

Implementation Plan

Annex of the CID

2024/25 timetable year

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1 Introduction

1.1 Legal background

The Commission of the European Union proposed in 2008 the creation of a European rail network for competitive freight, consisting of international corridors. The aim is to achieve reliable and good quality railway freight services to be able to compete with other modes of transport.

The rail transport for goods has been experiencing difficulties in Europe for more than thirty years for a number of reasons: changes in industry, the development of motorways, and new logistic requirements on the part of companies. In order to respond to these difficulties, the Community has launched an active transport policy for the revitalisation of rail transport based on progressively opening up transport services to competition (effective for all freight since 1 January 2007) and developing the interoperability of rail systems.

The Commission's objective to initiate Regulation (EU) 913/2010 of 22 September 2010 concerning a European rail network for competitive freight (hereinafter: Regulation) was to improve the service provided by the infrastructure managers to international freight operators. It was published in the Official Journal of the European Union on 20 October 2010 and entered into force on 9 November 2010.

Through the Regulation the Commission would like to act in the following main areas corresponding to the process of harmonization:

- improving coordination between Infrastructure Managers;
- improving the conditions of access to infrastructure;
- guaranteeing freight trains adequate priority;
- and improving inter-modality along the corridors.

The purpose of the Regulation is to create a competitive European rail network composed of international freight corridors with a high level of performance. It addresses topics such as governance, investment planning, capacity allocation, traffic management and quality of service and introduces the concept of corridor one-stop shop. The schematic overview of the rail freight corridor network is displayed below.



Table 1

The rail freight corridors commit to fulfil their intended role of increasing international rail freight's competitiveness, unlocking the huge growth potential for longer distance freight and promoting rail's key role in a sustainable transport system. The improved marketability of the corridors is key to maintaining and winning over end-customers to the rail solution.

The Regulation requires a governance structure on two levels: an Executive Board (composed of representatives of the authorities of the Member States) and a Management Board (composed of representatives of the Infrastructure Managers (IMs) and Allocation Bodies (ABs)). It also requires the creation of two Advisory Groups (AGs): one consisting of representatives of terminal owners and managers, the other consisting of representatives of Railway Undertakings (RUs).

The rail freight corridors shall further designate or set-up a corridor one-stop shop (C-OSS) for allocating certain types of international freight capacity (pre-arranged paths (PaPs) and reserve capacity (RC)) on the Corridor.

A rail freight corridor is a complex project that follows a new set of rules and procedures. For this reason, the Corridor Information Document (CID) was created to guide all clients and interested parties through the working of the rail freight corridor. Together with RailNetEurope (hereinafter: RNE), the rail freight corridors have harmonised the structure and most of the texts to allow an easier access to and understanding of this information.

1.2 Aim of the Implementation Plan

The purpose of this document is to create an inventory of the numerous tasks that derive from the establishment and the operation of Rail Freight Corridor Orient/East-Med. Seeing that the Regulation

allotted a very limited time period for IMs to create the rail freight corridors, it was necessary to concentrate on the essential steps that need to be taken. In the past few years the member companies of the Management Board tried to define the conditions of operation of the rail freight corridor by systematically listing the tasks, analysing the possible procedures, and choosing the most feasible solutions for every single field of activity.

This document summarizes the conclusions reached, and contains the commonly accepted rules applicable along the corridor.

It also serves as a management tool for the MB, a basic document that shall be regularly updated with newly defined solutions, so it will become a point of reference that can continuously support the work of involved companies.

The Implementation Plan aims to present to the Executive Board and to the European Commission the main characteristics of the corridor, the measures taken so far and the planned procedures of corridor operation.

The Implementation Plan is also to be published on the website of RFC OEM, in order to ensure transparency, encourage networking with other corridors and to attract the interest of the potential business partners.

1.3 Aim of RFC OEM Members

Connecting 8 Member States through their nine Infrastructure Managers and one Allocation Body to operate a railway freight corridor is a challenging task. RFC OEM members are fully committed to find solutions to the different operational issues on this 9000 km long corridor lines to become a reliable part of the Single European Railway Area. One of the key challenges of our times is to address the climate change.

European Commission has developed a very comprehensive package and responsibility to this challenge with a new initiative, with the strategy of European Green Deal. It says very ambitious targets, inter alia, to achieve the carbon neutrality by 2050 and a 55% cut in the CO2 emission by 2030.

In the recent times challenges for transport infrastructure as linked to climate change will steadily increase. Rail networks are and will further be affected, to varying degrees. Phenomena linked to climate change results short and mid-term effects, such as extremely high temperatures and very intense precipitation. These negative consequences for IMs will eventually influence the daily operational life in the future with increased need for maintenance and renewal works, and also with increased crisis management in unexpected weather situations, like floods, landslide, etc.

In this context, adaptation to climate change is of significant importance for the sustainable and resilient management of the rail infrastructure. Adaptation will require a wide range of changes in the practices and measures of infrastructure managers. The aim of RFC OEM is to share good practices and short-term solutions in the framework of the corridor operation, which is a good platform to get best knowledge from each other.

Rail transport is an environmentally friendly mode of transport, therefore RFC OEM's belief is that RFC OEM can significantly support the decarbonization of the European continent. Rail freight corridors could contribute to this on a large scale.

In order to meet these targets, the transport sector will require major efforts, therefore the Commission issued a clear comprehensive package of measures which are set out in the

Sustainable and Smart Mobility Strategy (SSMS). The EU transport strategy focuses on all the aspects that are crucial to develop a strong and competitive rail industry and a green and sustainable transport.

Concerning the railway freight transport the strategy also sets out very ambitious goals, aiming to increase by 50% railway traffic by 2030 and by double it by 2050. It is evident to meet these goals with the current market trends and with all the difficulties we know now due to unexpected COVID-19 pandemic we need to promote rail and the green choice where ever we can. We need rail freight itself to became more competitive vis-à-vis other transport modes, in particular compare road transport.

To improve interoperability, to easy cross border traffic and make the Shift2Rail happen are key elements in the coming years. RFC OEM members therefore set out the following main driving principles for its operation to be in line with the requirements of the above-mentioned European initiatives:

- to develop the corridor services in harmony with freight market demand,
- to operate the infrastructure cost-effectively on the long run through harmonization of technical and procedural conditions,
- to build on the opinion of business partners to attain their satisfaction,
- to be a worthy part of the European railway network by becoming an essential connection between Central Europe and South-East Europe, and form a link to Asia through the Black Sea and Aegean Sea ports,
- to contribute to increasing the market share of the environmentally most friendly land transport mode, and thereby
- to facilitate the environmentally sustainable development of the European economy and the achievement of a better quality of life for its people.

In order to meet targets described in the SSMS the listed activities and measures below shall be implemented in the concerned Member States in the coming years without, of course, a completeness of all related tasks¹ is necessary to be done:

- 1. Rehabilitation and modernisation of the infrastructure
 - Continuation of line electrification
 - ERTMS implementation
 - $\circ\,$ Integration into the high-speed railway network thereby releasing capacity on conventional lines
 - Extension of the backbone lines
- 2. Digitalisation in railway transport
 - o GSM-R utilization
 - Centralised traffic control
 - o Digital dispatching
- 3. Strengthening intermodality
 - Renewal of 'last mile' infrastructure
 - \circ construction of terminals

¹ Summary of the list of plans by the individual infrastructure managers regarding the implementation of SSMS provided to the ExBo.

- 4. Strengthening the cross-border coordination and cooperation
- 5. Increasing energy efficiency and reducing the level of pollution

Besides of the above-mentioned activities to be realized on Rail Freight Corridor Orient/East-Med (RFC OEM) there are other challenges due to recent geo-political situation in Europe, so RFC OEM has to focus on to establish a resilient rail network too. 3 members of RFC OEM are neighboring countries with Ukraine, the new initiative of the Solidarity Lanes expects new solutions in connection with our usual traffic management and capacity allocation.

2 Corridor description

According to Regulation (EU) 1316/2013 which amended the Regulation (EU) 913/2010 the RFC 7 was extended to Germany and renamed to RFC OEM. Consequently, the German Rail Infrastructure Manager, DB InfraGO AG (formerly DB Netz AG) joined the Management Board in 2018.

RFC OEM runs in the following 8 countries: Germany, Czech Republic, Slovakia, Austria, Hungary, Romania, Bulgaria and Greece, between the cities of

Wilhelmshaven/Bremerhaven/Hamburg/Rostock–Dresden–Praha–Vienna/Bratislava–Budapest– Vidin Tovarna–Sofia–Thessaloniki–Athens–Patras as well as Budapest–Bucharest–Constanta and Sofia–Plovdiv–Svilengrad. Map of RFC OEM:



Principal line

····· Connecting line

----- Diversionary line

Table 2

The railway lines of the Corridor are divided into:

- > **Principal line:** on which PaPs will be offered;
- Diversionary line: on which PaPs may temporarily be considered in case of disturbances, e.g. long lasting major construction works on the principal lines;
- Connecting line: lines connecting the corridor lines to a terminal (on which PaPs may be offered but without obligation to do so);
- Expected line: any of the above-mentioned lines which are either planned in the future or are under construction but not yet completely in service. Expected line can also be an existing line which shall be part of the Corridor in the future.

Complex definition of RFC OEM according to Regulation (EU) 1316/2013:

Country	Character	Line section / Terminal / Marshalling yard
		Bremerhaven – Bremen
		Wilhelmshaven – Bremen
		Bremen – Wunstorf
		Wunstorf – Magdeburg
		Hamburg – Stelle
		Stelle – Uelzen
		Uelzen – Veerßen
		Veerßen – Stendal
	Princinal lines	Stendal – Magdeburg
	i incipal inco	Magdeburg – Roßlau
		Roßlau – Falkenberg
		Falkenberg – Dresden
		Rostock – Neusterlitz
		Neusterlitz – Berlin
		Berlin – Elsterwerda
		Elsterwerda – Dresden
		Dresden – Bad Schandau
		Bad Schandau – Děčín (DE/CZ)
		Bremerhaven RIB, Bremerhaven NIB, Bremerhaven
		UIB, Bremernaven MSC Gate
		GmbH
		NORDEROST Seebafen-Terminal
Enderal		
Republic	ai blic any	Bremen Roland
of		Hannover Nordhafen
Germany		Rhenus AG
		Hannover-Leinetor
		DUSS-Terminal Hannover-Linden
		Megahub Lehrte
		Railport Braunschweig
	Terminals	Braunschweig Hafen
		Wolfsburg GVZ
		Salzgitter GVZ – KLV Terminal
		Magdeburg Hanse-Terminal
		Roßlau container terminal
		Riesa Hafen
		Railport Hamburg 1
		Container Terminal Tollerort (CTT)
		DUSS-Terminal Hamburg-Billwerder
		Eurocargo Container Freight Station and Warehouse
		GmbH
		EUROGATE Container Terminal Hamburg (CTH)
		Container Terminai Burchardkai (CTB)
		Hamburg RUSS Hansa Terminal

Country	Character	Line section / Terminal / Marshalling yard
		PCH Packing Center Hamburg GmbH
		Hamburg Süd-West-Terminal
		Hamburg O'Swaldkai
		Rostock Trimodal- RTM
		Railport Rostock
		Berlin Westhafen
		LDZ Elsterwerda
		Dresden-Friedrichstadt GVZ
		Alberthafen Dresden-Friedrichstadt
		Maschen
		Bremen
		Rostock Seehafen
	Marshalling vards	Braunschweig
	Maronaling yardo	Seelze
		Seddin
		Magdeburg
		Dresden-Friedrichstadt
		Decin – Kralupy n.v. – Prana
		Decin – Nymburk – Kolin
		Prana – Poricany
		Poricany – Kolin Kaléa – Dandukiaa
	Duin ain al lin a a	Kolin – Pardubice
	Principal lines	Pardubice – Ceska Trebova
		Ceska Trebova – Svitavy
		Svilavy – Brio
		BINO – Breclav Předev/Heboneu (CZ/AT)
		Břeclav/Hohenau (CZ/AT)
		Volký Osok Hradoc Králová
		Hradec Králová Choceň
		Kolín – Kutná Hora
	Diversionary lines	Kutná Hora – Havlíčkův Brod
	ach an	Havlíčkův Brod – Křižanov
Czech		Křížanov – Brno
Republic		Trimodal Terminal Port Děčín - Loubí
		Trimodal Terminal Listí nad Labem
		Port Mělník
		Terminál Praha Uhříněves
	Terminals	Terminál Pardubice
		Rail Hub Terminal Česká Třebová
		Terminál Brno Horní Heršpice
		DUSS Terminál Lovosice
		Kolín seř. nádraží
		Děčín hl.n.
		Kralupy nad Vltavou
	Marshalling yards	Praha - Libeň
		Pardubice
		Česká Třebová
		Brno Maloměřice
		Břeclav přednádraží
		Havlíčkův Brod
Austria	Principal lines	Břeclav/Hohenau (CZ/AT)

Country	Character	Line section / Terminal / Marshalling yard		
		Hohenau - Gänserndorf		
		Gänserndorf - Wien Zvbf		
		Wien Zvbf - Nickelsdorf		
		Nickelsdorf/Hegyeshalom (AT/HU)		
		Wien Zvbf – Achau - Ebenfurth		
		Ebenfurth -Wulkaprodersdorf		
		Wulkaprodersdorf/Sopron (AT/HU)		
		Ebenfurth – Wiener Neustadt		
		Gänserndorf – Marchegg		
	Diversionary lines	Marchegg/Devínska Nová Ves (AT/HU)		
	Diversionary lines	Parndorf – Kittsee		
		Kittsee/Bratislava Petržalka (AT/SK)		
		Gramatneusiedl – Wampersdorf		
		Wien Zvbf – Wiener Neustadt via Baden		
		Wiener Neustadt – Sopron via Loipersbach-Schattendorf		
		Schattendorf/Sopron (AT/HU)		
	Connecting line	Wien Zvbf – Wien Freudenau – Wien Nordwestbahnhof		
	Terminale	Wien Freudenau Hafen		
	Terrininais	Wien Süd		
	Marshalling yard	Wien Zentralverschiebebahnhof		
		Břeclav/Kúty (CZ/SK)		
		Kúty – Devinska N.Ves		
		Devínska N.Ves – Bratislava hl.st.		
		Bratislava hl.st. – Rusovce		
	Principal lines	Rusovce/Rajka (SK/HU)		
	r moparimes	Bratislava hl.st.– Nové Zámky		
		Nové Zámky – Komárno		
		Komárno/Komárom (SK/HU)		
		Nové Zámky – Štúrovo		
		Stúrovo/Szob (SK/HU)		
		Marchegg/Devínska Nová Ves (AT/SK)		
Slovakia		Kittsee/Bratislava Petržalka (AT/SK)		
	Diversionary lines	Kúty – Trnava		
		Trnava – Bratislava východ		
	· · · · · · · · · · · · · · · · · · ·	Trnava – Galanta		
	Connecting lines	Bratislava hl.st. –Dunajská Streda		
	- 5	Dunajská Streda – Komarno št.hr.		
	T	Bratislava UNS – Rail Cargo Operator CSKD s.r.o		
	Terminais	Bratislava UNS – Slovenska plavba a pristavy a.s.		
		Dunajska Streda – Metrans		
		Bratislava východ		
	Marshalling yards			
		Sturovo		
		Rusovce/Rajka (SK/HU)		
		Nickeisdon/Hegyeshalom (AT/HU)		
		Rajka – Hegyeshalom		
		Teto Pieterhégy		
Hungony	Principal lines	I ala – Dialui Diagy Diatarhágy – Kalonföld		
nungary		blatorbayy – reletitolu Kolopföld – Foropovéros		
		Komárno/Komárom (SK/HLI)		
		Kőhánya felső – Rákos		
		$\frac{1}{1000} = 1000 = 1000000000000000000000000$		
		liszász – Szolnok		

Country	Character	Line section / Terminal / Marshalling yard		
		Szolnok – Szajol		
		Szajol – Gyoma		
		Gyoma – Murony		
		Murony – Lőkösháza		
		Lőkösháza/Curtici (HU/RO)		
		Štúrovo /Szob (SK/HU)		
		Szob – Rákospalota-Újpest		
		Rákospalota-Újpest – Angyalföld elágazás		
		Angyalföld elágazás – Rákos elágazás		
		Rákos elágazás – Kőbánya felső		
		Kőbánya felső – Ferencváros		
		Baumgarten/Sopron (AT/HU)		
		Sopron – Pinnye		
		Pinnye – Fertőszentmiklós		
		Fertőszentmiklós – Petőháza		
		Petőháza – Győr		
		Loipersbach/Sopron (AT/HU)		
		Ferencváros – Kőbánya-Kispest		
		Kőbánya-Kispest – Vecsés		
		Vecsés – Albertirsa		
		Albertirsa – Szolnok		
		Szajol – Püspökladány		
	Diversionary lines	Püspökladány – Biharkeresztes		
	-	Biharkeresztes/Episcopia Bihor (HU/RO)		
		Vác – Vácrátót		
		Vácrátót – Galgamácsa		
		Galgamácsa – Aszód		
		Aszód – Hatvan		
		Hatvan – Újszász		
		Ferencváros – Soroksári út		
	Connecting lines	Soroksári út – Soroksár		
		Soroksár – Soroksár-Terminál		
		Terminal GYSEV Sopron		
		Terminal Győr / ÁTI DEPO		
		Railport Győr		
		Port of Győr-Gönyű		
	Terminals	Metrans Terminal Budapest		
		Rail Cargo Terminal BILK Budapest		
		Port of Budapest Logistics Center		
		Szolnok Industrial Park and Logistics Service Centre		
		BI-KA Logistics Center Szolnok		
	Morobolling vorde	Budapest-Ferencváros		
	Marshalling yarus	Szolnok-Rendező		
		Lőkösháza/Curtici (HU/RO)		
		Curtici – Arad		
		Arad – Simeria		
		Simeria – Coslariu		
		Coslariu – Sighişoara		
Romania	Principal lines	Sighişoara – Braşov		
		Braşov – Predeal		
		Predeal – Brazi		
		Brazi – Bucureşti		
		București – Fetești		
		Feteşti – Constanța		

Country	Character	Line section / Terminal / Marshalling yard		
		Arad – Timişoara		
		Timişoara – Orşova		
		Orsova – Filiaşi		
		Filiaşi – Craiova		
		Craiova – Calafat		
		Golenți /Vidin (RO/BG)		
		Biharkeresztes/Episcopia Bihor (HU/RO)		
		Episcopia Bihor – Coslariu		
		Simeria – Gura Motru		
	Diversionary lines	Craiova – București		
	Diversionary lines	Ploiești Triaj – Buzău – Făurei – Fetești		
		Videle – Giurgiu		
		Bucureşti – Giurgiu		
		Giurgiu/Ruse (RO/BG)		
	Connecting line	Făurei – Galați		
		Railport Arad		
		Terminal Oradea		
		Terminal Cluj Napoca		
		Terminal Turda		
		Semenic (Timişoara Sud)		
		Allianso Terminal Ploiești		
		Terminal Bucureşti Sud		
	Terminals	Tibbett Logistics		
		Bucharest International Rail Freight Terminal (BIRFT)		
		Bucharest Intermodal Terminal by Yusen Logistics Co.,		
		Ltd.		
		UMEX Terminal Constanța		
		APM Terminal Constanța		
		DP World Constanța		
		SOCEP Terminal Constanța		
		Chitila		
	Marshalling vards	Brașov		
		București		
	······································	Ploiești		
		Craiova		
		Golenți/Vidin Tovarna (RO/BG)		
	D	Vidin Tovarna – Sofia		
	Principal lines			
		Kulata/Promachonas (BG/GR)		
		Sofia – Plovalv – Dimitrovgrad – Svilengrad		
		Ruse Razpredeliteina – Sindel – Karnobat – Nova		
		Zagora – Simeonovgrad – Svilengrad/Ormenio (BG/GR)		
	Diversionery lines	Kernebet Burges Dert		
Bulgaria	Diversionary lines	Neve Zagara Stara Zagara Dimitrovarad		
		Rova Zagora – Stara Zagora – Dirinirovgrau		
		Flover - Skulare - Delozeni - Minanovo -		
		Ploydiy Intermodal Terminal		
	Terminal	Port Complex Ruse		
		Ruse Zanad		
		"Metalimpex"		
		Bozhurishte Intermodal Terminal		
		Burgas Zapad		

Country	Character	Line section / Terminal / Marshalling yard
		Iliyantsi
		Voluyak
	Marahalling Varda	Iskar
	Marshalling Yards	Plovdiv Razpredelitelna
		Sindel Razpredelitelna
		Ruse Razpredelitelna
		Pireus (ikonio port) – Thriassio Freight Center
		Thriassio Freight Center – SKA (SKA= operation center)
		SKA – Inoi
		Inoi – Thiva
		Thiva – Tithorea
		Tithorea – Lianokladi
		Lianokladi – Domokos
		Domokos – Palaiofarsalos
		Palaiofarsalos – Mesourlo – Larisa
	Principal lines	Larisa – Evangelismos
		Evangelismos – Leptokaria
		Leptokaria – Katerini
		Katerini – Plati
		Plati-Sindos – Thessaloniki (railway yard)
		Thessaloniki (railway yard) – Mouries
	eece Diversionary lines	Mouries – Strimonas
		Strimonas – Promachonas
		Kulata/Promachonas (BG/GR)
		Thriassio Freight Center – Aigio
Greece		Svilengrad – Alexandroupolis
		Svilengrad/Ormenio (BG/GR)
		Alexandroupolis – Strimonas
		Larissa – Volos Port
	Connecting lines	Thessaloniki (railway yard) – Thessaloniki Port
	From a set of the set	SKA – Ag. Ioannis
	Expected lines	Algio – Palra Direcue Container Terminal
	Terminals	Thessaloniki Port
	i emmais	
		Thriasio Logistic Center
		Strimonas
		Thessaloniki Triage
		Sindos
		Larissa
	Marshalling yards	Mezourlos
		Lianokladi
		Inoi
		Central Station of Alexandroupolis

Table 3

Length of section altogether amount to 9 285 kms.

RFC OEM has connections with the following other RFCs:

- in Břeclav and in Ústí nad Orlicí with RFC Baltic-Adriatic and in the cities Praha and Česká Třebová with RFC Rhine-Danube
- in Bratislava/Wien with RFC Baltic-Adriatic

- in Budapest with RFC Mediterranean
- on line Wilhelmshaven Ölweich Hannover Dresden Bad Schandau/Děčín Praha with RFC North Sea-Baltic
- on Sopron Győr Komárom Nové Zámky / Budapest and Hegyeshalom Rajka Bratislava – Nové Zámky; Budapest – Szob – Štúrovo – Nové Zámky railway lines with RFC Amber
- on Praha Kolín Pardubice Česká Třebová; Wien Parndorf Nickelsdorf/Hegyeshalom, Wien – Ebenfurth – Baumgarten/Sopron, Rajka – Hegyeshalom, Hegyeshalom – Győr – Budapest, Budapest – Újszász – Szolnok – Lőkösháza/Curtici, Curtici – Arad – Simeria – Coşlariu – Sighişoara – Braşov – Bucureşti, Arad – Timisoara – Caransebeş – Filiaşi – Craiova and Bucureşti – Feteşti – Constanţa railway lines with RFC Rhine-Danube.
- on line Sofia Svilengrad/Kapikule with RFC Alpine-Western Balkan
- on line Hamburg Uelzen with RFC ScanMed

The Common line sections of RFC OEM are described in the Transport Market Study.

On the overlapping sections RFC OEM has established a well-functioning collaborative model with the involved rail freight corridors, description of these procedures (e.g. providing data and information) should be found in the document "C-OSS Operational Rules", as Annex 7. to Implementation Plan.

RFC OEM was set up on the routes of other corridor conceptions defined earlier and serve as the base for integration and harmonisation into one complex corridor network among the EU Member States in the future. These were:

- TEN-T priority axis 22, which runs from Nürnberg and Dresden to Constanța and Athens (common line from Prague to Constanța and Athens),
- ERTMS E which runs from Dresden to Constanța (common line from Prague to Constanța).

We believe that the overlap with preceding railway corridor concepts facilitates the development of the freight corridor, partly thanks to the existing cooperation in their framework, partly due to the fact that EU co-funding is mostly allocated to line sections that form part of an international axis and therefore can have major European added value.

The parameters of lines and terminals described in the Implementation Plan of RFC OEM can change over time due to infrastructure investments along the corridor.

Possible requests or comments received from the Advisory Groups or Applicants of RFC OEM, together with results of the Customer Satisfaction Surveys, will be taken into account by MB member companies when making decisions about necessary developments or alterations, too.

2.1 Key parameters of corridor lines

The detailed description of RFC OEM is found in the Transport Market Study (TMS) that forms part of this Implementation Plan. It contains a precise definition of beginning and ending points and all terminals designated to the Corridor. Furthermore, a more detailed description of the corridor lines can be found in the chapter 2, table 3 and also brief visual summaries in chapter 6.1.

You can find in the TMS the systematic collection of all infrastructure parameters, a detailed description of available capacity and bottlenecks along RFC OEM, as well as an overview of existing traffic patterns.

Line characteristics are described with: type of line (principal, diversionary or connecting), section overlapping with other corridor, length of section (in km), number of tracks, electric traction, maximum length of train (in meter), line category regarding axle load, max weight/axle for extraordinary shipments, max slope, profile (P/C), loading gauge, max speed (km/h), ERTMS equipment, and services (intermodal terminals/keeper, marshalling yards/keeper, other service facilities e.g. refuelling, Ro-La, scale) on the line section.

Furthermore Chapter 6. gives a brief overview of the RFC OEM infrastructure within the different member states. More detailed information is available in the RFC OEM Interactive Map available on the RFC OEM website: <u>https://www.rfc7.eu/</u> and via RNE CIP <u>https://cip.rne.eu</u>.

2.2 Corridor Terminals

As railway lines and terminals together specify a rail freight corridor, terminals are also described in the TMS and later continuously updated in Section 3 of CID and in RNE CIP <u>https://cip.rne.eu</u>. All terminals along designated lines have been determined as part of the corridor as well, except if a terminal does not have any relevance for the traffic in the corridor. The marshalling yards, major rail-connected freight terminals, rail-connected intermodal terminals in seaports, airports and inland waterways belong to the terminals presented in the TMS.

2.3 Bottlenecks

Both the TMS and the Investment Plan of the Implementation Plan contain information about the main infrastructural and capacity bottlenecks identified along the corridor as well. Most limiting factors are:

- Non-electrified sections
- Lower axle load than 22,5 t
- Clearance gauge smaller than GC
- Maximum speed lower than 100 km/h line speed
- No possibility of operation of 740 m long trains
- sections with inadequate capacity for freight trains (Sections declared congested in accordance with Art 47 of Directive 2012/34/EU)

The continuous cooperation with the Orient/East-Med Core Network Corridor (OEM CNC) platform supports to increase, adapt and regularly monitor investments for the removal of infrastructure related bottlenecks along the corridor. Recommendations in this regard are listed in chapter 3.11.

2.4 RFC governance

In accordance with Article 8 of the Regulation, the governance structure of a rail freight corridor assembles the following entities:

- Executive Board (ExBo): composed of the representatives of the Ministries of Transport along the Corridor,
- Management Board (MB): composed of representatives of the IMs and (where applicable) ABs along the Corridor which are responsible for the implementation and operation of the Corridor within their home organisations,
- > Advisory Groups of RUs (RAG): composed of RUs interested in the use of the Corridor,
- Advisory Group of Terminal Operators (TAG): composed of managers and owners of the terminals of the Corridor including, where necessary, sea and inland waterway ports.

Eight EU member states are involved in RFC OEM as the picture below shows. The Management Board has even more members, as in Hungary there are two infrastructure managers registered and therefore a capacity allocation office is also concerned. Both the ExBo and the MB takes its decisions based on a mutual consent. These two bodies were established by a signature of a memorandum of understanding among the parties, signed already in 2011. According to Regulation (EU) 1316/2013, which has amended Regulation (EU) 913/2010, RFC OEM has been extended to Germany. Therefore, a new ExBo including Germany has been established by signing a MoU replacing the one from 2011 on 5 December 2017. The extension of the Management Board was done on 19 June 2018, when the Memorandum of Understanding including DB InfraGO AG (formerly DB Netz AG) entered into force.



Advisory Groups

The voice of customers is taken into account via the Terminal and the Railway Undertaking Advisory Groups (TAG and RAG). In these groups participation is on a voluntary basis. Advisory Groups (AGs) members have a dedicated area in the RFC OEM website, where all materials on consultation are available, including the Consultation Rules, which is a public document. Registered members also got information via e-mail.

Seventeen Advisory Group meetings have been organized so far:

- 30th October 2012, Kick-off meeting in Budapest
- 30th April 2013 in Budapest
- 14th October 2013 at WienCont Terminal in Wien
- 2nd April 2014 in Sopron
- 14th October 2014 in Bratislava
- 28th April 2015 in Praha
- 21st October 2015 in Budapest
- 24th May 2016 in Budapest
- 24th November 2016 in București
- 9th May 2017 in Athens
- 10th October 2017 in Budapest (BILK Terminal)
- 13th June 2018 in Praha
- 13th November 2018 in Bonn
- 25th June 2019 in Athens
- 15th October 2019 in Budapest
- 6th October 2020 in Budapest (hybrid)
- 14th April 2021 online
- 5th October 2022 in Budapest (hybrid) jointly organized with RFC Rhine–Danube
- 30th March 2023 in Wien jointly organized with RFC Rhine–Danube

Representative of RFC OEM RAG is Rail Cargo Hungaria.

Representative of RFC OEM TAG is WienCont Container Terminal GmbH.

The main role of the representatives is to coordinate the position of the group. The group's opinion has to contain both majority and minority opinions.

The RFC OEM Secretariat communicates on behalf of the MB with the AGs, it spreads material for consultation to every company registered as AG member, and receives feedback from the Leaders of the two AGs, which contains the opinion of all AG members.

The flow of information is illustrated below.



Table 5

The timing and content of consultation with AGs is decided by MB based on the progress of work and the new topics arising in the coming period.

The Letters of Intent signed by initial AG members and the Rules of AG Consultation are enclosed as Annexes 3 and 4 of the Implementation Plan.

As a general procedure the spokesperson collects suggestions beforehand from AG members, and he summarises the RUs' needs and expectations regarding our corridor services. The Secretariat together with MB Chair, MB members and the C-OSS manager evaluate the received valuable input and indicate further steps to solve the short-,medium-, and long-term goals.

Regular joint meetings with AG groups and the Executive Board ensure also a direct communication between the stakeholders. In these occasions members of the AG groups can be familiar with the medium- and long-term plans concerning the investments or with other strategical goals defined by the concerned ministries of transports. The AG spokesperson has also invitation to the Executive Board meetings to dedicated agenda-points.

The RFC OEM MB organisation

The MB's organisation is based on a cooperation agreement between the IMs and (where applicable) ABs along RFC OEM.

For the execution of the common tasks the partners / the MB have decided to build up the following structure:

The MB acts in the form of cooperation, apart from the Memorandum of Understanding which set up officially this body, the rules of cooperation are laid down in the document called Internal Rules of Procedure.

The tasks of the MB are coordinated by a Secretariat, carried out by the Hungarian member MÁV.

The Management Board has analysed the conditions of possibly forming an EEIG for the purpose of corridor management, then decided to choose the representative operational management model,

to operate a Secretariat, which is a cost-effective model and provides the appropriate administrative support to ensure that the tasks of the MB are properly coordinated and carried out.

In 2011 the MB decided that MÁV shall fulfil the tasks of the Secretariat. Taking into account that RFC OEM Secretariat's activity is a common interest of every Party, its cost is covered jointly by the MB member (IMs and AB). The Secretariat is located in Budapest.

To fulfil the tasks described in Article 13 of the Regulation a Corridor One-Stop Shop (C-OSS) was established as a single point of contact for requesting and receiving answers regarding infrastructure capacity for freight trains crossing at least one border along RFC OEM.

The C-OSS is carried out by VPE, the Hungarian Rail Capacity Allocation Office, applying the representative C-OSS model of RNE (acting as an IM on behalf of all IMs).

In order to facilitate the work regarding the implementation of RFC OEM, several permanent and/or temporary Working Groups consisting of experts on specific fields delegated by the IMs/ABs were formed.

Marketing WG	Transport Market Study, Satisfaction Survey, performance objectives and monitoring, definition of Pre-arranged Paths and reserve capacity. Non-RU Applicants.	
Traffic Management WG	Harmonisation of traffic management in case of disturbance, working out solutions and procedures for improving the punctuality and reducing the waiting times during the train run. Effective communication between Traffic Control Centres (TCCs). In the framework of TPM Coordination working together with the concerned RUs in order to increase the train performance of RFC OEM. Active participation in data quality and train linking.	
One-Stop Shop WG	C-OSS operation rules, Corridor Information Document, definition of Pre-arranged Paths and reserve capacity, coordination of capacity-allocation btw C-OSS & IMs & Terminals & Applicants.	
Infrastructure Development WG	Investment Plan, inventory of projects and financial resources, harmonization of investments along the corridor.	
Interoperability and ERTMS WG	Accelerating the establishment of better interoperability along the corridor and enhancing ERTMS deployment, ensure consistency with ERTMS E corridor.	
TCR WG	Coordination of planned temporary capacity restrictions along the corridor.	

Table 6

RNE supports the Corridor by providing harmonised process guidelines for all Corridors and specific, harmonised IT solutions/tools.

The organisation of the Corridor is also described in detail in the Implementation Plan (CID Book 5).

A visualisation of the structure of the RFC OEM organisation can be seen here:



Table 7

2.5 EU level cooperation

2.5.1 Cooperation environment

The entry into force of Regulation 913/2010/EU created the legal framework for the development of rail freight corridors. The on-going work, the implementation of the requirements highlights more and more issues of common interest to several corridors and the need for harmonisation of rules and processes between corridors. It implies a need for effective coordination between the different rail freight corridors, the National Ministries and Regulatory Bodies.

On 14 December 2021, the European Commission adopted a legislative proposal for a revised Regulation for the development of the trans-European transport network (TEN-T). The proposal, which was amended in July 2022, is the result of a comprehensive evaluation of the existing legal framework, extensive Member States and stakeholder consultation and an in-depth assessment of the impacts of the changes proposed. The revised TEN-T Regulation shall contribute to the objectives of the European Green Deal (EGD) and the Sustainable and Smart Mobility Strategy (SSMS).

In order to adequately address the objectives of the EGD and SSMS, the revision of the TEN-T Regulation aims at reinforcing the contribution of the TEN-T to the decarbonisation and digitalization objectives of transport policy. The proposed new TEN-T Regulation introduces a number of new or reinforced infrastructure requirements, which promote the development of infrastructure of sustainable forms of transport.

A brand new element of the European Commission proposal is the integration of the nine Core Network Corridors with the eleven rail freight corridors in a common set of "European Transport **Corridors**". This merge will bring certain changes, therefore one of the RFC OEM' goals is to transpose RFC OEM' results and experiences into the new, multimodal framework initiative.

After the evaluation of the implementation of the Regulation 913/2010/EU launched in 2018 by the European Commission, in 2021 they decided to start the revision of RFC Regulation with an Impact assessment: "Better management and coordination of cross-border rail traffic". This revision process runs in parallel with the revision of the TEN-T regulation. A new approach was entered in this legislative work, a so called "split revision" method. 15 articles from the Regulation 913/2010/EU will be covered under the revised TEN-T regulation in 4 main chapters: "Organisation and Governance", "Investment Planning", Performance Monitoring", Implementation Reporting".

Several questionnaires, tailor-made interviews, consultations and position papers were delivered in this process. RFC OEM contributed in all possible aspects this comprehensive work and is going to be a supportive and constructive partner in the revision procedure.

A new initiative was launched in 2018 by DG-MOVE C, Unit C4. (Rail Safety and Interoperability) to harmonize procedures at cross border points and eliminate hampering operational issues. The **Issue Logbook** was set up and 3 main priorities were selected. The goal of the Issue Logbook is to make concrete progress on the selected bottlenecks, as *braking rules, technical wagon checks at border station, train composition and ETA* (Estimated Time of Arrival). Due to the complexity of these issues the Commission intends to use its influence to engage all relevant actors in the process (particularly those not represented in the RFC governance structure). The European Union Agency for Railways (ERA) is fully committed to support the work with their expertise.

ERA and DG-MOVE is in charge of the overall coordination of the priority No 2, and RFC OEM was kindly asked to continue its successful work on border crossing issues and train composition under this priority, in close cooperation with ERA. Based on the achieved results and experiences the Commission intends to gradually increase the geographical scope of this priority (involvement of RFC4, RFC5 and RFC6).

The European Commission is monitoring regularly the progress of the 3 priorities therefore Issues Logbook Plenary Session is organised once a year.

As a tangible result of the common effort of concerned stakeholders the issue 'Train composition – Buffer wagons' has been completed since 2021 through measures undertaken in Bulgaria, Hungary and Romania. The elimination of this bottleneck positively influences the transit time at border crossings for freight trains which shall have also positive influence on the overall commercial speed.

In 2020 the European Commission ordered a Cost Benefit Analysis of the operational bottlenecks listed in the Issues-logbook. The external consulting, Panteia, HACON, Railistics and TIS in close cooperation with RFC OEM analysed and examined the cost impact of the operational bottlenecks of Priority package No 2. The summary report was completed by 2021 and it highlights that operational obstacles represent significant costs for all stakeholders, not only for IMs.

The RFC OEM ExBo, based on point IV.2/a of the OEM Ministerial declaration signed in Rotterdam on 24 June 2016, organises regularly a high-level RFC-CNC meeting dedicated to the strategic issues of the corridor. These occasions can serve as good follow-up to overview the results achieved and next steps to be implemented regarding the reduction the waiting time at border crossing points along the corridor.

Mr Matthieu Grosch, the European coordinator of OEM CNC expressed his gratitude for the progress done by the stakeholders so far at the cross-border working group meetings of OEM CNC (5 April 2017, 20 March 2018, 9 October 2018, 17 February 2021, 17 March 2022). He reckoned that success in transport needs cooperation. In his opinion, success in corridor activities would be the

best argument to convince decision-makers on EU level about having a strong Connecting Europe Facility in the Multiannual Financial Framework. The coordinator pointed out that enhanced cooperation is needed between core network and rail freight corridors and RFC OEM / OEM CNC is a good, forerunner example also in this regard to other corridors. Moreover, the cooperation is needed among all corridors to build a reliable network. The European coordinator of OEM CNC encouraged the stakeholders to continue looking for individual smart solutions, as results proved that one size does not fit to all, and sometimes even law investments can have high returns.

The Management Board, the Secretariat and the concerned Working Groups keep close contact with **RNE**. The common operational guidelines provided by RNE contribute to a harmonised development of the corridors, even if they are not endorsed by the Commission and thus have no legal status.

RNE intends to involve rail freight corridors in the elaboration of the solutions to rail freight corridor related issues therefore representatives of all corridors are participating in these demanding works in order to harmonise the processes among the 11 rail freight corridors. The works run in different project working groups.

RNE's General Assembly on 3 September 2014 approved the proposal to involve the rail freight corridors in its organisation structure as associated members. Consequently, all rail freight corridors (one representative from each) are invited to participate at RNE's General Assemblies.

In order to establish a network among the 11 rail freight corridors an informal platform was created in 2014. These informal meetings called **RFC-Network**, which is organised 4 times per year, and the chairmanship is based on the rotation principle.

All representatives of RFC MBs can suggest some topics for the discussion where the exchange of views and experiences would be useful to reach common understanding in different operational rules. These regular meetings are important occasions to find out common approach and solutions for relevant questions and problems concerning the operation of the rail freight corridors.

RFC-Network hold a High-Level meeting with RNE also regularly, where RFC related projects and tasks of common interest are discussed and decided.

Another forum has been established on the basis of bottom-up initiative. The so-called **C-OSS Community**, community of C-OSS managers of the 11 operating RFCs meet regularly and deals with the following topics:

- International Coordination in TTR
- > Reporting on capacity to RFC Network and SERAC
- Promoting new concepts for capacity offer on RFCs
- Organizing RNE-RFC Path Coordination System (PCS) trainings
- Capacity needs survey collecting capacity wishes from the customers
- PaP Catalogue
- > CID
- RNE RFC KPIs
- RFC developments in PCS
- > Representing RFCs and C-OSS in the following working groups:
 - RFC Network
 - o Sector Statement Group
 - RNE TCR WG
 - o RNE Sales & Timetabling WG
 - RNE Capacity Management Advisory Group
 - PCS Change Control Board, Test Group, User Group
 - RFC KPI WG

- o TTR Core Team
- Customer Information Platform

UIC has also launched a project for the efficient coordination of rail freight corridors, called **ECCO**. There is a regular dialogue between ECCO and RFCs. Representatives meet 1 - 2 times per year, establishing a constructive exchange of views and information concerning the RFC ongoing issues.

RFC OEM plays important role in the different platforms, its opinion, practices and experiences gained in the Central-Eastern Europe region can force the cooperation among RFCs and wider the network approach concept.

2.5.2 Cross-corridor cooperation

RFC OEM is in close cooperation with North Sea–Baltic, Amber and Rhine–Danube corridors in aspect of capacity management on the overlapping sections. The description of the concerned procedures is placed in the C-OSS Operational Rules, which is an annex to the CID. Above of the common capacity management this cross-corridor cooperation is entitled to look for other fields of cooperation as for example in the International Contingency Management (ICM), or in organising common TAG/RAG meetings

Due to the big geographical overlap with Rail Freight Corridor Rhine–Danube (RFC RHD), the Management Boards and the Executive Boards of the two Corridors decided to establish closer cooperation between them. The following steps have been implemented so far:

- the C-OSS closely cooperates with the C-OSS of RFC RHD to collect, analyse, and harmonise the capacity wishes of all existing and potential applicants,
- the C-OSS provides joint capacity offers with the C-OSS of RFC RHD,
- the C-OSS cooperates with the C-OSS of RFC OEM for the publication of the joint and harmonized draft and final PaP offer,
- arranging joint meetings of the working groups, the Advisory Groups, and the Executive Boards,
- jointly working in cross-border cooperation groups, as a first step on the common border section Lőkösháza – Curtici,
- coordinating updates of the implementation plans including a common bottleneck analysis on the overlapping sections / conducting a common bottleneck analysis on the overlapping sections,

The ongoing and the planned future common activities are the following ones:

- setting common objectives for both Corridors,
- introducing common sessions of the meetings of the MBs of the two Corridors, which are dedicated to the commonly prepared matters,
- promoting the compatibility of the performance schemes,
- harmonising the more frequent updating schedules of the TCRs published by both Corridors,

Due to the partial alignment of the Corridor with RFC Rhine–Danube foreseen in the <u>Proposal for a</u> <u>Regulation on Union guidelines for the development of the trans-European transport network</u>, the common activities will expectedly be further enhanced.

2.6 **RFC OEM website**

The webpage of RFC OEM was initially launched for operation in November 2013. It underwent major revamp in 2020, including design, back-end framework and code, with the new site going online on 1 January 2021.

It uses three domains on the addresses <u>www.rfc7.eu</u>, <u>www.rfc7.com</u>, <u>www.corridor7.eu</u>, and (all of them links to <u>www.rfc7.eu</u>). In its role described in chapter 2.5.1 RNE has registered a set of domains for all eleven rail freight corridors based on a single labelling scheme. The domain of RFC OEM in this set is <u>www.rfc-orient-eastmed.eu</u>, which is forwarding users to the homepage.

This platform was planned to be used to facilitate access to information concerning the use of the main infrastructure and available services on the freight corridor in order to have a comprehensive, transparent and user-friendly solution how to find data and information for the customers and visitors all kind of levels. Therefore, the MB decided to use the website for two main purposes: on the one hand for communication among ExBo, MB, WG or AG members, and on the other hand for sharing information with business partners interested in using the corridor. In accordance with that aim a browser-independent, multi-layer solution was developed with password access to specialised contents and with editable menu, submenu and textual content. The duty of the Management Board is to regularly update the content, publish documents, to develop the structure according to the incoming customer needs.

During the determination of website elements, we concentrated on the usability of the website (with the harmony of high-level information, interactivity and design). The strategy was to develop a specific, measurable, attainable, realistic and time-based (smart) tool with:

- user-centric guideline, which means to ensure the quickest and easiest way to show the information from all corridors;
- ensure prompt content, which means that the professionals of the corridors have own "administration flat" what they have to update;
- user friendly services as easy way to reach and manage the services;
- user friendly design.

For the public, the website is offering users the annual reports, documents of the advisory group meetings, relevant legislative and administrative acts, results of the satisfaction surveys and train performance reports for download. It also comprises information about the capacity offer and conditions of use (Corridor Information Document). Regular news and meetings notices complete the contents

2.7 Customer Information Platform, CIP

The Customer Information Platform (CIP) is an interactive, Internet-based information tool. By means of a Graphical User Interface, CIP provides precise information on the routing, terminals, specific track properties and infrastructure investment projects, as well as ICM-related lines and their rerouting options of the participating rail freight corridors. At the request of several rail freight corridors, RNE took over the ownership, hosting and maintenance of the CIP from Rail Freight Corridor Rhine–Alpine, thereby enabling it to evolve into a multi-corridor tool providing harmonised information and communication processes.

RFC OEM joined the CIP Development Group in August 2018, and the Corridor published on the CIP's website on 4 December 2018. The application can also be reached via RFC OEM website.

RNE shall further develop the CIP according to the decisions of the CIP Change Control Board (CCB) and following the approval, if necessary, of the RNE General Assembly. To find a common view which new functions shall be developed in CIP and to ensure that these new functions would fit into RNE's portfolio of IT tools, in June 2020 CIP CCB agreed on the updated CIP Strategy.

At the moment, CIP displays information on railway infrastructure in 26 European countries, covering the complete network of all 11 RFCs.

The geographical coverage of CIP is expected to be extended on a step-by-step basis in order to eventually cover the entire European railway network

3 Market Analysis Study

3.1 Introductory remarks

The rail freight corridors elaborated their TMSs in the past years. Each rail freight corridor developed its own TMS independently and in different years. Therefore, the existing TMSs are quite different in terms of update, methodology, scope and outcome.

Regulation [Art 9(3)] says the transport market study updated periodically relating to the observed and expected changes in the traffic on the freight corridor, as a consequence of its being established, covering the different types of traffic, both regarding the transport of freight and the transport of passengers. This study shall also review, where necessary, the socio-economic costs and benefits stemming from the establishment of the freight corridor. It would be highly valuable if the updated studies were more homogenous, so that their results could be more comparable, and the conclusions related to each rail freight corridor based on a similar analytical ground. RNE will provide a supportive assistance in this very complex work.

In 2013, the first version of the Transport Market Study (TMS) was prepared with the coordination of the Marketing Working Group of RFC OEM, with the support of internal human resources of ŽSR's railway research institute VVÚŽ, and all relevant other working groups of RFC OEM.

In order to allow the MB of RFC OEM to develop the corridor in line with market and customer needs and complying with the legal obligation for a periodical update, the Management Board of RFC OEM decided in 2016 to carry out an update of the TMS. This decision was also triggered by the entry into force of the EU Regulation 1316/2013 ("CEF-Regulation") and in particular its Annex II according to which the amendments of the Principal Route of RFC OEM (formerly referred to as 'RFC7' but the amendment of the Regulation brought a name for each rail freight corridor, therefore the abbreviation 'RFC OEM' is used in all updated documents) had to be carried out, which means the extension to Germany (Bremerhaven/Wilhelmshaven/Rostock/Hamburg) and further extensions in the South Eastern parts of the corridor (Burgas/Svilengrad concerning the Bulgarian and until Patras concerning the Greek part of the RFC). The extensions would be included at latest by 10 November 2018 in the case of RFC OEM. These inclusions would be based on market studies and take into consideration the aspect of existing passenger and freight transport in line with Article 14(3) of the Regulation.

It is important to highlight that the update was also expected to provide the MB with valuable knowledge and feedback to its efforts and tactical and strategical decisions to tackle current challenges and to develop the corridor in line with market needs and customer expectations, allowing it to identify and exploit new development potentials.

Following the decision of the MB, the update procedure was pursued by the cooperation of VVÚŽ again and by the relevant working groups of RFC OEM using the 'Terms of Reference for update of the Transport Market Study of RFC OEM' as guidelines, whereby all the relevant tasks were laid down which were necessary to be carried out for the update. The Terms of Reference was approved by the MB on 2 June 2016 in Athens.

It is important to note that during the update procedure the results of satisfaction surveys of 2015 and 2016 were reflected upon highlighting the bottlenecks which still need to be worked upon. Consideration of experiences of the operational rail freight corridors has crucial importance because these serve with an input inter alia to define the type and the amount of capacity required on the corridor.

The relevant actions defined within the Orient/East-Med (OEM) Ministerial Declaration signed by the representatives of the relevant Ministries of the OEM Member States on 21 June 2016 in Rotterdam, were also strongly considered during the working procedures because they define a set of bottlenecks to work upon which are in certain aspects elaborated within the current TMS update (for example the identification of bottlenecks stemming from the lack of implementation of the minimum TEN-T infrastructure requirements).

According to the Regulation, the main aim of the TMS should be to provide input for the MB in order to be able to identify the necessary lines - principal or diversionary - to be designated to the rail freight corridor and support the infrastructure managers and allocation body concerned to be able to define the number and quantity of necessary Pre-arranged Paths to the respective lines. In the case of the extension to Germany these tasks have been carried out as well as in the case of further extensions to South Eastern Europe (Burgas/Svilengrad and Patras).

The TMS update procedure examined the rail capacity requesting behaviour of the customers along the respective Member States of RFC OEM and accommodated the further alignments and designation of further lines which have been requested for addition or modification by the customers, evidently preceded by a prior approval of the ExBo and the MB. A proper revision of the lines designated to RFC OEM was accomplished.

The first version of the TMS elaborated in 2013 served as a basis for the update.

In this context, the update of the TMS in particular focused onto the following tasks:

- Update of information in the current TMS: update of data accuracy and information of infrastructure parameters,
- Extensions of RFC OEM to Germany and further extensions as requested by the amendment of the Regulation,
- Analysis of the connectivity to Turkey,
- Assessment of the lines designated to RFC OEM,
- Compliance with TEN-T minimum infrastructure requirements,
- Bottleneck analysis,
- SWOT-analysis and success factors,
- Analysis of capacity offer,
- Last-mile infrastructure along the corridor.

Taken into consideration the deadline set in the amendment of the Regulation, the update of the TMS had to follow a strict time schedule – defined by the Marketing WG – according to which a final draft study was delivered by June 2017 and then sent to consultation to the RAG and TAG by the Secretariat. The input received from the aforementioned groups were analysed with utmost care by the Marketing WG and then incorporated accordingly to the final draft study. Then both the ExBo

and the MB received the draft study and the summary document 'Essential Elements of the Transport Market Study' for review. The comments of the MB were taken into account by the Marketing WG and incorporated into the relevant text, paying attention to the consistency of the documents. The MB approved the final draft study as well as the summary document on 27 October 2017 and mandated the Leader of the Marketing WG for using the approved documents as basis for making further modifications in case demanded by the Executive Board. The comments from the Executive Board were also duly incorporated and taken into account.

The complete version of the Transport Market Study forms part as Annex 5 of the Implementation Plan.

The following summary aims to demonstrate the main focus points of the TMS-update process and its results. As previously mentioned, VVÚŽ, the Railway Research Institute of the Slovak Railways cooperated in the elaboration the document to the Marketing WG following the structure already provided in the Implementation Plan. The document was delivered by September 2017 by VVÚŽ and was carefully revised by the Marketing WG and the MB prior to its submission for review to the ExBo whose comments then were as far as possible taken into account.

The preparatory works of the European Transport Market Study started in 2022 under the coordination of RNE who has held several workshops with the involvement of each corridor. RFC Orient/East-Med also participated in these workshops by supporting the tendering process and the elaboration of a feasibility study which was the very first step.

On 24 March 2022, launching of a dedicated project on 'Scoping and feasibility study for a European transport market study' was announced. As an input for the detailed tender documentation, RFC Orient/East-Med (jointly with RFC Amber) also shared its experiences, methods and best practices during the conducting of the previous TMS.

Integrating the interests and views from RFC stakeholders is an important issue for specifying the contents and approach for such a European TMS according to market needs. RFC Orient/East-Med was also invited to share its expectations and requirements and took part in the consultation activities.

The key objectives of the feasibility study to be conducted by the end of 2022 are the following ones:

- Review and analyse the relevant methodologies, tools and arrangements for stakeholder involvement, taking into account existing frameworks and tools as well as good practices, at European, Corridor and national level and in different modes of transport, consultation of relevant stakeholders.
- Identify and describe the use cases in various planning and marketing processes, by different stakeholder groups and in different geographical contexts.
- Define a set of options to elaborate a transport market study and compare these options, e.g., in terms of use cases covered, feasibility, costs, risks and implementation timeline.

• Define proposals for further analysis and implementation of European transport market study Draft guidelines for updating RFCs' transport market studies (optional).

The RFC OEM TMS update is expected in 2024.

3.2 Objectives of the Transport Market Study

RFC OEM has been established based on the Regulation, and it was put into operation on 8 November 2013 shortly before the deadline set out in the Regulation. The duty of the MB is to carry out and periodically update a TMS in accordance with Article 9(3) of the Regulation.

The objective of the update of the TMS was – besides complying with the legal requirement for periodical update of the TMS – to allow the MB to take decisions on the dedicated capacity to be provided on the corridor and on any measures aiming at developing the corridor in line with customer expectations and market needs.

In order to do this, the update of TMS took into account relevant developments in RFC OEM, feedback from customers using the corridor including results of satisfaction surveys as well as changes in the market and legal environment since the elaboration of the previous TMS.

The TMS of RFC OEM was updated with the necessary extensions to Germany, in Bulgaria and in Greece together with the actualisation of the data content of the previous study. The update was carried out taking into account the amendment of the Regulation; the changes regarding the principal and diversionary lines which have been approved by both the MB and the ExBo have been included as well as the relevance of the transport flows between Turkey and the RFC OEM were examined. The aforementioned extensions are as follows:

- extension to Germany (Wilhelmshaven/Bremerhaven/Hamburg/Rostock),
- extension in Bulgaria (Burgas/Svilengrad),
- extension in Greece (Patras).

Furthermore, as part of its transport and infrastructure policy the European Commission has adopted a Trans-European Network for Transport (TEN-T) with the core network corridors as the key governance structure for implementation. The core network corridors are geographically largely aligned with the rail freight corridors; the rail freight corridors form the rail freight backbone of the core network corridors.

In order to support the European railway network as regards freight transport and to improve the interoperability and harmonisation of procedures, some technical and operational initiatives have been launched. These are, for example:

- the development of interoperability through the technical specifications for interoperability (TSIs) in particular relating to Traffic Operation and Management (OPE TSI) and TSI relating to Telematic Applications for Freight Services (TAF TSI). Of course, further TSIs such as those relating to infrastructure, vehicles, etc. are also of vital importance for the improvement of interoperability.
- the activities of RNE, an organization connecting 34 infrastructure managers and allocation bodies across Europe. The main objective is to enable easy and quick access to information regarding the European railway infrastructure regarding international railway traffic and to improve the quality and effectiveness of cross-border rail transport entailing the development of harmonised international business processes.

3.3 Methodology of Work and Methods of Investigation

3.3.1 Materials used in TMS elaboration

The complete elaboration of all TMS tasks required the analysis and processing of various technical, transport, capacity and economic indicators. A wide range of sources, including public sources such as official European and national statistics, statistics and documents published by international organisations (e.g. IMO, OECD, World Bank), EU legislation, standards, etc. as well as documents from the rail freight corridors and the participating railway infrastructure managers and the core network corridors were used. This information was completed by data and material obtained from questionnaires to railway infrastructure managers and railway undertakings and from reviewing relevant literature.

The statistical and analytical data required for elaborating the individual parts of TMS, with which it will be possible to determine the strategic objectives of RFC OEM, are shown in the table below:

Technical parameters	Standard length of train, maximum length of train, class of line, signalling equipment, electrification system, loading gauge, average	
	speed of train, speed limits, slopes/ gradients	
Transport	Development of transport performances on corridor lines	
performances	Development of transport performances on all lines of member state	
Macroeconomic	GDP development and prognosis in Member States	
indicators Share of individual economic sectors in GDP in %		
Microeconomic Level of infrastructure charges by train types		
indicators	Transit time	
Modal Split Development of modal split between individual modes of trans		
International	Transport and traffic performances in international transport	
Development of total transport expectity utilization		
	Development of the new extrement of the utilization	
Canaaity analysia		
	lines	
	vvaluing times and reasons of delays are monitored separately from	
	this study by the Train Performance Management Working Group	
Other indicators	Investment, technical and technological measures, proposal of	
	extension of lines and terminals, etc.	
Corridor indicators Corridor benefits		

Statistical and analytical indicators monitored in TMS

Table 8

3.3.2 Methods used in TMS elaboration

The TMS partial objectives have been worked out using and combining various scientific qualitative and quantitative methods, including literature analysis, statistical analyses, comparative analysis, SWOT-analysis, prognostic methods, benchmarking and brainstorming.

3.4 Characteristics of RFC OEM, current situation

3.4.1 RFC OEM basic structure

For the European rail freight corridors, bodies have been established which through their activities ensure the proper functioning of the corridor, meeting the main and partial objectives of corridor establishment and responding to the challenges of effective daily operation and the provision of the best possible solution to customer needs.

RFC OEM route according to the amended Regulation:

Bremerhaven / Wilhelmshaven / Rostock / Hamburg – Praha – Vienna/Bratislava –Budapest; – Vidin – Sofia – Burgas / Svilengrad (Bulgarian–Turkish border) / Promachonas – Thessaloniki – Athína – Patras

- București - Constanța;

Member States: Federal Republic of Germany, Czech Republic, Slovak Republic, Republic of Austria, Hungary, Romania, Republic of Bulgaria, Hellenic Republic.

Date of putting RFC OEM into operation: 8 November 2013

Seat of Corridor-One Stop Shop (C-OSS): Budapest

3.4.2 Analysis of capacity and bottlenecks

The analysis of the capacity of the lines included in RFC OEM revealed that:

- most of the capacity of the lines and line sections is used in the range of 50-89 %,
- within the corridor, there are lines with insufficient capacity which may adversely affect the qualitative indicators of rail freight transport,
- within the corridor, there are approximately 40 % lines and line sections with a utilized capacity below 50 %, these lines may be effectively used in case of higher capacity demands, or as diversionary transport routes.

In case of high demand on infrastructure manager services it is possible to use those lines efficiently, the capacity of which is utilized below 50 % with a minimal impact on the quality of rail system operation. A high increase in transport performances could lead, without taking mitigating measures, to the overloading of some lines and line sections, such as Hamburg – Stendal, Wilhelmshaven – Hannover – Magdeburg, Dresden – Bad Schandau, sections of the Praha – Česká Třebová line and the line north of Přerov, the Bratislava node and sections of the Arad – Sighisoara line (all the mentioned sections have a track capacity use >90%). The situation can be solved by upgrading or building of new railway infrastructure and/or by changing of the transport organization and signalling systems and/or re-routing of trains. However, such measures may require high investment costs, so it is necessary for Member States and infrastructure managers to be prepared to allocate the funding in order to increase the capacity of the lines and line sections concerned.

The analysis of bottlenecks on the railway infrastructure of RFC OEM showed no decrease compared to the analysis of bottlenecks carried out in 2013. However, this situation can currently be assessed as stable, although an increase in bottlenecks is expected due to the growth of transport performances, the lack of capacity, low level of modernization of railway infrastructure and limited resources allocated to the removal of bottlenecks. In case the bottlenecks are not gradually removed, there is a risk of reducing the required quality of railway infrastructure services, thus rail transport services will not be competitive. The infrastructure managers and Member States must therefore pay sufficient attention to the form of measures and investments in the gradual removal of bottlenecks which represent a restriction of reliable, safe, continuous and competitive transport infrastructure.

3.5 Economic and transport analysis of RFC OEM

On the basis of the collected and evaluated statistical economic, transport and traffic data in the RFC OEM countries, it is possible to conclude the following:

- GDP growth in individual countries,
- positive economic development, increase in living standards,
- higher movement of population,
- higher demand for transport services,
- requirements for higher level of transport services, e.g. reliability, shorter transport time,
- pressure to modernize the lines,
- pressure to remove bottlenecks of railway infrastructure,
- demand for ecological transport need for electrification of lines,

- increase in transport performances of the rail system,
- shift of transport performances from road to rail,
- higher performances of international rail transport,
- promotion of intermodal transport,
- need to improve the quality of intermodal transport services,
- fair and non-discriminatory allocation of railway infrastructure capacity,
- increase in rail investment,
- need for harmonisation of charges.

Based on these conclusions, there are the following opportunities and possibilities to meet the objectives of RFC OEM:

- making maximum use of EU and national funding opportunities for rail investments and ensuring effective and timely absorption of available funding,
- improving planning of infrastructure works and including incentives in tendering of works for minimised impact on traffic operations,
- focusing financial resources on removal of bottlenecks,
- electrification of lines leading to more efficient train operations and lower social costs of transport,
- market-oriented capacity and capacity products and efficient management of provision and allocation of railway infrastructure capacity,
- huge market potential for modal shift if today's existing problems and shortcomings of the corridor can be solved,
- upgrading of railway infrastructure of the corridor to higher standards with regard to parameters relevant for freight traffic, such as train length, axle and meter load, speed; swift implementation of TEN-T infrastructure minimum requirements or higher on continuous line sections,
- effectively addressing border crossing issues,
- harmonisation of operational rules,
- harmonisation of charges within the countries of the corridor on a competitive level,
- effective provision of information.

Routing itself and the state of the development of the corridor countries create several possibilities to meet its basic objectives. The analyses carried out have shown sufficient potential to maintain and increase the importance of the corridor within the European transport infrastructure. As an increase in the demand for international rail freight services is expected, it is necessary to continuously improve the quality of railway infrastructure and the services of RFC OEM.

3.6 Prognosis of Transport Performance Development

Transport performances on railway infrastructure are the most important data indicating the demand for rail services. Several aspects affecting infrastructure, quality of services and external costs result from transport performances. It is necessary to know the development of transport performances in order to form the objectives and the subsequent strategy of RFC OEM. The development of transport performances is assumed on the basis of the prognosis that includes three scenarios for RFC OEM: realistic, optimistic and pessimistic.

Bases for prognosis:

- 1. Model used for prognosis: AAA algorithm with exponential alignment. AAA algorithm is a software capable for making prognosis based on the provided data.
- 2. Confidence interval: 95 %.
- 3. Time span of prognosis: 2018 2025 (8 years).

- 4. Examined indicator: transport performances in rail passenger and freight traffic.
- 5. Input data: Transport performance (train km, gross ton km) made on the lines of individual infrastructure managers statistical data of infrastructure managers
- 6. Presentation of results: in tabular form for each scenario separately.

Based on the prognosis, the following main conclusions can be stated:

- increase in the performances of international rail freight transport by about 3-4% per year, mainly due to higher quality of services provided, flexibility, reliability and economic development,
- increase in rail passenger transport performances, affected primarily by economic development and an increase in the quality of services,
- resulting savings in social costs,
- increase in transport performances on lines included in the RFC OEM, in particular on the principal line sections following the implementation of the projects aiming at improving the infrastructure standards,
- higher quality of communication and information technologies required in particular on the cross-border sections having longer waiting times for freight trains than 2 hours,
- higher reliability of rail system following the achievement of TEN-T minimum infrastructure requirements and elimination of hindering factors for seamless interoperability, including cross-border sections whereby the target of 2 hours' waiting time is desired to be achieved as per the Action Programme of 2016,
- it is necessary to put some pressure on the harmonisation of charges for rail and road in order to achieve the desired modal shift to rail.

3.7 Analysis of the Connectivity of RFC OEM to Turkey

The analysis of goods import to the EU from Turkey demonstrated an increase in the goods value which is primarily due to the economic growth of EU countries which becomes evident by the increased demand of consumers and EU countries for higher-value goods produced in Turkey. The progressive increase of goods import to the EU from Turkey in million € was recorded also in RFC OEM Member States. The highest value of goods is exported to the Federal Republic of Germany and the least to the Slovak Republic.

In terms of goods volumes (tons), the analysis showed a more mixed picture. During the period 2002 to 2015 there was a decrease in goods import to RFC OEM Member States from Turkey. The most tons of goods were directed at the Federal Republic of Germany and the least at the Slovak Republic. The different trend in goods import to RFC OEM Member States from Turkey is due to the import of goods with higher value and lower weights.

The analysis of goods import to Turkey from EU countries carried out an increase in goods import in mill. €. For the whole monitored period the goods in the highest value in total were imported in 2015. The value increase of goods import to Turkey was recorded from RFC OEM Member States, too. The analysis of goods import to Turkey in thousands tons carried out a significant decrease in 2015 compared to 2002. The analysis of goods import to Turkey in thousands tons from RFC OEM Member States showed a decrease. Most of the goods were imported to Turkey from the Federal Republic of Germany and the Republic of Bulgaria. The least of goods were imported to Turkey from the Slovak Republic. The different trend in goods import from RFC OEM Member States to Turkey is due to the import of goods with higher added value and with lower weights.

Based on the analysis of imports and exports of goods between Turkey and the RFC OEM Member States, we can conclude:

- increasing the added value of imported and exported goods between Turkey and the EU countries,
- decreasing the transport performances of freight transport between Turkey and the EU countries,
- Demand for fast, reliable and safe international transport, in particular on the route between Turkey and the Federal Republic of Germany.

Based on the analytical findings we can conclude the following concerning the connectivity of Turkey with RFC OEM:

- Turkey upgrades and electrifies its railway network and plans further transport infrastructure development in the future,
- high transport potential has been identified in Turkey,
- achieved high share of freight transport by road,
- low share of transport performances of rail freight,
- potential for rail freight is not used,
- perspective of growth of transport performances in international rail transport,
- the cross-border connection between Turkey and Bulgaria is a single-track,
- the lines included in RFC OEM, which connect the railway infrastructure with the Turkish railway infrastructure, are currently not electrified, however electrification of the line from Plovdiv to the Bulgarian border station Svilengrad is ongoing.

Main findings

On the basis of the research of the problems in question we can state that the connection of the RFC OEM railway infrastructure to the Turkish railway infrastructure may bring several benefits for the Member States, society, transport, customers, railway undertakings and the RFC OEM itself. Therefore, the improvement of the cross-border railway infrastructure is highly recommended.

In order to achieve the benefits we propose to take the following measures and procedures:

- to examine the possibility of introducing regular freight trains of combined transport system RO LA (technological, technical and economic evaluation),
- to electrify railway infrastructure belonging to RFC OEM relevant for traffic form and to Turkey. On Bulgarian territory NRIC is working on the electrification of the section between Plovdiv and Svilengrad.
- to ensure integration of information systems,
- integration of signalling systems,
- to adapt the railway infrastructure to at least 740 m train length.

3.8 Transport Potential between RFC OEM and Third Countries

An important aspect of the development and transport importance of RFC OEM is the generation and attraction of new traffic flows. New transport opportunities need to be exploited also from countries outside the corridor and EU Member States. A significant potential regarding new transport flows was demonstrated from/to Turkey. Based on the attraction of new transport flows, an analysis of transport potential of the countries of Central Asia and Caucasus region, so-called third countries belonging to TRACECA (Transport Corridor Europe – Caucasus - Asia) corridor, was carried out. The TRACECA corridor includes: Azerbaijan, Bulgaria – OEM member, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania – OEM member, Tajikistan, Turkey – separate chapter, Ukraine and Uzbekistan. Based on the analysis of import and export of goods between EU countries and the countries of Central Asia and Caucasus region it is possible to conclude and assume:

- goods of the highest value were imported into EU countries from Azerbaijan, Iran and Ukraine,
- goods from other countries were exported in lower values not relevant for rail freight,
- the largest amount of goods was imported into EU countries from Azerbaijan, Iran, Kazakhstan and Ukraine,
- negligible amount of goods, which does not create significant rail transport opportunities, was imported into EU countries from other countries,
- import of goods into EU countries from the countries concerned has an overall upward trend and such trend can be expected in the future, based on GDP development in the countries concerned,
- import of goods into the countries concerned from the EU has an overall downward trend,
- approximately one third of the imported and exported goods between these countries and EU countries were made between the countries included in RFC OEM,
- rail freight relevant transport potential for the RFC OEM can primarily be expected with Iran and Kazakhstan,
- other countries do not currently export and import a significant amount of goods that would significantly increase the demand for rail freight services.

New transport opportunities that would be suitable for transport by rail can be expected from and/or to Kazakhstan and Iran. As far as the transport flows are concerned, directional inequality may cause challenges. An important aspect for the growth and development of RFC OEM in the long term could become, in particular, the transit through the countries of Central Asia and the Caucasus region to EU countries via RFC OEM railway infrastructure from China and India. This creates opportunities for international cooperation and the subsequent provision of comprehensive transport services through, in particular, intermodal transport. The "Iron Silk Road"-initiative could become of particular interest for RFC OEM, since the RFC OEM is serving those ports and border crossing points in South-Eastern Europe which are natural entry points for traffic along the Iron Silk Road.

Apart from the potential provided by third countries, following the completion of the infrastructure works concerning the railway connection between Athens and Patras, the sea links between the port of Patras and the ports of the Ionian Sea and the Adriatic Sea are expected to significantly enhance the intermodal efficiency of the Corridor, providing a considerable boost to its flows.

3.9 Strategical Review of RFC OEM based on SWOT Analysis

Based on the SWOT analysis, it is necessary to take the following measures for the RFC OEM into account:

- segmentation of services and customers,
- agreements and contracts with carriers,
- increase the awareness to the corridor's services and products,
- improve planning and management of infrastructure works with the aim to reduce impact on traffic,
- promote improvement of infrastructure standard in order to allow more efficient train operations (leading to increased competitiveness of rail transport), in particular train length,
- develop and implement mitigating measures to avoid disruption of train services at border crossings for too long times,
- harmonisation of operational procedures and elimination of unnecessary rules (for example harmonise the number of buffer wagons), taking into account the Action Programme of 2016.

3.10 Strategical Map of the RFC OEM (proposed by VVÚŽ)

In order to fulfil the basic objectives of RFC OEM it is necessary to set out the strategic steps for their fulfilment. One of the appropriate methods for creating strategic processes is the Balanced Score Card. Balanced Score Card is a complex strategic method that looks at the subject surveyed through four perspectives and their mutual relationships. It is an assessment from financial-, customer-, process-, learning- and growth perspective. The Balanced Score Card methodology is based on the vision and strategy of the object surveyed and on that basis for each perspective the mission and strategic objectives, to which certain metrics and their target values are assigned, will be determined. All perspectives are logically connected and linked and this method, therefore, provides a complex view of the object surveyed and its performance. The detailed strategic map can be found in Chapter 13, Figure 21 of the TMS.

According to the proposed strategical map the RFC OEM main visions are:

- being a competent and highly appreciated partner and service provider to rail freight undertakings, shippers, cooperation partners and stakeholders,
- maintaining a strong position in the outstanding performances such as C-OSS services and further development of RFC product according to market demand,
- continuously improving on indicators where customer satisfaction is not yet satisfying,
- growth of rail freight performances,
- strengthening the position of rail freight within the EU, development of cross- border rail interoperability in order to shift more long-distance traffic to rail, thus, to contribute to reach the goals laid down in the White Book for Transport of the European Commission,
- progressive reduction of social costs of transport such as reduction of CO2 emission with the shifting of more and more traffic to rail,
- expand cooperation with rail carriers and individual rail infrastructure managers through increased range of services.

According to the proposed strategical map the RFC OEM mission consists particularly of:

- providing smooth, reliable and high-quality services for rail freight undertakings, terminals and end customers,
- increasing awareness and facilitating the use of RFC OEM's services through progressive deployment of customer-friendly IT-tools such as PCS system of RNE,
- developing effective procedures in removing bottlenecks (infrastructural, administrative or else),
- stability of rail system status and tradition by minimizing impact of works on traffic operations and ensuring a good state of infrastructure maintenance,
- good responsiveness to customer requirements at the highest levels,
- maintaining a good cooperation with the European coordinator of OEM CNC in order to be able to effectively contribute to the development and modernization of railway infrastructure with regard to the specific needs of rail freight,
- facilitation of intermodal transport (RO-LA and Unaccompanied Combined Traffic),
- promoting rail as an environmentally friendly mode of transport among prospective shippers and political decision-makers,
- continuously contributing to the development of the rail system within the EU and the network of EU rail freight corridors.

3.11 Conclusions and Recommendations

RFC OEM was established in 2013 in order to ensure coordination between the parties concerned, more effective transport management by introducing the concept of the one-stop shop, fulfilment of the requirements of the Regulation, and to boost some increase in transport performances as well as to improve transport continuity across the Member States concerned aiming at a sufficient prioritization of rail freight. Based on the analyses carried out, marketing survey, comparison of modal split and other important qualitative and quantitative transport indicators, we can state that even if there are lots of challenges the RFC OEM seems to be on the right track. This conclusion can precisely be backed by the results of the user satisfaction survey of 2016 which are inter alia the improvement in the field of traffic management issues, overall communication procedures between the customers and the operative management of the corridor and last but not least the results of the Train Performance Management showed growing tendency in comparison with that of the survey of 2015. It is important to stress that these results stem from customers who actually use the corridor's services. The real strengths of the corridor proved to be in the field of path allocation and the services provided by the C-OSS. Customers highly valued the customer orientation, newsletters, business know-how and availability of the C-OSS Manager and welcomed the new Flex-PaP concept in general.

Thanks to the corridor's route alignment, geographical position and developing economic indicators, a definitive growing tendency regarding traffic potentials between the RFC OEM Member States as well as new transport opportunities between Turkey, Kazakhstan, Iran and China can be forecasted. In order to better serve this progress, RFC OEM's operative management developed new initiatives aiming at the improvement of the corridor's offer which were welcomed by our customers. One good example could be that for the first time in 2016, the path-construction process was preceded by a new, service-oriented initiative offered by the C-OSS Manager, inviting all potential applicants into a preliminary consultation in order to improve the quality of PaPs for timetable 2017 and reserve capacity for timetable 2016 by collecting their needs. As a result, the PaP-catalogue of 2016 offered for customers 13.9 million path-kilometers (km*running days) of high-quality paths for international traffic. Regarding the annual requests for international paths 14% of the available corridor capacity, i.e. 1.92 million path kilometers, was pre-allocated which was a major increase compared to the 9% in 2015. Furthermore, it is worth to mention that the total requested running days were 1662 with an average 138,5 per request. The longest requested PaP distance was 1643.9 km with an average of 1010 km per request. These numbers show us a clear interest in utilizing corridor-capacity mainly by the long-distance traffic between Germany and Turkey. When it comes to the assessment of the need for Reserve Capacity, there had been 8.2 million path-kilometers provided to serve the interim needs of RFC OEM customers, out of which 1.38 million requested and allocated through the C-OSS, which showed also an increase compared to the timetable year of 2015. Following strong request from the market, the C-OSS started to examine the feasibility to significantly lower the deadlines for requesting reserve capacity before the running day of the train (results are expected to 2017/2018).

Based on the comprehensive results of the TMS for RFC OEM, the following measures for ensuring further development and fulfilling the strategic objectives resulting from the corridor's mission and vision are recommended:

	Recommendation	Recommended responsible
1	Examination of the possibility to adapt priority rules to the needs of	Infrastructure Managers of RFC
	rail freight transport.	OEM (IMs)
2	Increase the number and the quality of train paths for the	Corridor-One Stop Shop office (C-
	international rail freight transport.	OSS), IMs

3	Regularly evaluate the satisfaction of Railway Undertakings (RUs) and other users of the whole railway network in order to ensure and promote quality rail services.	European Commission (EC), RFC OEM, IMs
4	Proceed towards the creation of a European-wide harmonised regime for infrastructure charges.	EC, Member States (MSs), IMs
5	Internalization of negative external costs in transport sector.	EC, European Parliament (EP), European Council, MSs
6	Increase, adapt and regularly monitor investments for the removal of bottlenecks along the corridor.	MSs, EC, IMs, TEN-T CNC
7	Increase, adapt and monitor investments in modernization of basic and connecting transport infrastructure including last-mile within the corridor.	EC, CNC, IMs
8	Coordinate the investment plan regarding the transport infrastructure of the corridor.	EC, CNC, MSs (national investment plans), IMs
9	Ensure proper and effective maintenance of railway infrastructure of the corridor.	IMs
10	Ensure proper and effective traffic management rules and stable and reliable coordination process for temporary capacity restrictions (TCRs) along the corridor.	IMs, C-OSS, RUs
11	Actively cooperate with other RFCs	MSs, IMs, RFC Network, RNE-RFC High-Level meeting
12	Extend the network of local and regional intermodal terminals that can provide high-quality and competitive intermodal transport services.	EC, MSs
13	Permanent and effective cooperation with intermodal transport operators, Railway Undertakings and Authorized Applicants.	Intermodal Terminals, Terminal Advisory Group of RFC OEM (TAG), RUs, Railway Advisory Group of RFC OEM (RAG)
14	Continuously improve the quality of market surveys and overall communication between the RFC bodies (as defined by the RFC-Regulation) in order to succeed problem solving.	RFC OEM Executive Board (EB), Management Board (MB), RAG, TAG, RFC OEM Working Groups (WGs); EC, European coordinator and consultants for OEM CNC

Table 9

These recommendations are based on the results of the TMS, the empirical knowledge of IM's experts working with the corridor, RFC OEM staff, railway undertakings, marketing research and customer satisfaction surveys. The recommendations aim at the achievement of a modal increase for international freight services to rail and the improvement of long-distance cross-border rail services. Well-set and customer-oriented services will contribute to a higher demand for rail freight services, effective modal split, savings in negative external costs of transport and sustainable development. This will contribute to fulfil the vision and mission of RFC OEM as well as to the achievement of the main goals adopted by the European Commission in its White Book on Transport of 2011 towards a competitive and resource efficient transport system. These recommendations should be considered as the challenges for further improvement of RFC OEM, although several of them cannot be directly implemented through RFC OEM alone but with the cooperation and involvement of all respective stakeholders.

4 List of measures

4.1 Coordination of Temporary Capacity Restrictions

4.1.1 Background

Independent Temporary Capacity Restrictions working group (TCRs WG) was established in mid of 2016 by the MB. The aim of the decision was to split the Traffic management working group and create independent working group deeply focused on tasks connected with capacity restrictions planning, coordinating and publishing.

TCRs WG meets 2 times per year. All WG members confirm the purpose to improve the TCRs planning and coordinating process along on RFC OEM taking into account the related RNE guidelines as well. Some specificities will remain in the RFC OEM information procedure of TCRs which were requested by our business clients during the TAG/RAG meetings.

4.1.2 Legal framework

TCRs WG processes are based especially on Article 12 'Coordination of works' of the Regulation giving the responsibility for TCRs coordination and publication to the MB:

'The management board shall coordinate and ensure the publication in one place, in an appropriate manner and timeframe, of their schedule for carrying out all the works on the infrastructure and its equipment that would restrict available capacity on the freight corridor.'

Taking in account this article RNE developed Guidelines for Coordination / Publication of Temporary Capacity Restriction (version 3.0) in accordance with the national implementations of Annex VII of Directive 2012/34/EU, which is the main legal basis for TCRs WG activities. TCRs WG members fully respect these Guidelines and follow them for securing proper environment for coordination of TCRs.

4.1.3 Tasks of the TCRs WG

TCRs WG takes care about following tasks:

- Steers the coordination process according the RNE Guidelines.
- Ensures the publication of planned TCRs for customers.
- Ensures the process of measure and quality evaluation of TCRs Coordination and Publication.
- Cooperates with C-OSS to improve the quality of train path allocation.
- Develops the environment for publication of unplanned (not within the scope of RNE TCR guideline) and extraordinary capacity restrictions to avoid train delays and other undesirable circumstances.
- Supports the development of a TCR coordination and planning process to improve rail freight traffic.

On the basis of the regular up-date of the information on TCRs the first conclusion is that there are a lot of works, which will be executed by the IMs in the coming years on corridor lines. The MB is monitoring the situation and makes efforts to harmonize the coordination of the works according to the RNE guidelines. The TCR WG enforces to start bilateral or trilateral coordination in those cases, where this is appropriate by the RNE guidelines. Good coordination of TCR can positively influence the service level and quality on RFC OEM. TCR is an important topic for the business partners, publication and coordination on time can facilitate the related procedures for all concerned partners.

4.1.4 TCRs Coordination and publication process

Process for coordination and publication of TCRs is described in Chapter 4 of CID Section 4.

4.2 Corridor OSS

The tasks of the C-OSS, legal background and related documentation are described in Annex VII – C-OSS Operational Rules.

4.3 Capacity allocation principles

The current measures are described in Section 4.

4.4 Applicants

The current measures are described in Section 4.

4.5 Traffic Management

4.5.1 General measures

In line with Article 16 of Regulation, the management board of the freight corridor has put in place procedures for coordinating traffic management along the freight corridor.

Traffic Management is the prerogative of the national IMs and is subject to national operational rules. The goal of Traffic Management is to guarantee the safety of train traffic and achieve high quality performance. Daily traffic shall operate as close as possible to the planning.

In case of disturbances, IMs work together with the RUs concerned and neighbouring IMs in order to limit the impact as far as possible, to provide possible alternative routes for the traffic and to reduce the negative impact occurred on the network. Detailed description is under sub-chapter 4.6.

National IMs coordinate international traffic with neighbouring countries on a bilateral level. In this manner they ensure that all traffic on the network is managed in the most optimal way.

Detailed rules and procedures are described in Section 4. Chapter 5 of CID Book.

4.5.2 Cross-border traffic

The Joint Ministerial Declaration referred to in chapter 3.1, which was adopted in Rotterdam in 2016, included the objective of eliminating bottlenecks at border crossings and reducing the waiting time to below 120 minutes.

For the implementation of this objective task forces were set up at 12 border crossings, which were the following:

	Border stations	Member States	Leader IM	Participant IM
1	Bad Schandau - Dečín	German - Czech border	DB InfraGO	SZCZ
2	Břeclav – Hohenau	Czech - Austrian border	SZCZ	ÖBB-Infra
3	Kúty – Břeclav	Czech - Slovakian border	ŽSR	SZCZ
4	Štúrovo – Szob	Slovakian – Hungarian border	ŽSR	MÁV
5	Rajka – Rusovce	Slovakian – Hungarian border	GYSEV	ŽSR
6	Hegyeshalom – Nickelsdorf	Hungarian – Austrian border	MÁV	ÖBB-Infra
7	Komárom – Komárno	Hungarian – Slovakian border	MÁV	ŽSR
8	Biharkeresztes – Episcopia Bihor	Hungarian – Romanian border	MÁV	CFR
9	Curtici – Lőkösháza	Hungarian – Romanian border	CFR	MÁV
10	Giurgiu – Ruse	Romanian – Bulgarian border	NRIC	CFR
11	Vidin Tovarna – Golentsi	Romanian – Bulgarian border	NRIC	CFR
12	Kulata – Promachonas	Bulgarian – Greek border	NRIC	OSE



Table x

Places of the border crossing task forces

After identifying the obstacles to smooth border crossing at the border crossing points, the working groups prepared their work plans, which have been regularly updated. Many experts are working on tasks to reduce waiting times at border crossing points in six Member States.

Since its inception, there have been around 74 working group meetings, with an average of nine participants per working group, including infrastructure managers, railway companies, terminal operators and corridor representatives.

Since the first assessment, the situation has improved at almost all border crossings. Consequently, the criteria for final assessment and suspension of task force activities was defined. In May 2021, Slovakian and Czech teams proposed to suspend task force operations as they reached the 120-

minutes deadline in both directions and this value was proven to be maintained for a year. Suspension of task force activity means that border crossing traffic and border crossing times are still monitored, but the task force does not need to be active and no further task force meetings are required as long as waiting times are below the desired level.

In 2023, the border crossings handled by the Hungarian working groups have reached values below 120 minutes in the prescribed one-year period, so they requested the suspension of their activities.



Table x +1

Results of task forces

The Curtici - Lőkösháza border section has been a particular focus of attention in the recent period, as its values have deteriorated significantly due to the migration crisis that started in 2017, which has led to a significant increase in train transit times due to tightening border controls.

A special working group has been set up to tackle the problem, involving experts from the relevant stakeholders, what has done a deep investigation on the procedures of the border section and the circumstances of the traffic and it proposed improvements measures to make traffic flow more smoothly.

As a result of more than a year of joint work, train crossing times at the border have improved, which is meaning a reduction of around 3 hours in the waiting time, but they are still far from the desired 120-minute target. The intensive work is continuing to identify problems and develop proposals for measures to improve the problems identified.

4.6 Traffic Management in the event of disturbance

The goal of traffic management in case of disturbance is to ensure the safety of train traffic, while aiming to quickly restore the normal situation and/or minimise the impact of the disruption. The overall aim should be to minimise the overall network recovery time.

In order to reach the above-mentioned goals, traffic management in case of disturbance needs an efficient communication flow between all involved parties and a good degree of predictability, obtained by applying predefined operational scenarios at the border.

Since 2021 communication between stakeholders in case of international disruptions is also supported by RNE TIS Incident Management tool. The communication procedure and the available tools are described in Section 4 Chapter 5 of the CID.

4.6.1 International Contingency Management Planning (ICM)

As the consequence of the Rastatt incident, DB InfraGO AG and RFC1 early 2018 made an initiative to set up a Handbook for proper handling of high impact (>50%) international disturbances in duration of longer than 72 hours. After concluding the key elements and conclusions of the Rastatt incident a working document was elaborated which initiative was also supported by the sector and by the European Commission (DG-MOVE).

Incidents on the railway infrastructure always have an effect on rail operations. The responsible infrastructure manager handles most incidents at regional or national level. If trains on networks of neighbouring infrastructure managers are affected, the traffic management of neighbouring infrastructure managers are informed directly and involved in the incident management process. This process is a daily practice between the infrastructure managers in Europe.

If a large incident with significant international impact occurs, the international coordination of incident management needs a high attention at infrastructure managers, allocation bodies and Applicants, if applicable under the supervision of governments and local authorities. Other stakeholders such as shippers, regulatory bodies, ports, terminals and media need to be informed about the status of the international disruption.

The main goal of the ICM handbook is to describe standards that allow continuation of freight and passenger traffic flows, within the framework of national rules, and its impact on traffic flows for all relevant stakeholders across Europe. Rail freight corridors act as facilitators with respect to the disruption management and the communication process.

The ICM handbook defines the necessary cooperation in case of significant international disruptions and describes:

- How to recognise and when to declare an internationally relevant disruption;
- The preparatory processes for international business continuity management;
- The roles needed for the international cooperation;
- Pre-defined procedures and best practices;
- Data gathering for reliable re-routing statistics, KPIs;
- Legal framework.

All essential information on handling of ICM cases relevant for Applicants shall be described in the network statement in accordance with the requirements for publication of the network statement as defined in Article 27 of Directive 2012/34/EU and can be complemented by a link to this handbook.

4.7 Quality Evaluation

Quality of service on the freight corridor is a comparable indicator (set of indicators) to those of the other modes of transport. Service quality is evaluated as a performance. Performance is measured with Performance Indicators. These indicators are the tools to monitor the performance of a service provider. What regards the international rail freight services the obligation is based on the provisions of Article 19 of the Regulation.

4.7.1 Performance monitoring report

The measurement of performance of rail freight transportation on RFC OEM lines is first of all an obligation stemming from the Article 19 (2) of Regulation (EU) 913/2010, on the other hand it contributes to the development of RFC OEM services, as well.

RailNetEurope with the cooperation of rail freight corridors elaborated the Guidelines for Key Performance Indicators of Rail Freight Corridors. It provides recommendations for using a set of KPIs commonly applicable to all RFCs. Related information can be found on the flowing link: <u>https://rne.eu/rail-freight-corridors/rfc-kpis/</u>

A. On RFC OEM the following common KPIs are measured:

- Capacity management: measuring the performance of RFC OEM in constructing, allocating and selling the capacity of RFC OEM (in line with Articles 13 and 14 of the Regulation), monitored in terms of:
 - Volume of offered capacity (PaPs and RC)
 - Volume of requested capacity (PaPs and RC)
 - Number of requests (PaPs and RC)
 - Volume of pre-booked capacity (PaPs)
 - Ratio of pre-booked capacity (PaPs)
 - Number of conflicts (PaPs)
 - Average planned speed of PaPs

The KPIs included in this area inter alia contains the KPIs listed in the Annex 3 of the Framework for Capacity Allocation on RFC OEM.

- The KPIs of Operations, which measure the performance of the traffic running along RFC OEM monitored in terms of punctuality, volume of traffic and delay reasons:
 - Punctuality at origin (30 and 15 minutes threshold)
 - Punctuality at destination (30 and 15 minutes threshold)
 - Number of trains crossing a border along the RFC
 - Train kilometres of trains crossing a border along the RFC
 - Dwell times in border sections (planned and actual)
- The KPIs of Market development, which measure the capability of the RFC OEM in meeting the market demands are monitored in terms of:
 - Number of trains per border
 - Train kilometres of trains per border
 - Ratio of the capacity allocated by C-OSS and the total allocated capacity

In order to use the same quality of data and to reduce the overall efforts of the rail freight corridors and RNE, mainly the same IT tools are used for the calculation of the commonly applicable KPIs. In case the data can be provided by PCS or the Train Information System (TIS), then the data processing tool is OBI. If the necessary data are not available in RNE IT tools, the RFCs collect the data (e.g. via their IMs from the IMs' IT tools) and do the calculation individually. The calculation formulas of common KPIs can be found in the Guidelines for Key Performance Indicators of Rail Freight Corridors. https://rne.eu/wp-content/uploads/2022/10/Guidelines KPIs of RFCs V4.0.pdf

The results of the Capacity management, Operation and Market development KPIs shall be published in the Annual Report of RFC OEM.

B. RFC OEM specific indicators which were approved by the Management Board

Response time to questions of customers related to the information function of C-OSS shall be: as soon as possible, but maximum within 5 working days.

The following indicators of quality should be monitored:

- Response time of C-OSS to questions of customers
- Total transport time of corridor trains

The Management Board plans to increase allocated pre-arranged paths and reserve capacity by min. 2% annually.

For the purposes of the next TMS studies, all kind of corridor flows will be monitored, i.e. not only trains with capacity allocated from PaPs, but also from tailor-made paths, catalogue paths and adhoc paths.

The following indicators of performance shall be monitored:

- Number of corridor trains per month
- Number of the border crossing allocated/used path corridor trains
- Length of path

The process for monitoring performance is described in RNE Guidelines for Punctuality targets.

Performance will be monitored by national systems at the first stage, then by TIS later on.

Next performance indicators which should be monitored for TMS purposes:

- Number of trains on corridor with capacity allocated by national OSS
- Tonnes
- Gross tonnes km
- Train km

4.7.2 User Satisfaction Survey

See Chapter 5.3.

4.8 Corridor Information Document (CID)

The CID applies the RNE CID Common Texts and Structure so that all applicants can access similar documents for different corridors and in principle – as in the case of the national network statements – get the same information in the same place in each one.

The CID consists of the following sections:

- Section 1: Generalities
- Section 2: Network Statement Excerpts
- Section 3: Terminal Description
- Section 4: Procedures for Capacity and Traffic Management
- > Annexes (Implementation Plan, Transport Market Study etc.)

The CID is published for each timetable year on the 2nd Monday of January of the previous timetable year.

The CID is published on the corridor's website and in <u>RNE NCI</u> (Network and Corridor Information – a single platform for all network statements and CIDs).

All Books of the CID can be updated when necessary according to:

- changes in the rules and deadlines of the capacity allocation process,
- changes in the railway infrastructure of the member states,
- changes in services provided by the involved IMs/ABs,
- changes in charges set by the member states,
- > etc.

5 Objectives and performance of the corridor

5.1 Train Performance Management (TPM)

The general objectives of RFC OEM are defined by the ExBo, and are laid down in annex 8.

The Corridors aims to reach these objectives by

- Attracting customers with the services of the Corridor-One-Stop-Shop, providing easier access for customers in order to reduce the drawback of different national systems.
- Facilitating solving issues that need higher level attention especially when out of the transport sector.
- Continuous improvement of processes concerning the operation of the railway infrastructure.

In particular, the objectives specific to the core processes capacity management and train performance management are described below:

A. Punctuality

Improving the punctuality of freight trains running on RFC OEM is essential in order to increase the share of rail in the model split. Therefore, one of RFC OEM's focal points is to undertake effective measures to further enhance Train Performance Management (hereinafter TPM) including setting of quality targets and thereby shifting the focus of TPM activities from monitoring to management of punctuality.

Generally, the punctuality of a train is measured on the basis of comparisons between the time planned in the timetable of a train identified by its train number and the actual running time at certain measuring points. A measuring point is a specific location on the route, where the trains running data is recorded. The comparison should always be done with an internationally agreed timetable for the whole train run.

Punctuality is calculated as the percentage of punctual trains out of the total number of trains.

The calculation is done for two thresholds: 30 minutes and 15 minutes.

Punctuality targets (30 min threshold): at least 60 % at origin and 60 % at destination.

The codified reasons for delay, in accordance with UIC leaflet 450-2, will be used for continuous and systematic monitoring. The monthly punctuality reports are uploaded to the website of the Corridor.

B. Dwell time

Besides punctuality, another factor requiring high attention is the dwell time of international freight trains at the borders and the reduction of this dwell time, with special regard to the critical border sections – facing both long dwell time and a high number of trains. In order to facilitate the objective of operational efficiency and seamless crossing of the borders this particular factor needs continuous cooperation between both IMs and RUs is essential in removing operational barriers.

Target:

- 120 minutes on average where currently above this target,
- further decrease annually where below 120 minutes.

C. Strengthening cross-border cooperation

In order to facilitate the above objectives regarding punctuality and dwell time, RFC OEM promotes cross-border cooperation groups comprising neighbouring IMs, RUs, and eventually terminals regarding the critical border sections. Further information about the continuous at the border sections concerned can be found in chapter 4.2 Measures for the further development of the RFC.

D. Capacity

The C-OSS handles exclusively the capacity products on RFC OEM (Pre-arranged Paths (hereinafter referred to as PaPs), Reserve Capacity etc.). PaPs for the annual timetable are provided by the IMs/AB to the C-OSS. The PaPs are based on standard parameters for rail freight and previously coordinated between the IMs/AB at the borders so to enable for attractive running times. The path catalogue of PaPs is published by the C-OSS by the 2nd Monday of January of each year for the next timetable period. Reserve Capacity on the Corridor is available from October of each year on, to allow for ad-hoc path applications. The offer of the C-OSS is displayed in the IT-application PCS (Path Coordination System) provided by RNE. According to the Regulation, the aim is to offer capacity via the C-OSS is to have "one face to the customer" for international path requests along RFC OEM and at the end harmonized path offers across at least one border. Furthermore, the decision on the PaP pre-allocation is done by the C-OSS by the end of April for the entire international PaP segment on basis of one harmonized allocation rule. As a result, the RUs will get an earlier information about the PaP pre-allocation.

RFC OEM plans to increase allocated PaPs and reserve capacity by min. 2% annually.

Key performance indices (KPI)

To measure the fulfillment of the above objectives and steer performance, the Management Board has adopted the following KPIs, which are commonly applicable to all other RFCs.

Name of KPI	Calculation formula	Source of data	Timing of calculation	Target
Volume of requested capacity (PaPs)	Km*days requested	PAMT report in PCS	At X-8	Increase four-year moving average by 4.5% each year

Volume of pre-booked capacity (PaPs)	Km*days (pre- booking phase)	PAMT report in PCS	At X-7.5	Increase four-year moving average by 4.5% each year	
Ratio of pre- booked capacity – PaPs (to the volume of capacity offered at x- 11)	Km*days offered	PAMT report in PCS	At X-7.5	increase ratio each year	
Average planned speed of PaPs	Average of the planned commercial speed of the PaPs on the O/D pair concerned per direction	PAMT report in PCS	At X-11	when classified into four categories (divided by 30, 40 and 50 km/h), at least one category step-up each year	
Punctuality at origin	The share of all RFC-related trains at RFC entry with a delay less than, or equal to, the threshold compared to all RFC-related trains at RFC entry.	TIS	At the end of January after the timetable year concerned	difference of the two not exceeding 10%	
Punctuality at destination	The share of all RFC-related trains at RFC exit with a delay less than, or equal to, the threshold compared to all RFC-related trains at RFC exit.	TIS	At the end of January after the timetable year concerned		
Number of Trains crossing a	Total number of train runs having a running advice (departure/arrival/	TIS	At the end of January after the timetable year concerned	annual increase of 4.5%	

border along the RFC	passing time) on selected pairs of border points			
Train kilometres of Trains crossing a Border along the RFC	Sum of O/D distances of all trains crossing a border along the RFC	TIS	At the end of January after the timetable year concerned	annual increase of 4.5%
Dwell times in border sections – planned dwell	Average planned dwell time of all international freight trains crossing the RFC border in the main measuring points, where border crossing related procedures usually occurs	TIS	At the end of January after the timetable year concerned	 120 minutes on average where currently above this target, further decrease annually where below 120 minutes.
Dwell times in border sections – real dwell	Average real dwell time of all international freight trains crossing the border along the RFC in the main measuring points, where border crossing related procedures usually occurs	TIS	At the end of January after the timetable year concerned	 120 minutes on average where currently above this target, further decrease annually where below 120 minutes.

Table 10

Besides the above KPIs, RFC OEM measures the quality of services and monitors the achievement of the objectives via the annual user satisfaction survey, too, the results of which are published on its website and in the CIP.

5.2 Annual reports

Referring to the Article 19 of the Regulation the MB shall monitor the performance of rail services on the freight corridor and shall publish concerned activities every year. Annual reports can be found in the Documents section of the RFC OEM webpage <u>https://www.rfc7.eu/annualreports</u> and are also available in CIP.

5.3 User Satisfaction Survey

To know our customers' opinion is a fundamental interest of rail freight corridors for further development. With this in mind the Regulation also requires rail freight corridors to conduct a user satisfaction survey on yearly basis and publish the main results.

For conducting research RNE created a common platform, of which RFC OEM has been a member since its formation (2014). During the RFC Network in February 2020 the elaboration of a new system arose. Main orientations: shortening and doing in house manner (without external company). The new survey was elaborated by RNE and rail freight corridors' representatives in User Satisfaction WG, based on majority decisions.

The new research launched in 2020. The target population did not change: the users of corridor lines (both having and not having corridor capacity). Online interviews were conducted with the help of research tool <u>Survio</u> (In 2022 the invitees had the opportunity to choose personal interview instead.).

All RFCs have joined the new research, also messaging that the European rail freight corridors form one network, and this common surface provides us a European framework.

More explanatory notes and facts can be found in the RFC OEM own summaries about the results of user satisfaction survey. (See the Documents tab of the RFC OEM webpage <u>https://www.rfc7.eu/satisfactionsurvey</u>).

5.4 Conclusions, recommendations & withdrawal

According to the draft Regulation of the European Parliament and of the Council on Union guidelines for the development of the trans-European transport network (hereinafter: ETC-Regulation) RFC OEM shall be integrated into two future European Transport Corridors:

- Rhine Danube and
- Baltic Black Aegean Seas

The ETC-Regulation is currently undergoing the ordinary legislative procedure of the European Union, and is expected to get approved and effective early 2024. The integration of RFC OEM into the successor European Transport Corridors is foreseen within eighteen months after the legislative act becomes effective. RFC OEM is thus expected to be withdrawn in 2025.

The withdrawal offers an opportunity to draw conclusions about the experience gained about RFC OEM during its ten years of existence.

• RFC OEM has proven itself as a unique cooperation platform. It addressed many such fields which did not receive attention from any other international platform. In particular, those fields included operations and customer care. Standing workgroups, for instance, have allowed the experts to get to know each others' approach to certain functionalities and subsystems.

The full cooperation potential of the platform, on the other hand, has probably not been reached. In particular, the rail freight corridor did not bring the high-level managements of the infrastructure managers closer together. That has also limited the ability of RFC OEM to take decisions with major effect on its infrastructure managers.

• The C-OSS has received very positive recognition for its customer oriented approach and expert knowledge. It was possible to achieve success in facilitator and intermediary roles. In

comparison to other rail freight corridors, personal competences, attitude and approach played an important role, rail freight corridor did not have a uniform task set for the one-stop-shops.

A positive feature of the operation of the C-OSS has been that no transparency or discrimination issues have emerged, no procedure by the regulatory bodies had to be launched throughout its entire lifecycle.

The pre-arranged train path and the reserve capacity, as set out in Regulation (EU) 913 / 2010, on the other hand, has achieved moderate success. It has not grown into a major product of the infrastructure managers. That may be ascribed to the phenomenon that the different infrastructure managers had other expectations about the characteristics of the product and its unique selling proposition. Some emphasised the importance of keeping these products closely integrated into the national infrastructure products, so as to provide stability and familiarity. Others intended to distinguish the products through strong added values. Among the different concepts, in the end, it remains a question whether the two corridor capacity products only had so much potential or more.

• The Railway Undertakings' Advisory Group (RAG) has been a successful platform, which has been welcomed by the railway undertakings. Even with the individual infrastructure managers' customer care efforts, the RAG was a unique platform, which allowed consultation opportunity about issues that could not be put forward anywhere else.

The creation of the spokesperson position has proven itself as a good concept. RFC OEM and the infrastructure managers have profited from a well-coordinated group of customers. Through election, the position was assigned to the Rail Cargo Group, which served

The Terminal Advisory Group (TAG), on the other hand, has attracted less attention from the addressed entities. That might be due to the circumstance that the terminals in the region of RFC OEM have comparably smaller size, they have less overheads capacity for cooperating with the infrastructure managers. Major ports, for instance, can not be found on RFC OEM, with the exception of the Greek ports, which had the most interest in cooperation. Interfaces between the terminals and the infrastructure managers proved to be much less than between railway undertakings and infrastructure managers, there were less issues that could be commonly dealt with.

• Among the issues regarding rail operations, the cross-border traffic optimization has provided good results. With the exception of one border crossing, the objectives regarding the decrease of waiting time have been achieved. All interested stakeholders were included in these activities.

The results of these activities, however, have to be carried to a new level with the introduction of the revised TEN-T legislation. Compared to the objectives of RFC OEM, the waiting time will have to be further reduced by almost a magnitude by 2030.

• Deregulation measures were implemented with support from RFC OEM, even though the corridor had limited influence on these issues. The most apparent example is the deregulation of extra buffer wagons, which had to be implemented by Bulgaria, Hungary and Romania.

Out of the experience with RFC OEM, recommendations can be formulated for the remaining period and for the successor European Transport Corridors. The implementation of these is hindered by the circumstance that the improvement of one often leads to problems regarding the other, so a trade-off has to be found between the different objectives. Clearly, the better management of temporary capacity restrictions is an absolute priority for the railway undertakings. Transparent, early and reliable scheduling of capacity restrictions is a prerequisite to quality service for the shippers by the railway undertakings, and is also supported by the legal framework. This is also a unique issue, because the authorities are strongly involved through the financing of the infrastructure management activity, whose predictability is perhaps the most important influencing factor on the planning of capacity restrictions. This issue has remained on the top, as little could be achieved over RFC OEM's life cycle, and capacity restrictions are a challenge for the entire rail sector in Europe.

Another top priority is the development of the rail infrastructure, particularly on the Eastern parts of RFC OEM. Infrastructure parameters are often not adequate for the needs of international rail freight, with focus on axle load, train length and clearance. However, infrastructure development leads to temporary capacity restrictions, so steady improvement in this field comes with problems regarding the previous one.

 Train performance and punctuality have been important parameters that have needed improvement during the entire lifecycle of RFC OEM. The results in this field have stayed moderate, though. Recent consultations had the outcome that instead of timetable punctuality, railway undertakings would rather prefer guaranteed commercial speed, in particular, on the Eastern part of RFC OEM. Railway undertakings don't seem to insist on a pre-defined and detailed timetable, but would need a stable approximation of arrival time. That approach may pave the road for new traffic management approaches.

While both parameters concern train performance, guaranteed commercial speed would also grant extra flexibility for the railway undertakings. Punctuality at origin station is mostly up to the railway undertakings, and has displayed suboptimal values. Punctuality on the rest of the train run, when the infrastructure managers also affect it, is thus becoming a very complex phenomenon to assess, with much difficulty to clearly assign the responsibilities. Guaranteed commercial speed would put more responsibility on the infrastructure managers.

- Common European IT-tools have been available and supporting RFC OEM in gathering data and compiling statistics. The possibility to avoid working on statistics applications in-house has been much appreciated by the infrastructure managers. Operating a common European database has allowed to create many such statistics that the infrastructure managers themselves would not have implemented because of the lack of resources. At the same time, data quality has been limited, which reduces the efficiency of drawing conclusions out of the compiled statistics. Data source and database engine are mutually affecting each other, so all stakeholders have to make efforts in order to improve the situation. The extent of resources needed doesn't seem to have so far been recognised by the stakeholders, though.
- There are considerable differences between the individual infrastructure managers regarding the above aspects. Inadequate capacity offer has been the predominant issue on the Western part of RFC OEM, while train performance and infrastructure quality more concern the Eastern part.

6 Investment Plan

6.1 Capacity Management Plan

In 2019 DG-MOVE initiated to collect market-based rail infrastructure development requests. This initiative was submitted to the rail freight corridors by a letter signed by Ms Elisabeth Werner, Director

DG-MOVE C because EC was seeking for a pragmatic approach for involving the opinion of the railway undertakings. They wish to start from the investment plan of the rail freight corridors, focus on bottlenecks and cross-border connections.

Proposals for infrastructure needs from the market perspective listed have been consulted first with railway undertakings at national level, then the input was gathered by the AG members. According to their interpretation the MB collected 'bottom-up' proposals which could be considered as valuable input to strengthen a closer cooperation between rail freight and core network corridors in field of infrastructure development. In this consultancy period the railway undertakings were looking for cost-effective solutions when addressing the investment needs. They had four parameters in focus: train length (740 m), axle load (225 kN), transit time by country, and electrification.

This market driven investment list with a complex presentation was presented at the OEM CNC Forum meeting held in November 2019 in Brussels and the whole document was handed over to the ExBo and to the representatives of the European Commission. The evaluation of the proposals are ongoing and will be taken into consideration in the future e.g. in setting up the new version of the OEM CNC Work Plan or other additional investments' proposals.

On the basis of the investment plan the corridor governance is monitoring regularly the implementation of corridor related reconstructions, rehabilitations and investments. The main driving force of these investments is to remove bottlenecks. The capacity management is strongly linked to the improvement of several infrastructure parameters as are listed in regulation 1315/2013/EU and to congested sections according to Art 47 of Directive 2012/34/EU.

The Investment Plan is updated regularly by the RFC OEM Infrastructure Working group and is published as annex 6.

In 2023 the update was made and it was incorporated into CIP. To avoid the duplication the new data are available at this digital platform. For more information please, visit the RNE web-page.

Federal Republic of Germany

On the territory of Federal Republic of Germany, the extension of RFC OEM lines directed at Wilhelmshaven / Bremerhaven / Hamburg / Rostock–Dresden–Bad Schandau–Děčín (CZ) was implemented in 2018. The routing of RFC OEM in the Federal Republic of Germany in graphical form is shown in Table 10.



Table 11: Graphical representation of RFC OEM routing under consideration on DB InfraGO network (Source: József Ádám Balogh, C-OSS manager)

The graphical representation of the German principal lines in Table 11 show the connection of German ports of the North Sea and Baltic Sea via the cross border in Bad Schandau with the existing RFC OEM railway infrastructure. Such connection creates more favourable conditions especially for intermodal transport. Furthermore, with the extension to Germany RFC OEM will have a connecting point with the RFC Scandinavian-Mediterranean in Hamburg and RFC OEM will have long overlapping sections with RFC North Sea - Baltic.

Czech Republic

RFC OEM principal line in the Czech Republic is routed through the transport nodes Praha – Kolín – Česká Třebová – Brno/Břeclav – Hohenau (AT)/Břeclav – Lanžhot – Kúty (SK). Extension to the Federal Republic of Germany is directed at Praha/ Kolín – Ústí nad Labem – Děčín – Bad Schandau (DE). Diversionary lines are routed through Kolín – Kutná Hora – Havlíčkův Brod – Křižanov and Velký Osek – Hradec Králové – Choceň. The connecting line to PKP infrastructure is routed from Břeclav through Ostrava to Bohumín-Vrbice (direction to border crossing Chalupki (PL)) and to Petrovice u Karviné (direction to border crossing Zebrydowice (PL))from PKP infrastructure to Správa železnic is routed through Břeclav – Ostrava and border crossings Bohumín-Vrbice – Chalupki (PL) and Petrovice u Karviné – Zebrydowice (PL). Graphical routing of RFC OEM lines in the Czech Republic is shown in Table 12.



Table 12: Graphical representation of RFC OEM routes on Správa železnic network (Source: József Ádám Balogh, C-OSS manager)

RFC OEM is connected to Rail Freight Corridor Baltic–Adriatic in the cities Břeclav and Ústí nad Orlicí (the Czech Republic) while the connecting line of RFC OEM is part of RFC 5. At the same time, RFC OEM in the capital Praha and Česká Třebová is connected to RFC 9. RFC OEM is also overlapping with RFC North Sea - Baltic on the lines from the German-Czech border to Děčín, Praha and Kolín. Connection of several rail freight corridors in the Czech Republic creates favourable conditions for cooperation between particular corridors as well as transport and technological effectiveness for railway undertakings.

Austria

On ÖBB Infrastruktur AG network, RFC OEM principal line passes through border crossing stations Břeclav (CZ) – Hohenau to the capital of Austria – Wien and continues to Hungary through the border crossing Nickelsdorf – Hegyeshalom (HU). Diversionary lines are redirected from the principal line

in the railway station Gänserndorf to the border crossing Marchegg - Devínska Nová Ves (SK) and from the railway station Parndorf to the border crossing Kittsee – Bratislava Petržalka (SK).

Another principal line is the line from Wien via Ebenfurth to Sopron (HU). Following negotiations in April 2017, the Management Board took the decision to change the state of the Wien-Ebenfurth-Sopron line from a 'diversionary line' to a 'principal line'. From Ebenfurth to Wien, the Potterdorfer Line (Ebenfurth–Wampersdorf–Wien Inzersdorf Terminal–Wien Zvbf.) is routed.

Another alternative route is from Wien via Wiener Neustadt to Sopron. At the same time, RFC OEM in Austria (in Wien) is connected to rail freight corridors Baltic-Adriatic and Rhine-Danube. The graphical routing of RFC OEM lines in Austria is shown in Table 13.



Principal line Connecting line ---- Diversionary line

Table 13: Graphical representation of RFC OEM routes on ÖBB Infrastruktur AG network (Source: József Ádám Balogh, C-OSS manager)

Slovak Republic

The principal line on ŽSR network runs from the Czech Republic (Lanžhot (CZ) – Kúty) to Hungary through Bratislava in three branches. This includes the following lines:

- Bratislava Rusovce Rajka (HU),
- Bratislava Nové Zámky Komárno Komárom (HU), Bratislava Nové Zámky Štúrovo Szob (HU).

The first diversionary line included in RFC OEM on ŽSR network is routed Lanžhot (CZ) – Kúty – Trnava towards Bratislava and Galanta with a connection to the principal line. Another diversionary line is the connection of the border stations to the principal line. This includes the border crossings Marchegg (AT) - Devínska Nová Ves and Kittsee (AT) - Bratislava Petržalka. The line Bratislava -Komárno through Dunajská Streda is classified as a connecting line on ŽSR network. At the same time, RFC OEM in the Slovak Republic, in its capital Bratislava, is connected to rail freight corridors Baltic-Adriatic, Rhine-Danube and Amber. The graphical routing of RFC OEM lines in the Slovak Republic is shown in Table 14.



 Table 14: Graphical representation of RFC OEM routes on ŽSR network

 (Source: József Ádám Balogh, C-OSS manager)

Hungary

The principal line on MÁV network is routed from ÖBB Infrastruktur AG network (border crossing Nickelsdorf/ Hegyeshalom) and is connected to the second principal line in the city of Győr leading from the city of Sopron (from the Sopron terminal). This principal line from Sopron continuous on GYSEV / Raaberbahn infrastructure on Austrian territory (the border crossing: Baumgarten) to Ebenfurth. Infrastructure owned by GYSEV / Raaberbahn ends in the middle of the Neufeld an der Leitha bridge (operating up to Ebenfurth), from here further up towards Wien, ÖBB Infrastruktur AG is the competent Infrastructure Manager. Routing of principal line from the territory of the Slovak Republic:

- Rusovce (SK) Rajka Hegyeshalom Győr Komárom Budapest,
- Komárno (SK) Komárom Budapest,
- Štúrovo (SK) Szob Vác Budapest.

The Rajka – Hegyeshalom, Sopron – Győr infrastructure sections are managed by GYSEV, following that, MÁV is the competent infrastructure manager towards Lőkösháza.

The subsequent routing of the principal line is in continuation Budapest–/Újszász–/Cegléd–Szolnok– Lőkösháza–Curtici (CFR). Connection of the line from ÖBB Infrastruktura AG network to the border crossing station Sopron then continues as principal line in the direction of Győr–Komárom– Budapest. Diversionary lines included in RFC OEM on MÁV railway network are:

- Vác—Hatvan–Újszász,
- Budapest-Cegléd-Szolnok,
- Szajol–Biharkeresztes–Oradea (CFR).

RFC OEM is connected to RFC MED in Győr and Budapest, and the RFC RHD route is almost entirely overlapped by RFC OEM simultaneously connected to Rail Freight Corridor Mediterranean in the Hungarian capital Budapest. The graphical routing of RFC OEM routes in Hungary is shown in Table 15, where GYSEV's rail lines are coloured in yellow. The remaining tracks are managed by MÁV.



 Table 15: Graphical representation of RFC OEM routes on MÁV and GYSEV network

 (Source: József Ádám Balogh, C-OSS manager)

Romania

The principal line from Hungary through border crossing Lőkösháza (MÁV) – Curtici continues to the station Arad and then divides into two branches:

- Arad Simeria Coşlariu Braşov Bucureşti Constanţa,
- Arad Orşova Craiova Calafat Vidin (NRIC).

Connection of these two branches is provided by the routes Simeria – Filiaşi and Craiova – Videle – Bucureşti. Border crossing lying on the diversionary line Giurgiu – Ruse (NRIC) is connected from the diversionary line through Videle railway station and from the principal line through Bucureşti railway station. The diversionary line from MÁV network from border point Biharkeresztes (MÁV) – Oradea connects to the principal line in Coşlariu railway station. Graphical routing of RFC OEM routes in Romania is shown in Table 16.



 Table 16: Graphical representation of RFC OEM routes on CFR network (Source: József Ádám Balogh, C-OSS manager)

Republic of Bulgaria

The principal line on the territory of Bulgaria passes through its capital Sofia from Romania to Greece in the direction: Golenti (RO) – Vidin Tovarna – Mezdra Yug – Sofia – Voluyak – Batanovtsi – Kulata – Promachonas (GR). Following the meeting of the Management Board on June 2 2016, the originally diversionary line was reclassified to the principal line in the direction Sofia – Plovdiv – Svilengrad. The diversionary line is led through the border crossing Giurgiu (CFR) – Ruse Razpredelitelna – Kaspichan – Sindel – Karnobat /Burgas – Nova Zagora – Stara Zagora and Svilengrad – Ormenio (GR) and connection with the principal line in three points in Simeonovgrad, Dimitrovgrad and Plovdiv railway stations. The connection of RFC OEM to Turkey is possible through the border crossing Svilengrad (BG) – Kapikule (TR) and then to the Turkish railway network. The map of RFC OEM routes in the Republic of Bulgaria is shown in Table 17.



 Table 17: Graphical representation (map) of RFC OEM routes along NRIC network (Source: József Ádám Balogh, C-OSS manager)

Hellenic Republic (Greece)

The principal line on the territory of the Hellenic Republic starts off the border crossing Kulata (NRIC) – Promachonas and continues to the capital of the Hellenic Republic – Athens with connecting line to Piraeus and a link to Patras. Another connecting line in continuation from the principal line is in Larissa railway station to Volos railway station. The diversionary lines are continuation of the principal line in the direction Svilengrad (NRIC) – Ormenio – Alexandroupolis – Serres.

The connection of RFC OEM with the Republic of Turkey is possible through Pithio (GR) railway station and Demirköprüin Turkish border crossing station and then to Turkish railway network. Graphical routing of RFC OEM routes in Greece is shown in Table 18.



 Table 18: Graphical representation of RFC OEM routes on OSE network (Source: József Ádám Balogh, C-OSS manager)

6.2 List of Investment Projects

It is encouraging to see an improving trend in investment efficiency in many of the Member States concerned. In spite of diminishing funding possibilities, it can be concluded that a targeted improvement, whether small or large, focusing on rail transport performance can be shown to contribute to improving service quality and thus to increasing the attractiveness of the rail market.

The Investment Plan is without prejudice to the competence of the Member States regarding infrastructure planning and financing. Also, this is without prejudice to any financial commitment of a Member State.

In accordance with Article 11 of the Regulation the Management Board of RFC Orient/East-Med considers investment planning along the corridor as a very important matter. Therefore, the

Management Board with the assistance of the Infrastructure Development Working Group has drawn up the Investment Plan of the involved 8 countries along the freight corridor.

The complete Investment Plan forms Annex 7 of the Implementation Plan. The periodically update is done according to the legal requirements deriving from the regulation.

This latest update of the projects provides the opportunity to follow-up the realization of the corridor related investments run in the RFC OEM Member States. The projects have different categorical types, there are renewal of tracks, signaling system, bridges and other elements. Each project will achieve benefits in the following area:

- maintenance, modernization of the track \rightarrow ensure better infra parameters;
- electrification \rightarrow ensure TEN-T parameters;
- safety and security (ETCS implementation) \rightarrow ensure interoperability;
- bridge renewal \rightarrow ensure better connection;
- switches renewal.

These investments will result in ceasing bottlenecks and making better quality of our infrastructure services, increasing the commercial speed and developing our performance.

Analyzes and outcomes made in connection with the CNC Work Plan are also monitored and followed up focusing on the main developments and on the investments planning.

Regular update is given to the RFC OEM customers about the planned RFC related investments at the TAG/RAG meetings.

The Secretariat will make an update information via RFC OEM website and via CIP concerning the actual situation of the investment project list. The format and the necessary/useful data were consulted with AGs.

6.3 ERTMS Deployment Plan

RFC OEM, defined in accordance with the Regulation, was overlapping with ETCS Corridor E that had been defined by the TSI CCS CR (2009/561/ES) and enlarged by the south branch via Bulgaria to Greece.

In the establishing process of RFC OEM was agreed that the ETCS Corridor E project structures will be included in the organization structure of the RFC OEM. In this process the ETCS Corridor E Management Committee was transformed to the Interoperability & ERTMS Working group of the RFC OEM organization structure and the new companies that represent the south branch of the RFC OEM were joined into the WG.

The basis of the information provided in the following chapters are the national implementation plans according to EU Regulation 2016/919 (TSI CCS) respectively the Commission implementing regulation (EU) 2017/6 on the European Rail Traffic Management System European deployment plan.

The aim of the European Rail Traffic Management System (ERTMS) European deployment plan is to ensure that vehicles equipped with ERTMS can gradually have access to an increasing number of lines, ports, terminals and marshalling yards without needing Class B systems in addition to ERTMS.

Thus, member states shall develop a national plan for the implementation of this TSI, considering the coherence of the entire rail system of the European Union taking into account the economic viability of the rail system. This plan shall include all new, renewed and upgraded lines, in particular a detailed timeline for equipping those lines with ETCS and decommissioning of Class B systems.

6.3.1 Interoperability & ERTMS Working Group

- is a supporting instrument for the governance structure of RFC OEM, it prepares data and documents for making decisions and realizes these decisions;
- has as basic task to implement the ETCS project plan and to coordinate all other activities in this domain so as to improve the quality of the RFC;
- is in charge of creating the organizational, technical and operational conditions so that ETCS on the RFC can be entirely operational on the whole stretch in time and for this reason it has to set up Expert teams and ad hoc groups if necessary;
- ensures that the RUs are involved in the project and their requirements are considered in the implementation plans.

6.3.2 Description of ETCS implementation on the RFC OEM

The ETCS data were updated in 2023 and it was incorporated into CIP digital platform.

DE – DB InfraGO AG

At first the eastern branch of the German corridor part (Rostock – Berlin – Dresden) will be equipped with ETCS Baseline SRS 3.4.0. From Rostock Seehafen to Kavelstorf (14 km) ETCS L2 is being planned. From Kavelstorf to Nassenheide (in the north of Berlin) (168 km) ETCS L2 is under construction. The track from Nassenheide (about the eastern circle of Berlin) to Blankenfelde (in the south of Berlin) (83 km) is being planes with ETCS L1/2. On the line Blankefelde – Dresden (156 km) ETCS L2 is under construction. Two further connecting tracks from Großenhain to Priestewitz (7 km) and in Radebeul (2 km) are being planned. For Dresden – Bad Schandau - Grenze DE/CZ the implementation of ETCS is – with regard to the EDP - foreseen after 2023.

CZ – Správa železnic

In the Czech Republic a new version of the National ERTMS Implementation Plan connected to TSI CCS 2023 is now under preparation. Due to this fact can be some following plans updated and refined after the development of it in the end of 2023 year.

GSM-R

All corridor principal and diversionary lines (except section Velký Osek – Choceň) are currently fitted with GSM-R system.

Section Velký Osek – Hradec Králové – Choceň is planned to be equipped with GSM-R system after 2023 till 2030.

ERTMS

Corridor principal railway lines currently equipped with the ERTMS system:

- state border Slovak Břeclav with Baseline 3.6.0. and system version 1.1.
- state border Austria Břeclav with Baseline 3.6.0. and system version 1.1.
- section Břeclav Modřice with Baseline 3.6.0. and system version 1.1.

- section Adamov Česká Třebová Kolín with Baseline 2.3.0d and system version 1.0. (supposed upgrade to Baseline 3.6.0. and system version 1.1. till end 2024)
- Český Brod Praha Libeň with Baseline 3.6.0. and system version 1.1.

Corridor principal sections actually not equipped with the ERTMS system:

- Modřice Adamov (Brno node) is supposed to be equipped with Baseline 3.6.0. and system version 1.1. after 2023 till 2030,
- Kolín Český Brod section is planned to be equipped with Baseline 3.6.0. and system version 1.1. till end 2023,
- Praha Libeň Kralupy nad Vltavou section is planned to be equipped with Baseline 3.6.0. and system version 1.1. till end 2023,
- Kolín Všetaty Děčín Prostřední Žleb line will be fitted with Baseline 3.6.0. and system version 1.1. after 2023 till 2030,
- Kralupy nad Vltavou Děčín state border Germany section is planned to be equipped with Baseline 3.6.0. and system version 1.1. till end 2026.

Corridor diversionary lines actually not equipped with the ERTMS system:

- Kolín Brno Maloměřice will be equipped with Baseline 3.6.0. and system version 1.1. after 2023 year,
- Velký Osek Hradec Králové Choceň will be equipped with Baseline 3.6.0. and system version 1.1. after 2023 year.

AT – ÖBB

The ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from the state border CZ (Břeclav) – Wien (78 km) is in operation.

The upgrades from ETCS L1 trackside v. 2.2.2 to ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from Wien–Border HU (Hegyeshalom) (68 km) is expected to be in operation in April of 2024202442024.

GSM-R for Voice and Data transmittal is in operation on the whole Austrian part of the corridor.

The register of Infrastructure (RINF) according to the COMMISSION IMPLEMENTING REGULATION (EU) 2019/777 for the Austrian railway network contains the relevant information on ERTMS systems and GSM-R in parameters 1.1.1.3.2 respectively 1.1.1.3.3.

SK – ŽSR

The main path of the Slovak corridor part in the sections border CZ (Břeclav) - Kúty - Devínska Břeclav) - Kúty - Devínska N. Ves (58 km) and DevínskaDevínska N. Ves - Bratislava Rusovce – (HU Rajka) (63 km) is prepared to be equipped by ETCS L2 v. 2.3.0d. The preparatory documentation for these projects is under elaboration. constructionThe construction works are ongoing on lines CZ/SK border – Kúty and Malacky – Devínska Nová Ves. Partial operation is expected in 2025 2025.

The equipment of the paths Bratislava -- Nové Zámky - ŚtúrovoNové Zámky - Śtúrovo - (HU Szob) (143km) and Nové ZámkyNové Zámky - Komárno - (HU) (33km) with ETCS L2 trackside v. 2.3.0d is expected to be in expected to be in operation by 2050. GSM-R is partly in operation (see table).

HU – MÁV

The section state border AT – Hegyeshalom – Budapest (177177 km) that is equipped withwith ETCS L1 is currently upgraded from from v. 2.2.2 to v. 3.6.0. The new version will be put into operation in three major sections until the end of 2024.2024.

Six kilometres of the corridor in Budapest (Kelenföld -- Ferencváros) is in operation with ETCS L2 v2.3.0d since 2022. Due to the extension of the ETCS L2 area near Budapest and the upgrade to Six kilometres of the corridor in Budapest (Kelenföld -- Ferencváros) is in operation with ETCS L2 v2.3.0d since 2022. Due to the extension of the ETCS L2 area near Budapest and the upgrade to v.v. 3.4.0., the system is currently switched off until autumn 2023. This section will be changed from double-track into a triple-track line, the first infrastructure works were started in spring 2023 and the project will end in 2027.

The section Budapest – Albertirsa – Szajol –Békéscsaba (191191 km) is prepared to be equipped mainlymainly with ETCS L2 v. 2.3.0d by 2024. Szolnok junction will be implemented as a L1 area.

The section Békéscsaba – Lőkösháza — border RO 32km(32km) is nownow under reconstruction, the previous L1 v. 2.3.0d. solution will be replaced by L2 v. 2.3.0d until the end of 2025.

On the crosscross-border section between the L2 systems of HungaryHungary and Romania the trains will switch to L1, as agreed by both IM's experts in 2017.

Between Szajol and Püspökladány, the ETCS L2 project for installing v. 3.63.6.0 on this 65km section is running and will be in operation in 2024.

GSM-R was put into operation in 2020 for the sections border AT – Hegyeshalom – Budapest – Albertirsa – Szajol –Lőkösháza – border RO and Szajol – Püspökladány.

HU – GYSEV

The section Border SK – Hegyeshalom (GYSEV) is already equipped by ETCS L1 v. 2.3.0d and in operation.

RO – CFR

For the section Predeal – Bucureşti Băneasa (151,6 km) ETCS L2 v.2.3.0d is installed only on section Brazi – Chitila and for remaining distance feasibility study is in preparation for the installation of ETCS L1 with GSM-R or ETCS L2, planned to be completed in 2022.

The section Lőkösháza – Predeal (510 km) will be equipped by ETCS L2 with minimum v. 2.3.0d step by step, the construction was started in 2012. The whole section will come into operation by 2020-2022.

The equipment of the section Bucuresti Băneasa – Constanta (217,4 km) with ETCS L1 v 2.3.0d without GSM-R, is currently under construction (mostly part of equipment's was already installed on the field, no certification and authorization for putting in operation yet) and is in preparation a feasibility study for implementing GSM-R, planned to be completed in 2022-2024.

BG – NRIC

The sections Septemvri - Plovdiv and Krumovo - Svilengrad, which are equipped with the ERTMS system (ETCS level 1 - version 2.3.0d and GSM-R Voice), have been put into regular operation. The total linear length (on the current lines) of ETCS level 1 is 192 km.

In the section Danube Bridge 2 (Vidin) - Vidin Passenger Station, 16 km ETCS level 1 - version 2.3.0d is installed. The section is not equipped with GSM-R.

EL – OSE

For the sections Plati-TX1 ,TX1-TX5 ,TX1-Promachonas the trackside ETCS L1 v. 2.3.0d has been installed and NSA has approved the placing in service.

For the section Domokos - Larisa an application for approval of the placing in service of the trackside ETCS L1 v. 2.3.0d was submitted. The placing in service was achieved on June 27th 2023

For the sections Pireas-Thessaloniki-Promachonas, Ska-Thriassio -Ikonio, except of the section Tithorea- Domokos, the trackside GSM-R has been installed and NSA has approved the placing in service.

For the Freight complex of Thriasio an application for approval of the placing in service of the trackside ETCS L1 v. 2.3.0d has been submitted

Summary-Outlook

This overview shows that the migration process to the ETCS trackside on the main path of the RFC OEM lines is already in full progress.

There are already some sections operating with ETCS Level 1 (e.g. (AT) – Hegyeshalom – Budapest; Border SK – Hegyeshalom (GYSEV)) or Level 2 (e.g. CZ Břeclav–Wien). The main parts of the corridor are expected to be equipped with ETCS between 2023 and 2025.

The aim is to bring the ETCS deployment in a routine process for decreasing development works and on side testing by the exchange of experiences and the reuse of proved solutions. This can accelerate the deployment process and decrease the investment costs.

The current state of play regarding ERTMS deployment can be consulted in the <u>Corridor Information</u> <u>Platform <u>CIP Interactive Map (rne.eu)</u>.</u>

6.4 Reference to Union Contribution

The Commission's agency for coordinating the implementation of the CEF programme - CINEA (European Climate, Infrastructure and Environment Executive Agency) - published a call for proposals regarding technical assistance for rail freight corridors in the 2021-2024 work programme for the CEF2 2021-2027 programming period.

RFC OEM submitted a successful application, resulting in the signature of the grant agreement on 14 November 2022.

The form of financing is lump sum.

The grant can be used for Activity A, which covers the activities carried out by the staff in charge of carrying out coordination work at corridor level, and for Activity B, which supports the activities of IM and AB representatives.