



2018-2022 Studies on the TEN-T Core Network Corridors and Support of the European Coordinators – Phase 2

BALTIC-ADRIATIC CORRIDOR

Final report on phase II

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Abbreviations

CNC	Core Network Corridor
DG MOVE	European Commission – Directorate General for Mobility and Transport
EC	European Commission
EIA	Environmental Impact Assessment
ERTMS	European Rail Traffic Management System
EU	European Union
GDP	Gross Domestic Product
IWW	Inland waterway
km	kilometre
m	metre
mln	Million
MoS	Motorway(s) of the Sea
MS	Member States of the European Union
MTMS	Multimodal Traffic Market Study
n.a.	not available / not applicable
p.a.	per year / annual
PL	Project List
RFC	Rail Freight Corridor
TEN-T	Trans-European Transport Network
WG	Working Group

Country Codes after ISO 3166:

PL	Poland
CZ	Czech Republic
SK	Slovakia
AT	Austria
IT	Italy
SI	Slovenia

1 Introduction & Scope

This document is submitted by TPLAN Consulting S.r.l. and their sub-contractors, NDCON, Paradigma and the University of Maribor in fulfilment of the requirements of Contract No. MOVE/B1/2018-216, regarding Studies on the TEN-T Core Network Corridors and Support of the European Coordinators – 2018-2022 Corridors' Studies. More specifically this report concerns the delivery of the analysis for LoT 1 of this contract, which relates to the development of the Baltic-Adriatic (hereinafter BA) Core Network Corridor (CNC).

According to Tender Specifications, this final report aims at showing progresses of the work done under the second phase of the 2018-2022 BA Corridor study, summarising in particular the activities accomplished, and lessons learned since August 2020 under Tasks 1, 2, 3, 4 and 5 of the contract. Selected content of this report or additional results of the analysis performed as part of the activities described in this report, may be presented at the coming 17th Corridor Forum meeting or other events, in line with the requirements set in the Tender Specifications of the 2018-2022 CNC studies.

Further to this introductory section, the report is structured into the following Chapters:

- Chapter 2 – including a description of the work accomplished under Task 1, about the Corridor Knowledge base;
- Chapter 3 – providing an overview of the activities performed as part of Task 2 about the updating and refinement of the corridor Project List;
- Chapter 4 – summarising the work performed as part of Task 3 about the monitoring of the state of the project implementation and ad hoc reporting activities;
- Chapter 5 – including a brief description of the activities undertaken under Task 4 related to providing the elements for the updates of the work plan;
- Chapter 6 – briefly listing the events organised as part of Task 5 and related to the preparation, supporting and following up of the meetings of the Corridor Forum and its working groups.

1.1. Coordinated implementation of the study tasks

As requested in the Tender Specifications, the Contractors involved in the delivery of the nine CNC studies were expected to cooperate with other contractors and to exchange on various aspects of their work. Coordination was required, in particular, as regards the assignment to a specific corridor of sections of the core network which were not yet part of a particular corridor, including extensions of the core network corridors and the consistency of the harmonised project list. In order to support a coordinated and consistent delivery of the study the following principles have been applied concerning the delivery of Tasks 1, 2 and 3:

- A common methodology with other CNC studies Contractors has been adopted for the three tasks in order to ensure a consistent approach across all nine CNC studies. This has been achieved via:
 - Active cooperation among the Consultants involved in the 9 CNC studies;
 - Establishing internal Working Groups between different Corridor Consultants in close cooperation with DG MOVE (i.e. Working Group on Task 2 and 3) and taking active part in those Working Groups and applying the developed materials in a consistent way;
 - Regular conference calls among Corridor Consultants.
- Coordination between Consortium Consultants. This has been achieved via:
 - Common project list structure and tool for storage of corridor projects;
 - Regular conference calls between Consortium partners;
 - Face to face meetings between Consortium partners.
- Coordination of activities between different tasks. This has been achieved via:
 - Common project list used for Task 2 and Task 3;

- Literature review performed under Task 1, also used for Tasks 2 and 3.
- Other synergies between tasks and subtasks.

Coordination was also ensured between the Contractors involved in the delivery of the nine CNC studies and those involved in the delivery of the European Railway Traffic Management System (ERTMS) and Motorways of the Sea (MoS) studies in order to maximise consistency between the work plans of the CNCs and the deployment plans of the two horizontal priorities.

1.2. Study deliverables

In line with the requirements set in the Tender Specifications, the following reports have been submitted to the Commission over the past 24 months between June 2020 and May 2022, which relate to the second phase of the 2018-2022 CNC studies, covering the period 2020-2022:

- Inception Report: this deliverable providing methodological inputs and clarifications on the activities to be performed as part of the contract during the second phase of the 2018-2022 CNC studies was submitted on the 6th of August 2020;
- Project Implementation Report 2/2020: this study outcome providing the results of the analysis under subtasks 3.1, 3.2 and 3.3 of the study, showing progresses concerning the implementation of the relevant BA Corridor projects included in the common project list, according to the information available from the BA Corridor list as of September 2020, was submitted on the 2nd of November 2020;
- Corridor Study Update Report: this deliverable presenting progresses of the activities under task 1.1. and the results of the analysis done under subtasks 1.2 and 1.3 of the study was submitted on the 19th of March 2020;
- Project Implementation Report 1/2021: this report was submitted on the 2nd of July 2021. It includes the results of the analysis under subtasks 3.1, 3.2 and 3.3 of the study, showing progresses concerning the implementation of the relevant BA Corridor projects included in the project list, according to the information available as of April 2021; the estimation of the costs for the initiatives included in the project list without budget related information; and the identification of the additional projects required to complete the corridor at standard by 2030 based on a gap analysis performed to assess the impact of the project list on the achievement of the standards set in the Regulation 1315/2013 for the core network, on those sections showing compliance issues at 2020;
- Intermediate Report on Phase II: this report summarising the activities and outcomes of the second phase of the 2018-2022 BA Corridor study was submitted on the 2nd of July 2021;
- Project Implementation Report 2/2021: delivered on the 22nd of October 2021, this study outcome provided the results of the analysis performed under subtasks 3.1, 3.2, 3.3 of the study, presenting the progresses of the BA Corridor projects in terms of financial and maturity parameters according to the list updated in September 2021. This list also includes additional projects of relevance for the BA Corridor, identified to complete the corridor at standard by 2030 on the basis of a gap analysis performed by assessing the impact of the projects included in the common project list 2021 on the achievement of the corridor KPIs;
- Project Implementation Report 1/2022: submitted on the 26th of April 2022, the report provides the outcome of the analysis performed under subtasks 3.1, 3.2 and 3.3 of the study, and comments on the progresses concerning the implementation of the relevant BA Corridor projects included in the project list, according to the information available from the BA Corridor list as of March 2022;
- Final Report on Phase II: the present report, summarising the activities and outcomes of the second phase of the 2018-2022 BA Corridor study, completed at the date of submission, i.e. end of July 2022.

Further to the above deliverables, monthly reports have been also periodically submitted to the Commission and/or update phone calls organised between the Contractor and the European Commission Adviser to the European Coordinator of the BA Corridor.

Furthermore, the Contractor also delivered the draft version of the 5th work plan: the first draft was sent to the Commission on the 7th of December 2021, a second and third draft were submitted respectively by May and July 2022, incorporating the comments received from the Member States.

All the submitted reports, except the current one, were approved by the Commission, and the results of the analysis illustrated in the deliverables up to the Project Implementation Report 2/2021 were presented at the 15th and 16th Corridor Forum meetings, in line with the requirements set in the Tender Specifications. The 5th version of the work plan and the analysis described in the Project Implementation report 1/2022 may be presented at the 17th Corridor Forum meeting or at other corridor events, in line with the requirements set in the Tender Specifications of the 2018-2022 CNC studies.

1.3. Contract extensions

The duration of Contract No. MOVE/B1/2018-216, originally envisaged to last for 48 months, between June 2018 and June 2022, was extended for a period of 4 months, up until the 12th of October 2022, in order to organise and participate in the 17th Corridor Forum meeting planned to be organised on the 28th of September 2022. During the period June 2018/October 2022, the Contractor will continue provide support to the European Commission and European Coordinator, for the organisation of Coordinator's Dialogues.

An additional extension of Contract No. MOVE/B1/2018-216 is currently under finalisation, which will prolong the duration of the contract up until the end of 2023. The following study activities are foreseen to be delivered during this period:

- Provide one further Project Implementation Report (PIR) 2023-1 in April 2023;
- Provide, upon demand, tailor made information for the Coordinator based on study results, which are available at the time of request;
- Provide one update of technical parameters in TENtec OMC for 2021 and 2022 for the following 11 KPI's;
- Provide support for the organisation of 2 Corridor Forum Meetings in the premises of the European Commission in Brussels, or online, in spring and autumn 2023;
- Organise, participate and present (if necessary relevant information) 2 Working Group Meetings or Coordinator Dialogues in either physical or online format in agreement between the Coordinator and the advisor and the respective consultant on subjects relevant for the Corridor;
- Present the progress of the study at the Corridor Forum meetings, and at the Working Group meetings as appropriate;
- Manage the Corridor stakeholders list;
- Elaborate a final administrative report of the study phase (2-5 pages) summing up the consultants work for the past 14 months (October/November 2022-December 2023);
- Elaborate a final study report, i.e. a concise summary of up to 20 pages including qualitative interpretation (i.e. not a simple statistic outcome) and problem analysis describing the results of the KPIs updated in TENtec OMC (Task 3.6) with a detailed analysis per CNC and their visualisation in the form of map resulting from TENtec OMC. It should demonstrate in particular the current state of the corridor implementation compliance per infrastructure section or transport node.

2 Task 1 - Further elaborating the Corridor knowledge base

1.1. Task 1.1 – Multimodal Transport Market Study Update

Based on a communication from the European Commission, dated 20th January 2021, addressed to all Contractors involved in the delivery of the 2018-2022 CNC studies, decision was taken to omit the analysis related to the updating of the Multimodal Transport Market Study (MTMS) from the scope of the second phase of the current studies.

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

The Corridor Study Update Report delivered in March 2021 includes an updated analysis of the status of the Corridor network infrastructure, highlighting the critical issues, namely the missing links of the infrastructure and the identification of non-compliant sections and hubs, according to the infrastructure targets and definitions set out in the Regulation No. 1315/2013, Article 39.

The corridor characteristics and the above mentioned issues have been analysed for the year 2020, with reference to the updated corridor sections as encoded in the TENtec system as of 2020. In view of the elaboration of the 5th Work Plan and 16th Corridor Forum meeting, the analysis of the characteristics of the corridor infrastructure by 2030 analysing the impacts of the planned projects have been also performed as part of Task 4, which were also represented in the so called technical compliance maps for the road and rail transport modes included in the current and previous versions of the Work Plan.

1.3. New indicators on commercial delivery time and intermodal gauge

As part of the 2018-2022 CNC studies the Commission requested the CNC studies Contractors to include in the scope of the analysis of the relevant indicators for the development of the CNCs two new indicators to be monitored in addition to the set of KPIs defined with reference to the Regulation EU 1315/2013. The first one relates to rail freight commercial delivery times and a second one to structural/loading rail gauge to support intermodality. Methodologies and actions put in place by the CNC studies Contractors to measure these additional parameters were first discussed at the third management meeting of the 2018-2022 CNC studies. Concerning the commercial delivery time parameter, the outcome of the analysis performed during 2019 and 2020 was subsequently discussed at the sixth management meeting of the of the 2018-2022 CNC studies. As reported at this meeting, several corridors faced significant difficulties in sourcing the required data and information to measure this new indicator. More specifically the BA Corridor Contractor has approached 4 of the main logistics services providers operating services along the CNCs and it appears that overall the number of North-South cross-border rail services are very limited, particularly regarding services over distances of at least 800 km, even considering lower frequencies than 10/20 trains per month. Among the contacted stakeholders one operates shorter trains. Two logistics service providers were found to operate suitable train services and one of them offered their support to the exercise. Data were provided to the Consultant, which were analysed and described in the Final Report on phase 1 of the 2018-2022 CNC studies. The data provided refer to services operated between Poland and the Port of Koper. The analysis is however limited considering the type of information received, as it takes into consideration only the train departure and arrival time and does not include the latest time of delivery to the

terminal as well as the earliest time of collection from the point of departure. The analysis is based on 175 trips occurred between second half of 2018 and first half of 2019. Unfortunately after submission of this first bulk of data this logistics service provider interrupted the provision of their data, and it was not possible to perform additional assessments. Although we periodically contacted the stakeholders to request their cooperation, this exercise was not possible to be continued during the second phase of the contract. About the difficulties encountered in the analysis and monitoring of the commercial delivery times it is noticed that the requested elaboration refers to data that is privately owned and not publicly available. Furthermore, the data owners are not members of the Corridor Forum, which does not facilitate the collection of these data and understanding by these entities of the scope of our requests. In order to make the exercise more successful, consideration should be given to set up a programme common (in the form of a dedicated Working Group) to all CNCs related to data gathering and collection, as well as dissemination of the analysis of this KPI, involving the Commission, the Contractors and the data owners.

As of the additional indicators related to the development of intermodal transport, the Commission confirmed at the third management meeting of the 2018-2022 CNC studies that the intermodal gauge parameter considering the standard P/C 400 is to be considered for analysis by the CNC Contractors (thus not performing the analysis of the intermodal structure gauge parameter referring to the GA, GB and GC codes and the GB standard as a target). An analysis of this parameter was made based on publicly available information already during the first phase of the 2018-2022 CNC studies, and the results presented in the Final Report on phase 1 of the 2018-2022 CNC studies. Annex A to the Corridor Study Update Report for the second phase of the 2018-2022 CNC studies – *Summary of the technical parameters of the rail and road links belonging to the alignment of the BA Corridor* – includes the parameters related to the intermodal gauge standard (P/C400). This information has also been used to perform the gap analysis described in the Project Implementation Report 1/2021, specified that for Poland no information is available on this parameter and that compliance issues related to this parameter in the other Member States of the BA Corridor are rather limited. Based on the analysis of the 2021 project list (status in April 2021), current issues with reference to this parameter are expected to be solved by means of implementation of the ongoing and planned projects, foreseen to be completed by 2030, and accordingly no additional projects would be required.

1.4. Task 1.3 and 1.4 - Identification and analysis of EU studies and national policy actions

A review of relevant EU studies and policy actions was first performed during 2018, aimed at understanding their impacts on the functioning and the further development of the BA Corridor. The methodology adopted to perform this exercise is described in the Inception Report for phase 1 of the 2018-2022 CNC studies. These tasks were repeated in 2020/2021, and the results of the performed analyses are described in the Corridor Study Update Report for the second phase of the 2018-2022 CNC studies, submitted in March 2021.

The outcome of these tasks was used as an input for several analyses such as the updating of the corridor characteristics, of the KPIs and of the review of the relevant studies and transport plans (Task 1); the identification and updating of the projects and parameters included in the corridor project list (Task 2); the analysis of the status and likely implementation of the projects on the list (Task 3); the assessment of the impact of the implementation of the project list on the development of the corridor by 2030 (Tasks 1.2 and 4).

In particular the analysis of the national transport policy strategies and plans, including the Recovery Plans was aimed at assessing the degree of coherence between the national policy documents and investment plans with the TEN-T policy. At the time this analysis was performed these documents were found to be overall consistent with

the targets set in the TEN-T Regulation. The most relevant investment plans have been reviewed again in view of the elaboration of the 5th Work Plan in Autumn 2021. This was aimed at confirming that the projects and investments included in the project list and relevant to complete the Corridor at standard by 2030 are still considered to be implemented.

3 Task 2 – Refinement of the Project List

3.1. Updating of the BA Corridor project list

The project list represents a key tool for monitoring and coordinating the completion and further development of the BA Corridor. This requires the technical analysis of projects with respect to their contribution to the corridor objectives (cf. the “KPI” columns of the project list). Moreover, it involves mirroring the projects and their impact against the corridors’ bottlenecks and non-compliant sections according to Regulation 1315/2013 (gap analysis).

In consideration of the relevance of the project list as part of the CNC studies and elaboration/updating of the work plans by the European Coordinator and given the presence of numerous overlapping sections between the Core Network Corridors, the Commission already decided to adopt during the 2015-2017 CNC studies a common structure (excel file) for the encoding and collection of relevant information and parameters of projects required for the completion and development of the CNC network. This also followed a specific request from the Member States to adopt coordinated tools and methods to gather, process and analyse the project list and more generally the elements of the work plans as set in art. 47 of Regulation EU 1315/2013.

Accordingly, and aimed at ensuring continuity to the coordination process already established as of the 2015-2017 CNC studies, a common structure of the project list and a common procedure for its use were proposed for utilisation in the 2018-2022 CNC studies. A Working Group dedicated to the project list and more specifically to Tasks 2 and 3 was set up at the kick-off meeting of the 2018-2022 CNC studies for the coordinated delivery of these tasks.

Over the course of the 2018-2022 CNC studies, the structure of the project list database was refined and integrated in line with the methodology proposed in the Inception Report and outcomes of the first and second management meetings of the 2018-2022 CNC studies. The structure of the project list was confirmed for use also in the second phase of the 2018-2022 CNC studies, without substantial changes. A coordinated process for a comprehensive updating of the 2017 project list was first performed late 2018, beginning 2019 which resulted in the 2019 project list, used for the elaboration of the 4th version of the Work Plan. A new comprehensive updating process of the 2019 project list was performed late 2020, beginning of 2021, which resulted in the 2021 project list, which was used for the elaboration of the 5th version of the Work Plan. The following bullet list summarises the main steps of the performed activities towards the elaboration of a final project list by April 2021. The financial and maturity parameters of this list were subsequently updated early 2022 in view of the elaboration of the Project Implementation Report 1/2022 to be presented at the 17th Corridor Forum meeting in September 2022, together with the 5th Work Plan:

- 30.11.2020: Integration of pending comments, CEF Call 2018 + 2019 Results, TMP and RRF
- 14.12.2020: Clearing on shared projects among CNC
- 08.01.2021: Sending of updated Corridor Project List to CF Members for comment
- 26.02.2021: Deadline to receive comments
- 15.03.2021: Clearing on shared projects & sending of final list to MS/EC for comment
- 29.03.2021: Deadline to receive final comments
- 15.04.2021: Clearing on shared projects & sending of final list to EC for approval
- 03.05.2021: Deadline to receive approval = final list = basis for other Tasks, e.g. Project Implementation Report 2021-1, „Intermediate Report“
- 31.05.2021: Production of final „Fiches“ & “User Friendly Tool“
- 30.06.2021: Final charts on the Project List to EC for approval

- 31.07.2021: Delivery: Final Project List Update 2021
- 01.08.2021: Sending of "narrow" Project List for Maturity/Finance update to CF Members
- 15.09.2021: Deadline to receive comments
- 30.09.2021: Clearing on shared projects and analysis as well as feed-back to "full" list
- 15.10.2021: Project Implementation Report 2021-2
- 23.11.2021: Presentation at Corridor Forum Meeting
- 01.02.2022: Sending of "narrow" Project List for Maturity/Finance update to CF Members
- 15.03.2022: Deadline to receive comments
- 30.03.2022: Clearing on shared projects and analysis
- 15.05.2022: Project Implementation Report 2022-1
- 28.09.2022: Presentation at the 17th Corridor Forum Meeting

According to the main planned deliverables relating to the project list, a first delivery of the consolidated project list for all corridors was submitted to the Commission in April 2021, which was also commented and accepted by the Commission by the end of this month. This list was used for the elaboration of updated project fiches (one for each project), as well as for the Project Implementation Report 1/2021. The consolidated project list of April 2021 was also associated to a user-friendly tool prepared by one of the CNC studies Contractors to facilitate the consultation of the list by the Commission and corridor stakeholders. This project list was also used for the elaboration of statistical analysis (project list charts) submitted together with the Project Implementation Report. The 2021 project list updating process has been finalised in July 2021. The 2021 project list was subsequently updated in October 2021 including the maturity and financial parameters that have been gathered as part of the data collection process performed between August and September 2021. A gap analysis has been also already performed, assessing the impact of the initiatives included in the 2021 project list on the improvement of the BA corridor infrastructure to reach the standards required by the regulation (EU) 1315/2013 for the core network by 2030. This exercise resulted in the identification of about 60 additional projects, currently not included in the project list, which would be required to complete the corridor at standard by 2030. The last project list update due in the course of 2018-2022 CNC studies has been completed by March 2022 and the last Project Implementation Report 1/2022 was submitted in April 2022. This report also includes an analysis of the delayed projects aimed at identifying difficulties in the development and implementation of projects, focussing on those required to reach the TEN-T standards, thus impacting on at least one KPI.

3.2. Status of the project list of the BA Corridor

The content of the project list relating to the financial and project maturity parameters has been last updated in view of the submission of the Project Implementation Report 1/2022 in April 2022. A subsequent update of the list is foreseen for March/April 2023.

3.3. Summary of the delivery of Task 2 by subtask

The following paragraphs provide a summary of the activities performed as part of Task 2 by subtask.

3.4. Task 2.1 – Regular review of the project list composition & Task 2.2 – Completion of the project list

Tasks 2.1 and 2.2 respectively relate: to the regular review of the composition of the list by adding new projects or deleting projects; and to the completion of the project list and its individual project fiches, by adding the elements still missing in respect of each project. For efficiency reasons, Tasks 2.1 and 2.2 were performed together

within one update procedure. This procedure consisted of the following main work steps:

- Adaptation of the project list structure on the basis of the excel database developed as part of the 2015-2017 CNC studies, adding additional/modified parameters for analysis (i.e. indication whether a project impacts on sustainable and future oriented mobility, project geo-coordinates and related TENtec section, indication on whether a project impacts on structure gauge and intermodal gauge and if it can be considered a rail breakthrough initiative, identification of implementation issues affecting the completion of the corridor by 2030 and requests for specific support from the European Coordinator and cost estimates to be provided by the Consultants in case official information on project budgets is not available) and refining the dropdown lists included in the cells (i.e. for the analysis of the project maturity and financial parameters). This activity was primarily performed during the first phase of the 2018-2022 CNC studies, in view of the first comprehensive update of the 2017 project list, which resulted in the elaboration of the 2019 project list and subsequently of the 2021 project list;
- Supplement the 2021 project list by selected data sources; these are mainly the 2020 (and subsequent) CEF Transport Call results, as well as the national transport plans (Input from Task 1.4). Next to adding additional projects, obsolete projects have been de-activated or deleted from the project list as well;
- Submit the pre-filled list to the stakeholders for validation/completion of project data and adding/deletion of projects. In line with the approach adopted for the updating process of the 2017, also for the updating process of the 2019 project list towards the 2021 project list, contacts with stakeholders have been coordinated amongst the nine CNC studies Consortia in such a way that several countries and/or category responsibilities have been assigned to only one consultant for all corridors. This facilitated the involvement of the stakeholders at the same time ensuring that the same sourced project data was used by all affected Consortia;
- Clarification of open topics with the stakeholders;
- Final coordination of data with other Corridors Consultants.

Data completion within Task 2.2 especially refers to costs, timing and financing, which due to their relevance to correctly understand project maturity and issues concerning their implementation and more generally the completion of the corridor by 2030, are also a key element of analysis under the scope of Task 3.

Whereas timing and funding of projects represent an input that can be only included in the list if provided by the stakeholders, the identification of project costs may be somehow estimated, which is also a specific request for the 2018-2022 studies from the Tender Specifications. Accordingly discussion occurred between the CNC studies Contractors and the Commission to identify a common solution. At the third management meeting of the 2018-2022 CNC studies it was agreed that the methodology to be used for the estimation of the costs for the projects without budget data shall be the one applied by M-Five in their jobs and & growth study. Accordingly M-FIVE provided the CNC studies Contractors with their methodology. It was also specified that the cost estimate exercise shall be limited to those projects that are required to complete the corridor, i.e. the ones required to achieve at least one KPI required by TEN-T Regulation (in the project list marked as "KPI achieved"). According to the updated project list excel database, these estimates were included in the project list in column "CN". This exercise was first performed in 2019 and it has also been updated in 2021. The outcome of the project costs estimate for the BA Corridor is included in the Project Implementation Report 1/2021 as well as in the subsequent Project Implementation Reports.

A main outcome of Tasks 2.1 and 2.2 was an updated set of project fiches. These fiches comprise information on a 2-page document for each project. The updated information was presented in the same project fiche layout as of the 2015-2017 CNC studies (Annex 5 to the Tender Specifications). This structure was also adjusted by the

Contractors to reflect the changes made to the project list database referred to in the first bullet point above. Project fishes related to the 2019 project list were submitted in May 2019 and those related to the 2021 project list were submitted in May 2021.

3.5. Task 2.3 – Critical review of projects submitted by stakeholders

Task 2.3 concerns the critical review of the projects submitted by the stakeholders, including an assessment of the financial readiness, the financial viability, the financial model used, the type of funding or financing sources.

The financial aspects of the projects are key to the corridor development and as such deserve specific attention also under Tasks 3.1, 3.2 and 3.3, concerning the monitoring of the progresses in the implementation of the projects for the development of the BA Corridor and particularly for the ones that are required to complete it at standard by 2030. In line with the methodological approach described in the Inception Report, Task 2.3 aims at identifying the overall investment requirement for the implementation of the whole BA Corridor project list, summing up all the investments costs of each project on the Corridor; analyse the different funding sources identified to cover the investment cost, considering the “potential” and “approved” share of funding and identifying the EU funding approved; identify those initiatives that would be suitable for innovative financing, i.e. those projects that can potentially be financed fully or partially with other-than-public-grants forms of financing.

Whilst the formal deliverable of the project list was performed in July 2021, relevant results and considerations about the scope of Task 2.3 have been included in the presentation given by the Consultant to the 16th Corridor Forum meeting and the outcome of this task included in the 5th version of the Work Plan. This solution was agreed with the Commission at the sixth management meeting of the 2018-2022 CNC studies, also considering that more updated information concerning the financing parameters was available after completion of the narrow update of the project list performed in August and September 2021. Further to this, the final narrow project list update took place in January-March 2022. The results of this update have been included in the Project Implementation Report 1/2022 delivered in April 2022 to be eventually presented at the 17th Corridor Forum meeting planned for the end of September 2022.

3.6. Task 2.4 – Proposal for additional projects

Task 2.4 is about the identification of projects which are not submitted by Member States or relevant stakeholders but are considered necessary to complete the Corridor by 2030. This subtask is based on the results of the following study activities:

- Update of the analysis of the characteristics of the corridor according to the impacts of the projects referring to the 2030 time horizon (Task 1.2);
- Identify compliance gaps by checking the requirements of Regulation EU 1315/2013 against the updated corridor characteristics;
- Identify critical issues that are not covered by the updated status of the projects;
- Provide these critical issues as input for the Corridor Study Update, for the future 2030 corridor outlook (Task 1.2);
- Derive additional need for action necessary to overcome the critical issues. In order to avoid confusion with the stakeholders and project promoters, these identified additional projects shall not be included into the project list as “regular” projects. In contrast, they shall be compiled on a separate list for the Corridor Coordinator as basis for discussion with the Member States. However, as also discussed at the third management meeting of the 2018-2022 CNC studies, the analysis shall be presented in the study deliverables and to the stakeholders at the Corridor Fora.

According to the methodology applied in the 2015-2017 CNC studies, the compliance gaps and critical issues refer to the commonly defined KPIs, particularly those laid

down in Annex 5 to the Tender Specifications. Accordingly the projects to be identified represent initiatives that are required to complete the Corridor at standard by 2030. As mentioned in previous paragraphs, this task has been performed for the BA Corridor with reference to the 2021 project list, and the results are included in the Project Implementation Report 1/2021 as well as in the subsequent reports. The outcome of this analysis has been revised based on the data collected on the technical and financial maturity parameters made available in October 2021 after the narrow updating process of the project list for August and September 2021. These outcomes have been used as inputs for the update of the Work Plan (Task 4). A recent update of this analysis has been included in the Project Implementation Report 1/2022 of April 2022, which refers to the project status in March 2022.

Regarding the estimate of the costs of the projects identified under Task 2.4, the same methodology was adopted that has been applied under Task 2.2 to define the budgets of the projects that are already included in the project list but without a cost. This is in line with discussion and decision taken at the third management meeting of the 2018-2022 CNC studies.

3.7. Task 2.5 – Information on obtained parameters and realised KPIs, Task 2.6 – Projects’ contribution to indicators, Task 2.7 – Projects’ feasibility/maturity

Tasks 2.5, 2.6 and 2.7 exploit project data in relation to KPIs/monitoring indicators and feasibility/maturity.

The structure of the project list elaborated in the 2015-2017 CNC studies allows for providing information for all agreed parameters. As confirmed by the Commission, all existing KPIs from the 2015-2017 CNC studies are to be kept in the project list structure of the 2018-2022 studies, and “Structure gauge and loading gauge of railway lines for intermodal transport” were to be added as additional parameters for rail transport.

Concerning the KPIs, the information gathered for every single project relates to:

- Fulfilment grade of KPI (“achieved”, if total parameter compliance was achieved by the respective project; “improved”, if parameter compliance was enhanced, but yet missing the requirement of Regulation 1315/2013);
- Contribution to other infrastructure and operational parameters: (1) rail: capacity bottlenecks (i.e. number of tracks), strong incline, single track sections, gauge of the tunnels; (2) inland waterways: good navigation status;
- Status of project maturity: completion rate at a given reporting time (in relation to the given start and end date of a project) and financing (financial sources in relation to the known total cost of that project).

All these parameters have been updated and validated within the course of Task 2.1 and 2.2. The main output of these tasks was the provision of project data for further processing in other tasks, namely:

- Tasks 2.5 and 2.6 are related to Task 1 for the future corridor outlook (Corridor characteristics, critical issues) and Task 4 (Elements of the Work Plan);
- Task 2.7 is related to Tasks 2.3 and 3 (Financial evaluation, monitoring of project implementation).

Whilst the formal deliverable of the project list was due July 2021, relevant results and considerations about the scope of Tasks 2.5, 2.6 and 2.7 have been included in the presentation given by the Consultant to the 16th Corridor Forum meeting. The outcome of these tasks was also considered for the elaboration of the 5th version of the Work Plan. This approach was agreed with the Commission at the sixth management meeting of the 2018-2022 CNC studies, also considering that more updated information concerning the financing parameters was available after the completion of the narrow update of the project list performed in August and

September 2021. The outcome of tasks 2.5, 2.6 and 2.7 has been finally included in the recent Project Implementation Report 1/2022 summarising the outcome of the last narrow project list update of March 2022.

3.8. Task 2.8 – Synchronisation of projects

Experience has shown that through-going compliance of large, connected corridor sections often depends on numerous single projects. In many cases, these projects are not harmonised regarding their finalisation timelines, particularly on cross-border sections. In consequence, achievement of compliance or bottleneck removal on such sections might be delayed or even prevented by one single (missing or delayed) project. The availability of clear start and end dates for each project is important to analyse the synchronisation of projects and to ensure the phasing is correct and the risk of project duplication is minimised.

The scope of Task 2.8 is to identify and comment on the possible need of such missing synchronisation. Particularly regarding the BA Corridor it is worth to notice that in order to provide a consistent and coherent overview of the projects implemented on given sections or macro-sections of the corridor and its nodes, an action plan was elaborated as part of the 2015-2017 study which includes a set of actions combining projects and assessing their impacts on the existing corridor links and hubs. This tool has been agreed to be used also for the ongoing 2018-2022 study. These action plan fully responds to the requirements of the Tender Specifications for the scope of Task 2.8. The action plan for the development of the BA Corridor by 2030 is included and commented in Chapter 5 of the Project Implementation Reports and it is updated every 6 months. Accordingly the most updated version of this action plan is included in the Project Implementation Report 1/2022, also combining the analysis of the projects included in the 2021 project list, and its last narrow update finalised in March 2022. The action plan provides a gap analysis and identifies additional projects per individual action, providing considerations on project implementation issues associated with low financial and technical maturity, due to lack of completion dates or finalization of works after 2030 and missing project costs.

3.9. Task 2.9 – Projects for sustainable and future-oriented mobility

Given that telematic applications projects except ERTMS are associated with the respective mode category (Column K in the project list) and that ERTMS projects have a dedicated project category, over the course of the 2015-2017 studies the “innovation” project category appeared to be used as a residual one. In order to solve this issue the Commission requested to add a new column in the project list structure (Column L), to identify projects for sustainable and future oriented mobility. At the third management meeting of the 2018-2022 CNC studies the Commission proposed to fill in Column L by marking in this column all projects impacting on alternative clean fuels, telematic applications and sustainable freight transport services (i.e. columns AN, AP, AQ in the project list). The column has been filled in accordingly and the analysis included in the deliverables submitted to the Commission starting from May 2019.

3.10. Task 2.10 Rail breakthrough projects

Next to large and often long-lasting rail infrastructure upgrading measures, the Commission intends to enable additional short- and midterm efficiency increase of rail transport by dedicated “rail breakthrough” projects. According to Annex 6 to the Tender Specifications, such projects should show respective benefits without evoking substantial additional costs.

According to discussions held at the second management meeting of the 2018-2022 CNC studies and subsequent coordination among the Working Group on Tasks 2 and 3, a set of guidelines for the identification of rail breakthrough projects was defined as follows.

Table 1 Rail Breakthrough Projects

Type of Rail Breakthrough Project		Explanation how to award the type	
Infra invest rail breakthrough	Specific Investment in Infrastructure	Specific Investment in Infrastructure: e.g. ERTMS, Parking places for trains at borders, 740 m trains, loading gauge adaptations ...	
	Rolling Stock Investment	Rolling Stock Investment e.g. ERTMS, wagon/train tracking systems, interoperability, ...	
Soft rail breakthrough	Removal of Administrative, regulatory and operational barriers	Removal of Administrative, regulatory and operational barriers, including at borders (e.g. waiting times reduction)	
	Traffic management/telematics applications/digitalization	Traffic management/telematics applications/digitalization	
	Removal of language barriers	Removal of language barriers	
	Contingency Plans of IMs	Contingency Plans of the IMs	
Mixed (Infra + Soft)	Mixed (Infra + Soft)	If mixed actions in one project.	
No breakthrough	No rail breakthrough	Default value (e.g. for Road, Airport, ...)	

Further to the above project related identification criteria, the following additional criteria apply to the identification of rail breakthrough projects:

- Ongoing projects with expected finalisation by 2023;
- Projects of category "Rail-ERTMS" or "Rail" with ERTMS components included;
- Other rail projects fulfilling the "scope of work" criteria "Administrative procedures", "Telematics application" (except ERTMS) and "Sustainable freight transport services".

The consolidated project list delivered in May 2019 already included the identification of rail breakthrough projects. The analysis of this parameter was subsequently included in the formal deliverable of the project list of September 2021 and charts were also presented at the 16th Corridor Forum meeting in view of the elaboration of the 5th version of the Work Plan.

3.11. Task 2.11 Project data for TENtec

As mentioned at section 3.1.1 above, the structure of the project list was amended to provide geographical coordinates of each project in order to process this information in TENtec. The methodology to perform this task was defined in the Inception Report and subsequently refined by the Working Group on Tasks 2 and 3. Most of the projects included in the 2021 project list already include geographical coordinates. The current version of the common 2021 project list has been integrated during the narrow updating process in for August and September 2021, as well as March 2022 when missing geographical coordinates have been added.

4 Task 3 - Monitoring and analysing the state of the project implementation and reporting

Task 3 builds on the requirement that biannual updating of the entire project list and of the work plan of the European Coordinator should be accompanied by a more frequent status analysis of the projects to allow the Commission and the Coordinator to counteract in case of inconsistencies and delays. Therefore, the implementing stages of projects and their financing shall be monitored twice a year throughout the phases of the 2018-2022 CNC studies.

The monitoring process is a matter of Task 3.1, whereas Task 3.2 analyses the progress of the projects with respect to the updated data, and Task 3.3 finally compiles the results (reporting). Further to these activities Task 3.4 provides inputs to the Coordinator's missions and Task 3.5 prepares further documents including results from other tasks. Both Task 3.4 and 3.5 are subject of specific request from the Adviser to the European Coordinator. Additionally, Task 3.6 is foreseen by the Commission to derive the KPIs update based on TENtec OMC and to up-date the TENtec OMC with data from completed projects.

The methodological approach for the delivery of Task 3 and the related subtasks is described into more detail in the Inception Report of the First Phase of the 2018-2022 CNC Studies. In the paragraphs below a summary of the activities performed over the past 24 months is provided.

1.5. Task 3.1 – Monitor the implementation of Corridor projects, Task 3.2 – Analyse the progress of projects and Task 3.3 – Prepare regular and ad-hoc project implementation status reports

While Task 2 covers the update of the entire project list (adding/deleting projects and improving the quality of data per project) biannually (2019 and 2021), Task 3.1 focuses on the monitoring of the implementation of the projects included in the agreed project list (by status of 2017, 2019 and 2021 lists) in the subsequent periods, every six months. Monitoring focuses on two sets of criteria: project maturity and project financing.

Based on the results of Task 3.1, in Task 3.2 the analysis of the progress of projects is carried out. In the "comments" column of the project list project promoters were also asked to report any difficulty encountered with respect to the implementation of the projects required to complete the corridor by 2030. In case these difficulties jeopardise the completion of the corridor, they are highlighted, the Commission and the European Coordinator is alerted and the Coordinator assisted in finding appropriate solutions.

At the end of each monitoring process an implementation status report has been provided as part of Task 3.3, based on a quantitative analysis on the projects maturity and financing parameters and a qualitative analysis highlighting projects with difficulties and impact on the corridor which may require attention/action from the Coordinator.

On the basis of a standard template report common to the nine CNC studies, a first Project Implementation Report was elaborated on the basis of sample data from the 2017 Project List, which was submitted to the Commission by September 2018. According to the agreed methodology presented in the Inception Report and subsequent Working Group and Management Meeting minutes, the structure and content of this first report was agreed to be used for the subsequent Project Implementation Reports. On this basis, Project Implementation Reports were elaborated every six months based on the narrow updating process of the project list.

The latest report, i.e. Project Implementation Report 1/2022 has been submitted in April 2022, which reflects the status of the projects in March 2022.

1.6. Task 3.4 & 3.5 – Tailor-made information for the Coordinator & Prepare additional documents, summaries or presentations based on the outputs or results of other tasks, i.e. Tasks 1, 2, 4 and 5

In line with the content of the Inception report, since the Tender Specifications do not specify the exact need of Tasks 3.4 and 3.5, a coordinated methodology was not elaborated among the 9 CNC studies' Consortia for the activities to be performed under these tasks. Accordingly these are deemed to be subject to corridor-specific agreement between the BA Corridor Contractor and the Adviser to the European Coordinator.

More specifically the Contractor and the Adviser to the European Coordinator agreed on the use of action plan for the development of the BA Corridor by 2030 as an additional tool for the monitoring of the difficulties related to the implementation of the projects towards the completion of the corridor at standard by 2030. As mentioned above, this tool groups projects included in the project list by section/macro-section or node, or relevant policy theme. It allows for the analysis of the synchronised and coordinated development and implementation of the projects contributing to a better understanding of both the current situation and future outlook of the sections/nodes belonging to the corridor, together with an indication of the potential gaps and description of the difficulties related to the initiatives under the scope of each action. The definition of the actions also considers the priorities identified by the European Coordinator in the Work Plan. Furthermore, following the finalisation of the 4th Work Plan, the Coordinator decided to adopt a programme of dialogues on interoperability, interconnectivity and innovation, which allows her to gather information and discuss with the stakeholders about the projects and initiatives of relevance for the development of the BA Corridor in line with the Work Plan priorities. Up to the date of submission of this final report, a number of dialogues have been organised in different locations of the BA Corridor, involving the Corridor Forum Members and additional stakeholders. Further to supporting the Coordinator and her Adviser in the organisation of these dialogues, support was also provided when requested for the drafting of preliminary and reporting notes for internal use on these events.

1.7. Task 3.6 – Use and Update the Technical Parameter Data in TENtec

The Inception Report includes a detailed section on the delivery of this Task of the study. The scope and approach to deliver this task as well as the mutual implications of the use of TENtec and its update with reference to Task 1.2 were also discussed at the first, second and third management meetings of the 2018-2022 CNC studies. The task will be performed by the Contractor according to the methodology, approach and time-schedule that will be agreed between the Contractor and the Commission, under possible coordination of the Working Group on Tasks 2 and 3. More specifically, excel files with relevant TENtec data were submitted to the TENtec team for the years 2017 and 2018 in August/September 2019. Data for 2020 were directly uploaded by the Contractor by June 2021. The Contractor noticed that data for the years 2017 to 2019 were apparently not available in the system and uploaded these data, as agreed with the TENtec team and coordinated among the Consortia.

5 Task 4 - Providing the elements for the updates of the work plan

The work plan is the basic corridor document submitted by the European Coordinator to the Member States analysing the development of the corridor. Besides laying down the Coordinator's implementation priorities for the corridor, the work plan includes a description of the corridor characteristics and its state of development, identifying the critical issues and proposing a plan for the removal of the physical, technical, operational and administrative barriers within and between transport modes along the corridor. Four versions of the work plan, Work Plan 1, Work Plan 2, Work Plan 3 and Work Plan 4 were adopted and published so far.

As specified in the Tender Specifications of the ongoing 2018-2022 CNC studies, the Contractor is expected to produce two new versions of the work plan leading to the 4th work plan by the end of 2019, published in June 2020, and to the 5th work plan by the end of 2021, which finalised in July 2022.

Under Task 4, the Contractor provided updates to all elements of the work plan as required by Article 47 of the Guidelines, including updating the information and data contained in the previous versions of the work plan as regards:

- the removal of physical and technical barriers (including deployment of interoperable transport systems);
- the identification of potential administrative and operational barriers along the corridor and proposed measures to cope with them, in particular cross-border issues and issues concerning the nodes on the corridors, as referred to in art. 30 and 41 of the TEN-T Regulation;
- the analysis of the corridor's current state of and its future potential for innovation deployment, and its impact on the corridor's overall performance.

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

The Corridor Forum is the consultative body for the corridor, chaired by the European Coordinator, involving Member States, regions, infrastructure managers, ports, airports, rail-road terminals and other stakeholders. On average there are between 40 and 60 participants at the meeting. The Corridor Forum could be supported by several working groups or in the case of the BA Corridor Coordinator's Dialogues on Interoperability Interconnectivity and Innovation.

Under Task 5, the Contractor undertook the following activities:

- Provide support for the organisation of 2 corridor forum meetings per year in Brussels at the premises of the European Commission. This includes establishing the list of participants, processing invitations and drafting the minutes of every meeting as well as of short flash reports;
- Organise on average up to 6 events/working groups meeting per year, establishing the list of participants, processing invitations and drafting minutes and flash reports. The meetings may take place outside the Commission premises and be hosted by other entities in the EU;
- Present the progress of the study at the Corridor Forum meetings, and at the Working Group meetings or Coordinator's Dialogues as appropriate;
- Manage and update the established list of stakeholders and manage communications with the stakeholders as regards their participation in meetings and the transmission of meeting documents.

Over the course of the second two years of activities under the scope of the 2018-2022 CNC studies, follow up meetings of the Corridor Forum as well as its working groups were organised as follows:

- The 14th meeting of the Baltic-Adriatic Core Network Corridor Forum took place in Brussels on 22nd November 2019 and preceded by the Working Group of Ports and RRTs held on 21st November 2019;
- Due to restrictions regarding the Covid-19 pandemic, the 15th Corridor Forum scheduled for June 2020 was cancelled. Instead of that, an online meeting was carried out on 24th March 2021;
- Due to persistency of the Covid-19 pandemic, the 16th meeting of the Baltic-Adriatic Core Network Corridor Forum was organised online on 23rd November 2021.

The Contractor has supported the European Commission in the preparation and organisation of all the above events. Minutes were also elaborated for these meetings, which were distributed to the Corridor Forum Members, together with the list of participants.

Furthermore, assistance was given to the Commission and to the Coordinator in the preparation, organisation and follow up of Coordinator Dialogues. Since the inception of the second phase of the 2018-2022 CNC studies and approval of the 4th work plan, 8 dialogues were organised, including 7 meetings organised independently by the European Coordinator at various locations along the Corridor (Bologna, Ljubljana, Łódź, Ostrava, Graz, Szczecin, Venice), and one meeting jointly organised with the European Coordinator for Motorways of the Sea and the European Coordinator of the Orient East-Mediterranean Corridor on the development of MoS actions and priorities in the East Mediterranean Basin. The Contractor assisted the European Coordinator in her participation to the European Maritime Day on the 19th of May 2022 in Ravenna, where the Coordinator also attended a meeting of the North Adriatic Ports Association

(on the 18th of May 2022) and visited the Port of Ravenna (on the 19th of May 2022). On the 20th of May 2022 a visit to the Port of Ancona was also organised, including participation by the Coordinator in a meeting of the NEW BRAIN PLUS Interreg Funded project, concerning projects for the promotion of alternative clean fuels and last mile connections at Adriatic Ports. Another Coordinator dialogue is currently under preparation to be held in Tricity (Gdynia, Gdańsk and Sopot), on the 21st, 22nd and 23rd of November 2022. In September 2021, the Contractor also participated in the events involving the European Coordinator of the Baltic-Adriatic Corridor on board and along the itinerary of the Connecting Europe Express between Ljubljana and Graz. Finally the Contractor participated in the Connecting Europe days in Lyon on the 28th, 29th and 30th of June 2022. The Coordinator is assumed to participate in a cross-corridor meeting related to the development of RRTs on the 6th of October 2022, to be organised in Padova during the 2022 Logistics Expo. This meeting will also involve the Coordinator of the Mediterranean Corridor. The Coordinator is finally assumed to participate in the Rail Freight Corridor Baltic-Adriatic Railway Undertakings and Terminals Advisory Groups Annual Meeting, to be held in Prague on the 7th of October 2022.