/2032 to 12/2030;
- #4609 (“New Rail Line Dresden - Praha (Section Heidenau - State Border DE/CZ)”): end date advanced from 12/2035 to 12/2030.

An overview and additional information on projects with “unknown” or “after 2030” end date, as far as they have KPI relevance, is provided in Figure 5-2 (chapter 5).

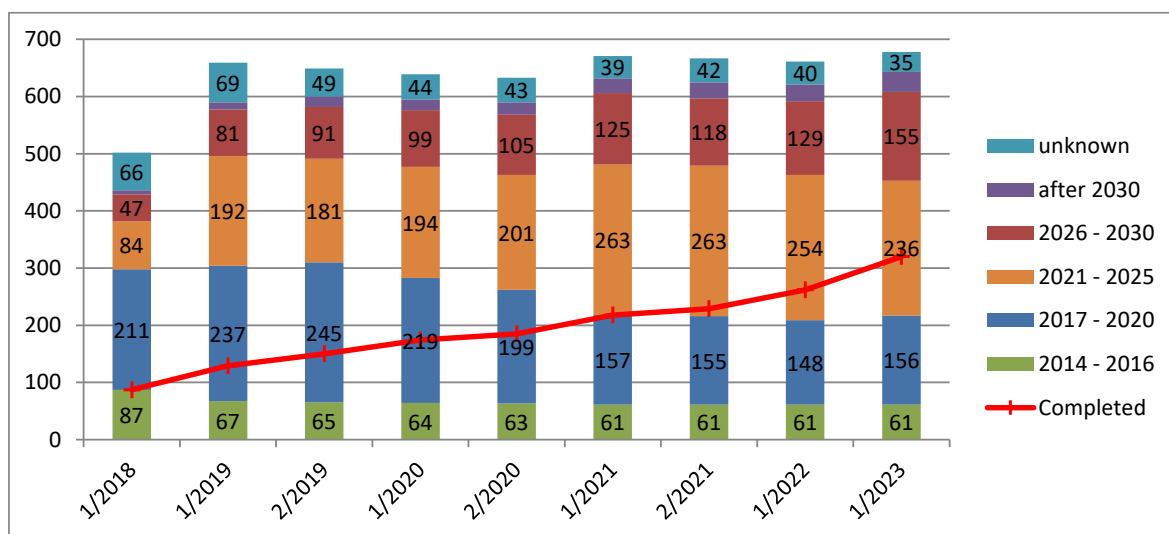
The allocation of projects to the clusters of expected completion time is displayed in the following figures. They all allow for comparison with the former Project Implementation Reports. Next to a tabular overview (Figure 3-2), two types of graphic presentation are provided: the absolute figures showing the quantity of projects (Figure 3-3) and the standardized figure, pointing out the relative share cumulating to 100% (Figure 3-4).

Figure 3-2: Monitoring of the maturity criterion “expected completion time” since the first Implementation Report

Report N°	1/2018	1/2019	2/2019	1/2020	2/2020	1/2021	2/2021	1/2022	1/2023
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	04/2023
Project implementation status	05/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
2014 - 2016	87	67	65	64	63	61	61	61	61
2017 - 2020	211	237	245	219	199	157	155	148	156
2021 - 2025	84	192	181	194	201	263	263	254	236
2026 - 2030	47	81	91	99	105	125	118	129	155
after 2030	7	13	18	19	22	26	28	29	35
unknown	66	69	49	44	43	39	42	40	35
Total	502	659	649	639	633	671	667	661	678
Thereof completed	87	129	150	174	185	218	229	262	320

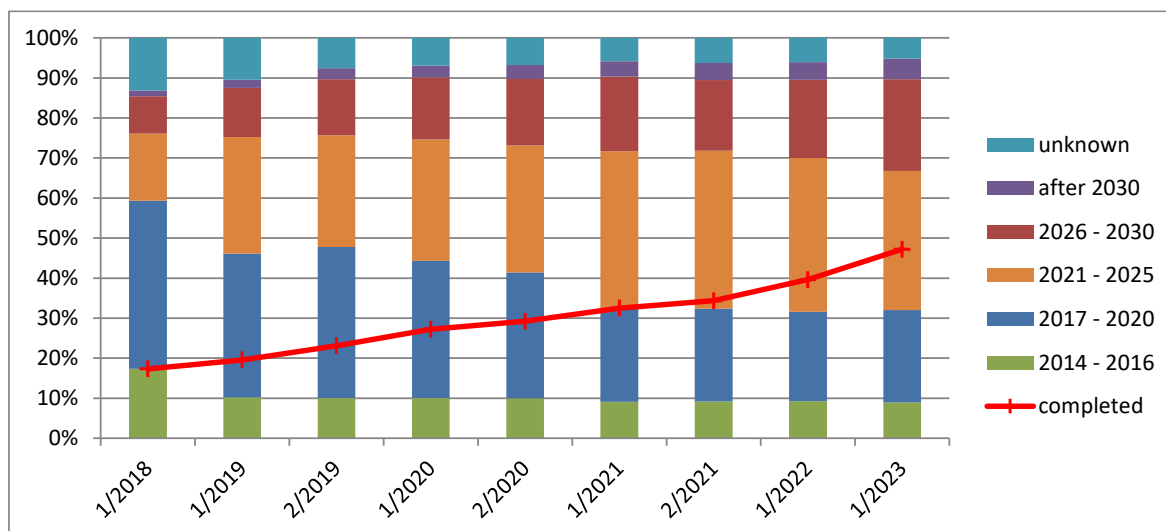
Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Figure 3-3: Diagram of maturity criterion “expected completion time” in the Implementation Reports [N° of projects]



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Figure 3-4: Diagram of maturity criterion “expected completion time” in the Implementation Reports [share of projects]



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Compared to the previous PIRs, the following main developments can be stated:

- The number of completed projects increased by 58 compared to PIR 1/2022 (+22%) and by about 150% against PIR 1/2019.
- In consequence, the share of completed projects in the total number of projects increased from 20% (PIR 1/2019) to now 47%.
- In the same period, the number of projects, for which the completion time is “unknown”, decreased almost continuously from 69 (PIR 1/2019) to 35 (-50%).

The average time until expected project completion - calculated for non-finalised projects with known finalisation date - increased from 57.8 (PIR 1/2019) to 60.5 (PIR 1/2023) months per project. Regarding the respective reference times, this means that the expected completion of the “average” project will be extended from October 2023 (PIR 1/2019) to January 2028.

- This effect is also depicted in Figure 3-4: the overall development shows a shift from 2017-2020 towards the 2021-2025 cluster until PIR 1/2021. Since then, this tendency is repeated with the 2021-2025 cluster that continuously loses shares towards the 2026-2030 finalisation period and even beyond.
- As regards project categories, particularly Rail and Maritime (especially projects with rail and road connection) are represented in long-term finalisation (2026 or later) to an above-average extent; but also Airport, IWW and Road projects have a significant share there.

3.2 Detailed project maturity parameters

A more detailed analysis of the project maturity parameters requires standardised entries that can be exploited statistically. For this purpose, the PIR 1/2018 had defined a methodology to reduce the large variety of (formerly free text) entries to a dedicated set of standard values. The adjusted project list structure provides these standard values in selection lists. During the recent update of the project list, the Member States and other stakeholders were obliged to refer to these selection lists exclusively (free text entries were no longer allowed).

In consequence, all maturity (see Figure 3-5) and administrative implementation parameters (see Figure 3-6) must show one of the harmonised values. The only exceptions are fields that had been still left empty. According to the general understanding of the first PIR, those (empty) entries will be interpreted as “not necessary”. This assumption is justified, since otherwise one of the default entries of the drop-down list would have been selected by the stakeholder.

Figure 3-5: Maturity parameters – allowed and harmonised values

Parameter	Allowed values	Values harmonized/ interpretation
PL columns BW-CA		
Reference time for information	Individual entries according to update status [MM/YYYY]	Individual entries according to update status [MM/YYYY]
Planning stage / pre-feasibility studies / Strategic Environmental Assessment (SEA)	4 standard entries: - Not necessary - Not started - In Progress - Concluded	4 standard entries: - Not necessary - Not started - In Progress - Concluded
	[empty]	Not necessary
Preliminary project analysis/ Feasibility studies	4 standard entries: - Not necessary - Not started - In Progress - Concluded	4 standard entries: - Not necessary - Not started - In Progress - Concluded
	[empty]	Not necessary
Environmental Impact Assessment (EIA) / Detailed Design / Detailed Implementation Plan / Administrative Permits and Licences*	4 standard entries: - Not necessary - Not started - In Progress - Concluded	4 standard entries: - Not necessary - Not started - In Progress - Concluded
	[empty]	Not necessary
Construction/ implementation (% of completion)**	Calculated	

*) “Environmental Impact Assessment (EIA) / Detailed Design / Detailed Implementation Plan / Administrative Permits and Licences”: the assessment includes the highest / last step of the sub-criteria.

***) The parameter “Construction/implementation (% of completion)” is a calculated value of the status between “planned start” and “end date” and does not help with the implementing status so that it is not used for the Project Implementing Report(s).

Source: Hacon analysis based on 2021 project list structure and filling of Orient/East-Med Corridor

Figure 3-6: Administrative implementation parameters - allowed and harmonised values

Parameter	Allowed values	Values harmonized/ interpretation
PL columns CB-CI		
Project start date	Individual entries [MM/YYYY]	Individual entries [MM/YYYY]
Project end date	Individual entries [MM/YYYY]	Individual entries [MM/YYYY]
Implementation strategy	Free text	Free text
Land acquisition	3 standard entries: - Not necessary - Not completed - Completed	3 standard entries: - Not necessary - Not completed - Completed
	[empty]	Not necessary
Environmental Impact Assessment (EIA)	5 standard entries: - EIA not necessary - EIA not started - EIA under preparation or updating - EIA completed - EIA approved	5 standard entries: - EIA not necessary - EIA not started - EIA under preparation or updating - EIA completed - EIA approved
	[empty]	EIA not necessary
Final project approval by relevant governmental & administrative authorities	4 standard entries: - Not necessary - Not submitted yet - Submitted, decision pending - Approved	4 standard entries: - Not necessary - Not submitted yet - Submitted, decision pending - Approved
	[empty]	Not necessary
CBA	3 standard entries: - Not necessary - In Progress - Performed	3 standard entries: - Not necessary - In Progress - Performed
	[empty]	Not necessary
State existing bilateral or multilateral agreements and any other administrative implementation issue.	Free text	Free text

Source: Hacon analysis based on 2021 project list structure and filling of Orient/East-Med Corridor

For the monitoring of implementation progress, the highest level of the listed maturity parameters is of particular relevance ("Concluded", "Completed" etc.). Moreover, a standardised display is requested in order to allow the comparison of maturity levels of different parameters. This standardisation is realised by referring to the number of "relevant" projects. The "relevant" projects consider that not all maturity parameters are relevant for each project (indicated by "not necessary" or [empty]).

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 on-going 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" on-going or planned projects can be deduced ($B - C = D$);

- E. for the relevant projects only the highest maturity level, e.g. "completed", "concluded", "approved" is counted;
- F. the Ratio E / D * 100 can be calculated to demonstrate the maturity status per parameter.

Figure 3-7 and Figure 3-8 compile the absolute number as well as the share of the highest maturity level for each of the seven parameters. These values refer to those 358 projects that were on-going or planned by reference date of PIR 1/2023 (31.12.2022), each cleared by the "not necessary" (incl. empty) data entries.

Figure 3-7: Status for maturity parameters of CNC Orient/East-Med (N° of projects)

Report N°	1/2018	1/2019	2/2019	1/2020	2/2020	1/2021	2/2021	1/2022	1/2023
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	04/2023
Project implementation status	05/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
Total number of projects, thereof	502	659	649	639	633	671	667	661	678
- completed	87	129	150	174	185	218	229	262	320
- ongoing or planned	415	530	499	465	448	453	438	399	358
Planning Stage									
- Relevant	290 = 70%	295 = 56%	283 = 57%	270 = 58%	265 = 59%	287 = 63%	279 = 64%	265 = 66%	280 = 78%
- Concluded	201	205	194	187	188	210	205	191	181
Feasibility Stage									
- Relevant	300 = 72%	347 = 65%	324 = 65%	312 = 67%	303 = 68%	321 = 71%	311 = 71%	287 = 72%	300 = 84%
- Concluded	188	235	216	212	211	234	227	201	194
Detailed Design									
- Relevant	284 = 68%	307 = 58%	289 = 58%	280 = 60%	274 = 61%	292 = 64%	285 = 65%	275 = 69%	292 = 82%
- Concluded	134	128	111	102	98	111	108	100	96
Land Acquisition									
- Relevant	213 = 51%	186 = 35%	178 = 36%	176 = 38%	174 = 39%	179 = 40%	172 = 39%	165 = 41%	156 = 44%
- Completed	79	73	74	69	66	66	61	57	56
EIA									
- Relevant	196 = 47%	248 = 47%	239 = 48%	233 = 50%	227 = 51%	244 = 54%	237 = 54%	221 = 55%	206 = 58%
- Approved	108	123	114	106	99	103	97	86	84
CBA									
- Relevant	287 = 69%	325 = 61%	306 = 61%	290 = 62%	286 = 64%	290 = 64%	282 = 64%	259 = 65%	235 = 66%
- Performed	192	222	198	191	193	200	197	190	179
Final Approval									
- Relevant	253 = 61%	319 = 60%	306 = 61%	297 = 64%	292 = 65%	320 = 71%	307 = 70%	290 = 73%	289 = 81%
- Approved	115	156	154	152	149	168	161	157	175

Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

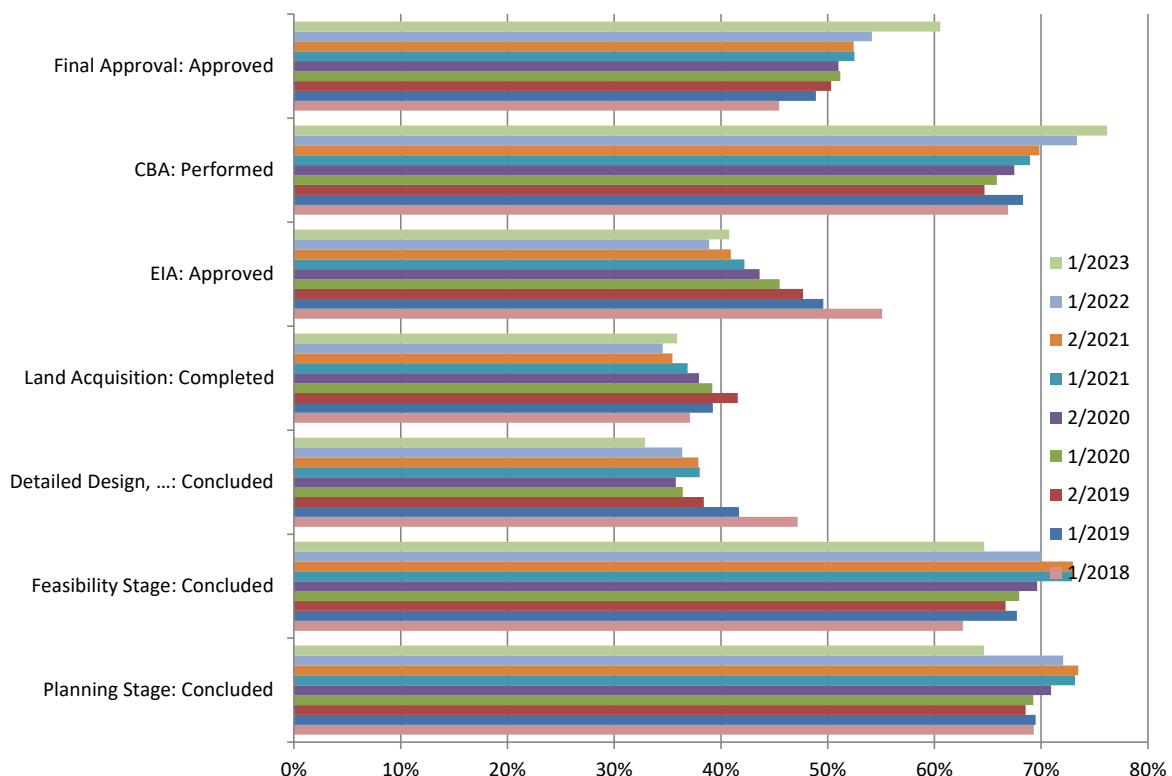
As Figure 3-7 points out, the parameters generally show an increase of “relevant” project share (i.e., the relation of the relevant projects to the total number of on-going/planned projects) since PIR 1/2019. This share does not indicate progress regarding the analysed maturity parameters but shows the general relevance of this parameter for the projects on the OEM Corridor. The increase is due to an improvement of data completeness. Moreover, the general stableness of the relevance shares indicates that the assumption “empty field = not necessary” was justified, since many formerly empty fields were obviously replaced by “not necessary” from the selection list during the recent and previous updates of the project list.

Figure 3-8 indicates that maturity levels of all administrative processes (CBA, EIA, Final approval, Land acquisition) have increased compared to the previous PIR. This even applies for “Land acquisition”, which however remains on a low maturity level. This lies in the nature of this issue tending to be long-lasting and complicated in many projects. Reasons for this might be unclear land ownerships, negotiations about land purchase or even court proceedings on land expropriations, which often extend over several instances.

In contrast to the administrative processes, the planning parameters (Planning stage, Feasibility stage, Detailed design) show an opposite (decreasing) development. This is due to two effects:

1. The particularly high number of finalised projects during the recent twelve-month reporting period (compare chapter 3.1). These concluded projects are not considered any more in Figure 3-8; their high planning status has obviously not yet been fully replaced by ongoing/planned projects.
2. As described in section 3.1, most new projects stem from the German “Deutschlandtakt” program. These projects were approved administratively, and their financing can be regarded as secured. However, their planning process is still in an early phase or has not even started, yet.

Figure 3-8: Status and evolution of maturity parameters (share of relevant projects with highest maturity level by parameter)



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient / East-Med

The “Final project approval by relevant governmental & administrative authorities” increased to 61%. A cross-check with the planned start-date of the projects with a lower maturity level revealed that more than 70% of these projects have indeed not started yet (related to the reference date 31.12.2022); pending final decisions by the authorities are therefore plausible.

Generally, there is no continuous increase of the maturity levels, as one could have expected. However, such an assessment does not take account of the fact that completed projects - with naturally very high maturity degrees - drop out of the calculation with the subsequent PIR. Projects that follow in completion time only partially equalise this effect by increasing their maturity levels. Newly added projects often even have a contradictory impact because they are introduced into the project list with a low "entry maturity value". Therefore, a more or less constant overall picture is plausible. This overall picture can also be observed in other Corridors.

4 Monitoring of Project Finance

The following chapter presents the results of the monitoring of the project financial status, with two groups of parameters being relevant:

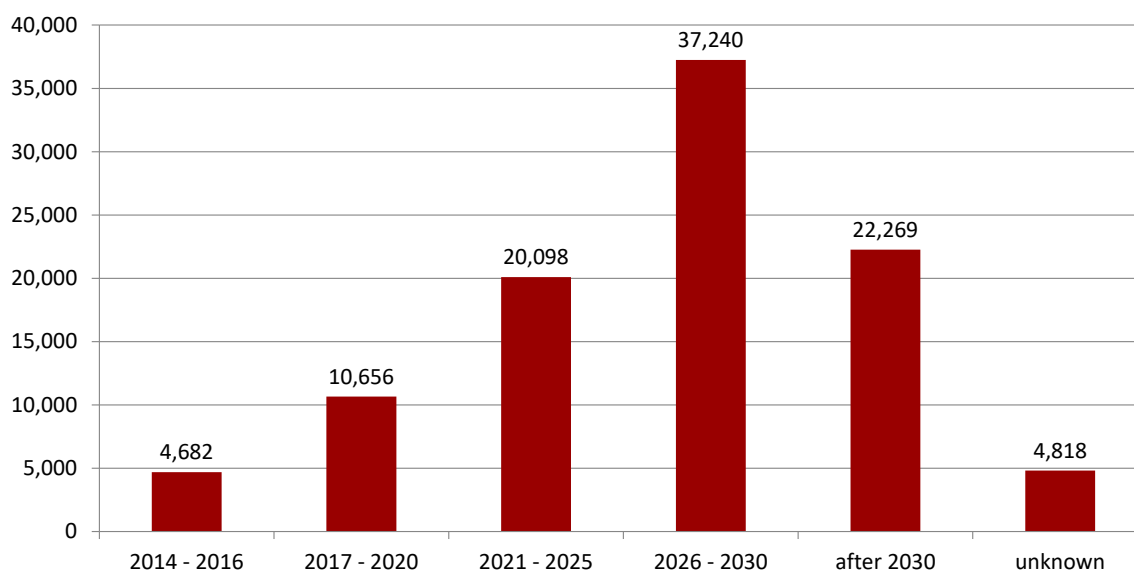
- Total official costs by completion time cluster;
- Detailed project finance parameters.

These results are based on the 2023 project list of the Orient/East-Med Corridor, including the “narrow” update as described in chapter 1.

4.1 Completion Time Cluster

The most important “financing” parameter is the amount of official project costs. Figure 4-1 depicts the distribution of the known total costs to the envisaged completion time of the projects.

Figure 4-1: Official project costs by completion time cluster [€ mn], total: € 99.8 bn



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

In total, the project costs of the 2022 OEM project list sum up to € 99.8 bn. This figure represents “official” values of 604 projects, verified and approved by Member States and stakeholders. In comparison to the previous Project Implementation Report 1/2022, this means an increase of € 4.2 bn or +4%. In consequence, the average official costs per project increased from € 161.2 mn to € 165.2 mn.

This overall development of the official costs is due to two main factors: on the one hand a general cost increase that showed particular impact on large-scale projects. On the other hand, several costly new projects, especially those emerging from the German “Deutschlandtakt” program.

For 74 projects, no official cost figures were available. According to the decision of the management meeting in May 2019, the CNC study consultants provided own estimates for these projects, focusing on projects with “KPI achieved” impact, but also including some projects without KPI relevance. In total, 33 Orient/East-Med projects received such specific cost estimate, accounting for another € 13.8 bn. For a further eight projects, costs had already been considered within “global projects”.

For the remaining 33 projects, a rough summarising assessment was performed, based on the average official costs per OEM project (€ 165.2 mn). As a result, another € 5.5 bn of investment need might arise for these projects. In total, the estimated costs for the Orient/East-Med Corridor projects sum up to € 19.3 bn.

These estimated costs were not merged with the official costs in order to avoid confusion and misunderstandings with Member States and stakeholders. Consequently, they are not included in the analyses. It is however important to consider that based on the current estimations of the CNC consultant, the actual investment need of all projects might exceed the official values by about 20%.

The official project specific costs show a large variety, ranging from € 10,000 to € 3.9 bn per project. Particularly Innovation, IWW, MoS, Multimodal and Rail ERTMS projects are mostly assigned to the lower cost classes (max. € 100 mn). In contrast, projects with more than € 100 mn of investment are mainly represented by Airport, Maritime, Rail and Road categories.

In total, about 58% of the overall project costs refer to Rail (incl. Rail ERTMS), followed by Road (25%) and Maritime (8%). These shares show only slight differences to the previous PIRs.

Similar to the project number, the project costs and their allocation to the completion time clusters are also captured in a tabular (see Figure 4-2) and graphic way, the latter based on the absolute costs (Figure 4-3) and the standardized values (showing the relative share cumulating to 100%, see Figure 4-4).

Figure 4-2: Monitoring of official project costs by completion time cluster [€ mn]

Report N°	1/2018	1/2019	2/2019	1/2020	2/2020	1/2021	2/2021	1/2022	1/2023
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	04/2023
Project implementation status	05/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
2014 - 2016	7,695	7,684	7,673	4,784	4,689	4,683	4,789	4,682	4,682
2017 - 2020	19,388	16,172	15,933	13,792	12,202	10,503	10,475	10,754	10,656
2021 - 2025	15,827	22,677	21,762	21,634	23,002	22,287	21,391	20,700	20,098
2026 - 2030	23,579	29,707	29,061	31,164	27,184	32,186	27,924	32,823	37,240
after 2030	770	11,286	11,496	11,591	16,358	19,843	20,181	21,038	22,269
unknown	9,177	4,150	3,346	3,500	3,527	3,943	5,950	5,599	4,818
Total	76,436	91,676	89,271	86,465	86,962	93,445	90,710	95,596	99,763
Thereof completed	7,695	15,203	15,795	14,789	13,760	15,186	15,736	17,860	24,533

Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

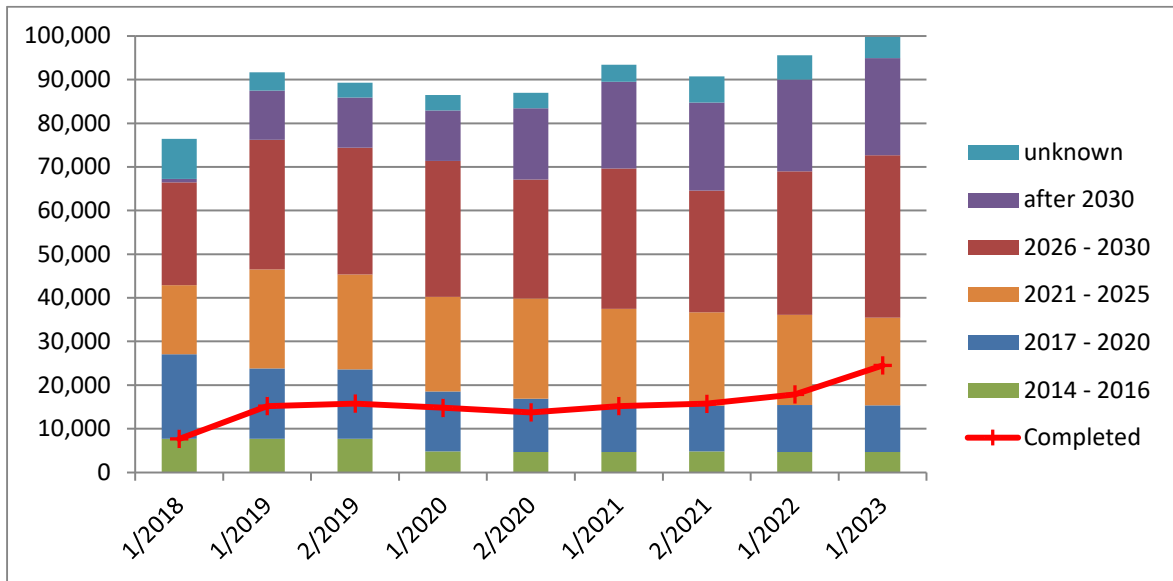
Compared to the previous PIRs, the following main developments can be stated:

- Similar as observed for the number of projects, also the investments show a tendency of shifting from short-term to the subsequent time clusters.
 - Until PIR 2/2020, mainly 2014-2020 investments were postponed to 2021-2025.³ Starting with PIR 1/2021, a similar development can be observed, with investments being postponed from 2021-2025 to the subsequent years. In the present monitoring period, this development overlapped with new investments (mainly "Deutschlandtakt") dated for 2030. In consequence, the current status of investments shows a prominent peak value of time cluster 2026-2030.
 - In the course of these developments, the share of project costs expected "after 2030" increased from 12% (PIR 1/2019) to now 22%. This is even more than cluster 2021-2025.

³ Analogously to the number of projects, later changes in finalisation time clusters 2014-2016 and 2017-2020 are due to retrospective data corrections by the stakeholders.

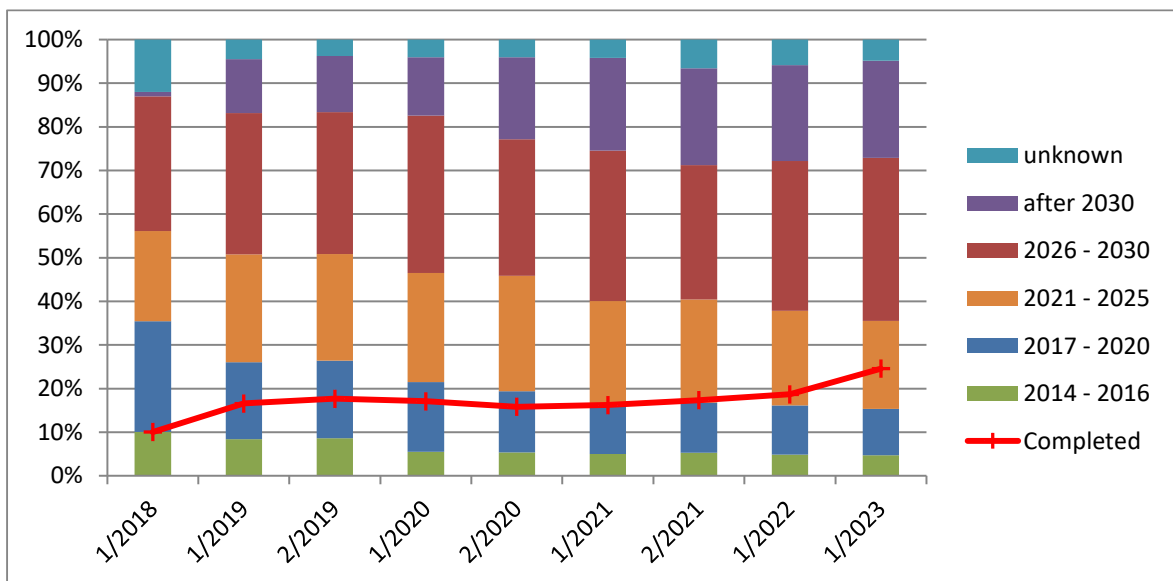
- About 60% of the official costs allocated to projects with known finalisation date are expected to incur by 2026 or later, against 44% in PIR 1/2019.
- This tendency can also be observed in the diagram of project costs by completion time (Figure 4-1). Compared to the number of projects (Figure 3-1), the peak values of costs occur five years later.
- Costs allocated to projects with a rather late finalisation date (2026-2030, after 2030) predominantly refer to Rail (71% share), Road (11% share) and Maritime (9% share).

Figure 4-3: Diagram of finance criterion “project costs (official)” by completion time in the Implementation Reports [€ mn]



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Figure 4-4: Diagram of finance criterion “project costs (official)” in the Implementation Reports [share of completion time clusters]



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

- The cost share of completed projects increased to 25%, compared to 19% in PIR 1/2022, 17% in PIR 2/2021, 16% in PIR 1/2021 and 2/2020, 17% in PIR 1/2020, 18% in PIR 2/2019 and 17% in PIR 1/2019. These figures are clearly below the share of completed projects (see chapter 3.1), confirming the general trend that especially investment needs for large-scale projects are still imminent.
- This tendency can also be underpinned by another indicator:
 - In the 2017 project list (basis for PIR 1/2018), the annual average costs of non-finalised projects were € 4.9 bn until 2030;
 - For the 2019 project list (PIR 1/2019), this figure increased by 30% to € 6.4 bn per year. In the PIR 2/2019, the value remains unchanged (€ 6.4 bn). The subsequent PIRs then showed a further increase to € 6.5 bn (PIR 1/2020), € 7.0 bn (PIR 2/2020), further to € 7.8 bn (PIR 1/2021), € 7.9 bn (PIR 2/2021) and € 8.6 bn (PIR 1/2022), to reach a new peak of € 9.4 bn per year in the recent monitoring period.
 - This means that predominantly state budgets and EU programmes will have to cope with growing funding needs in the future, if all projects shall be realised until 2030.
- Costs of projects, for which the completion time is not known decreased from € 5.6 bn in the previous PIR to now € 4.8 bn; however, their absolute figure and their share are still higher compared to reporting periods 2019 and 2020.

4.2 Project Finance Parameters

Similar to the maturity parameters (see chapter 3.2), the finance ones were also subject to a harmonisation procedure, performed within PIR 1/2018. Figure 4-5 provides an overview of these standard values, which are embedded in the project list structure as selection lists. In addition, empty fields and free entries were interpreted as displayed in the following table.

Figure 4-5: Finance parameters - allowed and harmonised values

Parameter PL columns CL- DJ	Allowed values	Values harmonised/ interpretation	
Total costs (official)	Free entry [mn €]	Free entry [mn €]	
	[empty]	unknown	
Total costs (estimated)	Free entry [mn €]	Free entry [mn €]	
	[empty]	unknown	
Explanation of project costs	Free text	Free text	
Project with potential revenues	3 standard entries: yes	3 standard entries: yes	
	no	no	
	unknown	unknown	
	[empty]	unknown	
Explanation on potential revenues	Free text	Free text	
Expenditures until reference time of information	Free entry [mn €]	Free entry [mn €]	
	[empty]	Unknown, not applicable	
Funding source "State"	Amount in Million Euro	Free entry [mn €]	
	Funding programme name	Free text	
	Indicate potential or approved funding	2 standard entries: approved	2 standard entries: approved
		potential	potential
[empty]	Unknown, not applicable		
Funding source "Regional /Local"	Amount in Million Euro	Free entry [mn €]	
	Funding programme name	Free text	
	Indicate potential or approved funding	2 standard entries: approved	2 standard entries: approved
		potential	potential
[empty]	Unknown, not applicable		
Funding source "EU"	Amount in Million Euro	Free entry [mn €]	
	Funding programme name e.g. TEN-T funding, ERDF, CEF, ...	5 standard entries: CEF/TEN-T	5 standard entries: CEF/TEN-T
		ESIF (ERDF, CF, ...)	ESIF (ERDF, CF, ...)
		R&R Fund	R&R Fund
		Other	Other
Unknown	Unknown		
[empty]	unknown		
Indicate potential or approved funding	2 standard entries: approved	2 standard entries: approved	
	potential	potential	
[empty]	Unknown, not applicable		

Funding source "IFI"	Amount in Million Euro	Free entry [mn €]	Free entry [mn €]
	Funding programme name	Free text	Free text
	Indicate potential or approved funding	2 standard entries: - approved - potential	2 standard entries: - approved - potential
		[empty]	Unknown, not applicable
Funding source "Private"	Amount in Million Euro	Free entry [mn €]	Free entry [mn €]
	Funding programme name	Free text	Free text
	Indicate potential or approved funding	2 standard entries: - approved - potential	2 standard entries: - approved - potential
		[empty]	Unknown, not applicable
Funding source "Other"	Amount in Million Euro	Free entry [mn €]	Free entry [mn €]
	Funding programme name	Free text	Free text
	Indicate potential or approved funding	2 standard entries: - approved - potential	2 standard entries: - approved - potential
		[empty]	Unknown, not applicable

Source: Hacon analysis based on 2021 project list of CNC Orient/East-Med

The following analyses allocate the official project costs to the financing and funding sources, regardless if this financing has been classified as "approved", "potential" or "unknown". Analogously to the previous chapters, this is shown by a tabular overview (Figure 4-6) as well as two graphic presentations (Figure 4-7, Figure 4-8).

As Figure 4-6 indicates, state budgets have expanded their position as leading contributors to the project cost coverage; their share increased from 37% to 43%. Besides, only EU funding (24%) and "Private" (9%) have some significance for financing. In contrast, "Regional/local", "IFI" and "Other" financing play only a minor role. 19% of the official project costs are still not assigned to any financing source, against 22% in the previous PIR and to 33% in PIR 1/2018.

Compared to the previous PIR, only State has increased absolutely and relatively, all other sources are nearly unchanged. This is due to the overall cost increase and again to the new German "Deutschlandtakt" projects. Such additional costs are predominantly covered by State budgets and not by e.g., EU-funding.

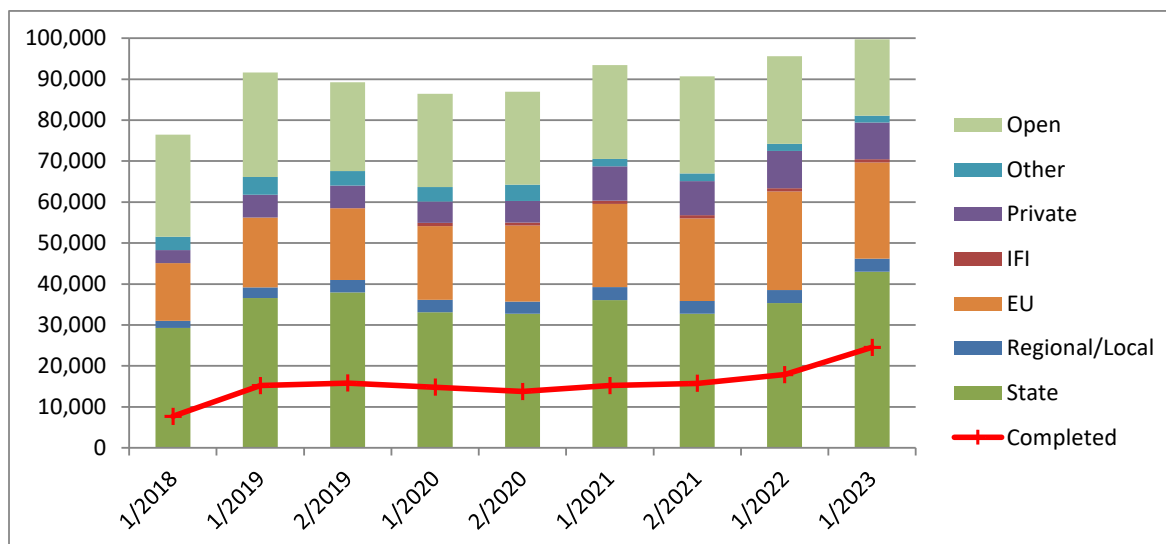
Figure 4-6: Status of project financing sources (official costs only) [€ mn]

Report N°	1/2018	1/2019	2/2019	1/2020	2/2020	1/2021	2/2021	1/2022	1/2023
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	04/2023
Project implementation status	05/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
State	29,285	36,558	37,948	33,108	32,710	36,095	32,709	35,375	43,032
Regional/local	1,708	2,639	3,034	3,038	3,024	3,154	3,157	3,150	3,141
EU	14,078	16,999	17,472	18,010	18,513	20,330	20,134	24,094	23,497
IFI	0	0	61	772	772	772	772	772	772
Private	3,184	5,580	5,534	5,213	5,235	8,412	8,360	9,123	9,013
Other	3,248	4,333	3,551	3,511	3,961	1,741	1,853	1,702	1,648
Open	24,933	25,567	21,671	22,813	22,747	22,941	23,725	21,380	18,660
Total official costs	76,436	91,676	89,271	86,465	86,962	93,445	90,710	95,596	99,763
Thereof completed	7,695	15,203	15,795	14,789	13,760	15,186	15,736	17,860	24,533

Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

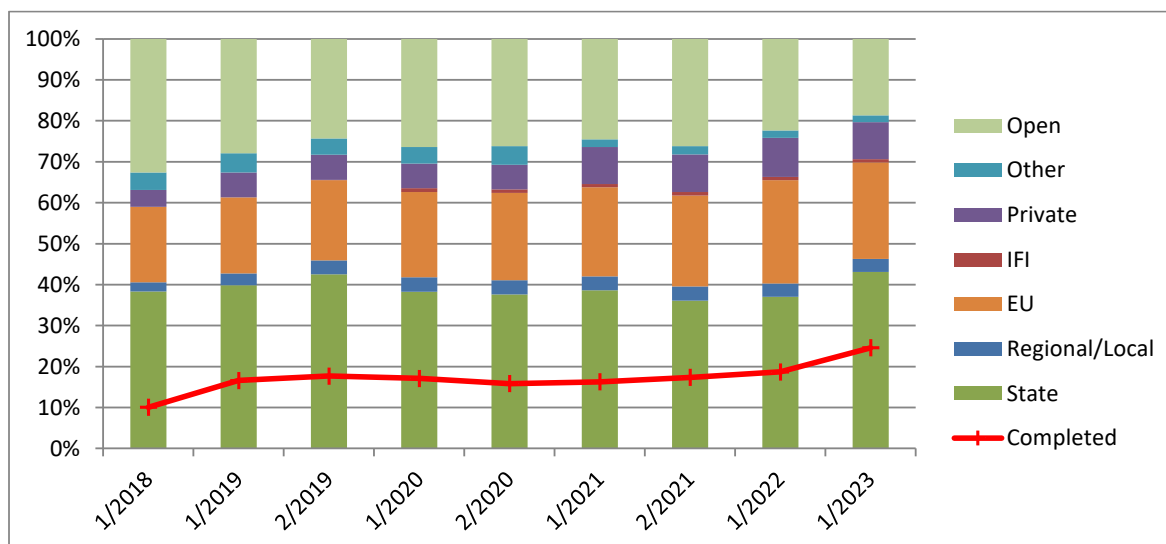
Figure 4-7 and Figure 4-8 visualize these developments in absolute and relative figures. The diagrams illustrate the dominating position of the three main financing sources "State", "EU" and "Private". It has to be considered that the comparison between the PIRs is based on different number of projects.

Figure 4-7: Evolution of project financing sources and value of completed projects (official costs only) [€ mn]



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Figure 4-8: Shares of project financing sources [shares] and value of completed projects (official costs only)



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

As already shown in the analysis of the maturity parameters, the level of financing commitment is an important indicator for the evaluation of the project implementation. Regarding financing, this is expressed by the share of "approved" against "potential" and "unknown" financing. This analysis excludes completed projects, as these projects must have already been fully financed. Thus, the calculation comprises the following steps:

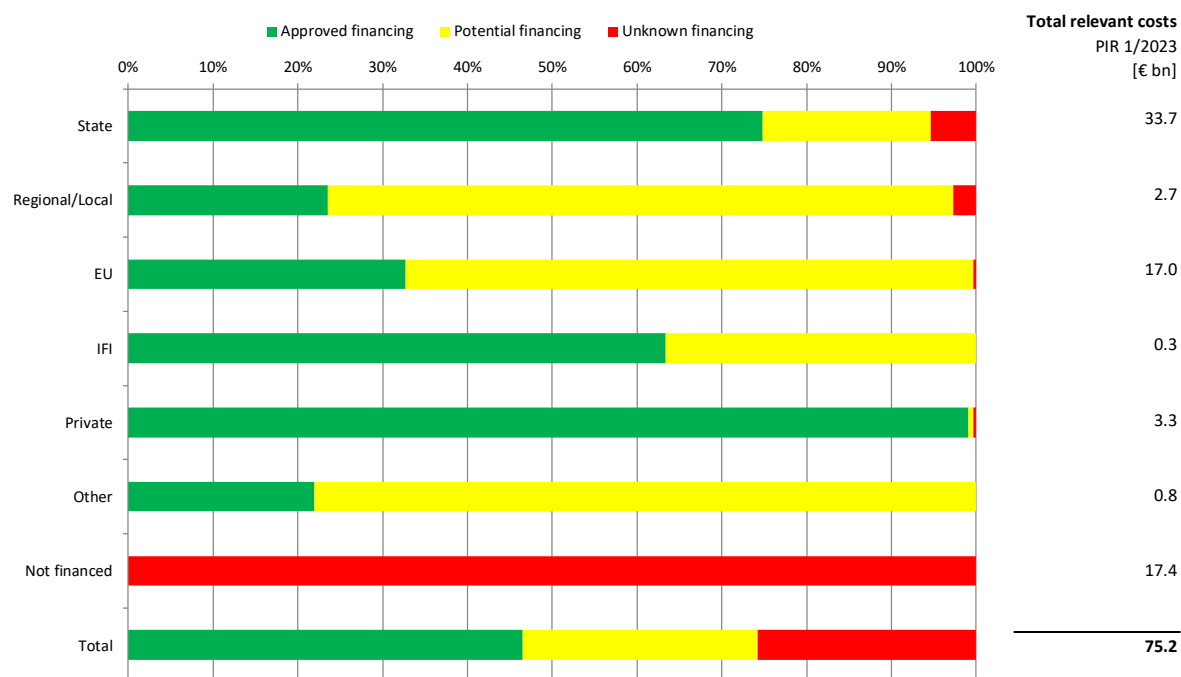
- A. the total cost of projects is provided (as a reference for orientation);
- B. only projects with "official" costs are considered;

- C. the total costs of on-going or planned projects is provided (clear marking of MM/YYYY, which distinguished "completed" projects) = "relevant costs";
- D. for each financing source the total value of finance figure provided for that parameter is provided as a reference;
- E. for each financing source the total values of "approved" and "potential" finance are cumulated; the "unknown" finance is calculated as the remaining relevant costs that are not allocated to "approved" or "potential" financing;
- F. and finally, the ratio $E / D * 100$ can be calculated to demonstrate the financial status per financial source.

The application of this procedure to the current status of the Orient/East-Med projects - represented in this PIR 1/2023 - is visualised in Figure 4-9. For proper interpretation, the financing rates must always be seen in connection with the absolute cost figures.

Figure 4-10 and Figure 4-11 show the development of the highest financing level ("approved") since the first PIR.

Figure 4-9: Share of "approved", "potential" and "unknown" financing of relevant project costs by source on the CNC Orient/East-Med in PIR 1/2023



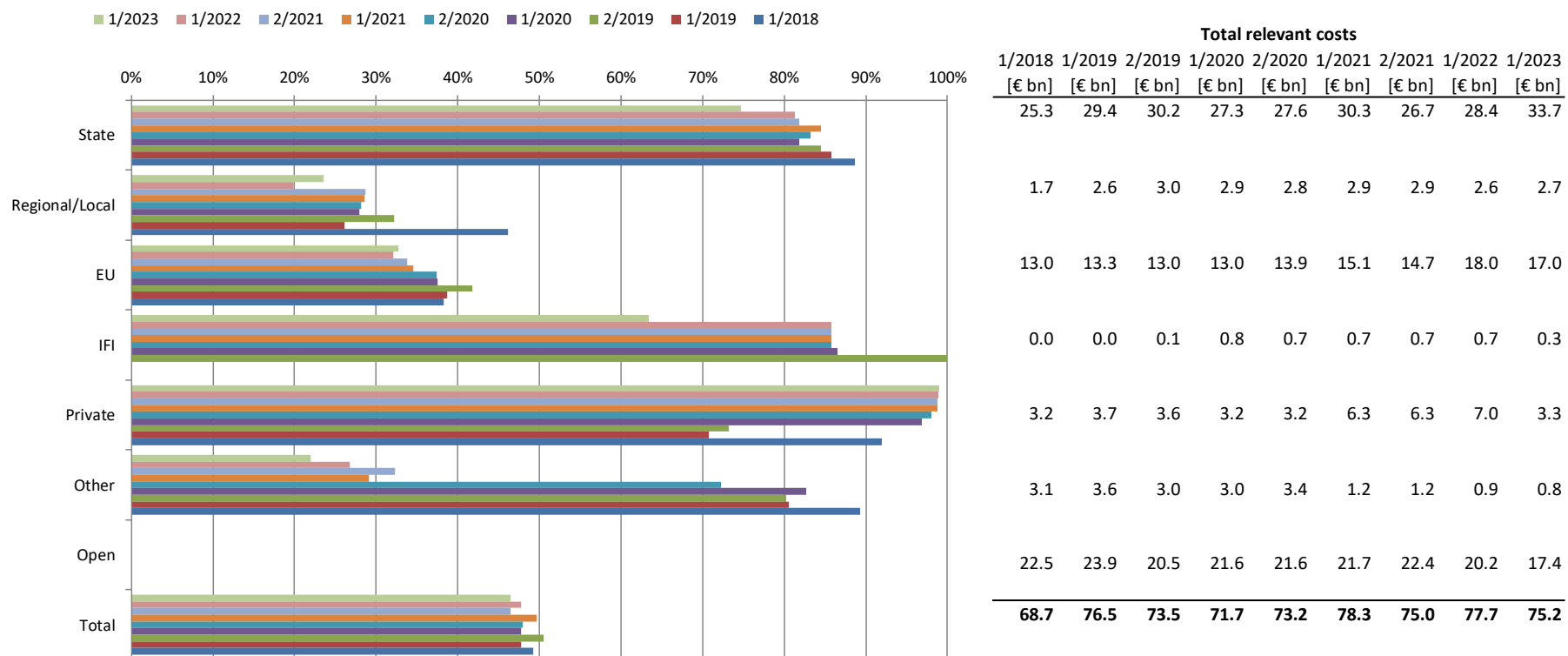
Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

In the current project list, € 75.2 bn project costs are relevant in a sense that they are official and allocated to planned or on-going projects. This is 75% of the overall official project costs.

47% of these relevant official project costs are covered by "approved" financing. For another 27% of the costs, financing was classified as "potential" by the Member States and stakeholders. The remaining 26% of the project costs are either not financed or no information about funding approval has been provided. Compared to the previous PIR, these values show no big differences: the share of "approved" decreased slightly, whereas "potential" financing increased in a similar range; the share of "open" financing dropped from 28% (PIR 1/2022) to now 26%.

Particularly high approval rates are assigned to "State" financing, as this is secured by the national budgets. However, Member States have pointed out that this financing commitment is always subject to budgetary constraints and possible restrictions in the future.

Figure 4-10: Evolution of share of “approved” financing by source on the CNC Orient/East-Med



Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

In contrast, “EU funding” still shows high values of “potential” financing. This is due to the fact that particularly Greece and Bulgaria submitted several large-scale projects, which have not started and for which EU contribution is envisaged, but obviously not approved yet.

The overall “relevant” costs increased from € 68.7 bn (PIR 1/2018) to € 75.2 bn (PIR 1/2023). In between, in- and decrease follow the total official costs in the respective PIRs (see chapter 4.1). N.B.: If all projects are completed by 2030, the relevant costs will be 0 then (no on-going projects anymore).

In total, the approval rate of the project financing remains nearly unchanged at about 50%. This is the result of the still low EU-approval rate (see above).

Figure 4-11: Share of “approved” financing of official project costs by source on the CNC Orient/East-Med

Report N°	1/2018	1/2019	2/2019	1/2020	2/2020	1/2021	2/2021	1/2022	1/2023
Reporting Date	09/2018	05/2019	10/2019	04/2020	10/2020	05/2021	10/2021	04/2022	04/2023
Project implementation status	05/2017	12/2018	06/2019	12/2019	06/2020	12/2020	06/2021	12/2021	12/2022
Total official costs [€ mn] thereof	76,436	91,676	89,271	86,465	86,962	93,445	90,710	95,596	99,763
- completed projects	7,695	15,203	15,795	14,789	13,760	15,186	15,736	17,860	24,533
- ongoing or planned projects	68,741	76,473	73,476	71,676	73,202	78,259	74,974	77,736	75,230
State									
- Relevant costs [€ mn]	25,269	29,368	30,231	27,327	27,556	30,267	26,672	28,351	33,709
- thereof covered by “approved” financing	89%	86%	85%	82%	83%	85%	82%	81%	81%
Regional/local									
- Relevant costs [€ mn]	1,679	2,626	3,031	2,850	2,818	2,929	2,931	2,562	2,710
- thereof covered by “approved” financing	46%	26%	32%	28%	28%	29%	29%	20%	20%
EU									
- Relevant costs [€ mn]	13,034	13,292	13,043	12,969	13,857	15,105	14,730	17,993	17,001
- thereof covered by “approved” financing	38%	39%	42%	38%	37%	35%	34%	32%	32%
IFI									
- Relevant costs [€ mn]	0	0	61	772	734	734	734	734	284
- thereof covered by “approved” financing	n.a.	n.a.	100%	87%	86%	86%	86%	86%	86%
Private									
- Relevant costs [€ mn]	3,161	3,675	3,574	3,222	3,207	6,316	6,260	6,993	3,253
- thereof covered by “approved” financing	92%	71%	73%	97%	98%	99%	99%	99%	99%
Other									
- Relevant costs [€ mn]	3,092	3,585	3,042	2,957	3,399	1,168	1,228	895	839
- thereof covered by “approved” financing	89%	81%	80%	83%	72%	29%	32%	27%	27%
Open									
- Relevant costs [€ mn]	22,506	23,927	20,494	21,580	21,631	21,740	22,419	20,208	17,434
- thereof covered by “approved” financing	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total									
- Relevant costs [€ mn]	68,741	76,473	73,476	71,676	73,202	78,259	74,974	77,736	75,230
- thereof covered by “approved” financing	49%	48%	50%	48%	48%	50%	47%	48%	47%

Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

5 Monitoring of difficulties

This last chapter provides results on the monitoring of difficulties endangering the completion of the OEM Core Network Corridor and requesting action by the European Coordinator.

Based on the methodology provided in PIR 1/2018, Corridor Forum Members were asked in the course of the project list update to state any difficulty in the implementation of a specific project by answering the following questions:

"Does this project show any difficulties, which jeopardize the completion of the Corridor by 2030?"

"If yes: Please describe the nature of the difficulties and explain why they jeopardize the completion of the Corridor. Please indicate, if and what kind of support you may need 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."

For the Orient/East-Med Corridor, the first question was answered with "yes" for 29 projects by Member States/stakeholders (see Figure 5-1). In addition, the consultants detected relevant hints in the official project documentation of the German Ministry of Transport (BMDV) related to projects #2512, #2513 and #2514; this is the same result since PIR 1/2019:

"On the basis of the decision of the EU Court of Justice on questions of principle of the German Water Resources Management Act and the reference decision of the German Federal Administrative Court (BVerwG), a judgment was issued by BVerwG of 11.08.2016, in which the joint planning approval decision for the Outer and Lower Weser rivers was declared unlawful and unenforceable."⁴

In total, these 32 projects with "implementation difficulties list" means an overall increase by 19 projects compared to the previous PIR. This large difference results from additional German rail projects from the "Deutschlandtakt" program. This program was initially foreseen to be implemented by 2030; in the meantime, this completion date is doubted and discussed controversially. Therefore, the 18 "Deutschlandtakt" projects that are located on the OEM Corridor, were flagged accordingly.

In addition, two new projects in Bremerhaven port, namely #50124 ("Modernization and upgrading of the quays Container Terminal 1 to 3a") and #50125 ("Replacement of collapsed swing bridge to provide transportation access to Columbus Peninsula") appear on the "critical list" as well. In both cases, the representative of the "Freie Hansestadt Bremen" explained that specification of project costs is not yet concluded, and that financing is still not secured.

All these 20 new "critical projects" are displayed in **red font** in Figure 5-1. Against this increase, project 5786 ("Construction and operation of a medium-scale multimodal LNG terminal in the seaport of Rostock") was cancelled by the project promoter; new options for LNG projects are currently being discussed. Consequently, the project was taken from the "critical list". It is displayed in ~~green font and crossed out~~ in Figure 5-1.

The other projects listed in Figure 5-1 are identical with those in the previous PIR 1/2022, only some parameter values have changed (displayed in **orange font**). The following explanations regarding the expected implementation difficulties were given by the respective project promoters:

- #5705 refers to restoration of "Freihafen Elbe Bridge" in Hamburg. This road bridge crosses the Norderelbe to the free port. On request, Hamburg Port Authority explained that the bridge is in need of renovation and would have to be replaced by a new bridge from a traffic point of view. However, this is not

⁴ German Ministry for Digital and Transport (BMDV): Verkehrsinvestitionsbericht für das Berichtsjahr 2020, (Transport investment report for reporting year 2020), Status 04/2022, D.3.1.4/D3.1.5

possible because it is a listed historical building. Rehabilitation works will thus be very expensive and further complicated by various constraints: on the one hand, the bridge is located directly next to two railroad bridges, and on the other hand, the subway is planned to be extended beyond the Elbe on the other side of the "Freihafen Elbe Bridge" in the future. In addition, the bridge is highly frequented. A concept is currently being developed for the renovation of the bridge. According to the project promoter, however, these "implementation difficulties" do not affect the functionality of the OEM Corridor.

- #4085 ("HSR Dresden - Praha (part border - Usti nad Labem)"): according to project promoter's information, *"the project is currently assumed to involve the construction of a 26.5 km long tunnel, bypassing the existing Corridor alignment. It will not be finished by 2030, although it will be in construction in 2030. Due to the tunnel length, it is not technically feasible to complete the section by 2030."*
- #4134 ("Modernization of the line Usti nad Orlici – Choceň") will be delayed due to the (too) late start date, which is the consequence of the technical challenge, how to solve the "mountainous" section of the main Czech rail corridor no. I.
- #4018 (study) and #4191 (works) both deal with the Upgrade of the Craiova - Calafat railway line. The project promoter (CFR) stated his concern about unsecured financing of the project: *"The financing source for the technical project and the execution of the works is not assured."* In fact, only financing of the study is approved; for the work project, the project costs are only estimated; financing is foreseen by State + EU funding, but classified as "potential".
- #4207 ("Modernisation of Mezdra - Sofia section") and #4211 ("Modernisation of Radomir - Kulata line") are both foreseen to start in 2028. The project promoter indicated that *"taking into consideration available financial resources and strategic transport documents, an implementation of the projects is planned in period after 2030."* Indeed, the current information only includes "potential" financing, thereof 70% (4207) and 85% (4211) EU funding.
- Project #4221 deals with the "Modernization of Montana - Vratsa express road" in Bulgaria. Background for the implementation difficulties is *"a warehouse for explosives [that] was established near the selected variant of the route. Lawsuits were filed by the explosives warehouse operator. This led to a lack of an EIA decision, an impossibility to elaborate a technical design and start construction."* Until now, there is no financing at all indicated.
- Project #4552- "ADRI-UP - Adriatic MoS Upgraded Services (Construction of Igoumenitsa Freight Village)") is a CEF-funded action (2015-EU-TM-0310-M) promoted by the Igoumenitsa Port Authority S.A. The status of this project is "pre-terminated" according to CINEA project sheet. On request, the Port Authority of Igoumenitsa provided the following explanation:

"The overall implementation of the ADRI-UP Action was not completed in accordance with the time plan set in the respective Grant Agreement, due to several technical and bureaucratic bottlenecks that seriously affected the achievement of milestones in due time. This situation, common at project level, led to the common decision by the project partnership to request the termination of the Action with a revised end date on 31/07/2020. The main bottlenecks that affected the implementation of the Action consist of:

1. *The noted delay in the implementation of Activity 1, undertaken by the Port Authority of Igoumenitsa S.A. and the fact that the building permit has not been issued to date, not allowing the construction of the Freight Village in a reasonable timing;*
2. *The noted delay in the implementation of Activity 2, undertaken by the Region of Epirus, due to the long-term consultation process with the EGNATIA SA on the required permissions, despite the fact that the final*

approval for the intervention has been issued and that the tender documents for the intervention have been completed;

3. *The noted delay in the implementation of Activity 4, undertaken by Autorità di Sistema Portuale del Mare Adriatico Centrale and the fact that the revision of the Master Plan of the port cannot be presently completed not allowing the implementation of the studies in a reasonable timing;*
4. *The environmental bottleneck arising in Activity 6, undertaken by Autorità di Sistema Portuale del Mare Adriatico Orientale, and the fact the rejection of the granting of the environmental permit does not allow the continuance for the restructuring of Pier VI.*

In none of the cases included in Figure 5-1, a need for support by the European Coordinator was expressed by the respective project promoter.

Figure 5-1: Projects on the OEM Corridor with stated implementation difficulties

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved ?
Germany						
2512	BMDV Deepening the fairway of Outer Weser	Maritime	---	12/2030	28.26	yes
2513	BMDV Deepening the fairway of Lower Weser (Northern part)	Maritime	---	12/2030	18.50	yes
2514	BMDV Deepening the fairway of Lower Weser (Southern part)	Maritime	---	12/2030	Costs included in #2513	yes
5705	Hamburg Port Authority Restoration of Freihafen Elbe Bridge	Maritime	---	12/2025	167.00	no
5786	Rostock LNG GmbH Construction and operation of a medium-scale multimodal LNG terminal in the seaport of Rostock	Maritime	Availability of clean fuels	07/2024	96.75	yes
50124	Bremenports GmbH & Co. KG Modernization and upgrading of the quays Container Terminal 1 to 3a	Maritime	---	12/2030	Unknown Estimated: 760.00	n.a.
50125	Bremenports GmbH & Co. KG Replacement of collapsed swing bridge to provide transportation access to Columbus Peninsula	Maritime	---	unknown	Unknown Estimated: 200.00	n.a.
2029	BMDV (DB Netz)	Rail	---	12/2030	10.40	yes

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved ?
	Capacity expansion in accordance with the rail freight transport forecast, creation of parallel routing options for rail freight transport in/out of the direction of Hude					
2030	BMDV (DB Netz) Capacity expansion in accordance with the rail freight transport forecast, allowing trains to merge with Bremen shunting yard - Maschen destination	Rail	Train length >= 740m	12/2030	41.30	yes
2031	BMDV (DB Netz) Capacity expansion Nienburg – Minden (section Minden – Verden)) according to the rail freight transport forecast	Rail	---	12/2030	62.70	yes
2032	BMDV (DB Netz) Capacity expansion Nienburg – Minden (Leese) according to the rail freight transport forecast	Rail	Train length >= 740m	12/2030	14.70	yes
2033	BMDV (DB Netz) Reduction of transfer times at Hanover main station from 8 to 7 minutes	Rail	---	12/2030	6.60	yes
2034	BMDV (DB Netz) Capacity expansion according to the rail freight transport forecast, separation of the Celle - Hildesheim and Lehrte - Braunschweig freight traffic flows	Rail	---	12/2030	27.40	yes
2035	BMDV (DB Netz) Capacity expansion Hannover - Lehrte - Braunschweig due to the expansion of the volume structure of rail freight transport and rail passenger traffic, unbundling of the transports	Rail	---	12/2030	44.70	yes
2046	BMDV (DB Netz)	Rail	---	12/2030	153.30	yes

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
	Increase in capacity at the highly congested Berlin-Spandau junction, so that parallel entries/exits from/on different tracks are possible, line specific routing					
2054	BMDV (DB Netz) Capacity expansion Berlin – Lehrte (Wustermark) according to the rail freight transport forecast	Rail	---	12/2030	7.70	yes
2064	BMDV (DB Netz) Capacity expansion Berlin – Lehrte (Rathenow) according to the rail freight transport forecast	Rail	Train length >= 740m	12/2030	22.40	yes
4852	BMDV (DB Netz) Hamburg main station - Hamburg-Bergedorf: upgrading of line 1245 for an additional routing option Hamburg - Berlin	Rail	---	12/2030	37.90	yes
4855	BMDV (DB Netz) Increase in capacity or removal of bottlenecks for an increase in volume in rail long-distance traffic, separation of S-Bahn and rail long-distance traffic between Leipzig Messe and Leipzig main station	Rail	---	12/2030	78.40	yes
4856	BMDV (DB Netz) Increasing the capacity of the mixed traffic line Leipzig Messe Nord – Leipzig Messe for an increase in volume in rail long-distance traffic, separation of S-Bahn and rail long-distance traffic between Leipzig Messe and Leipzig main station, conflict-free introduction of rail long-distance traffic/rail passenger regional traffic flows from Leipzig/Halle Airport and Bitterfeld	Rail	---	12/2030	77.00	yes
4857	BMDV (DB Netz) Increasing the capacity of the mixed traffic line	Rail	---	12/2030	6.40	yes

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved ?
	Leipzig Volkmarisdorf – Leipzig main station for a volume expansion in rail long-distance traffic and rail passenger regional traffic					
4858	BMDV (DB Netz) Expansion of the capacity for an extended volume structure in the rail long-distance traffic and rail passenger regional traffic with an overtaking-free, faster routing of the RE to the node integration in Wittenberge and better train distribution between Nauen and Berlin-Spandau	Rail	Electrification Structure gauge Intermodal gauge ERTMS implementation Line speed >= 100 km/h Axle load >= 22.5t Train length >= 740m	12/2030	901.30	yes
4859	BMDV (DB Netz) Upgrading of the node function in Wittenberge as a result of the densification of the rail long-distance traffic and the RE Wismar - Berlin: 6 trains at the same time in the zero node Wittenberge, also shortening of the journey time through optimised node integration in Wittenberge, capacity increase or elimination of bottlenecks.	Rail	---	12/2030	18.80	yes
4863	BMDV (DB Netz) Capacity expansion Hamburg – Berlin according to the rail freight transport forecast	Rail	---	12/2030	3.10	yes
4864	BMDV (DB Netz) Increasing capacity or removing bottlenecks in the highly congested section, so that parallel journeys Hamburg - Schwerin with simultaneous with the simultaneous integration of nodes in Hamburg, Schwerin and Rostock are possible, in addition realisation of an hourly interlocked rail passenger regional traffic without additional overtaking by the long-	Rail	---	12/2030	10.00	yes

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
	distance traffic Hamburg - Berlin					
Czech Republic						
4085	Railway Infrastructure Administration, state organization (Správa železnic) HSR Dresden – Praha (part border – Usti nad Labem)	Rail	Electrification Structure gauge Intermodal gauge ERTMS implementation Line speed >= 100 km/h Axle load >= 22.5t Train length >= 740m	12/2038	2,500.00	no
4134	Railway Infrastructure Administration, state organization (Správa železnic) Modernization of the line Usti nad Orlici – Choceň	Rail	Train length >= 740m	12/2034	1,855.06	no
Romania						
4018 +	Romanian National Railways Company “CFR” S.A. The revision of the Feasibility Study for the rehabilitation of Craiova-Calafat railway line		---	12/2021	1.74	yes
4191	Modernisation/ Rehabilitation and Electrification of Craiova-Calafat railway section	Rail	Electrification ERTMS implementation Line speed >= 100 km/h Axle load >= 22.5t Train length >= 740m	12/2030	Unknown Estimated: 524.00	n.a.
Bulgaria						
4207	NRIC Modernisation of Mezdra - Sofia section	Rail	ERTMS implementation Line speed >= 100 km/h Train length >= 740m	12/2033	1,185.45	no
4211	NRIC Modernisation of Radomir - Kulata line	Rail	ERTMS implementation Line speed >= 100 km/h Train length >= 740m	12/2034	864.00	no
4221	RIA	Road	Express road/motorway	12/2027	168.20	no

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
	Modernization of Montana - Vratsa express road					
Greece						
4552	Igoumenitsa Port Authority S.A. ADRI-UP - Adriatic MoS Upgraded Services (Construction of Igoumenitsa Freight Village)	Multi-modal	---	07/2020	10.82	yes

Source: Hacon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med

Apart from these explicitly stated concerns, the following projects deserve special attention, as their expected end date is “unknown” or “after 2030” and as they are relevant for the Corridor completion (expressed by at least one “KPI achieved”). This combination of conditions applies for 17 projects. Compared to PIR 1/2022, this overall number of projects decreased by two. This is due to the following developments:

- One project was added to the list (red font in Figure 5-2): the end date of #4133 (“Railway junction Brno (Works)”) was changed from 02/2030 to “unknown”.
- Three projects were taken from the list (displayed in green font and crossed-out in Figure 5-2):
 - #4609 (“New Rail Line Dresden – Praha (Section Heidenau – State Border DE/CZ)”):
 - #1098 (“Upgrade Nordbahn Wien Süßenbrunn – Bernhardsthal”): the end date was preponed from 12/2032 to 12/2030;
 - #4718 (“New high-quality road connection Ioannina -Kakavija - border with Albania (A5 North)”): the end date was specified from “unknown” to 06/2028.

Figure 5-2 compiles all these “critical” projects with their key parameters. Four of them (#4085, 4134, 4207 and 4211) are also listed in Figure 5-1. Changes of the key parameters to the previous PIR are displayed in orange font.

The compilation shows that most of these projects are critical not only due to their realisation time, but also to their financing status (exception: projects from Germany and Austria).

Figure 5-2: Projects on the OEM Corridor with end date “unknown” or “after 2030” and at least one “KPI achieved” (including changes to the previous PIR)

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
Germany						
5044	DB Netz, DUSS Upgrade of terminal Hamburg-Billwerder - Construction of 4th module	Multi-modal	Capability of handling intermodal units 740m train terminal accessibility Electrified train terminal accessibility	12/2034	Unknown Estimated: 100.84	Yes
4609	BMDV (DB-Netz) New Rail Line Dresden – Praha (Section Heidenau – State Border DE/CZ)	Rail	Electrification Track gauge Structure gauge Intermodal gauge ERTMS implementation Line speed >= 100km/h Axle load >= 22.5t Train length >= 740m	12/2035	1,541.00	yes
5757	BMDV (DB Netz) NBS/ABS Hamburg-Hannover, ABS Langwedel – Uelzen, Rotenburg –Verden – Minden / Wunstorf, Bremerhaven – Bremen – Langwedel (Optimised Alpha E)	Rail	Electrification Track gauge ERTMS implementation Line speed >= 100km/h Axle load >= 22.5t Train length >= 740m	After 2030	3,891,00	yes
Czech Republic						
1966	Railway Infrastructure Administration, state organization (Správa železnic) Remote control Brno - Skalice nad Svitavou	Rail	Train length >= 740m	01/2033	126.74	No
1968	Railway Infrastructure Administration, state organization (Správa železnic) Remote control Skalice nad Svitavou - Ceska Trebova	Rail	Train length >= 740m	01/2031	157.55	No
4085	Railway Infrastructure Administration, state organization (Správa železnic)	Rail	Electrification Structure gauge Intermodal gauge ERTMS implementation	12/2038	2,500.00	no

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
	HSR Dresden – Praha (part border – Usti nad Labem)		Line speed >= 100 km/h Axle load >= 22.5t Train length >= 740m			
4133	Railway Infrastructure Administration, state organization (Správa železnic) Railway junction Brno (Works)	Rail	ERTMS implementation	unknown	Unknown Estimated: 1,755.00	n.a.
4134	Railway Infrastructure Administration, state organization (Správa železnic) Modernization of the line Usti nad Orlici - Choceň	Rail	Train length >= 740m	11/2034	1,855.06	no
4139	Railway Infrastructure Administration, state organization (Správa železnic) Optimization of the line Děčín - Všetaty - Lysá nad Labem - Kolín	Rail	ERTMS implementation Line speed >= 100 km/h Train length >= 740m	01/2033	2,903.82	no
1917	Railway Infrastructure Administration, state organization (Správa železnic) ETCS at Brno node	Rail ERTMS	ERTMS implementation	unknown	132.78	no
1919	Railway Infrastructure Administration, state organization (Správa železnic) ETCS + remote control of section Kolín - Nymburk - Mělník - Děčín východ	Rail ERTMS	ERTMS implementation	unknown	Unknown Estimated: 16.04	n.a.
Slovakia						
9452	Železnice Slovenskej republiky, Bratislava, "ZSR" Rail Node Bratislava - Works	Rail	Electrification ERTMS implementation Train length >= 740m	12/2040	900.00	no
Austria						
1098	ÖBB-Infrastruktur AG Upgrade Nordbahn Wien Süßenbrunn – Bernhardsthal	Rail	Train length >= 740m	12/2032	1,006.60	yes
1191	ASFINAG	Road	Express road/ motorway	09/2031	82.90	yes

TEN-T project ID	Project promoter/ Project name	Project category	KPI(s) achieved	Project end date	Total costs (official) [€ mn]	Financing totally approved?
	A5 Construction Poysbrunn - Border AT/CZ 2nd Part					
Bulgaria						
4759	BMF PORT BURGAS EAD; NRIC From East2West 2. Access to the OEM Corridor through the core port of Burgas	Maritime	Connection to rail	unknown	176.98	no
4207	NRIC Modernisation of Mezdra - Sofia section	Rail	ERTMS implementation Line speed >= 100km/h Train length >= 740m	12/2033	1,185.45	no
4211	NRIC Modernisation of Radomir - Kulata line	Rail	ERTMS implementation Line speed >= 100km/h Train length >= 740m	12/2034	864.00	no
4220	NRIC Modernisation Sofia railway node	Rail	ERTMS implementation Line speed >= 100km/h Train length >= 740m	unknown	214.55	no
4711	RIA Construction of A3 Struma Motorway Lot 3.2)	Road	Express road/ motorway	unknown	Unknown Estimated: 648.54	n.a.
Greece						
4718	Region of Epirus New high quality road connection Ioannina - Kakavija - border with Albania (A5 North)	Road	Express road/ motorway	unknown	340.00	no

Source: HaCon analysis based on 2023 project list (status 04/2023) of CNC Orient/East-Med