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European Coordinator

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Abbreviations

b/bn	Billion
CEF	Connecting Europe Facility
CNC	Core Network Corridor
DG MOVE	European Commission – Directorate General for Mobility and Transport
EC	European Commission
EDP	ERTMS Deployment Plan
EGTC	European Group of Territorial Cooperation
EIA	Environmental Impact Assessment
ERTMS	European Rail Traffic Management System
ERDF	European Regional Development Funds
EU	European Union
GDP	Gross Domestic Product
GKE	Gesamtkonzept Elbe (overall Strategy for the Elbe IWW)
INEA	Innovation and Networks Executive Agency (EU)
IWW	Inland waterway
km	kilometre
KPI	Key performance indicator
m	metre
mn	Million
MoS	Motorway(s) of the Sea
MoT	Ministry of Transport
MTMS	Multimodal Transport Market Study
MS	Member States of the European Union
n.a.	not available / not applicable
n.L.	nad Labem (Czech place name), at Elbe River
NTP	National Transport Plan
OEM	Orient / East-Med (Corridor)
p.a.	per year / annual
RFC	Rail Freight Corridor
TEN-T	Trans-European Transport Network
tkm	ton-kilometres
TMS	Traffic Management System
TNL	trans-national
WG	Working Group
WP	Work Plan

Country Codes after ISO 3166:

AT	Austria
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
EL	Greece
HU	Hungary
MK	Northern Macedonia
RO	Romania
RS	Serbia
SK	Slovakia
TR	Turkey

1 Towards the OEM Corridor 4th Work Plan

1.1 Introduction

Year 2014 marked my appointment as the European Coordinator for the Orient /East-Med (OEM) Corridor, in accordance with the stipulations of Regulation (EU) 1315/2013 (the “TEN-T regulation”), together with the commencement of the Corridor Studies. Until now, the OEM Corridor Work Plan has progressively evolved from its very first edition (2015) to an additional two versions (2016 & 2018), produced within the framework of the 1st and 2nd Phase of the Corridor Study.

The great importance of the nine TEN-T Corridors that form the backbone for transportation in Europe's single market lies in the fact that these are expected to generate effects that are not limited solely to the pure transport system, but also to the main dimensions of sustainability. They are deemed to stimulate other wider long-term impacts, such as growth and economic development, economic and territorial cohesion, creation of jobs, institutional harmonisation of rules, society welfare and mitigation of climate change impact.

We find ourselves now at a crucial point; exactly a decade shy of the 2030 milestone to complete the Core TEN-T network, the time to deliver a technically compliant and operationally efficient multimodal OEM Corridor is of the outmost importance. During the Third Work Plan period, several important studies have been carried out for EC devoted to supporting this goal. The time has also come for further reflection on the TEN-T policy. To this end, the European Commission has started the review of the TEN-T process in April 2019, with the finalization date expected to be mid-2020.

In this respect, the present **4th Work Plan** is further refined not only to highlight key persisting bottlenecks, but also to further assess the Corridor's actual implementation through a closer monitoring of the projects.

A new element introduced is the identification of the additional projects contributing to technical compliance, removal of bottlenecks and/or shift to environmentally friendly transport modes that may be potentially supported under the multi-annual financial framework.

Sustainability goals and climate change mitigation/adaptation are key drivers of EU's infrastructure policy, while international political will to take action against climate change is stronger than ever. The Sustainable Development Goals (SDGs) and the UNFCCC Paris Agreement provide for a global commitment to reach certain targets and goals until the very same 2030 milestone.

This stresses the need to lay the groundwork for creating a more sustainable OEM Corridor, whereby both infrastructure investment and climate change action are urgently needed. With a targeted approach, we can achieve both goals simultaneously. This will ensure a sustainable and efficient transport system in the long run, and will enable all modes of transport to be decarbonised. The latter constitutes a key goal of EC's newly presented “European Green Deal”, an ambitious strategy for EU to become climate-neutral by 2050.

In light of the above, the present document will be geared especially towards the notion of sustainable and future-oriented mobility, as well as combatting climate change by promoting an efficient/sustainable modal share and innovation deployment. In this way, Member States and stakeholders can gauge the level of investments in

emissions reduction and consider more effective actions and funding in support of their implementation.

1.2 Achievements along the Corridor since 2014

In total, 128 projects have been completed in the period 2014-2019, at a total cost of € 17.9bn. Indicatively, a selection of prominent projects is presented in terms of investment size and contribution to increasing infrastructure compliance rates, whereas the evolution of KPI is presented in Table 1.

From a general perspective, significant progress has been made along Greece's principal **rail** artery, following the launch of operation of the new 106 km long Tithorea – Lianokladi – Domokos double electrified line in mid-2019 (CEF co-funded project, €395 mn), reducing the journey time between the country's two largest cities-poles by more than one hour. As a result, particularly of the line's electrification, passenger demand increased considerably.

In addition, along the missing link Athens-Patras, the 140 km double high speed railway line Kiato – Aigio (Rododafni) is completed and scheduled to be delivered for use by the end of the first semester of 2020. The adjoining section Rododafni – Rio is scheduled to be completed by the end of 2023, bringing thus the train just outside the city of Patras. This latter is also co-funded by CEF.

In Austria, the Vienna Central Rail Station (Wien Hauptbahnhof) was finalised in 2015 at a total cost of € 997.1 mn, creating a high-performance north south and east-west connection. It became an important hub for regional, national, and international transport at a main junction within the trans-European rail network, accompanied by urban rehabilitation projects and upgrade of railway infrastructure. This was a Joint Project with CNCs Rhine-Danube and Baltic-Adriatic.

The new Rail/Road terminal in Budapest Csepel (Hungary) was finalized in 2017 as a third RRT next to those at Csepel and Soroksár. The latter serves as a hub allowing shuttle train services. Additional to the above, the Rail/Road Terminals of Leipzig Wahren (Germany) and Wien Inzersdorf (Austria) were upgraded or erected in 2017, while Lehrte Megahub (Germany) will become operable in early 2020.

Large finalized measures along the Orient/East-Med CNC are **motorway** projects (Austria A4/A5, Greece A5/A8, Romania A1, Hungary M0/M1/M43, Bulgaria A3/A4, and Germany A10/A19). A key project was delivered in Greece, the Olympia Odos PPP motorway (A8), in the section Korinthos – Patra, as part of the PATHE axis (Patras – Athens – Thessaloniki – Evzoni). The 120 km long section was finalised in 2017 with €875 mn of private funding. At the state border of Romania and Hungary, the motorway link connecting Szeged and Arad was completed in 2015, comprising the Romanian project A1 (Nadlac – Arad) and the Hungarian project M43 (Makó – Nadlac).

Moreover, 18 project preparation and project design studies have been performed in the rail sector within the reporting period, while Rail ERTMS deployment took place in Czechia (Břeclav – Brno), Austria (Süssenbrunn) and Greece (GSM-R in Athens Area and Kiato – Promahonas, with the exception of the section Tithorea - Domokos).

Seaports engaged in Alternative Green Fuel projects (Lemesos, Hamburg, Bremen/Bremerhaven, Pireas) or started to improve their rail access (Bremerhaven 2018), while VTMIS Port safety phase III was finalised in Burgas in 2015. In Cyprus, a new passenger terminal was built together with an extension of the southern container quay at the Port of Lemesos in 2016. The new 7.500 m² two-storey passenger

terminal 1 serves the purpose of separating the port into dedicated freight and passenger sections. The south container quay was expanded by 500m in order to improve capacity and efficiency of container transshipment.

The German stakeholders finalised in 2017 the “Gesamtkonzept Elbe”, a Maintenance and Operational Strategy for the Elbe IWW. The Brandýs Lock was renewed for improving the navigability of the adjacent inland waterway in Czechia (Labe) as a first step. The last bottleneck of the German Mittelland-Canal (r-km 303, near Magdeburg) was removed in 2018.

Measures have been conducted in Vienna (2014) to improve landside airport connection, while upgrade designs have been finalised for the Thessaloniki and Budapest airports. Finally, certain innovative projects in the fields of ITS, E-Mobility (Fast-E), Safe and Secure Parking were completed.

Table 1: Compliance Evolution 2013 - 2017

Rail	2013	2014	2015	2016	2017	Increase (2013-17)
Electrification	83%	83%	86%	89%	89%	+6
Line speed ≥ 100 km/h	75%	75%	75%	78%	81%	+6
Axle load ≥ 22.5 tonnes	77%	78%	77%	82%	84%	+7
UIC track gauge = 1,435 mm	100%	100%	100%	100%	100%	goal achieved
Train length ≥ 740 m	47%	48%	47%	50%	50%	+3
ERTMS	11%	11%	12%	13%	13%	+2

IWW	2013	2014	2015	2016	2017	Increase (2013-17)
CEMT IV or higher ¹	98%	98%	98%	98%	98%	0
Permissible Draught (min 2.5 m)	40%	40%	40%	40%	40%	0
Permissible Height under bridges (min. 5.25 m)	60%	60%	60%	60%	61%	+1
RIS fully available	98%	98%	98%	98%	98%	0

Road	2013	2014	2015	2016	2017	Increase (2013-17)
Express way/motorway	81%	82%	87%	87%	88%	+7

Seaports	2013	2014	2015	2016	2017	Increase (2013-17)
Connection to rail	80%	80%	80%	80%	80%	0
Connection to IWW CEMT IV	100%	100%	100%	100%	100%	goal achieved
Availability of clean fuels	0%	0%	0%	0%	0%	0
Freight terminal open to all operators and transparent charges	100%	100%	100%	100%	100%	goal achieved

Inland Ports	2013	2014	2015	2016	2017	Increase (2013-17)
Connection to IWW CEMT IV	100%	100%	100%	100%	100%	goal achieved
Connection to rail	89%	89%	89%	89%	89%	0
Availability of clean fuels	0%	0%	0%	0%	0%	0
Freight terminal open to all operators and transparent charges	89%	89%	89%	89%	89%	0

¹ The CEMT class IV requirement is not met in certain parts of the Czech Republic, notably the section Týnec n. L – Pardubice, as this section is hardly possible to be used for IWW. Problems include draught and height of bridges.

RRT	2013	2014	2015	2016	2017	Increase (2013-17)
Capability for intermodal transshipment	79%	79%	79%	79%	83%	+4
740m train terminal accessibility	25%	25%	25%	25%	29%	+4
Electrified train terminal accessibility	46%	46%	46%	46%	46%	0
Open terminal	67%	67%	67%	71%	71%	+4

Airport	2013	2014	2015	2016	2017	Increase (2013-17)
Connection to rail	46%	46%	46%	54%	54%	+8
Availability of clean fuels	0%	0%	0%	0%	0%	0
Open terminal	100%	100%	100%	100%	100%	goal achieved

1.3 Difficulties along the Corridor

Implementation delays

Despite the above, Corridor evolution is hampered, as various projects are facing **delays** or the projects' implementation is shifted into subsequent multiannual periods. For at least 15 projects of KPI importance², a finalization date after the required compliance date December 2030 is assumed.

The projects supported by the European Union under the CEF programme on the OEM are **also suffering of delays**. The OEM CEF portfolio represents approximately 100 projects since 2015. In terms of financial support, this accounts for around € 1.76 billion of CEF grants. The main type of projects concern the delivery of physical infrastructure³ (works) or studies (design, feasibility, environmental, permitting, etc.), but also the deployment of alternative fuels infrastructure, ERTMS and Intelligent Transport or River Information Services. As per the delays, about one third of these 100 projects have already received officially an extension (from several months to several years in some cases). Indicatively, these reached at the end of 2018 (latest data available) a financial progress of 37 %, when it should have been 58 % according to the initial forecast.

Reasons for delays are diverse and may include several dimensions. It leaves room for optimization of permitting and procuring of infrastructure planning in order to avoid inefficient planning and permitting cycles, when later procedural steps fail and may require the repetition or revision of earlier planning ones. In various cases, technical and economic assistance was needed to upgrade or adapt foreseen measures that were clustered into co-fundable projects, especially due to technical complexity and lack of risk mitigation.

² The same applies to other critical projects that are not currently on the Member States' agendas but are required to achieve a fully compliant Corridor by 2030. See "additional projects" under section 4.

³ The OEM CEF portfolio actually consists of 39 works projects plus 24 studies & works projects and 40 study projects. 14 studies are design/feasibility for pre-identified CNC projects in Rail (8), IWW (4) and Seaports (2). 10 co-financed studies are dealing with Clean Alternative Fuels on Road transport, 3 on clean maritime fuels, 3 on MoS. 17 Works projects are covering pre-identified projects, mainly in rail (13). Co-Financed road projects are mainly dealing with Innovations (8) or ITS (5); the rest includes 4 IWW projects (RIS, Navigability), 4 Maritime Projects and 2 airport projects.

In certain cases, procurement procedures for works were prolonged through **competition lawsuits**. Indicatively, the Elin Pelin – Kostenets railway section project in Bulgaria was under appeal for 11 months, bringing the overall delay to 29 months, when the works contract for the section Elin Pelin – Vakarel was finally signed in the end of 2019. The situation is rather prominent also in Romania, whereby most infrastructure development projects and their respective studies go through appeals/litigation or lawsuits resulting in delays of up to 2-3 years.

Low Commercial Speed

An additional issue is the continued **low commercial speed** of international freight trains, mainly related to the long dwelling times at border stations due to inefficient rail safety checks or suboptimal logistical interfaces between railway undertakings. Travel time lost before and at border stations counteracts the efforts of Rail infra managers and Member States to upgrade railway sections for higher line speeds and continuously trigger the undiscerning modal shift from rail to road.

Unused potential

Another concern is the **unused potential for trans-national Corridor evolution**. The need for improved cross-border and transnational cooperation and exchange of best practice in order to achieve coordinated trans-national development of Corridor infrastructure and mobility services is still high, as infrastructure planning and construction remains strictly within national frameworks, paralysing the breakthrough of the Corridor spirit. This could be fertilised by the good-practice examples of the Czech-German cooperation for the joint development of the High Speed Rail connection Dresden – Ústí n.L. – Praha.

Lack of financial planning

A lack of financial planning by some Member States is putting at risk the start-up and timely implementation of projects. National authorities should secure financing.

Lack of political will for CNC implementation

On certain parts of the Corridor, for different reasons, priorities are not yet fully settled to implement the Corridor by 2030.

2 Characteristics of the OEM Corridor

2.1 Alignment

The **Orient / East-Mediterranean (OEM) Corridor** is a long north-west to south-east Corridor traversing **9 Member States**, i.e. Austria, Bulgaria, Cyprus, Czech Republic, Germany, Greece, Hungary, Romania, and Slovak Republic. It essentially connects through road, rail, IWW and nodal infrastructure the Central and South East Europe with the maritime interfaces of the North, Baltic, Black and Mediterranean seas.

The CEF Regulation (EU) 1316/2013 designates to the OEM Corridor 15 urban nodes and airports, 10 Inland ports, 12 Maritime ports, as well as 25 hubs with Rail-Road Terminals (RRTs). Notably, two inland ports and one RRT do not currently exist.

The new proposed alignment, subject to the upcoming revision of the CEF regulation, mostly relates to road and rail extensions in Bulgaria (links to Serbia and Northern

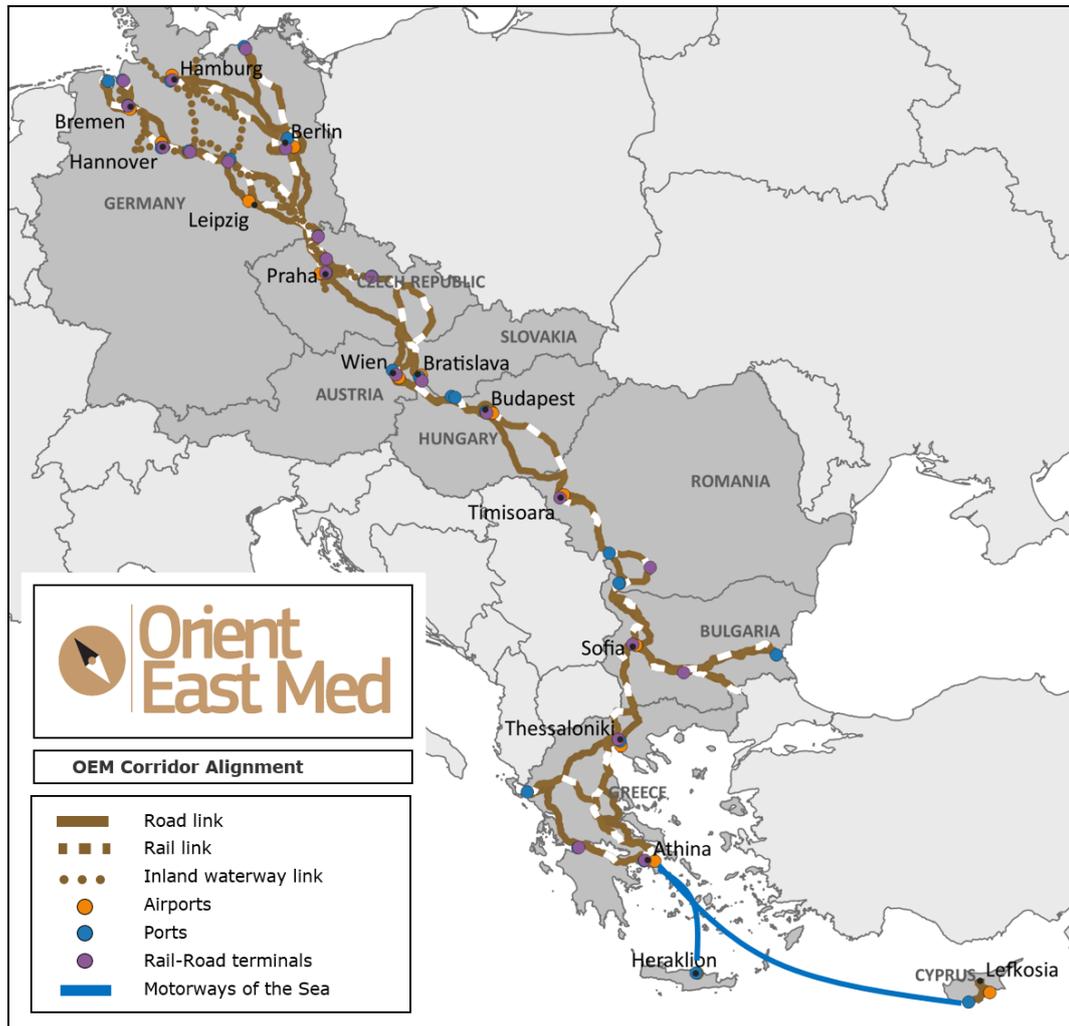
Macedonia) and Greece (with links to Albania, Northern Macedonia, Bulgaria and Turkey).

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

TEN-T Regulation (EU) 1315/2013 puts forward explicit target values for the Core Network Corridors' transport infrastructure that need to be met by December 2030, the latest. To assist the monitoring towards achieving these target values, Key Performance Indicators (KPI) are defined for all modes to measure the extent to which these are realised. A compliance analysis is regularly performed to determine for each Member State along the OEM Corridor the current and expected status of the infrastructure and its actual compliance with the standards stipulated by the Regulation.

In summary, the OEM Corridor is characterised by a North-South divide in terms of infrastructure supply and quality, mirroring each Member State's economic conditions, also with respect to its year of accession to the European Union. An additional challenge is the Corridor's geographical alignment, especially in the southern Member States, where the relatively high costs of transport infrastructure crossing mountainous terrain is paired with a still relatively low public transport demand. Looking forward to 2030, a steady increase in compliance levels has to be realised mainly by infrastructure improvement in the southern part of the Corridor.

Figure 1: OEM Corridor Alignment



It should be acknowledged that although infrastructure is compliant, other parameters and operational restrictions, such as safety, emission or capacity issues may still need to be addressed, in order to reach the EU's goal of an efficient and sustainable single European transport area.

The results of the compliance analysis are presented in Tables 2-6 for each individual transport mode. Thereby, current compliance levels reflect the status of the infrastructure network as of **December 2017**, while the expected compliance levels by 2030 are based and updated on the **Corridor Project List of June 2019**.

Rail compliance

KPI	Member State									Total	
	AT	DE	CZ	SK	HU	RO	BG	EL	CY	2017	2030
Electrification	100%	96%	100%	100%	100%	80%	100%	47%	-	89%	100%
Line speed ≥100 km/h (freight)	100%	100%	96%	72%	97%	80%	43%	81%	-	81%	88%
Axle load ≥22.5t	100%	100%	100%	100%	83%	6%	100%	67%	-	84%	100%
Track gauge 1435mm	100%	100%	100%	100%	100%	100%	100%	100%	-	100%	100%
Train length ≥740m	0%	100%	0%	0%	97%	13%	11%	61%	-	49%	74%

Table 2: Rail Compliance rates by Member State

The compliance analysis showed that:

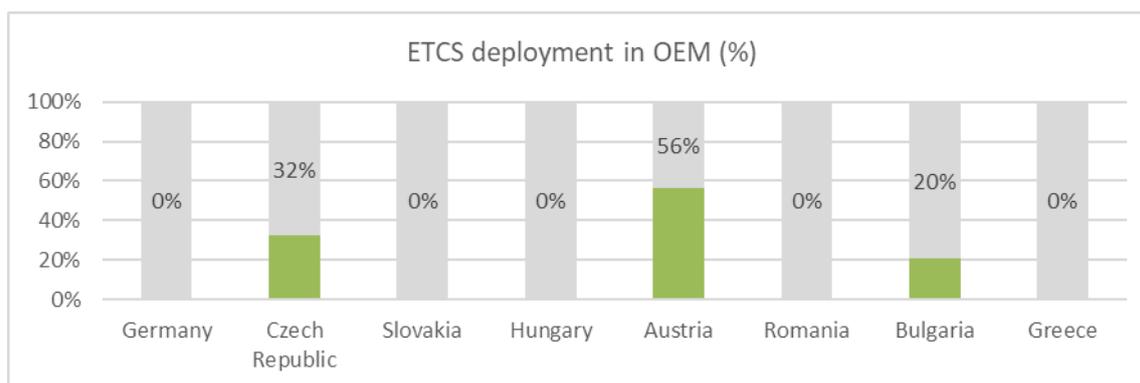
- Electrification of the Corridor is reached by 89%. Non-electrified sections are Oldenburg – Wilhelmshaven (incl. connection of Jade-Weser Seaport – commissioning expected in 2022), Craiova – Vidin, Thessaloniki – Promahonas and Kiato – Patras, summing up to a total length of 618 km.
- Around 80% of the Corridor rail network enables for a line (design) speed of at least 100 km/h, with some 1051 km being non-compliant; most urban agglomerations show compliance gaps for this parameter resulting in a much lower commercial speed, as do free sections in Bulgaria and various cross-border sections⁴.
- The “Axle load” threshold is fulfilled by 84%, whereas non-compliant sections are located in Greece, Hungary and Romania making out 873 km in total.
- A train length of 740 m is permitted only on half of the Corridor and is particularly problematic along single-track sections (2848 km non-compliant).

ERTMS compliance

ERTMS/ETCS is deployed only in Austria and certain sections in Bulgaria and the Czech Republic. On the OEM CNC rail network, the ERTMS deployment to be achieved at the end of 2019 (according to EDP) refers to only 69% of line length.

Overall, on 9% of the OEM rail network ETCS is in operation, while GSM-R is in operation on 51% of the Corridor. A network length of 47% is planned to be put in operation by 2023, but is already presenting certain delays. Figure 2 depicts the status of ETCS deployment by MS in the OEM.

Figure 2: Status of national ETCS deployment on OEM CNC



Source (both): *Technical support for the Deployment of ERTMS along the Core Network Corridors, INECO & EY, December 2019*

Findings include the following:

- Regarding the Greek ERTMS deployment, as described in the “Greek Implementation Plan”, ETCS construction works are already completed for a

⁴ Examples of non-compliant border sections: Děčín - Ústí n. L. Střekov (CZ), Petržalka – Rajka (SK), Rac. Golenti – Craiova (RO), Kulata – Blagoevgrad (BG), Strimonas – Promahonas (EL).

total length of 54,4km and are on-going for 718,8km. As far as GSM-R is concerned, the implementation is completed for 714km. In the Greek OEM network, ERTMS is planned to be operational gradually according to the relevant implementation plan.

- In the Romanian OEM network, ERTMS is not planned to be operational by 2023 in the section Arad – Caransebeş – Craiova – Calafat. Deployment of Curtici – Arad is delayed by three years to 2021; Calafat – Rac. Golenti from 2018 to 2025.
- The ERTMS implementation at Hungarian sections shows a delay with different origins of two to four years (Budapest – Lökösháza 2021, instead of 2018; Rajka – Hegyeshalom 2020 to 2024, Hegyeshalom – Budapest 2022 to 2024).
- The Bulgarian deployment plan foresees ERTMS deployment on Vidin – Sofia – Kulata after 2023, while both sections Sofia – Elin Pelin– Septemvri (2020) and Plovdiv – Burgas (2021) are delayed to 2023.
- In Czechia, there would be a discontinuity in the OEM rail freight corridor between Děčín and Kolín that would only be operational beyond 2023.
- In Slovakia, the section Devínska Nová Ves – Kúty, previously planned to be deployed by 2023, is now foreseen to be operational by 2030.
- The German section between Nassenheide (north of Berlin) and Rostock is delayed from 2022 to 2023.

Rail/Road Terminal compliance

KPI	Member State									Total	
	AT	DE	CZ	SK	HU	RO	BG	EL	CY	2017	2030
Intermodality	100%	70%	50%	0%	67%	0%	100%	100%	-	62%	62%
740m train length	0%	30%	17%	0%	33%	0%	0%	50%	-	29%	38%
Electrified access	50%	40%	0%	0%	0%	0%	100%	50%	-	28%	31%
Open availability	100%	100%	50%	100%	100%	0%	0%	100%	-	74%	74%

Table 3: RRT Compliance rates by Member State

Related KPIs are not explicitly laid down in the Regulation; instead, they are derived from market needs in order to render intermodal transport competitive to road. In general, compliance of the terminals is low and does not yet reflect present and future market needs (none of the 3 core RRT's in Romania exist). Moreover, the situation is that:

- About 62% of the terminals provide the possibility to tranship all types of standard intermodal loading units⁵. In particular, terminals located in the ports are often equipped for container transshipment only.
- Only 21% of the terminals allow for 740 m train access, either directly into the transshipment tracks or in dedicated in-/outbound tracks. Fulfilment of this criterion is restricted to recently constructed terminals. In contrast, old facilities generally show an unfavourable layout.

⁵ i.e. containers, swap bodies, trailers

- The compliance rate for electrified access is 28%. In most of the compliant terminals, the ends of the transshipment tracks are electrified, thus enabling direct train departure to the (Corridor) line. In other cases, at least one in-/outbound track provides electrification.

IWW compliance

KPI	Member State		Total	
	DE	CZ	2017	2030
CEMT class IV	100%	100%	100%	100%
Draught > 2.50 m	51%	0%	40%	45%
Fairway depth ⁶ > 1.40 m	57%	90%	64%	100%
Bridge height > 5.25m	61%	72%	61%	100%
RIS implementation	100%	100%	100%	100%

Table 4: IWW rates by Member State

It must be stated that:

- Non-compliant sections are found in the uppermost river section of Elbe / Labe between Týnec n.L. and Pardubice.
- The OEM IWW network is allowed for vessels of CEMT class IV or higher, based on the requirement of navigability for ships of 9.5 m horizontal width, disregarding other parameters (such as draught and underpass height) that are not necessarily to be met.
- RIS in Czech Republic is reaching 90% due to the new section Týnec n.L. – Pardubice, which is not navigable. Furthermore, in the Czech Republic, basic RIS applications have been implemented. As a part of the international project RIS COMEX (funded under CEF), the enlargement of AIS infrastructure is under elaboration. The AIS usage applies since 12/2019. All these services are being implemented jointly with Germany as part of the Elbe-Weser Corridor within the RIS COMEX project.
- Regarding the minimum height under the bridges (>5.25 m), this is fulfilled on 1015 km of waterways, representing 61% of the OEM IWW network. Section Schmilka – Magdeburg (332 km) is non-compliant with three historic road bridges in Dresden (Albertbrücke, Augustusbrücke, Marienbrücke), which are only non-compliant in the case of highest navigable water level. Other non-compliant sections are the Labe River at Týnec n.L. – Pardubice (32 km), the entire navigable Vltava River (94 km) and the Elbe-Lübeck-Kanal (68 km). However, on Vltava river, enhancement works supported by CEF have started in order to reach the requested height under bridges as from 2022.
- A minimum draught of 2.5 m is fulfilled on 670 km (40%) of the OEM IWW network.
- Based on the ambitions set in the Gesamtkonzept Elbe (GKE) both riparian states consider it sufficient to improve the fairway depth on the non-tidal Elbe to at least 1.40 m below the 2010 Equivalent Water Level on a long-term

⁶ Reference water level for the free-flowing river sections of the Elbe is the 2010 Equivalent Water Level

average of 345 days. The equivalent water level is a low water level, which is reached or fallen below long-term average of 20 ice-free days per year. The fairway depth equals the sum of draught, squat and minimum net underkeel clearance (without depth reserve). A formal derogation in accordance with Article 15 (3) of the TEN-T Regulation is pending from both riparian states.

Ports compliance

KPI	Member State									Total	
	AT	DE	CZ	SK	HU	RO	BG	EL	CY	2017	2030
SEAPORTS											
Rail connection	-	100%	-	-	-	-	100%	40%	0%	80%	90%
CEMT / IWW connection	-	100%	-	-	-	-	100%	100%	100%	100%	100%
Clean fuels	-	0%	-	-	-	-	0%	0%	0%	0%	50%
Open Terminal availability	-	100%	-	-	-	-	100%	100%	100%	100%	100%
Waste facilities	-	100%	-	-	-	-	100%	100%	100%	100%	100%
INLAND PORTS											
Rail connection	-	100%	50%	-	-	-	-	-	-	80%	90%
CEMT / IWW connection	-	100%	100%	-	-	-	-	-	-	100%	100%
Clean fuels	-	0%	0%	-	-	-	-	-	-	0%	33%
Open Terminal availability	-	100%	50%	-	-	-	-	-	-	89%	89%

Table 5: Seaports & Inland Ports' compliance rates by Member State

The main findings are as follows:

- The Greek seaports of Igoumenitsa and Patras are not connected to the country's railway network.
- All ports are lacking the provision of publicly accessible alternative fuels refuelling points for maritime transport. However, pilot solutions, such as LNG tank vessels, cruising in sea basins have been introduced in 2019 (e.g. LNG tank ship in Hamburg).
- The planned core inland port of Pardubice does not exist yet. In addition, the core inland port of Praha Holešovice is deemed to be out of operation for freight handling and could lose its limited connection to rail.
- No further RIS development plans are currently in preparation for the Czech core network ports (Děčín, Mělník and Praha Holešovice); more specifically, the direct input to the service "Notices to skippers" is not established yet.
- VTMS and e-maritime services still remain an issue for Greek ports.

Road compliance

KPI	Member State									Total	
	AT	DE	CZ	SK	HU	RO	BG	EL	CY	2017	2030
Motorway	74%	100%	85%	100%	94%	37%	71%	100%	95%	88%	99%
Alternative Clean Fuels	100%	99%	100%	100%	88%	100%	100%	93%	21%	95%	100%

Table 6: Road Compliance rates by Member State

It is worth mentioning, that:

- Compliance exceeds 88% in terms of motorways or express roads, while reaches 95% in terms of provision of at least one type of alternative fuel.
- Non-compliant sections are only identified in the Austrian-Czech cross border area (A5 / D52), Romania (Lugoj – Calafat, 256km), Bulgaria (Vidin – Botevgrad, Krupnik – Kresna, 290,5 km) and some parts of the Cypriot motorways, the total length of which is 700 km.
- Registered Safe and Secure Truck parking areas (SSTPA) hardly exist along the OEM corridor. Out of the 131 in total rest areas available along the Corridor, the number of those that are fenced and illuminated, meaning they meet the absolutely minimum requirements to be classified as Safe and Secure Truck parking areas (SSTPA), is only 28.

Secure Parking⁷

Parking	DE	CZ	SK	AT	HU	RO	BG	EL	CY	Total
Total	41	12	6	7	13	9	29	14	n.a.	131
Per 100km	3.0	2.5	7.4	5.7	3.1	2.2	3.1	1.1	n.a	2.6

- Capacity bottlenecks exist especially in northern parts of the Corridor and in proximity of main nodes and other big cities.

Airport compliance

KPI	Member State									Total	
	AT	DE	CZ	SK	HU	RO	BG	EL	CY	2017	2030
Rail connection	100%	80%	0%	0%	0%	0%	0%	33%	0%	46% ⁸	73%
Clean fuels	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Term. Availab.	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 7: Airport Compliance 2018

- No fixed storage tank facilities for aviation biofuel are reported to be in use in any airports. Airports such as Hamburg and Wien are though increasingly using alternative fuels in fleet for airport ground services (e-mobility, hydrogen, CNG, LPG).
- Out of the six main core airports⁹, three (Hamburg, Praha and Budapest) are not capable to operate high-speed passenger trains. Regarding other core airports, Bratislava, Timisoara, Sofia and Thessaloniki are currently not connected to the passenger rail network.

⁷ Safe and Secure Truck Parking Areas with fences and illuminated and registered at IRU: Amount of total areas per 100 km network length. Source: <https://www.iru.org/system/files/Final-Report-SSTPA-27022019.pdf>

⁸ If only Main Core airports are considered, the current compliance rate is 50%, with 92% expected in 2030.

⁹ Only the Main Core airports are falling under the obligation of Article 41(3) of EU Regulation 1315/2013.

2.3 Persisting bottlenecks and missing links

Despite the long pipeline of on-going and planned infrastructure projects along the OEM Corridor, one can still identify persisting bottlenecks and missing links related to projects that are currently not on the agenda of the MS or stakeholders (need for additional projects, discussed in Chapter 4), projects that will not be completed by 2030 and/or projects that experience significant delays.

Railway network bottlenecks

Figure 3 presents a compliance overview for the **railway** network of the TEN-T parameters “Electrification”, “Track gauge”, “Line speed” and “Axle load” for year 2030. In summary:

- Electrification: Compliance by 2030 is doubted in Romania due to the recent lack of maturity resp. financing.
- Freight Line Speed ≥ 100 km/h: For the achievement of 100 km/h design line speed for freight trains, certain compliance gaps are expected to remain by 2030: The connection from Sande/Weisser Floh to JadeWeserPort in Germany remains single track, electrified with 80km/h maximum speed but with an increased axle load of 23,5 tons, no project is foreseen, the same for Bratislava Petržalka – Rajka (SK). In Romania, although a speed upgrade is foreseen on the Craiova – Calafat section by 2023, compliance by 2030 is doubted, due to delay of maturity-related milestones. The same applies in Bulgaria on sections Vidin – Brusartsi and Sofia – Radomir (finalisation planned for 2027, but realisation doubted for similar reasons). Other upgrade measures in Bulgaria show a planned finalisation date after 2030, such as those along Brusartsi – Boychinovtsi – Mezdra – Sofia, as well as Radomir – Kulata (BG/EL border).
- Capacity: In Budapest, the southern rail bridge is deemed a severe capacity bottleneck due to its overlying local, national and international passenger and freight volumes, taking also into consideration future growth rates and the intended connection of the Budapest airport with the western parts of Hungary. A third track, which will improve significantly the capacity, is in preparation and the approval planning is in progress. Other capacity improvements are planned in the long term (Deli – Nyugati Rail tunnel) while the V0 bypass line will be deployed after 2030.
- Axle Load ≥ 22.5 t: The entire Romanian part is covered with projects to achieve axle load compliance or double tracks by 2030; however, their realisation is doubted as per the aforementioned reasons.
- Train Length ≥ 740 m: Regarding the permitted train length, in Austria, Czech Republic and Slovakia, existing projects refer to single sections, leaving the majority of these countries’ network non-compliant. In Bulgaria, non-compliant sections are expected to remain between Plovdiv and Dimitrovgrad/Burgas.
- The limited ERTMS compliance is described in section 4.2.
- In total, 1.184 km of rail network would remain non-compliant by 2030 considering Electrification, Axle Load and Freight Line Speed as depicted in Figure 3.

Next to these rail line improvements, certain **missing links** in the OEM rail network are planned to be solved until 2030.

One is the planned new high-speed line between Dresden and Praha, which is however not expected to be finalised by 2030: A steering committee of German and Czech experts has been established, which is in charge of the current planning phase. On the German side, studies shall start in 2020. For the start of the construction works shall start as soon as the State Treaty enters into force. However, bearing in mind the current planning status and the ambitious tunnel construction with lots of geological uncertainties, the line is expected to be put into operations beyond 2030.

In Greece, the new rail section Igoumenitsa – Ioannina – Kalambaka is planned to be ready by 2030; nevertheless, this is considered a highly technically challenging project, whose completion by 2030 is not fully ensured at this stage

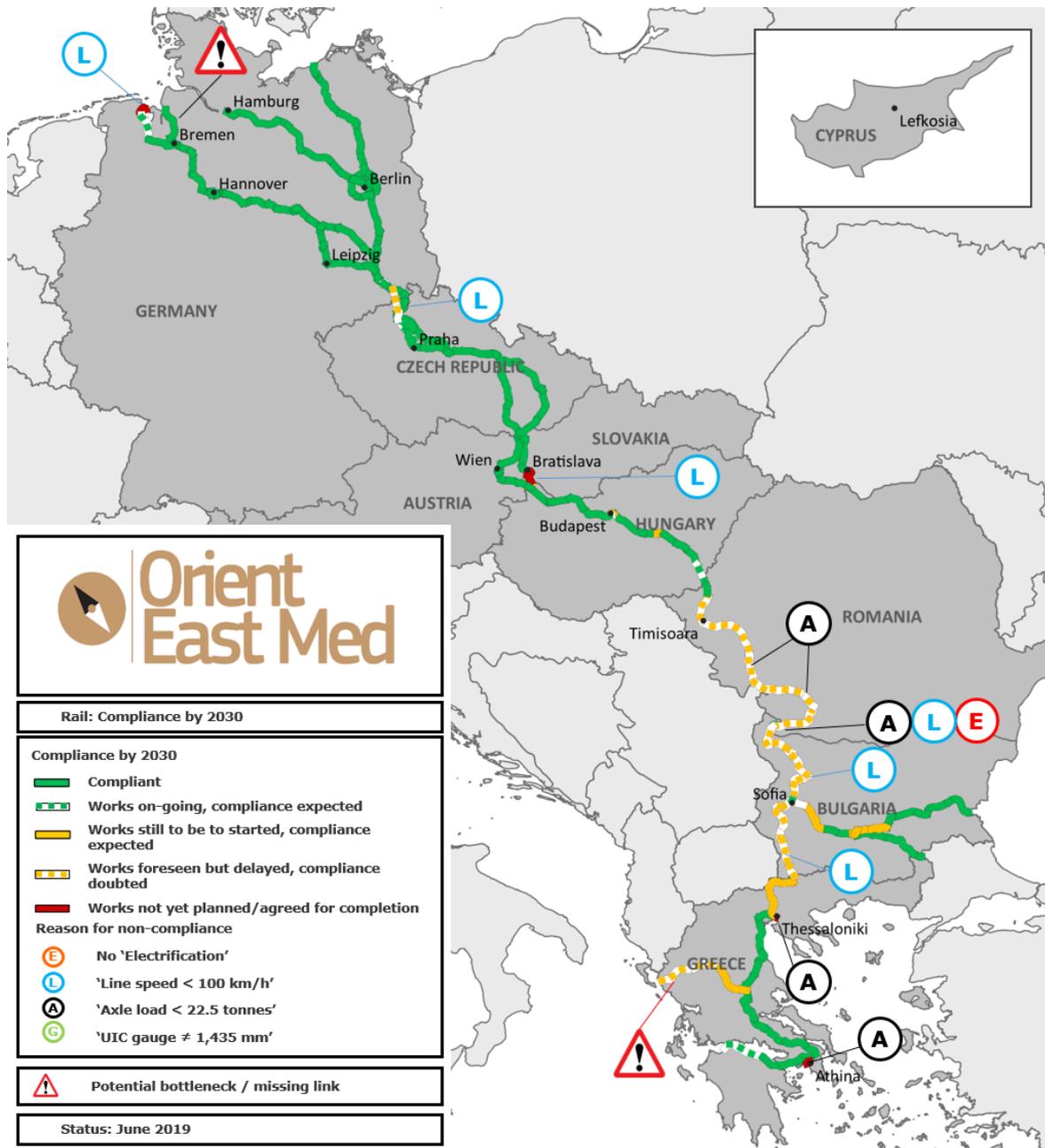
RRT bottlenecks

Projects for new Rail Road Terminals are allocated to Přerov (2030), Timișoara, and Craiova (end dates unknown). With respect to the long-term or even unknown implementation timeline, the actual realisation of the above projects must be regarded as doubtful.

For the nominated but not existing RRT in Patras, a project is not known; an RRT/freight village has been considered in the related measure “Completion of a backbone network of Freight Villages” by the study for a NTP for Greece.

Next to these new construction measures, only few upgrade projects are known that will lead to an improvement of the KPI compliance rates (e.g. RRTs of Sofia and Athens).

Figure 3: Rail compliance by 2030 overview



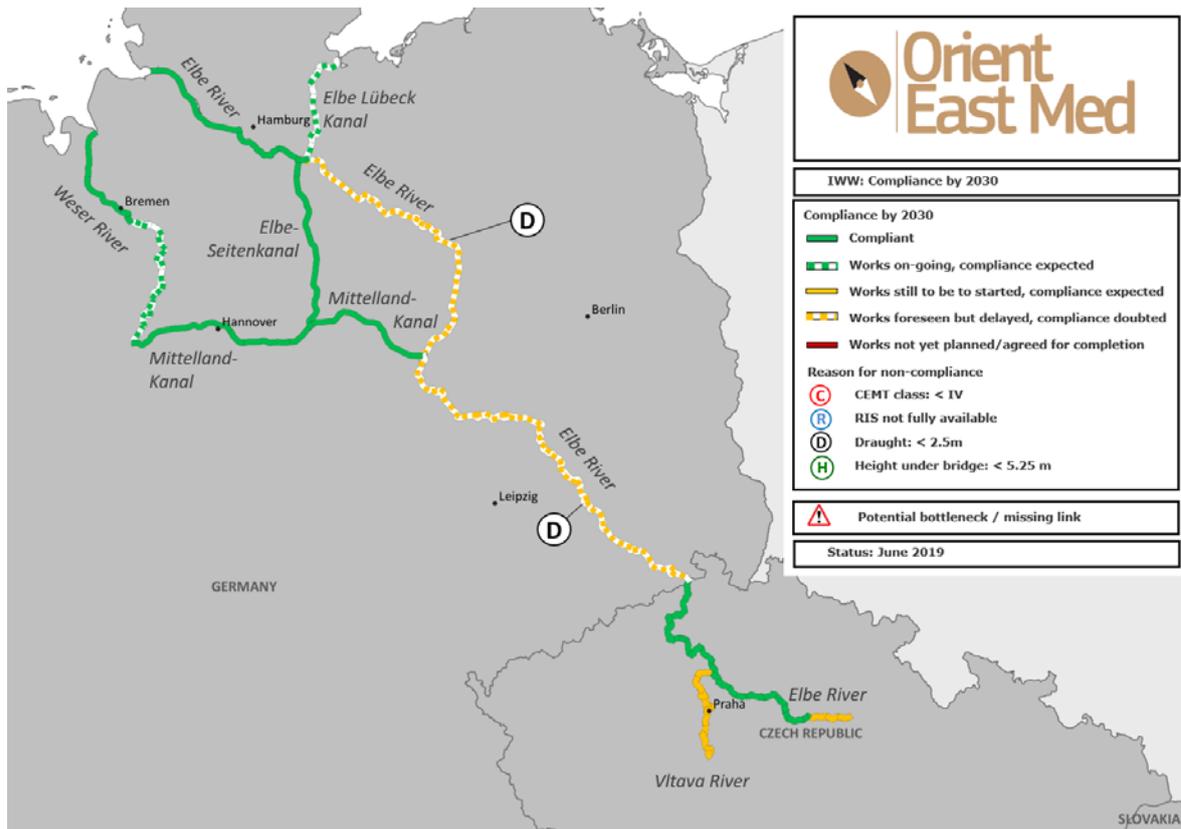
IWW network bottlenecks

For 2030, it seems that certain parts of the OEM **IWW** network will still fail to meet the Corridor objectives. It should be noted, that only the RIS deployment is a TEN-T requirement, while CEMT resolution prescribes for each category minimum draught and minimum underpass heights, which can however be waived by adverse conditions. As per the conclusions of 3rd Work Plan, the minimum draught requirement of 2.5 m will not be met by 2030; instead a fairway depth on the non-tidal Elbe of a least 1,40m below the 2010 Equivalent Water Level on a long-term average of 345 days is proposed as maintenance target by the German IWW authorities in the Overall strategy for the Elbe (GKE). A bilateral agreement between the Government of the Federal Republic of Germany and the Government of the Czech Republic on the Maintenance and development of the Cross-Border Inland Waterway Elbe as well as an

application for derogation in accordance with Article 15(3) of the TEN-T Regulation are expected.

Furthermore, the Czech Elbe sections DE/CZ border – Ústí n.L. (39 km), Týnec n.L. – Pardubice (32 km), as well as the entire navigable Vltava River (Třeбенice – Mělník; 94 km), are not compliant in terms of minimum draught; there are projects scheduled to increase draught on these sections, but not up to 2.5 m.

Figure 4: IWW compliance by 2030 overview



Road network bottlenecks

On the **road** side, potential delays in securing funds for certain motorway projects may question the achievement of planned compliance with the technical requirements for the Romanian 300 km section Lugoj – Calafat and for part of the Budapest ring road. Works for upgrading two by-pass road sections in Bulgaria with a total length of some 33 km are not yet planned. Special attention should be paid in the upcoming years to the road crossing the Köhlbrand Bridge in Hamburg, which will have to be replaced by a new extended capacity.

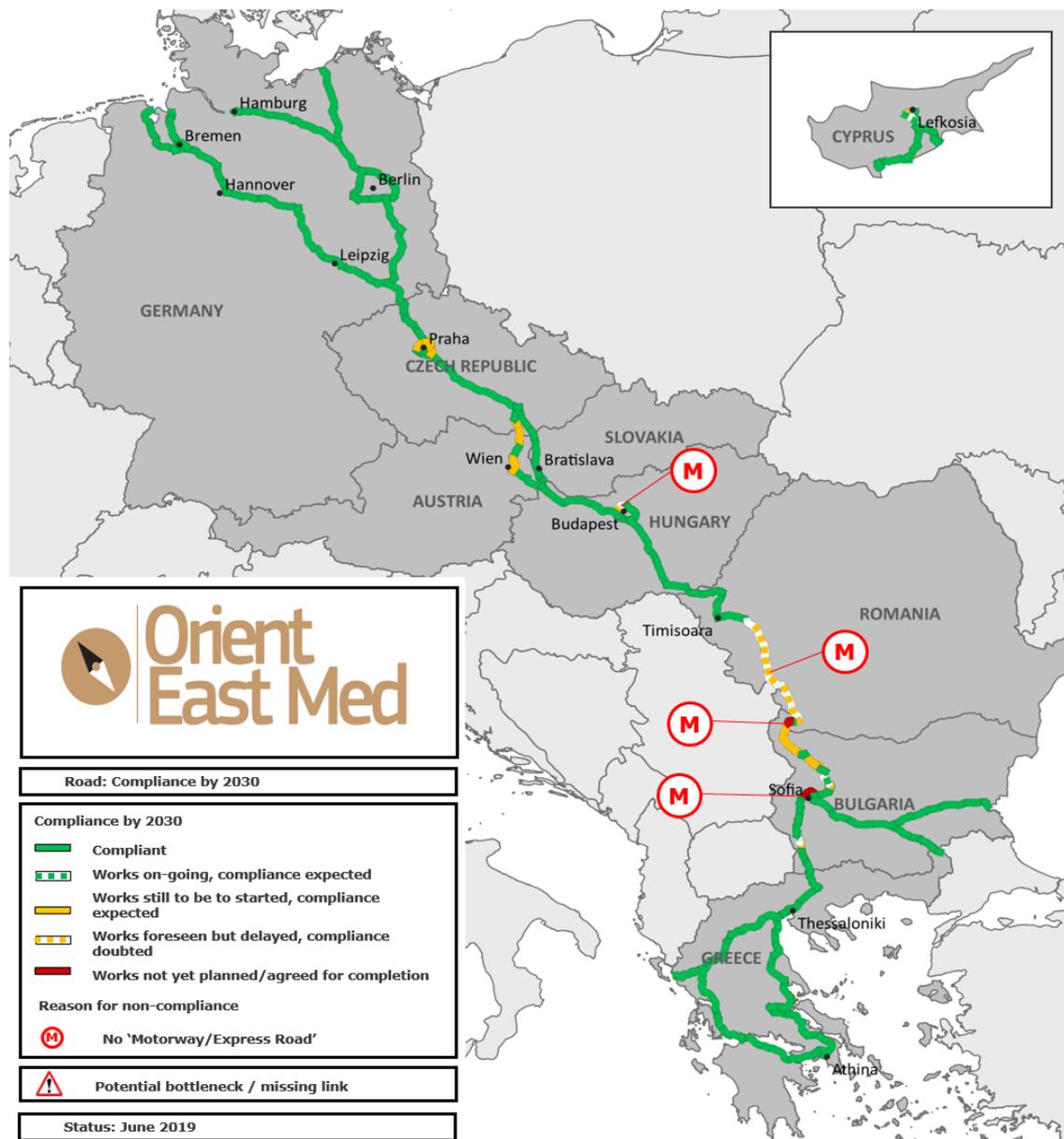
In addition, while deployment of alternative fuels is evolving on an everyday basis due mainly to private companies management and strategies, it is progressing at good pace for private cars (1865 stations in total, including electrical rechargers) nevertheless, the situation for trucks remains unsatisfactory. Moreover, the provision of Safe and secure parking areas for freight vehicles lags behind, especially in the southern part of the Corridor. Emphasis must also be placed on the deployment of intelligent transport systems and cross-border interoperable truck tolling systems, which should play a major role in increasing the efficiency of road infrastructure use and improving safety.

Maritime bottlenecks

The biggest challenge for the **maritime sector** is the supply of alternative clean fuels to promote green shipping in ports, the open sea and along inland waterways. Recently, the German port of Hamburg has presented some first solutions (LNG tank ship), while southern ports have not yet presented concrete plans.

Moreover, the construction of the missing rail connection to the Port of Igoumenitsa within the longer missing railway connection to the west of Greece could have considerable added value.

Figure 5: Road compliance by 2030 overview



Finally, yet importantly, Cyprus is theoretically connected to the OEM Corridor by a MoS link, which is not in operation from Pireas or Heraklion¹⁰. Only recently, EU

¹⁰In April 2019, Salamis Lines launched the weekly service Thessaloniki -Lemesos -Haifa (IS)

approval has been sought for the restoration of a ferry link to Greece that ceased in 2000. Regarding MoS standards, Greece, the only OEM country lagging behind, is currently in the process of implementing the National Single Window system in accordance with Directive 2010/65/EU, while technical specifications have recently been put out for public consultation for the “Extension, Upgrade and Modernisation of the national VTMS” expected to cover all five OEM ports. The Greek Study for the NTP also recognises the need for Greek ports to fully develop Port Community Systems.

Airports bottlenecks

The main issue regarding the compliance of the 15 core **airports** located along the OEM Corridor is related to the availability of fixed storage tank facilities for aviation biofuel.

Administrative and Operational bottlenecks

In continuation of the past actions that have been initiated by the Rotterdam Ministerial Declaration¹¹ and Sector Statement in 2016¹², the efforts of the CNC Coordinators were extended by issuing the paper on **Prioritisation of Core Network Corridor (CNC) Rail breakthroughs 2017 – 2023**. This paper proposes accelerated actions leading to improvements of the functioning and efficiency of the railway transport sector that are supported by implementing e.g. administrative and operational actions at lowest possible cost.

The organisation of the bi-annual **rail cross-border issues Working Group** meetings were continued, while the group was extended to include the European Union Agency for Railways and other DG MOVE railway units. Work in this domain was done in close cooperation with the Rail Freight Corridor Orient/East Med, which implemented 12 task Forces to work out solutions for eliminating the hampering factors for a smooth transit through the border crossing points.

I, as Coordinator, continuously support and follow the progress of measures implementation towards permanently reaching the **maximum 2-hour set goal for freight train border crossing** at all cross-border points. Beside this, in autumn 2019, the cooperation with RFC7 was extended to include an overview of infrastructure needs for rail freight from the market perspective, following an initiative of the European Commission.

In addition, in the past year, the TEN-T OEM CNC deployed a new analysis for additional parameters to measure the progress of the Corridors for railway transport with respect to business users, customers’ needs, commercial delivery time and the punctuality between origin and destination of cargoes. The special KPI on Commercial delivery times, which represents regular monitoring of the operational transport times for selected international freight trains, was deemed representative for the Corridor. The analysis shall be carried out for a longer period in order to measure the improvement of efficiency of railway transport over time, emphasizing the complementarity between the Commission’s TEN-T policy for coordinated infrastructure development and its railway policy aiming to create a Single European Transport Area. Furthermore, the additional technical parameter **Loading Gauge of**

¹¹<https://ec.europa.eu/transport/sites/transport/files/themes/infrastructure/news/doc/2016-06-20-ten-t-days-2016/rfc-declaration.pdf>

¹²http://www.cer.be/sites/default/files/publication/Corridor_Sector_Statement_20160520_final.pdf

Tunnels has been analysed as a new market driven KPI for supporting Corridor interoperability. It must be noted that these additional parameters are not binding in the meaning of chapter II and III of the TEN-T Regulation.

With regard to the OEM Corridor **inland waterways**, the quality of infrastructure is extremely dependent on the full implementation of RIS in Germany and Czechia, a barrier that is created by the lack of sufficient funding and the missing data exchange between the countries. Digitalization by improvement of the different technological applications and harmonization of specific norms will allow better integration of the mode in the multimodal supply chain. Other major barriers include the language barrier, shortage of qualified personnel as well as the lack of harmonisation in terms of national/international standards of their qualification and licencing.

Persisting operational and administrative barriers for **seaports** are related to the multiplicity of actors involved with fragmented responsibilities and jurisdictions, and, most importantly, the issue of information exchange and documentation. There is need for streamlined, paperless, transparent procedures for cargo clearance and release at ports, as well as better planning of intermodal transport operations between ports and their respective hinterlands. The Port of Hamburg has implemented several smart solutions and can serve as best practice.

Concluding with the **road** sector, CROCODILE (CEF funded) and other ITS projects have been successfully conducted (i.e. dynamic overhead traffic signs); nevertheless, road tolling systems for trucks and passenger cars remain fragmented and heterogeneous in terms of charging rules across MS. At EU level, progress has been made with regard to setting standards for safe and secure parking areas. The progress of establishing and certifying such areas along the Corridor, is, however, rather slow – there is only one such facility in Romania.

3 Transport Market Study

3.1 The Corridor scenario

The objective of the Multimodal Transport Market Study (MTMS) is to determine the impact of implementing the projects in the Work Plan Project List on the Corridors' network. The MTMS provides an estimation of the prospective traffic flows on the Corridors in 2030, while also offering a view on the associated effects on the economy and environment. It does so by considering two different scenarios, the Baseline Scenario and the Reference Scenario. In the Baseline Scenario, it is assumed that the implementation of the core TEN-T network stops at the end of 2016 and no further investments are made (Do-Nothing case). In the Reference Scenario, the core TEN-T network is assumed to be fully implemented by 2030, in line with the requirements of Regulation 1315/2013 on the development of the TEN-T.

MTMS methodology: The MTMS conducted for the 4th Work Plan is a follow up of the modelling exercise of the previous Work Plans, however, this time around with a revised methodology that is harmonized across all Corridors. To carry out the modelling, the TRUST and AsTra models from the companies TRT and M-Five are employed. The year 2030 is selected as the forecasting horizon, as this year represents a major milestone for European policy. The MTMS was carried out using the following considerations:

- Data on traffic flows forming the basis of the two scenarios is collected from public sources and national authorities and reflect the transport flows of the year 2016.
- Macro-economic trends behind the modelling are derived from the *EU Reference Scenario 2016*.
- The Reference Scenario is based on the projects that are included in the 2017 Work Plan Project List.

Based on this forecast model, all OEM Member States will benefit from the multimodal CNC Corridor implementation in jobs and growth. However, the positive impact to society-economy will be in Slovakia (+4.9% GDP), Bulgaria (+3.6% GDP), Romania (+3.2% GDP), higher than the one in Greece, Hungary, Germany (below 1% GDP), while employment impacts range between 0.9% and 0.1%, accordingly.

In addition, a third scenario is defined, unique to each Corridor. Namely, the Orient/East-Med *Corridor Scenario* attempts to quantify the lost growth effects due to sustained long border dwelling times for freight trains at all eight border-crossings in 2030, when compared to the reference scenario that assumes a max. 2 hours of dwelling time at each border (as per the Joint initiative with the RFC OEM). According to the above scenario, the MS along the OEM rail network could not enjoy an accumulated total of additional € 730 million GDP and 3609 Job-Years between 2016 and 2030, if rail freight dwelling times remain as high as in 2017.

3.2 Summary of the Multimodal Transport Market Study outcome

The OEM Corridor covers a diverse set of Member States with a variety in national income and infrastructure development. Some 105 billion ton-kilometres (tkm) of freight is carried over the Corridor annually, mainly concentrated in its north-western part. The majority of the Corridor is served through the German ports of Hamburg and Bremen, while the catchment area of the south-eastern seaports is limited.

For passenger transport, all passengers combined, travel yearly 94 billion km across the Corridor. Most of this, some 89%, is done by road, the highest share of road passenger transport across all Corridors. In contrast, rail remains of high importance for the OEM to move freight along the Corridor, amounting to 28 billion tkm and representing 27% of the total freight volume transported across the Corridor, the second highest modal share for rail of all Corridors.

Looking forward to 2030, both passenger and freight transport is increasing for all modes. Should currently planned projects be realised, freight volumes on the OEM are estimated to increase on average by 29% by 2030. Rail transport experiences the largest increase with 64%, whereas road transport grows by 16% and IWW transport follows with a modest 9%. Still, road remains with the largest modal share, representing 61% of all freight volumes, while the share of rail freight grows to 34% and IWW transport remaining around 5%. A distinction is visible between the northern and southern part of the Corridor. From Budapest to the Black Sea and to Hellenic ports, growth in freight volumes is only expected for rail, averaging growth levels of 90%, while road freight remains at the same level as that of 2016.

Growth rates for passenger transport are similar, with an increase of 29% expected between 2016-2030. Passenger transport by train is predicted to increase by 68% compared to the 24% increase of passenger transport by car. The modal share for rail remains modest at 14%, although it increases by 3% compared to the level of 2016.

Comparison of Reference and Baseline scenario

Primarily, rail traffic will lose most of the potential if none of the planned projects are implemented by 2030. A substantial amount of rail freight flows (10 billion potential tkm) will not take place when comparing the Baseline scenario to the Reference scenario. Although road and IWW freight volumes will stay approximately the same in both scenarios, the urgently needed modal shift from road to rail is hampered and no extra road capacity is created to facilitate this shift. Across the entire length of the Corridor, on average 28% of potential rail freight volumes will not be realised, emphasizing the importance of projects on each rail section of the Corridor.

Most unrealised potential is identified for hinterland traffic from both the North Sea ports and the Eastern Mediterranean seaports. The Bremen – Dresden section could lose 48% of its potential, with the Sofia – Svilengrad and Sofia – Athens lines expecting up to 49% of lost potential. While rail freight in the southernmost part of the Corridor only represents a fraction of the volumes shifted in the north, this part will play an important role in facilitating the maritime trading flows with Asia. Under the Chinese Silk Road Initiative, the port of Pireas is being developed to supply the European hinterland from this direction. This would not only provide better connections to the south easternmost Member States, but also the Central European agglomerations of Budapest, Vienna and Bratislava will have better access to seaports.

Modal Shift

In 2015, the transport sector in the OEM Member States¹³ emitted in total around 267 million tonnes of CO₂. While transport volumes are forecasted to increase over the period 2015 – 2030, modal shift and efficiency gains are outweighing growth. CO₂

¹³ Values reflect the sum of total emissions coming from the transport sector in each OEM MS.

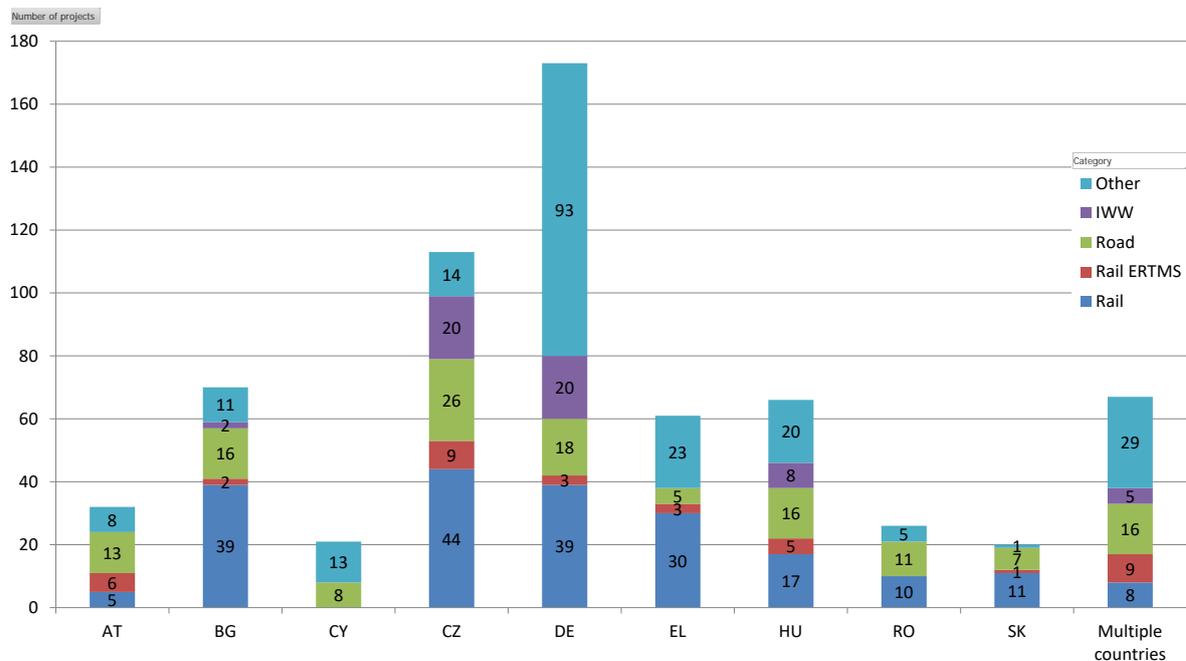
emissions are estimated to fall by 10.2% in 2030, if all planned TEN-T projects on the Corridor are implemented. The extra decarbonisation is the result of additional modal shift or the acceleration of the deployment of low-emission alternative energy for transport, in addition to autonomous developments already taking place. The OEM Corridor expects the highest relative share of modal shift out of all Corridors. The modal share of passenger transport for rail is expected to increase from 10.8% in 2016 to 14.1% by 2030, with the share of rail freight transport growing from 26.7% to 34.1%. It is important to stress that close to two-thirds of this modal shift will not be realised if the TEN-T projects are not implemented.

4 What has still to be realised by 2030

The indicative OEM Project List constitutes the supporting tool for monitoring and coordinating the development of the Corridor. This chapter looks, therefore, at the OEM CNC identified projects to be realised by 2030. For the first time a list of “additional” projects is proposed by the consultant, which could be considered as additional input to support the implementation of the Corridor and might contribute to the critical innovation and sustainability objectives. This recommendation is without prejudice to Article 1(4) of the TEN-T Regulation and does not question in any way the MS’s exclusive competence in infrastructure planning.

Following its continuous update, the latest project list of the OEM Corridor refers to a project implementation status of June 2019. It comprises 649 projects, thereof 241 Rail + Rail ERTMS, 136 Road, 89 Maritime, 72 Airport, 55 Inland Waterway, 25 Innovation, 22 Multimodal and 9 Motorways-of-the-Sea projects. Regarding geographical allocation, most projects come from Germany (173), followed by Czech Republic (113), Bulgaria (70), Hungary (66) and Greece (61). 67 projects are allocated to two or more countries, as shown in Figure 6.

Figure 6: Number of projects by Member State and category

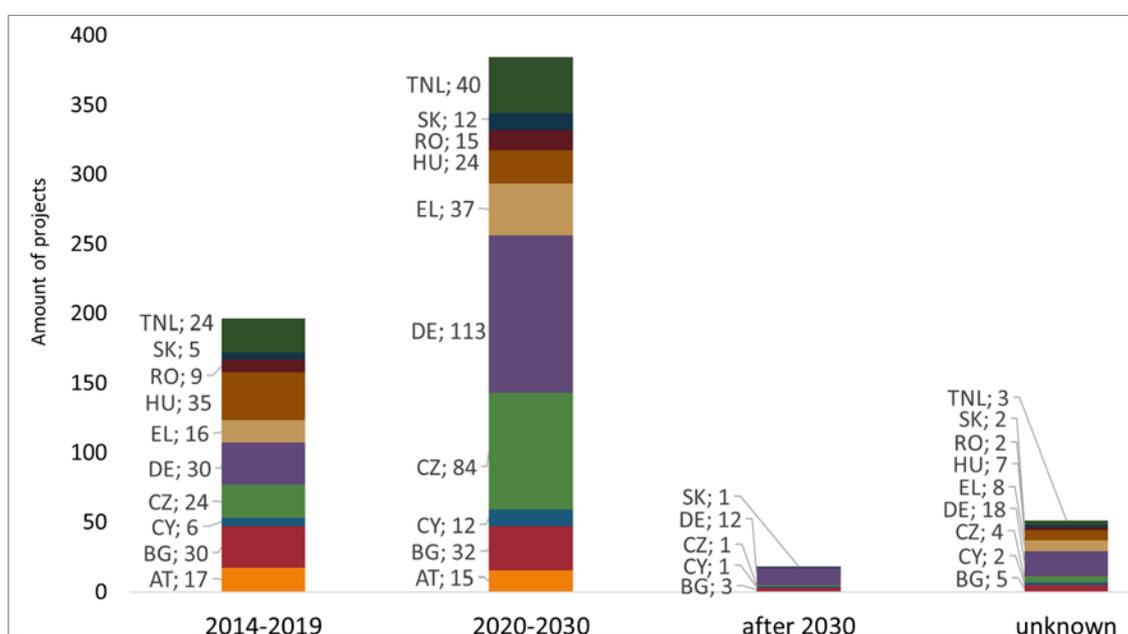


Note: Project implementation status 06/2019. Total = 649 projects.

As Figure 7 depicts, almost half of the projects (310) have already been concluded¹⁴ or will be completed by 2020. In the “critical” time window 2026-2030, 91 (14%) projects are still to be finalised. 18 projects are currently scheduled to be completed after 2030, while another 49 projects are lacking information about the completion date. In fact, as the years go by, a notable underlying trend is project implementation periods being increasingly shifted closer to the 2030 milestone. Considering also that delays are becoming the norm for several projects, one has to assess the -now- realistic risk of the Corridor’s infrastructure non-compliance by the set timeframe.

The compliance analysis showed that not all KPI requirements would be fulfilled by ongoing or planned projects by 2030. Therefore, the CNC consultants proposed a list of 106 additional measures designed to complete the Corridor. The realisation of these additional measures would lead to additional costs in the range of (roughly estimated) € 9.6 bn.

Figure 7: Number of projects by completion time cluster and MS



Note: Project implementation status: 06/2019. Total = 649 projects, TNL ... trans-national

According to the identified compliance gaps, the majority of these additional measures refer to the TEN-T parameters “Train length” (Rail) and “Clean fuels” (all modes concerned). Next to the requirements of the Regulation, the list also includes market driven measures, mainly intended to improve competitiveness of intermodal transport. These refer to the KPIs of Rail/Road Terminals and to the achievement of the P70/400 profile on the lines.

4.1 Rail & RRT

Figure 8 depicts 203 Rail and 18 RRT projects allocated to the OEM Corridor. Out of these 221 projects, 44 Rail and four RRT actions have already been concluded between 2014 and June 2019. With a dedicated view on the year 2030, it can be stated that 190 Rail (86%) and 15 RRT (83%) projects are expected to be completed

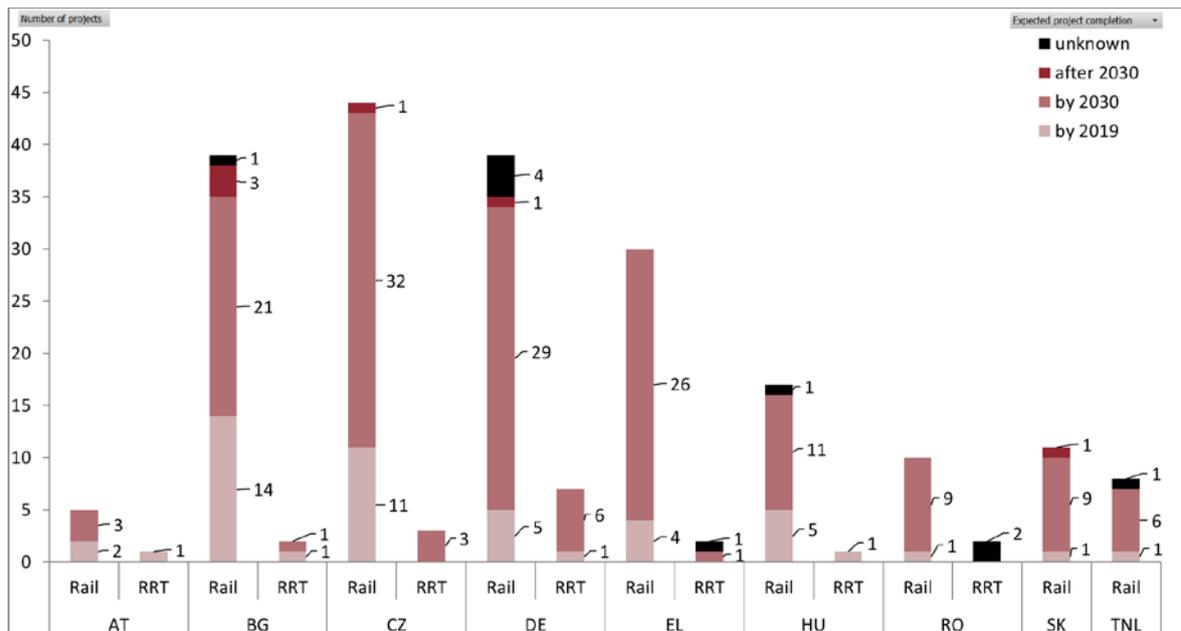
¹⁴ Completed projects are still included in the analysis in order to document the progress made on the Core Network Corridor since the implementation of Regulations (EU) 1315/2013 and 1316/2013.

by that time. However, six Rail projects have a finalisation date after 2030: the new high-speed line Dresden – Praha, the modernisation of rail infrastructure in Bratislava node and the upgrade of several sections in Bulgaria. Another 7 Rail and 3 RRT projects are lacking any information on the completion date.

The costs of the projects sum up to:

- € 49.6 bn for Rail projects. This figure represents “official” project costs that were verified and approved by Member States and stakeholders. For Rail projects without official costs values, the consultants provided estimations, leading to additional costs of € 8.1 bn. Total costs for Rail projects are therefore calculated to € 57.7 bn.
- € 0.46 bn (official costs) + € 0.36 bn (estimated costs) for RRT projects.

Figure 8: Rail & RRT projects on OEM corridor by MS and expected completion



Note: Data status: 06/2019. Total Rail projects: 203, Total RRT projects: 18, TNL ... trans-national

In order to cover the persisting gaps, 36 additional Rail projects (excluding ERTMS) have been proposed by the consultants. The vast majority (24) refers to the parameter “Train length”, 4 to “Line speed” and 3 to “Axle load”. 15 additional projects aim at achieving P70/400 intermodal gauge on the lines. The latter KPI is not explicitly required by the Regulation, however, from the consultant point of view, deemed necessary to achieve competitiveness of intermodal transport.

The geographical allocation of these additional Rail projects shows that:

- Proposed actions for achieving P70/400 profile cover the Romanian, Bulgarian and Greek part of the Corridor, as well as large parts of CZ and SK;
- Proposed projects for realising “740 m train length” are predominantly allocated to CZ, SK and BG. On a number of these sections, projects are already on-going or planned;
- Additional projects for “Line speed” and “Axle load” are restricted to single, small sections.

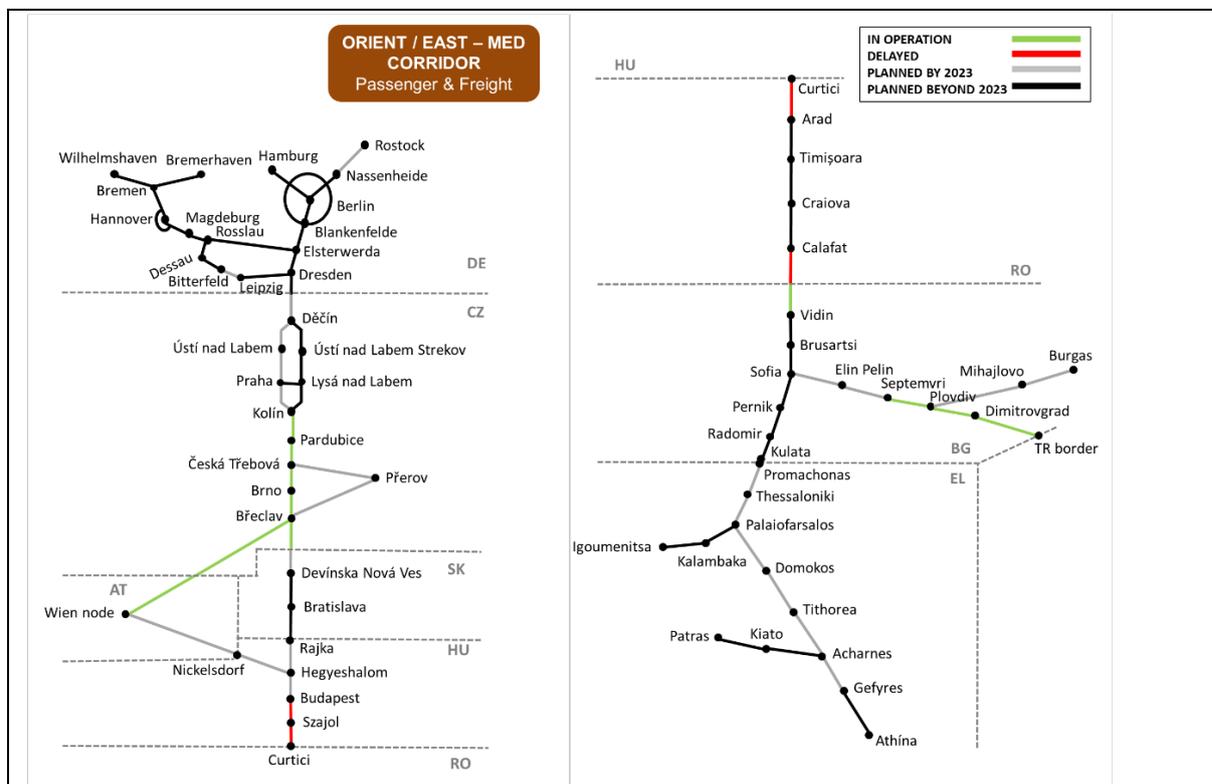
Next to Rail, another 23 additional measures have been proposed for Rail/Road terminals. This means that almost every core node terminal on the OEM Corridor is in need for action in order to be compliant with the three market-driven KPIs.

4.2 The ERTMS deployment 2023

In 2013, the TEN-T Regulation established guidelines and set out the priorities for the development of a trans-European transport network. Regarding railway transport infrastructure, the requirement for full deployment of ERTMS by 2030 was established for the entire length of the OEM CNC with the intermediate target of 47% by 2023.

ERTMS Business cases have calculated the specific IRR values for the deployment for the OEM CNC to 12.3%; the status of deployment is 9% for ETCS and 51% for GSM-R, delays being registered in Bulgaria, Romania and Hungary. In Hungary, political commitment is ensured and contracts are concluded. Figure 9 depicts the state of play and deadlines for the ERTMS deployment in the OEM Corridor.

Figure 9: Current status of ETCS deployment program until 2030 on OEM CNC



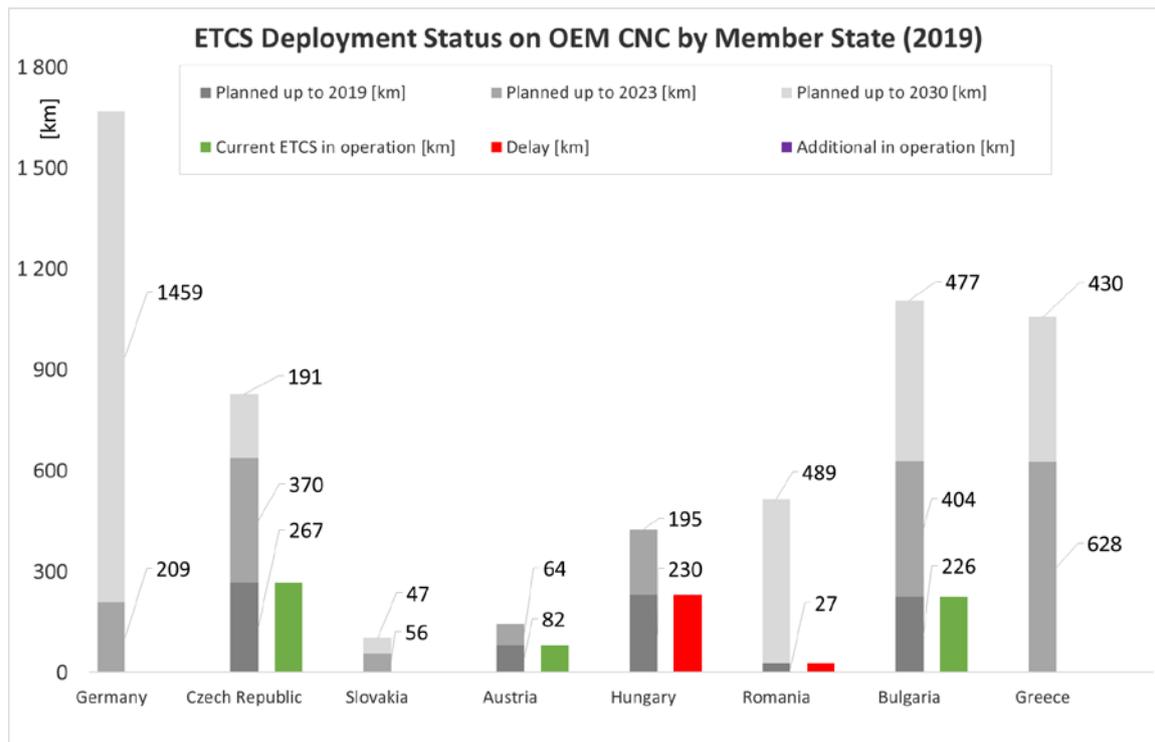
Note: On the OEM CNC, along around 500 km of rail line in Hungary, Bulgaria and Greece, ETCS with a standard below baseline 2 is installed. In Figure 9, these sections are not considered as in operation, as an upgrade of 400 km of these is foreseen to be completed by 2023.

The OEM Corridor is the CNC, in which more sections (by length) are planned to start with ETCS operation before the end of 2023 (2.758 km), rather than afterwards. Greece (627 km) and Hungary (425 km) will face the big challenge to deploy long sections, out of which none is yet in operation. Bulgarian (403 km) and Czech (370 km) sections shall be operated by 2023, and certain progress is already visible. Germany has planned to equip ETCS on 200 km of OEM rail network before 2023, and 1.500 km in the period 2023 – 2030. No German OEM line is yet in ETCS operation. In Slovakia, the deployment of ETCS on the section Devinska Nova Ves – Kutly will be

delayed due to contractual issues. ETCS implementation by 2023 may not be achieved.

Given the known challenges and prejudices, the European Coordinator for ERTMS, Mr Matthias Ruete, and I will support the Member States in a timely deployment of their ERTMS goals in order to get significant rail network capacity to be uncovered through the implementation of this technology as soon as possible.

Figure 10: ETCS deployment by MS, period and status



Source (both): *Technical support for the Deployment of ERTMS along the Core Network Corridors, INECO & EY, December 2019*

4.3 IWW & inland ports (incl. RIS deployment plan)

Out of 55 IWW projects in total, 9 have been completed by the end of 2019 and 9 more are planned to be finalised by the end of 2020. Total costs for on-going and planned projects are estimated at some € 3.3 bn. The following measures/additional projects are proposed to be implemented in order to achieve compliance for the IWW Elbe sections and inland ports:

- Increase fairway depth of at least at 1.4 m below the 2010 Equivalent Water Level on a long-term average of 345 days on the entire waterways section according to the GKE maintenance target and according to the pending bilateral agreement between the Government of the Federal Republic of Germany and the Government of the Czech Republic on the Maintenance and Development of the Cross-Border Inland Waterway Elbe in order to extend and improve navigability on all Elbe sections.
- Enable navigability on the entire waterway section between Týnec n.L. and the future inland port of Pardubice.
- Ensure availability of clean fuels in Czech inland ports or along IWW.
- Identify support measures for securing underpass heights of 5.25m on the waterway in order to extend and improve navigability of the section Lübeck – Lauenburg (Elbe-Lübeck-Kanal).

- Enhancement of Vltava river parameters between Melnik and Praha by increasing the bridge clearance (measure co-financed by CEF).
- Harmonisation of RIS services on the entire Elbe in coordination between Germany and Czech Republic as a part of the International project RIS COMEX. The measure is on-going and co-financed by CEF.

4.4 Road transport (incl. ITS deployment)

Out of 136 road projects in total, 37 were completed by the end of 2018 and 36 more are planned to be finalised by 2020. Total costs for on-going and planned projects are estimated at some € 29.4 bn. These mainly (56%) relate to upgrading existing or building new infrastructure, while alternative fuels and ITS deployment projects amount to 32 in total.

Six additional projects were identified to address lack of facilities for alternative fuels in Germany, Czech Republic, Hungary, Bulgaria and Greece. Three more projects are proposed to bring Budapest and Sofia ring road sections, as well as the Vidin by-pass road in line with the requirement for motorway or express road. The estimated total value of these is € 562 mn. Finally, although the need for building new or upgrading the existing parking facilities to meet the requirements for safe and secure parking has been identified, no estimation for the necessary investment costs could be made as these vary significantly from Member State to Member State. This is highly dependent on the targeted security level (from bronze to platinum security level as set in the EC funded Study on Safe and Secure Parking Places for Trucks).

4.5 Airports

72 existing projects for airport development along the OEM CNC are under analysis, including measures for infrastructure or telematic applications development (according to Regulation (EU) 1315/2013 Article 31). Out of the total, 14 are already completed and 27 planned to be finalised by 2020. On-going and planned projects have a value of over € 3 bn. Additional projects that need to be implemented to achieve compliance are availability of clean fuels in all core airports along the OEM CNC.

4.6 Maritime Ports & the MoS Coordinator Implementation Plan for the OEM Corridor

89 maritime projects have been recorded, out of which 9 have been completed, 59 are planned to be completed by 2030, while there are 7 whose completion is foreseen after 2030 and 14 for which completion date is unknown. Their total cost amounts to over €8 bn. Projects mainly relate to works developing port infrastructure and terminals to increase capacity and the improvement of port road/rail connections, while fewer ones deal with the deployment of various types of ITS, e-maritime and telematics services and the provision of alternative fuels facilities. Moreover, 4 MoS projects have been completed, with the remaining 5 expected to be completed by 2022. These projects amount to € 186.4 mn with two related to the development of MoS links; others mainly relate to the adoption of LNG clean fuel at ports and the introduction of onshore power supply as propulsion alternative for ships.

Additional projects that need to be implemented to achieve compliance are the provision for alternative fuels bunkering facilities at the ports of Hamburg, Bremerhaven, Wilhelmshaven, Burgas, Thessaloniki, Igoumenitsa and Patra.

Motorways of the Sea and the Orient/East-Med CNC

The OEM ports handled 330 million tonnes of cargo in 2018 (around 8% of all cargo transiting through EU ports), of which roughly 70 million tonnes are transshipment traffic (mostly Pireas, Hamburg and Bremerhaven). Hence, roughly 80% or 260 million tonnes of cargo are actually moving between the ports and the Corridor. Apart from the aforementioned hubs, the Corridor includes five medium-sized CNC ports (10-50 million tonnes) and four smaller ports (<10 million tonnes). The Corridor explicitly includes a maritime link, stressing the importance of maritime transport for linking Cyprus with the continent.

While there is no direct connection between Rostock and the Eastern Mediterranean or Black Sea, there are direct connections between the Southern ports of the Corridor and the German North Sea ports. Therefore, maritime transport is an alternative on the very long distance between Germany on the one hand, and Bulgaria, Greece and Cyprus on the other. The Orient/East-Med CNC project promoters should consider this potential. Synchromodal concepts are possible, with maritime transport carrying less time-sensitive cargo, while rail services cover the priority cargo.

In addition, part of the hinterland traffic of the Orient/East-Med CNC ports uses the Corridor. Regular Ro-Ro services in the Baltic Sea as well as in the Eastern Mediterranean and Black Sea prolong the Corridor to the North and the Southeast. The development of the respective sections of the CNC must hence take into account the demand growth from port hinterland traffic. The OEM Corridor shall therefore, make sure to provide the necessary rail capacity to and from ports in the North Sea, the Baltic Sea, the Eastern Mediterranean and the Black Sea and work together with ports, forwarders and ship operators to improve the administrative procedures and data flow across all modes. The attractiveness of rail transport to and from the ports is key to a shift of traffic from road to rail, but also to increase the acceptance of transport in general and of ports in particular. This can be complemented by measures to improve the acceptance of rail transport (e.g. noise barriers in densely populated areas).

4.7 Innovation deployment of alternative fuels infrastructure

According to the Corridor Project List, 4% of the investments allocated to the projects contain an innovative component, which is slightly lower than the Corridor average of 6%. Telematics related projects receive 59% of all investments that go into innovative projects, while 36% goes to the realisation of clean fuels infrastructure and 5% to sustainable freight transport services. Looking at the transport modes, most innovation takes place for road and air transport, while multimodal or seaborne transportation represent a smaller share.

The supply of alternative fuels along the road Corridor is steadily increasing. Currently, 95% of the road network Corridor has a clean fuels refuelling station within 10 km distance, which is further expected to increase towards 2030. Alternative fuels supply for other modes remain uncertain, with no projects foreseen for the inland ports and airports, and only half of the OEM seaports (Hamburg, Bremen, Rostock Pireas, Heraklion and Lemesos) expected to supply alternative fuels by 2030.

5 Funding and Financing

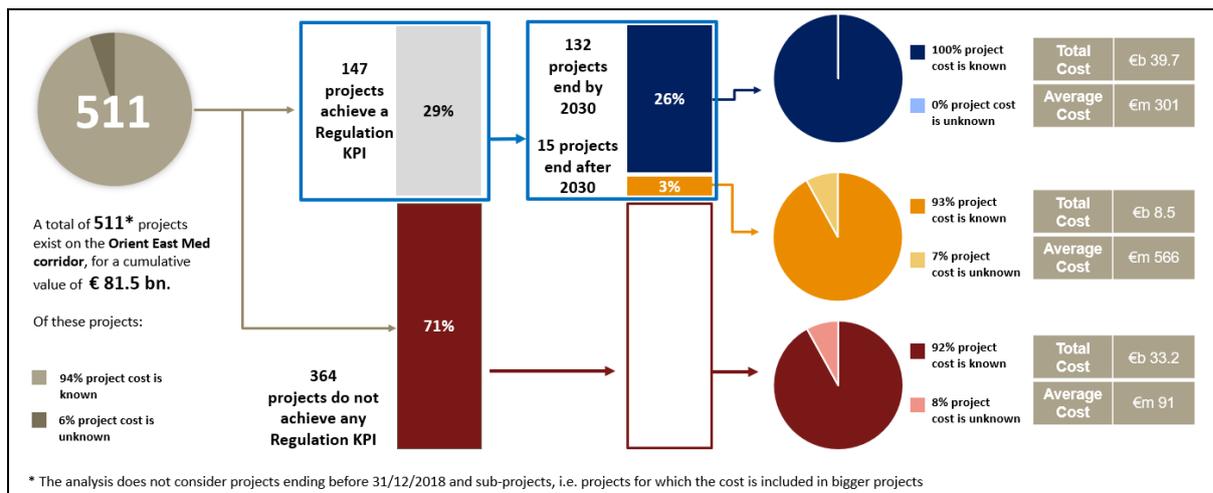
5.1 The funding needs

This section accounts for the economic and financial aspects of the projects included in the OEM project list and, more specifically, information on the projects' cost, maturity and financial viability.

The project list can be analysed through a series of lenses, in order to focus on different aspects of the projects composing it. The first step in performing the financial analysis has been an assessment of the maturity status of the project pipeline, summarised in Figure 11. This exercise included counting the number of active projects and clustering them through different metrics, such as their contribution to at least one Regulation’s KPI, their timing and the availability of an official cost figure.

As depicted in the diagram below, the vast majority (94%) of the projects have information on cost, and this high share is reflected through the three subcategories.

Figure 11: OEM Project List Analysis



The next step in the analysis was to determine the funding sources of the projects, with particular reference to the economic effort of the European Union. Figure 12 shows that as of now we have clear and complete information on the funding sources of projects accounting for € 52.2 billion, or 64.1% of the list’s value; of those, € 13.7 billion (26.2%) come from EU funding, with a quasi-equal split between CEF/TEN-T grants and ESIF grants. It should also be noted that only 41% (€ 5.6 billion) of the EU funding has already been approved¹⁵, with €1.9 bn provided by CEF. The remaining share is still listed as “potential”, i.e. yet to be applied and confirmed by Grant or Loan agreements.

Next to the EU grants is the private financing, notably coming from the EIB: the amount of money the EIB lent to projects in the OEM CNC might in fact not be fully represented by the 1.1%¹⁶ (roughly € 550 million) shown in the graph, due to different possible reasons, including incomplete reporting from the project promoters or unavailability of information prior to the financial closing. To this extent, it is important to note that the reported € 550 million refer to a total of two on-going projects¹⁷ - the maturity of which allows for complete and reliable information, as the

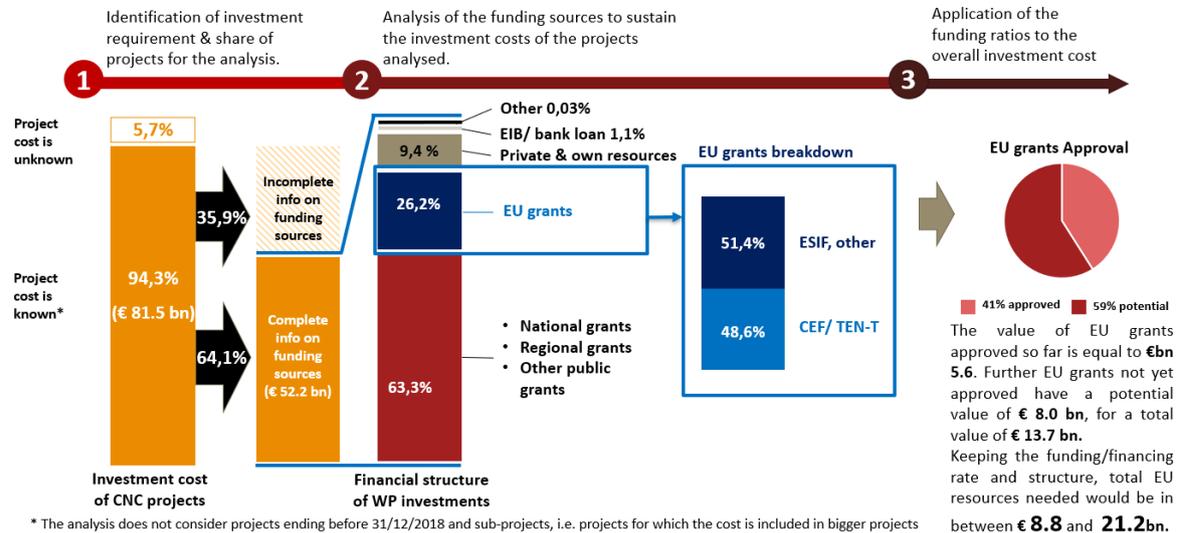
¹⁵ Only CEF/TEN-T grants marked as approved have been evaluated and confirmed by INEA. Amounts listed as “potential” have no assurance of being secured, and in some cases they only represent the intention of the project promoter to submit the request for funding.

¹⁶ The EIB was not involved in the data collection phase, and has not yet disclosed official figures concerning its current and expected contribution to the OEM CNC development.

¹⁷ #4258 – “Link road connecting Lemesos-Paphos Motorway with the Lemesos Port” and #1614 – “Construction of Motorway D4 section Bratislava Jarovce – Ivanka pri Dunaji sever – Rača”

EIB only includes mature projects in its pipeline - resulting in a final figure possibly undervaluing the overall contribution of the EIB to the CNC development. The same applies to other financial institutions.

Figure 12: Funding and Financing Sources Analysis of OEM CNC Project list



The final step of the analysis is determining the financial sustainability of OEM transport infrastructure projects, i.e. the number and value of OEM projects able to generate returns from the market to cover the operating costs and possibly a share of the capital expenditure. According to the findings, almost 27% of the projects are potentially financially sustainable as per the aforementioned definition. More specifically:

- **19.7%** of the projects, for a total value of **€ 29.2 billion**, are **financially sustainable**. Projects fall in this group following either a direct assessment from the project promoter or a subsequent analysis of the Consultant.
- **7.1%** of the project list, for a total value of **€ 10.9 billion**, presents **good potential for financial sustainability**. Projects included in this category, are considered appropriate based on Consultant's assessment.
- **73.2%** of the project list, for a total value of **€ 41.3 billion**, has **low to non-existent potential for financial sustainability**. This was based either on a direct assessment from the project owner or on a subsequent analysis of the consultants.

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

Projects in the transport sector – and in some sub-sectors in particular, i.e. rail, inland waterway, etc. – usually face difficulties being (fully) financially sustainable. Various factors, among which the presence of financing gaps can indeed prevent the project promoter from meeting the desired returns. In this case, projects are potentially financially sustainable, but require some financial aid.

Innovative financial tools, as further described in the next section, can support these projects being structured to generate revenues from the market and, thus, prevent or reduce the use of public finance/ grants (together with technical assistance structuring the project accordingly, when needed).

5.2 The innovative financial tools

In line with the TEN-T CNC Coordinators' Work Plans, the aggregate demand for investment in the TEN-T corridors represents a total cumulated value of about € 640 billion, which can only be supported with a substantial contribution of private financing.

Around 20% of the European Investment Bank's (EIB) total lending goes to the transport sector, representing more than € 150 billion of investment mobilized since 2014. In the period 2014-2018, about 60% of EIB transport lending went to TEN-T. Lending to TEN-T CNC projects represented about a quarter of the overall EIB transport lending during this period. A share of EIB financing is backed by the EU budget, notably in the form of the EU financial instruments and budgetary guarantee, such as the European Fund for Strategic Investment (EFSI). While the EFSI delivered well in areas such as road and airports, mobile assets and rolling stocks, due to the economics and risk profile of transport infrastructure, the use of EU financial instruments for the financing of the TEN-T, in particular for rail projects, fell below expectations.

Notably, EFSI funded projects on the OEM CNC include the Budapest Airport Concession (HU), Netz Elbe Spree Regional Rail Rolling Stock (DE), Motorways A10 A24 PPP Neuruppin – Pankow (DE), Cityjet Regional Rail Rolling Stock (AT), Greek Regional Airports PPP (EL) and the D4 R7 Motorways Slovakia PPP (SK).

To improve the quality and bankability of TEN-T projects, DG MOVE and EIB tested in the current multiannual financial framework (MFF) the blending approach, setting up the CEF Blending Call and Facility. Under the first CEF Blending Call, 72 projects were selected on the entire TEN-T network, of which 33 already reached full finance close, with € 1.4 billion of CEF funding mobilizing close to € 8 billion of overall investments.

In the next MFF (2021-2027), the InvestEU will cover all financial instruments, as well as blending. The InvestEU will also offer a broader risk spectrum than the EFSI, allowing both lower and higher risk projects to be financed. This, together with blending, is expected to lead to a higher uptake of innovative financial instruments for the financing of the TEN-T.

The 3rd CBS report of September 2019 by Coordinators Kurt Bodewig and Carlo Secchi "Enabling the uptake of the TEN-T pipeline by the financial market" gives a more detailed insight into financing issues for the TEN-T networks and is available under the download section of TEN-T.¹⁸

¹⁸ https://ec.europa.eu/transport/themes/infrastructure/downloads_en

6 The European Coordinator's recommendations and future outlook

6.1 Identified critical issues

The OEM CNC is characterised by a great divergence of projects' implementation and quality of the networks between the North West and the South East.

In short, the pertaining critical issues for the OEM Corridor are the following:

- There are still several **technical** and **physical gaps** along the Corridor's infrastructure in terms of it missing the necessary quality and TEN-T standards, as shown by the compliance analysis.
- **Operational** and **administrative issues**, particularly lack of harmonisation, are causing interoperability bottlenecks in rail, road and IWW modes as well as ports.
- **Multi-modality**, key in increasing the efficiency of the Corridor, is in need of improvement, especially due to missing last-mile connections and lack of intermodal infrastructure (e.g. lack of intermodal facilities along the OEM south of Arad, Romania). Better integration of ports/RRTs into logistic chains and adherence of seaports' infrastructure & services to MoS quality criteria/priorities is also required. A potential modal shift to inland waterways is hindered by the **poor reliability of free-flowing inland waterways**, mainly in the River Elbe, attributed also to climate change.
- The OEM is falling behind in the implementation of **new IT technology** in Corridor capacity utilization (digitization and towards elimination of operational bottlenecks).
- There is need for improved and **integrated international transport services** (client oriented) on the Corridor, both for freight and passengers, including multimodal travel planner and multinational road tolling.
- Unresolved national bottlenecks are blocking the efficient functioning of the entire Corridor. In addition, there is evidence of some **lack of coordination/integration of national strategies/plans** (all modes) towards TEN-T objectives and 2030 milestones, particularly for cross-border sections. Particular attention should be paid by the Member States to prioritise the implementation of the projects in their territory, which will serve the completion of the OEM Core Network Corridor.
- The **significant delays** in several infrastructure projects' **implementation pose a serious threat to 2030-compliance** as described under 1.3.1. Although MS did not state implementation difficulties, several OEM CNC projects are being postponed to a later completion date close to 2030 or even after that. I call for a reinforced cooperation between Member States, project promoters and EU supporting tools (PSA, EIB, Hub, etc.).

6.2 Where are the future challenges and what has still to be done?

Additional Projects are required to achieve (mainly) compliance with TEN-T parameters, as follows:

- **Rail & RRT:** ERTMS deployment, upgrades to achieve 740 m train length for single-track sections, axle load, P70/400 intermodal gauge, required upgrades of RRTs, completion of missing links.
- **IWW and inland ports:** increase fairway depth of at least at 1.4 m below the 2010 Equivalent Water Level on a long-term average of 345 days enable navigability in identified problematic sections, provision of clean fuels in ports and along the waterway, RIS deployment.
- **Seaports:** provision of clean fuels bunkering facilities, MoS Standards in terms of both infrastructure and services.
- **Road:** provision of clean fuels, secure parking's, implementation of motorway/express road standards and upgrading road safety.
- **Airports:** Heavy rail connections and provision of clean fuels in all airports.

All these challenges should lead to achieving the **decarbonisation** objectives and speeding up the deployment of low-emission alternative energy for transport. Already, a number of existing projects are being implemented on the OEM Corridor demonstrating the industrial feasibility. This should easily allow duplication of the projects along the OEM.

An efficient railway link between Hamburg, Berlin, Dresden and Praha, from Budapest all the way towards Athens is crucial in realising a more sustainable modal shift along the OEM Corridor. Administrative and operational improvements especially in cross-border areas will notably minimise the border dwelling times and contribute to a commercial efficient transport mode.

6.3 Achieving the 2030 milestone with mature projects

The achievement of the Corridor by 2030 is based on a mutual commitment by Member States and the European Commission to implement the networks.

It is of the utmost importance that Member States take into account recent EU Policies and the TEN-T Regulation in their respective National Transport Plans and multi-annual financing plans. The attention of related governments should be pointed to their European engagements and responsibilities when setting works priorities and implementing decisions in a strict manner. The well-oriented and precisely applied influence of the European institutions in this respect cannot be overestimated.

In the current MFF, there is adequate co-funding available for infrastructure investments; nevertheless, OEM infrastructure project implementation is not fully starting. In the next MFF period, the completion of then mature projects with an end date of 2026-2030 would only be realistic, if enough funds are available to implement all important projects. If not, the time window of opportunity will have been lost and an important opportunity for the Member States to improve the socio-economic and environmental development will be missed. The synchronisation of adjacent projects along each CNC sector is an important issue to be taken into consideration by the

Member States, together with caution that the acceleration of projects' implementation does not come at the expense of the network's capacity.

In this respect, Member States representatives are urged for more openness and relevant communication whenever the implementation of Corridor projects is becoming obviously critically delayed. A regular and reliable feedback on the projects' implementation should be realised by the Member States.

I openly offer my assistance when needed for projects contributing to KPIs. We need to identify ways to solve difficulties jointly. Member States should take care about the availability of necessary human resources for planning, work follow-up and the availability of the adapted legal tools.

Another crucial aspect to be looked at is the systematic public procurement appeals and lawsuits for major infrastructure projects that are delaying significantly their implementation.

6.4 Investment, growth, and job impact of the CNC

The preliminary macro-economic analysis on the impact of OEM CNC projects was described under Work Plan III. Two main conclusions indicated that roughly 1 direct job was created per € 1 million investment and that the estimated **investment of € 83 bn** might lead to a total **€ 572 bn increase of GDP** over the period 2016-2030.

In the "1st Joint Working Group Meeting of the Orient/East-Med and Rhine-Danube Core Network Corridor Fora on Economic Aspects of Transport", in June 2019 in Brussels, we started looking for a dialogue with the scientific sector to better define the socio-economic dimension of infrastructure projects.

Our willingness to deepen our cooperation with the structural funds underlines the fact that the use of structural funds in transport infrastructure improves also the social cohesion of the regions.

6.5 Climate change adaptation

TEN-T, being in line with jobs and growth policies, will also largely contribute to the objectives defined under the Green Deal.

It is vital that Member States are considering this issue and direct their efforts towards both adaptation measures and actions to decarbonise transport modes.

Climate change also poses a critical threat to the Corridor infrastructure networks. In general, the northern part of the OEM Corridor will likely become increasingly susceptible to heavy rains and flooding, while the southern will experience even more droughts in the upcoming century.

The Corridor Study has not been able to identify related adaptation projects, since these are believed to be part of normal maintenance projects. Nevertheless, adaptation measures are taken by a number of countries to develop climate resilient infrastructure (e.g. new rail alignments in Greece, review of design guidelines in Bulgaria and Hungary). Climate change adaptation is also becoming a very prominent pillar of the next CEF.

6.6 Military mobility and corridor extensions as upcoming challenges

Since the adoption of the Action Plan on Military Mobility, the Commission is working to improve movements of military forces by addressing shortcomings in the transport infrastructure. Under the military mobility envelope in the Connecting Europe Facility 2021-2027, the Commission would fund transport infrastructure built or upgraded for military purposes provided it is also useful for civilian transport (so-called dual-use infrastructure). It would be a win-win initiative for both defence and transport in the sense that it will allow a smooth mobility of armed forces within and beyond the EU, while contributing to the completion of the TEN-T network and an essential upgrade of transport infrastructure.

6.7 The future of the Connecting Europe Facility

In the three previous Work Plans, I have together with Member States established the main priorities for our Corridor, giving as such the basis for the deployment of a transport/mobility concept that corresponds to the expectations of the public and business: making transport connected, sustainable, inclusive, safe and secure.

The new CEF Regulation and the new MFF will be the basis for our work and priorities by 2030. Priorities will have to be settled jointly with Member States and infrastructure managers in order to implement those projects with the highest impact on efficient and sustainable transport. This dialogue should be established in the same positive spirit recognising CEF financing as of great added value for Member States and their citizens.

As a final word, I would like to add that this 4th work plan has been prepared since November 2019 and was finalised at the end of April 2020.

In the meantime, the COVID 19 virus has affected the world and it has a great impact on our lives, our health systems and our economies.

We know only part of the catastrophic effects on people and economies on a daily basis. The transport industry has been heavily impacted by measures to contain the pandemic.

It is too early at this stage to undertake a thorough analysis and to draw conclusions in this work plan. Nevertheless, I propose that in the next weeks, I will start an initial analysis with all the Member States and important stakeholders in our Corridor and gather your opinion on the future possible orientation of the priorities of the Work Plan. Without jeopardising the final objective of the realisation of the OEM Corridor, this approach is intended to be in line with current events which have considerably changed our social and economic life and therefore also our approach towards mobility and transport.

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http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/orient-eastmed_en.htm





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