Before the final approval
of the ExBo

Corridor Information Document Book 5 Implementation Plan

2017/2018 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 913/2010/EU (hereinafter: "the Regulation")** was to improve the service provided by the infrastructure managers to international freight operators.

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.

In order to reach these goals the European Union designated 9 international rail freight corridors (RFC) in the EU rail network where approx. 80 % of freight could run yearly. Most of these designated freight corridors should have been established by 10 November 2013, which date is binding for all participating countries. In order to build up the corridors the regulation describes all rules and conditions to harmonise and unify the proceedings.

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 Orient/East-Med Corridor. 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 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 RFC7, 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 7 Members

Rail Freight Corridor 7 is defined by the Regulation to run through the Prague–Vienna/Bratislava–Budapest–Bucharest–Constanta and Vidin–Sofia–Thessaloniki–Athens axis. Number 7 is a special number for us: our cooperation, our common work and efforts are based on seven participating countries, such as Czech Republic, Austria, Slovakia, Hungary, Romania, Bulgaria and Greece.

The railway infrastructure managers and capacity allocation companyare responsible for establishing and running RFC7 are committed

- to develop a railway corridor in harmony with freight market demand,
- to offer reliable, high-quality, competitive transport services in order to increase this 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.

2. Corridor Description

Orient/East-Med Corridor runs form Central-Europe to Eastern- and Southern-Europe, connecting the most of the Member States among the nine rail freight corridors determined by the Regulation, namely seven: Czech Republic, Austria, Slovak Republic, Hungary, Romania, Bulgaria and Greece, between the cities of Prague–Vienna/Bratislava–Budapest–Vidin–Sofia–Thessaloniki–Athens as well as Budapest–Bucharest–Constanta.

Map 1 – Rail Freight Corridor 7 according to Regulation 913/2010/EU

During the operational phase of the Corridor (from 8th November 2013), our business clients based on their experiences and future needs provided some suggestions to implement new main and alternative lines. The RFC7 Management Board has classified the proposals for alignments received via the consultation with Advisory Groups' members during the Advisory Groups' meetings and later via the outcome of RFC7 experts' discussions in relevant working groups.

After consideration of facts and figures the Management Board made a decision on the alignment of RFC7 lines as the signal from the market has a very important commercial value in the corridor operation. In the first phase in September 2014 the following sections were taken into consideration:

New alternative routes of the Corridor:

a) Ruse – Sindel – Karnobat – Nova Zagora – Simenovgrad – Svilengrad *[Bulgaria]*,
b) Karnobat – Burgas Port *[Bulgaria]*,
c) Strymonas – Serres – Drama – Xanthi – Alexandroupolis – Pithio – Ormenio *[Greece]* – Svilengrad *[Bulgaria]*. *(The new alternative section is connected from Strymonas)*

New main route of the Corridor :

Győr – Sopron *[Hungary].(Former alternative route)*

In the second phase the Management Board has approved the following modification in 2016:

New main route:

a) Sofia – Plovdiv – Dimitrovgrad – Svilengrad/Turkish border (*former alternative route)*

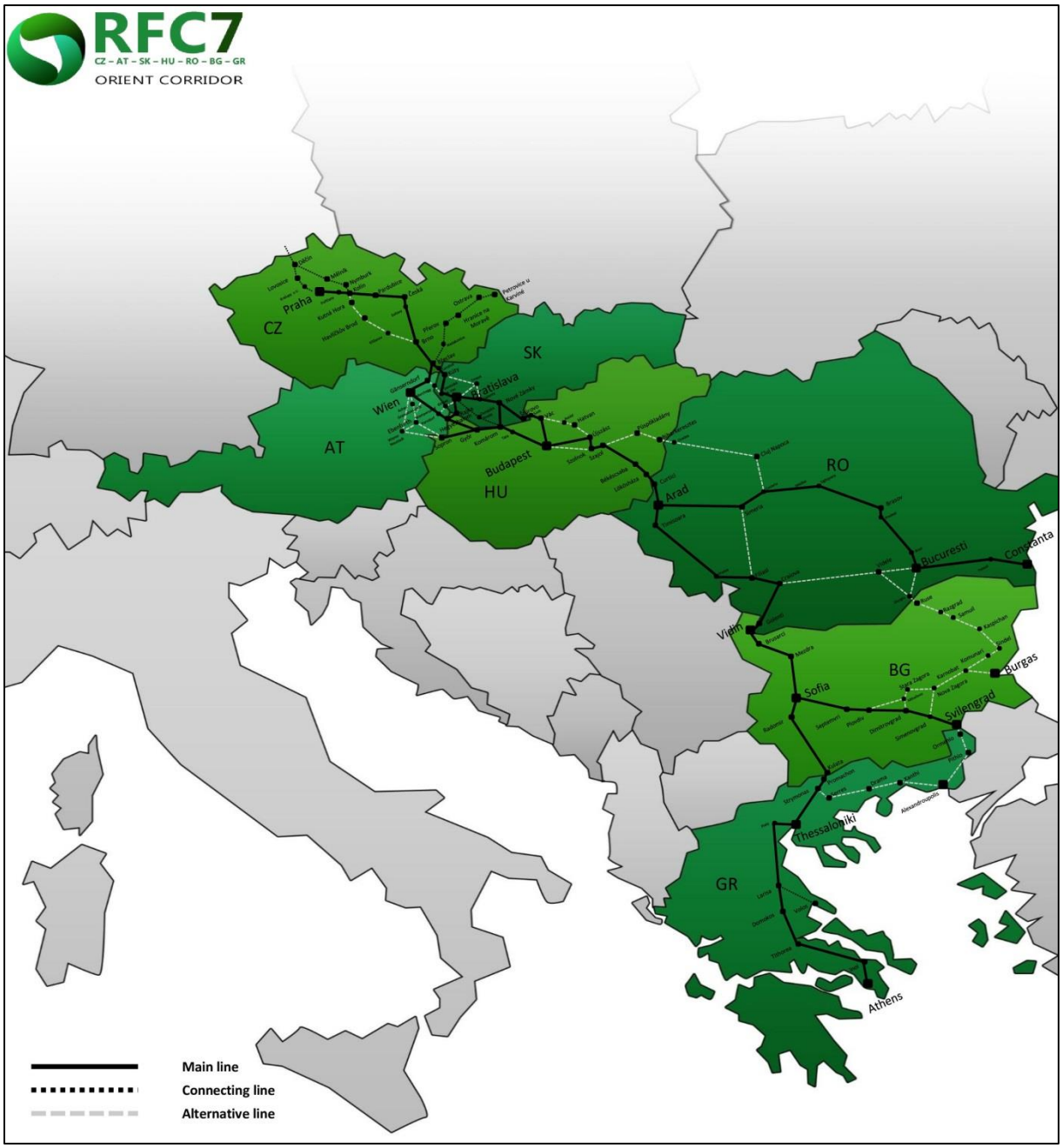
New alternative sections:

a) Nova Zagora – Stara Zagora – Dimitrovgrad (*additional section to the alternative route of 2014 – point a./)*

b) Plovdiv – Skutare – Belozem – Mihailovo – Kaloyanovetz – Stara Zagora

The following map shows all alignment enriching the corridor offer in the recent past.

Map 2: Updated map of Rail Freight Corridor 7



Complex definition of RFC 7

Country	Character	Line section / Terminal / Marshalling yard
Czech Republic	Main lines	Praha – Poříčany
		Poříčany – Kolín
		Kolín – Pardubice
		Pardubice - ČeskáTřebová
		ČeskáTřebová – Svitavy
		Svitavy – Brno
		Brno – Břeclav
		Břeclav/Hohenau (CZ/AT)
		Břeclav/Kúty (CZ/SK)
	Alternative lines	Kolín - KutnáHora
		KutnáHora - HavlíčkůvBrod
		HavlíčkůvBrod - Křižanov
		Křižanov - Brno
	Connecting lines	Děčín – Kralupyn.V. -Praha
		Děčín – Nymburk - Kolín
	Terminals	PrahaUhříněves
		PrahaŽižkov
		ČeskáTřebová
		Brno HorníHeršpice
		Lovosice (50km from corridor)
	Marshalling yards	Kolínseř. nádraží
		Praha - Libeň
		Pardubice
		ČeskáTřebová
		Brno Maloměřice
		Břeclavpřednádraží
		HavlíčkůvBrod
Austria	Main line	Břeclav/Hohenau (CZ/AT)
		Hohenau - Gänserndorf
		Gänserndorf - Wien Zvbf
		Wien Zvbf - Nickelsdorf
		Nickelsdorf/Hegyeshalom (AT/HU)
	Alternative lines	Wien Zvbf – Achau - Ebenfurth
		Ebenfurth -Wulkaprodersdorf
		Wulkaprodersdorf/Sopron (AT/HU)
		Ebenfurth – Wiener Neustadt
		Gänserndorf – Marchegg
		Marchegg/DevínskaNováVes (AT/HU)
		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
	Terminals	Wien Freudenau
		Wien Nordwestbahnhof
		Wien Inzersdorf (planned)

Country	Character	Line section / Terminal / Marshalling yard
	Marshalling yard	Wien Zentralverschiebebahnhof
Slovakia	Main lines	Břeclav/Kúty (CZ/SK)
		Kúty - DevinskaN.Ves
		DevínskaN.Ves - Bratislava hl.st.
		Bratislava hl.st. - Rusovce
		Rusovce/Rajka (SK/HU)
		Bratislava hl.st.- NoveZamky
		NoveZamky - Komano
		Komarno/Komarom (SK/HU)
		NoveZamky - Sturovo
		Sturovo/Szob (SK/HU)
	Alternative lines	Marchegg/DevínskaNováVes (AT/SK)
		Kittsee/Bratislava Petržalka (AT/SK)
		Kúty - Trnava
		Trnava – Bratislava východ
		Trnava - Galanta
	Connecting lines	Bratislava hl.st. -DunajskáStreda
		DunajskáStreda - Komarno št.hr.
	Terminals	Bratislava UNS – Intrans, Slovnaft
		Bratislava Pálenisko – SpaP
		Sládkovičovo - Lörinz
		Štúrovo – Business park Štúrovo
		DunajskáStreda - Metrans
	Marshalling yards	Bratislava východ
		NovéZámky
		Štúrovo
Hungary	Main lines	Rusovce/Rajka (SK/HU)
		Nickelsdorf/Hegyeshalom (AT/HU)
		Hegyeshalom - Tata
		Tata - Biatorbágy
		Biatorbágy - Kelenföld
		Kelenföld - Ferencváros
		Komarno/Komarom (SK/HU)
		Ferencváros - Kőbányafelső
		Kőbányafelső - Rákos
		Rákos - Újszász
		Újszász - Szolnok
		Szolnok - Szajol
		Szajol - Gyoma
		Gyoma - Murony
		Murony - Lőkösháza
		Lőkösháza/Curtici (HU/RO)
		Ferencváros - Kőbánya-Kispest
		Kőbánya - Kispest - Vecsés
		Vecsés - Albertirsa
		Albertirsa - Szolnok
		Sturovo/Szob (SK/HU)
		Szob - Vác

Country	Character	Line section / Terminal / Marshalling yard
		Vác – Kőbányafelső
		Sopron – Pinnye ***
		Pinnye – Fertőszentmiklós ***
		Fertőszentmiklós – Petőháza ***
		Petőháza – **Győr** ***
	Alternative lines	Wulkaprodersdorf/Sopron (AT/HU)
		Vác - Rákospalota-Újpest
		Szajol - Püspökladány
		Püspökladány - Biharkeresztes
		Biharkeresztes/EpiscopiaBihor (HU/RO)
		Rákospalota-Újpest - Angyalföldelág.
		Angyalföldelág.-Kőbányafelső/Rákos
		Vác - Vácrátót
		Vácrátót - Galgamácsa
		Galgamácsa - Aszód
		Aszód - Hatvan
		Hatvan - Újszász
	Connecting lines	Ferencváros - Soroksáriút
		Soroksáriút - Soroksár
		Soroksár - Soroksár-Terminál
	Terminal	Sopron LSZK
		Győr LCH
		Székesfehérvár
		BILK
		Budapest Szabadkikötő (port)
		Szolnok
		Debrecen
		Szeged-Kiskundorozsma
		Békéscsaba
Romania	Main lines	Lőkösháza/Curtici (HU/RO)
		Curtici - Arad
		Arad - Simeria
		Simeria - Coslariu
		Coslariu - Sighişoara
		Sighişoara - Braşov
		Braşov - Predeal
		Predeal - Brazi
		Brazi - Bucureşti
		Bucureşti - Feteşti
		Feteşti - Constanţa
		Arad - Timişoara
		Timişoara - Orşova
		Orsova - Filiaşi
		Filiaşi - Craiova
		Craiova - Calafat
		Calafat/Vidin (RO/BG)
	Alternative lines	Biharkeresztes/EpiscopiaBihor (HU/RO)
		EpiscopiaBihor - Coslariu
		Simeria - GuraMotru

Country	Character	Line section / Terminal / Marshalling yard
		Craiova - Bucuresti
		Videle - Giurgiu
		Bucuresti - Giurgiu
		Giurgiu – Ruse (RO/BG)
	Terminal	BucurestiiNoi
		Semenic (Timisoara Sud)
		Brasov Triaj
		Medias
Bulgaria	Main lines	Calafat/Vidin (RO/BG)
		Vidin - Sofia
		Sofia - Kulata
		Kulata/Promachonas (BG/GR)
		Sofia – Plovdiv – Dimitrovgrad – Svilengrad*
	Alternative lines	Ruse – Sindel – Karnobat – Nova Zagora – Simeonovgrad – Svilengrad
		Karnobat - Burgas Port
		Nova Zagora – Stara Zagora – Dimitrovgrad*
		Plovdiv – Skutare – Belozem – Mihailovo – Kaloyanovetz – Stara Zagora*
Greece	**Main lines**	Athens RS - SKA
		Pireus (ikonio port) – Thriassio Thriassio – SKA (SKA= operation center)
		SKA – Inoi
		Inoi – Thiva
		Thiva – Tithorea
		Tithorea – Lianokladi
		Lianokladi - Domokos
		Domokos – Palaiofarsalos
		Palaiofarsalos –Mesourlo- Larissa
		Larissa - Evangelismos
		Evangelismos – Leptokaria
		Leptokaria – Katerini
		Katerini- Plati
		Plati-Sindos- Thessaloniki (rail way yard)
		Thessaloniki (rail way yard) – Mouries
		Mouries – Strimonas
		Strimonas – Promachonas
		Kulata/Promachonas (BG/GR)
	Alternative lines	**Svilengrad – Alexandroupolis****
		Alexandroupolis – Strimonas**
	Connecting lines	Larissa - Volos Port
		Thessaloniki (rail way yard)-Thessaloniki Port
		Athens RS - Piraeus
	Terminal	Ikonio port of Pireus
		Volos Port
		Thessaloniki Port
		Alexandroupolis Port

Country	Character	Line section / Terminal / Marshalling yard
		Sindos
		Inoi
	Marshalling yards	Mezourlos
		Thessaloniki (rail way yard)
		Strimonas
		Cental Station of Alexandroupolis

* *NRIC has provided the following justification:*
The traffic flow at present and in foreseen future is from Europe to Turkey and from Turkey to Europe. Taking into consideration the efforts for development of the Turkish and Bulgarian railway infrastructure, in 2020 NRIC will have fast speed line from Istanbul to the Bulgarian border, fast speed line from Sofia to Turkish border, fully operational land connection between Europe and Asia including the third bridge over Bosphorus, foreseen new tunnel under Bosphorus, high speed lines between Ankara and Istanbul (and other nodes in Turkey) as well as fast speed line between Turkey and Iran and Turkey and Georgia, which makes the direction toward Asia vital for the freight forwarders from both continents.
NRIC is heavily involved in the reconstruction and modernization of the section Sofia – Plovdiv – Svilengrad and to the end of this year significant part of this huge infrastructure project will be accomplished. After the accomplishment of the project the route via Vidin – Medkovetz – Mezdra – Sofia – Plovdiv – Svilengrad/ Turkish border will be the shortest route from Europe to Asia. Naturally, the railway line Sofia – Plovdiv – Svilengrad/Turkish border should be main line of RFC 7.
The parameters of the renovated and modernized sections are in line with the requirements of TEN-T Regulation and might ensure the speed and safety needed for the CNC OEM and RFC 7, which is another requirement for main line of the Corridor.
One of the most important advantages of the line is connections between ports of Thessaloniki and Piraeus with Black sea port of Bourgas via Sofia – Plovdiv – Skutare – Mihailovo – Karnobat – Burgas.
Besides the main lines along the principal route outlined in the Regulation 913/2010/EC, the Corridor includes alternative routes frequently used for re-routing trains in case of disturbance on the main lines, and connecting lines, sections linking terminals and freight areas to the main lines.

** *OSE has provided the following justification:*
The proposed line is an alternative line from OSE taking into account the market needs and signal received from the business partners, potential clients.

*** *GYSEV has provided the following justification:*
From the beginning the line Vienna-Ebenfurth-Sopron-Győr has been designated to the route alignment of RFC7 as an alternative line. Following the provision of detailed freight traffic data concerning the line Sopron-Győr and the assessment of the market demand of RUs using that line, GYSEV proposed the line to be designated as a main line. GYSEV indicated that the terminal of Sopron is generating traffic which moves on the corridor therefore it signaled necessity to offer PaPs on the section Sopron-Győr in order to be able to fulfill the market needs. Following the in-depth analysis of the proposal by the OSS Working Group the Management Board decided to designate the line between Sopron-Győr as main line. Section between Vienna-Ebenfurth-Sopron has remained as alternative route. Since the MB decision of 29 September 2014 (where the representative of the European Commission was also present and supported the proposal) the traffic of the RFC7 (using PaPs) originated from Sopron (international freight traffic between Sopron-Kapikule) has justified the upgrade of the section Sopron-Győr as main line.

The length of the corridor route sections are very different among the involved countries, Austria has the shortest one with about 350 km and Romania has the longest part, about 2200 km corridor line.

In geographical terms, there are three countries which have sea connection therefore their opportunities to sea ports and terminals are substantial for the corridor. At the same time, the Danube, the biggest river in Europe and an important international river transport route, connects five of the corridor countries, including most of the landlocked ones.

Countries are different from the economic background point of view as well. Six of them rely greatly on the EU Cohesion Fund policy therefore their infrastructure mostly develops on the basis of the

division of EU funds. Most of these countries have no high-speed lines at all, and the quality of infrastructure needs development at many sections.

The main technical characteristics of the corridor overall are as follows.

- The total length of main lines is approx. 4100 km, and the length of alternative and connecting lines is almost 3400 km altogether.
- About two-thirds of the total length of the main route includes double-track sections, and about one-third is single-track, plus a 33 km three-track section is also included. The proportion of double-track sections is somewhat lower in the alternative and connecting lines (58%).
- Traction power is 25 kV AC on the biggest part of the main lines (almost 2,900 km, 77%) and on approx. 58% of alternative and connecting lines. Diesel traction is applicable on almost 15% of the main route and 24% of the alternative one, while at the remaining sections 15 kV AC and 3 kV DC traction power is used.
- The allowed axle load is 22,5 t (or more) on 60% of the main line sections and 20 t on the rest. The proportion is similar in case of alternative lines, too.
- Trackside ERTMS has been installed on a relatively short part of the corridor, i.e. 360 km, but it is under realization on a major part of its lengths, i.e. along 2,000 km. Rolling stock equipped with on-board ETCS unit is in operation mainly by Austrian, Bulgarian and Greek railway undertakings, but installation is underway in other involved counties, too.

2.1 Key Parameters of Corridor Lines

The detailed description of Rail Freight Corridor 7 is found in the Transport Market Study that forms part of this Implementation Plan. It contains a precise definition of beginning and ending points and all terminals designated to the Corridor.

You can find in the TMS the systematic collection of all infrastructure parameters, a detailed description of available capacity and bottlenecks along the Corridor, as well as an overview of existing traffic patterns.
Line characteristics are described with: type of line (main, alternative 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.

2.2 Connections with other Corridors

Orient/East-Med Corridor has connections with the following other RFCs:

- in Prague with Rail Freight Corridor 8 and 9
- in Bratislava/Vienna with Rail Freight Corridor 5
- in Budapest with Rail Freight Corridor 6

- Common line sections of rail freight corridors are described in the Transport Market Study.

RFC7 also overlaps greatly with the routes of other corridor conceptions, such as

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

RNE corridor 10, which runs from Hamburg to Budapest (common line from Prague to Budapest).

We believe that the overlap with other 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.
As all of the above-mentioned corridor concepts have the starting point in Germany, the Transport Market Study also analyses the possible conditions and pros and cons of the extension of RFC7 to Germany.

The parameters of lines and terminals described in the Implementation Plan of Orient/East-Med Corridor can change over time due to infrastructure investments along the corridor.
Possible requests or comments received from the Advisory Groups or Applicants of RFC7, 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.
The circle of countries and companies (and thus of line sections and terminals) belonging to Orient/East-Med Corridor may also change later due to European Commission incentives or because of changing needs of the transport market.

2.3 Corridor Terminals

As railway lines and terminals together specify the Corridor, terminals are also described in the TMS. 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. Stations are described by: number of tracks, max. lengths of the tracks, cross-border operation, average time of operation duration. Terminals are described with location on corridor, character, number of tracks, maximum lengths of tracks, storing capacity, opening hours.
Connection lines from the corridor main lines to these terminals, and vice versa, have been described as well.

2.4 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:

- low capacity,
- speed limit,

- limited length of trains,
- limited axle load,
- not electrified sections,
- lack of adequate safety equipment (signalling track circuits with 25 Hz frequency, ETCS, GSM-R, etc.).

2.5 RFC Governance

Creation of an international transport corridor that crosses many countries and involves several companies is a complex process that requires the cooperation of many parties. As the activities of stakeholders have to be coordinated on different levels, setting up of an effective organizational structure with simple communication method and fast decision-making procedure is a must.

The operative bodies of RFC7 were established partly following the Regulation, partly with a view to the practical needs of corridor work identified by the companies establishing the Management Board.

The setup of Orient/East-Med Corridor organizational units is illustrated in this schematic picture.

Executive Board

The highest level body assigned to the corridor is the Executive Board, which was established on RFC7 by the Ministers in charge of transport in the involved countries in June 2011 (Memorandum of Understanding forms Annex 1 of the Implementation Plan). The organization is responsible for supervision of corridor activity and for defining the general objectives and the framework for capacity-allocation along the corridor. They are addressed in case of issues beyond the competence

of IMs and AB company or when a conflict of interest arises between them. EB of RFC7 has been regularly informed by the MB about the actual status and pending questions of corridor work.

Management Board

The IMs and ABcompany obliged to set up the Management Board based on the Regulation had their first meeting on RFC7 matters in early 2011. The body was officially established in September 2011 by the signature of a Memorandum of Understanding (see Annex 2) by the eight infrastructure managers and one capacity allocation body of the corridor, namely

- **ÖBB-Infrastructure** – ÖBB-Infrastruktur AG - *IM, Austria*
- **SŽDC** – Railway Infrastructure Administration, State organisation (Správazeleznicnídopravnícesty, státníorganizace) - *IM, Czech Republic*
- **ŽSR** – Railways of the Slovak Republik (ZeleznicneSlovenskejrepubliky) - *IM, Slovak Republic*
- **MÁV** – Hungarian State Railways Company Limited by Shares (MÁV Magyar Álllamvasutak Zrt.) - *IM, Hungary*
- **GYSEV** – Raab–Oedenburg–EbenfurterEisenbahn AG (Győr-Sopron-EbenfurtiVasút Zrt.) - *IM, Hungary & Austria*
- **VPE** - Hungarian Rail Capacity Allocation Office (Vasúti Pályakapacitás-elosztóKft.) - *AB, Hungary*
- **CFR** – National Infrastructure Manager of Romania (CompaniaNationala de CaiFerate) - *IM, Romania*
- **NRIC** – National Railway Infrastructure Company, State Enterprise (НКЖИ (Националнакомпанияжелезопътнаинфраструктура) - *IM, Bulgaria*
- **OSE** – Hellenic Railways (Οργανισμός ΣιδηροδρόμωνΕλλάδος)- *IM, Greece*

The Management Board is the main operative body of the corridor, its members have to make fundamental decisions, so they hold meetings more frequently, yearly 4-5 sessions are convened since 2011. The Management Board makes its decisions on the basis of mutual consent of its members.
Conclusions of MB meetings are recorded in minutes and decision lists. They are shared in circular e-mails and on an internet site accessible for each member, together with the preparatory material, presentations and basic documents produced by the MB.

The members of RFC7 MB have analysed the conditions of possibly forming an EEIG for the purpose of corridor management, but the administrative steps have not been taken for EEIG establishment, as railway-technical procedural conditions were more urgent to identify for the sake of corridor establishment. Members may consider forming an EEIG later.

Taking account of the volume and the types of tasks identified by MB members in respect of corridor formation, the MB has decided to set up six Working Groups and a Secretariat to support its work. Decisions of the Management Board are usually based on the proposals and background material compiled by these organizations.

The Internal Rules and Procedures of the MB were approved in January 2012. The document describes the tasks and responsibilities of the MB, the Working Groups and the Secretariat, defines the rules of convening meetings, the procedure of decision-making, the means of communication and the basic conditions of financial management of corridor activities. The common costs of MB operation are jointly covered by the involved companies.

Working Groups

The MB has looked closely at each provision of the Regulation, identified the basic structure of activities, and systematically divided the tasks to the expert groups most competent in the particular fields. As a result, six Working Groups have been established, each composing of expert members from every MB member company, to deliver the required measures.

Each Working Group's work is co-ordinated by a Head of WG designated by the Management Board therewith possibly each infrastructure manager can direct one WG. The head of WG is responsible for the organization and co-ordination of the work in the respective WG according to the decisions and expectations of the MB and according to the aims and rules set out in the Regulation.

Every WG keeps a record of the activities, documents, consultations and decisions made by the WG. Heads of WGs inform the MB about the activity of the WG via the Secretariat for every MB meeting, or take part in the MB meeting upon request of the MB.

The following Working Groups are set up and operated:

1. Marketing WG
2. Traffic Management WG
3. One-Stop-Shop WG
4. Infrastructure Development WG
5. Interoperability and ERTMS WG
6. IT Tools WG
7. TCR WG (established in 2016 based on MB decision xy)

The tasks of each WG are included in the Internal Rules and Procedures, and they are also governed by the necessity arising in the process of corridor work. Though the topics of WGs overlap, their main fields of competence are summarized in the below table.

Marketing WG	transport market study, satisfaction survey, performance objectives and monitoring, definition of pre-arranged paths and reserve capacity, authorized applicants
Traffic Management WG	, harmonization of traffic management btw IMs & w Terminals & in case of disturbance, priority rules, performance objectives and monitoring,
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, authorized applicants

Infrastructure Development WG	investment plan, inventory of projects and financial resources, harmonization of investments along corridor
Interoperability and ERTMS WG	accelerating the establishment of better interoperability along the corridor and enhancing ERTMS deployment, ensure consistency with ERTMS E corridor
IT Tools WG	identification of necessary IT tools, facilitating their introduction by every involved IM and AB
TCR WG	Coordination of planned temporary capacity restrictions

Through in-depth investigation and cooperation, the professionals of Working Groups analyse several aspects of the corridor tasks, summarize existing procedures country-by-country in their field of competence, and examine numerous possible solutions. They make serious efforts to define operational conditions which are applicable in every involved member state by the IMs and the AB. Their proposals form a major input for the Management Board for the essential decisions.

RFC7 Corridor One-StopShop

The body responsible for capacity allocation of the corridor is the C-OSS established inside the only independent AB member of the MB, i.e. VPE.

The supervisor and the responsible for establishment of C-OSS is the Management Board of RFC7, while the management of the C-OSS's daily professional tasks shall be handled by VPE.
VPE shall carry out all the tasks and duties related to the C-OSS mentioned in Regulation 913/2010/EU, in particular:

- Single contact point for applicants to request and to receive answers regarding rail infrastructure capacity of pre-arranged train paths and reserve capacity of the corridor.
- As a coordination point, provides basic information concerning the allocation of the infrastructure capacity. It shall display infrastructure capacity available at the time of request and its characteristics in accordance to pre-defined parameters for trains running in the freight corridor.
- Decides regarding applications for pre-arranged paths both for the yearly timetable and for the running timetable. It allocates in line with Directive 2012/34/EU and informs the concerned IMs and ABs of these applications and decisions taken without delay.
- Forwards any request/application of infrastructure capacity which cannot be met by the Corridor OSS to the competent IM/IMs and AB/ABs and communicates their decisions to applicants.
- Keeps reserve capacity available within final working timetables (30 days before the train running) to allow for a quick and appropriate response to ad hoc requests for capacity.

- Provides information for customers on the content of the Corridor Information Document and coordinates the preparation and updating process of Book 1 (Generalities), Book 2 (Network Statement Excerpts) and Book 4 (Procedures for Capacity and Traffic Management).
- Keeps an online path request register available to all interested parties.
- Has connection with all national OSS along the corridor and the other RFC C-OSSs.
- Has connection with RFC 7 Secretariat and OSS WG when it is needed.

Secretariat

The Management Board of RFC7 decided to operate a Secretariat, which provides the appropriate administrative support to enable the MB to carry out its work, ensures that the tasks of the MB are properly co-ordinated, and organises all other associated aspects of corridor activity.

At the MB meeting on 15th November 2011 the members agreed that MÁV Co. shall fulfil the tasks of the Secretariat until no independent legal organization is set up for the corridor. Taking into account that RFC7 Secretariat activity is of common interest of every Party, its cost is covered jointly by the MB member IMs and AB.

According to the Internal Rules and Regulations of the Management Board, the MB manages its finances from the annual contribution of members, therefore a separate agreement had to be made about the activity of Secretariat and the financial management of the common costs of the MB. The conditions of the agreement were agreed by the MB in November 2012, and the document was signed by every company in February 2013.

Responsibilities of the Secretariat are listed in the Internal Rules and the Secretariat Agreement as follows.

- Corresponds on behalf of the MB with third parties (one-channel communication).
- Coordinates the work of MB in other associations and organisations to represent the interests of the MB and its members.
- Organises the MB and Advisory Groups meetings.
- Prepares proposals for agendas of MB and AG meetings.
- Coordinates the preparation of the working documents for MB, AG and EB meetings.
- Reports to the EB on the main developments of the RFC7.
- Draws up the minutes of the MB, AG meetings.
- Monitors deadlines of corridor activities, and initiates corridor work accordingly.
- Monitors EU legislation related to RFC.
- Archives documents created in the framework of corridor activities.
- Prepares quarterly reports about corridor activities for ordinary MB meetings.
- Prepares reports about corridor activities to third parties.
- Up-dates the content of the corridor website.
- Coordinates the preparation and updating of the Implementation plan.
- Records the costs of corridor activities of the MB.

- Prepares applications for EU funding.
- Prepares proposal for the annual budget of the MB.
- Concludes and manages contracts on behalf the MB (in line with budget plan approved by MB).
- Although the communication with national regulatory bodies of Member States is a national competence, the Secretariat is the body which shall be informed on investigations and their results in connection with RFC7. Collected information has to be submitted to the MB.
- Carries out its activity in harmony with MB decisions and instructions, and accordingly shall be entitled to ignore the instructions of single members of the MB.

Advisory Groups

Involvement of business partners in rail freight corridor establishment and operation is important for the IMs and AB of the corridor, because transport services cannot be provided without their active participation in the production process.

Terminals and Railway Undertakings are in different relation with IMs, as Terminals and IMs are both on the Operator side, while RUs are on the User side of infrastructure. As a consequence there are several aspects in respect of information supply and procedures that IMs have to harmonize with Terminals.

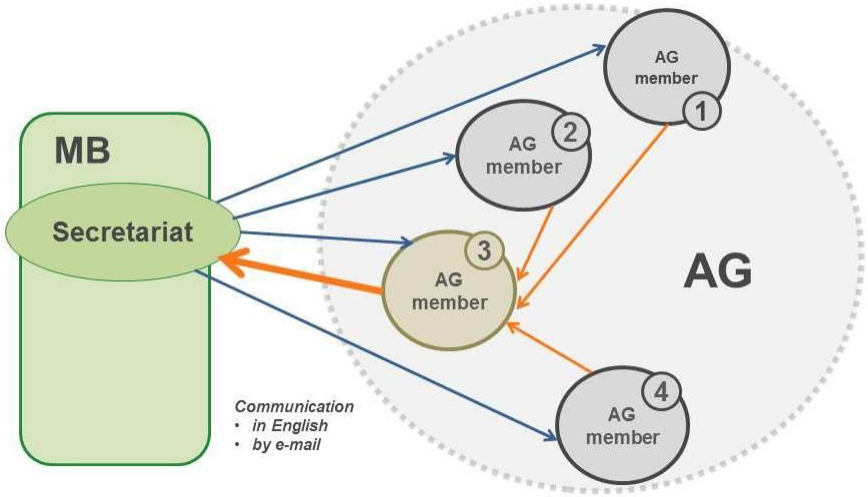
A complete list was prepared of Railway Undertakings contracted with involved IMs and of Terminals along the corridor in early 2012, and, the MB of RFC7 informed all these companies about the act of rail freight corridor formation and invited them for an initial meeting on national level.

Each involved IM sent out the notifications to the companies in their country, and held a National AG Information Day for interested partners until October 2012. The aim of domestic meetings was to supply some basic information about RFCs and raise the interest of partners, and also to have an impression about the first opinion of RUs and Terminals on the corridor concept.

The Kick-off Meetings of Advisory Groups of RFC7 were organized on 30 October 2012.
By then the Rules of Consultation between the MB and AGs had already been defined and approved by the MB, and they were presented to partners on the spot, together with the basic provisions of the Regulation and the topics expected to be discussed with the AGs in the coming months.
Participants of the Kick-off Meetings signed Letters of Intent about setting up of the Advisory Groups of RFC7, one document for each AG.

Since October 2012, the MB has consulted AG members at AG meetings and in e-mail circular letters. The opinion of AGs has been asked in respect of the content of the Transport Market Study, the Investment Plan, the C-OSS Operation Rules and Priority Rules. Some of their proposals have been accepted, some others are under discussion inside the Working Groups of the MB.
AG members have also been informed about the IT tools that shall be applied in the framework of operating the rail freight corridors.

As principally Secretariat acts as a single channel of communication between MB and AGs, it spreads material for consultation to every company registered as AG member, and receives feedback from the Leaders of the two AG only, which contains the opinion of all AG members.
The flow of information is illustrated below.



The timing and content of consultation with AGs will be 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.

Railway undertakings and terminals which have not joined the AGs also have a chance to consult in freight corridor matters through the Secretariat of RFC7.

EU level cooperation

The entry into force of Regulation 913/2010/EU created the legal framework for the development of 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. Therefore the European Commission is facilitating this coordination in the following ways:

Twice a year the Commission organises a joint meeting of representatives of all Member States, Regulatory Bodies and Infrastructure Managers participating in a Rail Freight Corridor, the forum is called **SERAC WG meeting.** These meetings are ideal occasions to tackle legal, operational and other specific issues to be addressed jointly by all concerned Member States, Regulatory Bodies and IM-s, and/or common difficulties with the practical implementation of the Regulation. The coordinator of the event is the European Commission, DG-Move, Unit B.2.

The coordinators of the DG-MOVE also participate frequently in the Executive and **joint Executive/Management Board meetings** of the individual corridors to ensure that the specific issues of these corridors can be addressed in an appropriate way.

Corridor Management keeps 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 RFCs in the elaboration of the solutions to RFC-related issues therefore representatives of all corridors are participating in these demanding work in order to harmonise the processes among the 9 RFCs. The work run in different project working groups.

RNE General Assembly on 3 September 2014 had approved the proposal to involve the RFCs in its organisation structure as associated members. Consequently, all RFCs (one representative of each RFC) are invited to participate at RNE General Assembles in the future.

The chair of RFC1 MB has initiated to establish an informal platform of RFCs under the umbrella of RNE in order to discuss hot topics or issues for harmonisation. This informal meeting, as a morning session, **RFC-Talk** is organised before the regular RNE-RFC Coordination Meeting since spring 2014 (4 times per year) in the RNE Headquarters in Vienna. 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 and approach.

Regarding the procedural issues participants have agreed that meeting-by-meeting they pick one member on the rotation principle to prepare the agenda and to be the moderator of the discussion. A common, written declaration about the goals of the RFC-Talk was proposed and taken on board. The Declaration about the RFC cooperation, signed by all 9 RFCs was sent out to the Director Mr.Onidi, (DG-Move) autumn 2014.

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.

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 9 RFCs meet regularly and deals with the following topics:

- Development of RFC and PaP-related functions in PCS
- Improvements in PCS user interface
- Common deadlines for alternatives proposals in case of conflicts
- Common communication tool for publishing PaPs (PaP Catalogue)
- Common KPIs of RFCs
- Timetable process improvements

UIC has also launched a project for the efficient coordination of rail freight corridors, called **ECCO.** All RFCs have been invited for the meeting of the project on 15th October 2014 in Paris. Representatives of the RFCs, the so called RFC-Talk group meet the ECCO-Group 2 times per year, establishing a platform for the exchange of information and opinion.

RFC 7 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.

Marketing & communications

The prime objective is to raise awareness about RFC 7 and strengthen the relationship with the B2B clients. The ultimate goal of our marketing strategy is to help the clients grow their business.

With a cost effective methodology we took into consideration that our marketing approach must be multi-faceted, realistic and implemented consistently over time. We professionally understand our business target user group behaviour and we can translate it into solutions that meet business and RFC 7's objectives. Our communication attends on the 3 advanced functions: we would like to inform, teach and entertain our clients with a competitive promoting solution tools in circle of multi-disciplinary communication.

During the implementation phase, our marketing department's task is to translate creative concepts into a full program that goes live. Retaining the strict and sensitive verbal business communication, we have ventured to leave the conventional visual tools behind, and started to focus on impressive visual concepts based on prominently direct messages with short but understandable communication and eye-catching graphic illustration. Thanks to the commercial potential of storytelling (which ideally means that we can find the essence of any client needs on a higher communication level), we can simultaneously articulate our core values and improve the user experience by playful and innovative online marketing tools like HTML5 infographics on a clear-out and intelligent web design because digital technology makes it easier to customers to engage our solutions. Implementation includes a complex array of work-streams, from the strong PR activity across technology and content management to inspiring print visual materials. We believe in the user experience design which can support any decision making, so we combined the strongest elements of marketing, strategy, design and technology, because attracting anybody is one thing, but keeping it for long-term is another for measurable results.

In our vocabulary business marketing stands for getting to precisely know our target groups on European Union transport market. We believe that any marketing strategy is based on expertise, not on budget.

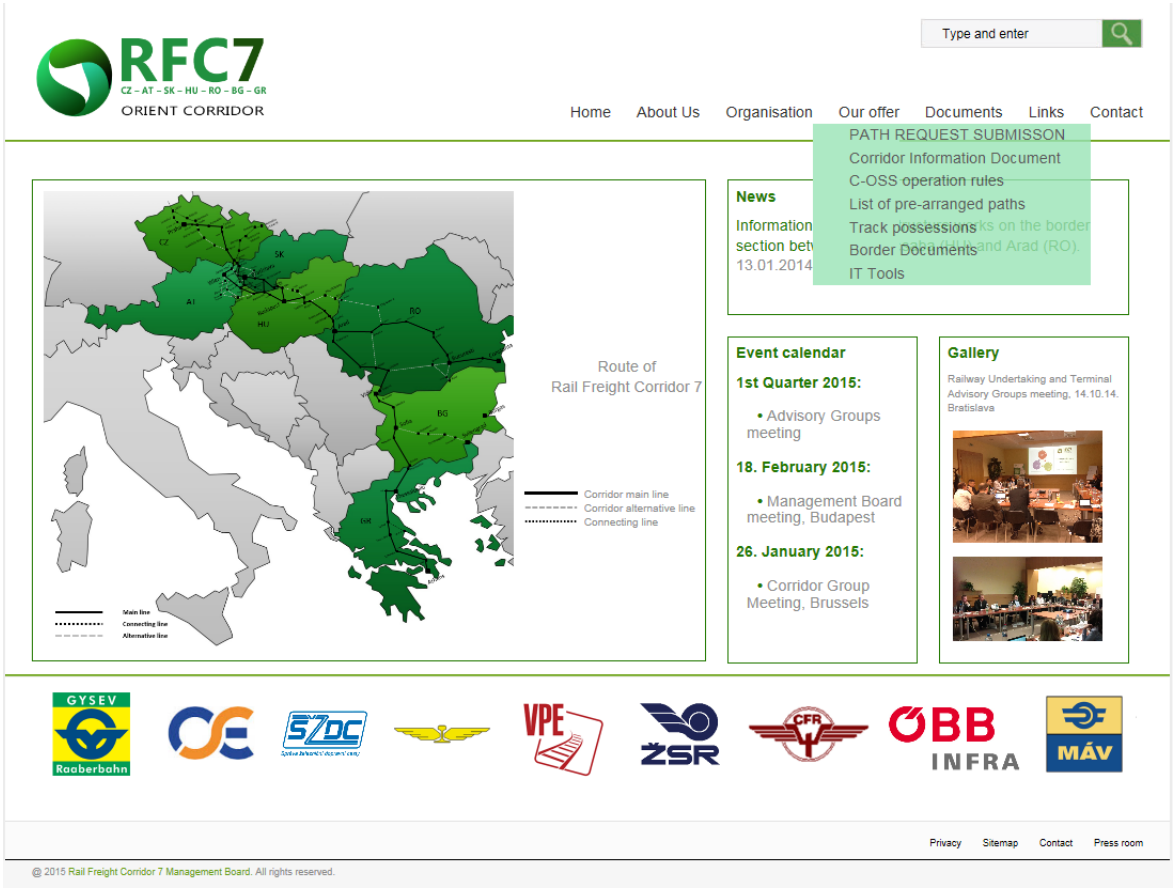
RFC 7 website

The webpage of RFC 7 was developed in December 2012 after a long working and decision period on its concept (structure, content and design). It works with four domains on the addresses www.rfc7.eu,www.rfc7.com, www.corridor7.eu and www.corridor7.com (all of them links to www.rfc7.eu).
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 Management Board decided to use the website for two main purposes: on the one hand for communication among Executive Board, Management Board, Working

Groups or Advisory Groups 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.



The objective is to make the website an always-changing and updated platform of communication.

3. Essential Elements of the Transport Market Study

In 2013 the first version of the Transport Market Study (TMS) was prepared with the coordination of the Marketing Working Group of the RFC7, with the support of internal human resources of ZSR research institute VVÚŽ and all relevant other working groups of RFC7.

In order to allow the Management Board of RFC7 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 RFC7 has decided in 2016 to carry out an update of the TMS.

It is important to note that due to the fact that the first version of TMS is still in force and applicable – because the updated study is currently under elaboration – the certain extracts presented below relating to its current content has to remain unchanged until the updated version of TMS enters into force. (Endorsment of the MB is expected by the end of 2017).

The ongoing updating procedure is being pursued by VVÚZ and by the relevant working groups of RFC7 using as basis the "Terms of Reference for update of the Transport Market Study of RFC7" whereby all the relevant tasks are laid down which have to be carried out for the update. The Terms of Reference was approved by the MB on 2nd June 2016 in Athens.

Altough the essential elements described in this section refer to the first TMS' conclusions, all relevant main tasks are referred which are currently under elaboration. It is important to note that the main substantial changes due to which the MB decided for the update were triggered by the entry into force of regulation 1316/2013 whreby the principal route alignment of RFC7 – still laid down in the Annex of regulation 913/2010 – requested for some further major changes.

The update of the TMS will take into account the amendments of the Principal Route of RFC7 by Annex II of EU Regulation 1316/2013 ("CEF Regulation) 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). According to the CEF Regulation the extensions laid down in its Annex II shall be included at latest 10 November 2018 in the case of RFC7. These inclusions shall 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 913/2010.

Taken into consideration the aforementioned deadline set in the Annex II of the CEF Regulation the update of the TMS has to be ready by December 2017.

The first version of the TMS was elaborated based on data provided by the infrastructure manager companies and allocation body of the corridor, and information from relevant external studies were also utilized.

The opinion of Advisory Groups of the corridor was requested for the draft document, their suggestions were taken into account during finalization of the study in 2013.

As far as the update procedure is concerned the opinion of the Railway – and the Terminal Advisory Groups will be of very high relevance. Results of Satisfaction Surveys of 2015 and 2016 will be taken

into consideration which highlight the bottlenecks still to be worked upon. The TMS update aims to put the highest emphasis on the bottleneck analysis along the corridor. The relevant actions defined and tackled within the frame of the "Action Programme" (document attached to the Orient-East/Med (OEM) Ministerial Declaration signed by the representatives of the relevant Ministries of the OEM Member States on 21st June 2016 in Rotterdam) should be strongly considered during the working procedures because the Action Programme 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).

Consideration of experiences of the already operational RFC has crucial importance because this will serve with an input to define the type and the amount of capacity required on the corridor.

The main aim of the Transport Market Study was to provide input for the Management Board in order to be able to identify the necessary lines - main or alternative - to be designated to the RFC7 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.
The TMS update procedure aims to examine the rail capacity requesting behaviour of the customers along the respective Member States of RFC7 and accommodate further alignments and designation of further lines which have been requested for addition or modification by customers. A proper revision of the lines designated to the RFC will be carried out.

The initial study deals with:

- establishment of RFC 7along the Prague–Bratislava/Vienna–Budapest–Bucharest–Constanta–Vidin–Sofia–Thessaloniki–Athens–Pireus axis,
- complete and precise data on current technical and technological condition of the corridor,
- capacity analysis, structure and level of the charges,
- impact of intended investments,
- quantification of the most important benefits of establishing the corridor.

Based on elaborated partial analysis, the measures and recommendations for the establishment of RFC 7 – including management of paths, improving coordination, communication and, ultimately, promotion of rail freight performance on corridor – are specified.

The objective of the update of the TMS is – besides complying with the legal requirement for periodical update of the TMS – to allow the Management Board 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 shall take into account relevant developments in RFC7, feedback from our corridor customers including results of Satisfaction Surveys as well as changes in the market and legal environment since the elaboration of the previous TMS.

The current version of the TMS of RFC7 shall serve as a basis of the update.

In this context, the update of the TMS takes in particular into account:

- Update of information in the current TMS: update of data accuracy and information of infrastructure parameters
- Extensions of RFC7 and connectivity to Turkey
- Assessment of the network
- Compliance with TEN-T minimum infrastructure requirements
- Bottleneck analysis
- SWOT-analysis and success factors
- Analysis of capacity offer
- Last-mile infrastructure along the corridor

RNE and the RFCs planned the realisation of a European-wide freight flow analysis relevant to all transport modes, developing a database with all the origin and destination pairs of the relevant freight flows. Such an analysis and database would contribute for the RFCs in the future to ease the updates of their TMSs. At the current update of this Implementation Plan the joint RNE-RFC project is still under consideration by all RFCs and their Management Boards. In case the project will be approved and launched officially the TMS update procedure of RFC7 will also take into consideration its results and make the appropriate measures for harmonisation in light of the project.

The complete Transport Market Study is enclosed as Annex 5 of the Implementation Plan.

According to the provisions of the Regulation 913/2010/EU the following information (extracts) have to be part of the Implementation Plan. They are still relevant to the results of the first Transport Market Study made in 2013 due to the fact that the update procedure is ongoing and will only be finished by the end of 2017.

Analysis of the "as-is" situation

Analysis of current situation assesses each corridor country apart. At first the current situation of economy and of transport is evaluated in each country, and then transport flows and technical level of the corridor are analysed for the purpose of drafting main and alternative lines. The general socio-economic situation is described also in Germany because Germany is a country with an important influence on RFC7.

Analysis of access charges and transport time is carried out comprehensively for all countries.

Finally, SWOT analysis of strengths and weaknesses, opportunities and threats was carried out in respect of the planned corridor.

Comparison of road and rail transport performances

Based on partial analyses carried out in respective countries, we can conclude that, there is a dynamic increase of road transport and stagnation of rail transport in most countries, except for Romania and Greece. Therefore, share of rail transport in total traffic volume decreases, especially in the Central European region.

Rail share decreases more on the less important lines (regional lines, connecting lines without presence of terminals, etc.), while a moderate increase can be observed on the main lines and on the corridor lines.

The share of intermodal transport increases inside total rail traffic volume.

Therefore, one of the possible solutions to increasing rail flexibility is not only to improve the technical parameters of lines (thus shortening transport time), but also to support the intermodal transport in combinations road-rail-road and water-rail-road.

The study also contains a comparison of transportation times on road infrastructure and on rail infrastructure

Comparison of infrastructure access charges

In order to compare the levels of charges, as the structure and form of charges is different in the countries of RFC 7, the evaluation is carried out in relation to train-km (comparison based on average rates in relation to train-km is used in international studies, e.g. Charges for the Use of Rail Infrastructure 2008).

Comparison of rail infrastructure access charges in 2008 and in 2011 on the basis of train-km is shown in the following table and diagram.

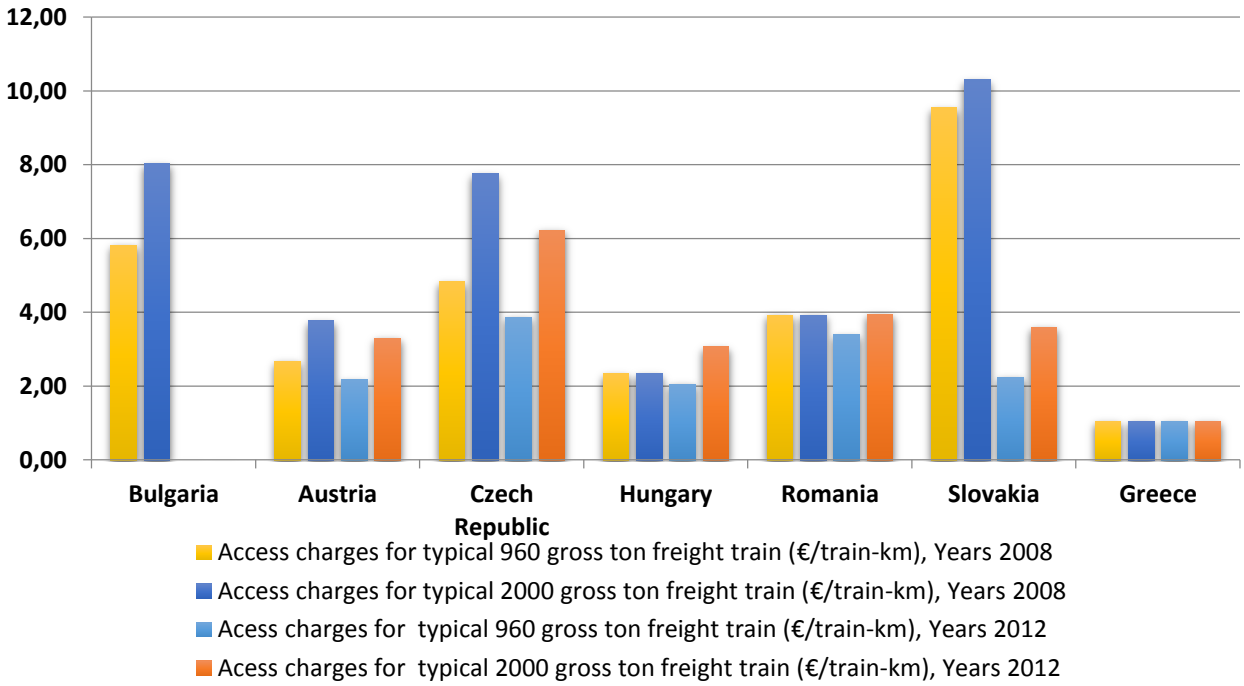
Table 1: Comparison of rail infrastructure access charges in €/train-km

Country	Charges for the Use or Rail Infrastructure 2008*		Access charges in 2012**	
	Access charges for typical 960 gross ton freight train (€/train-km), Years 2008	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2008	Access charges for typical 960 gross ton freight train (€/train-km), Years 2012	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2012
Bulgaria	5,82	8,03	n/a	n/a
Austria	2,68	3,78	2,18	3,30
Czech Republic	4,83	7,76	3,87	6,22
Hungary	2,34	2,34	2,05	3,07
Romania	3,93	3,93	3,40	3,95
Slovakia	9,54	10,31	2,24	3,60
Greece	1,05	1,05	1,05	1,05

*source: Charges for the Use of Rail Infrastructure 2008

** source: Data provided by members of RFC7 Commission, 1€ = 293,14 HUF, 1€ = 4,2379 RON, 1€ = 24,815 Kč

Diagram 1: Comparison of rail infrastructure access charges in €/train km



As presented in the table and the diagram, in the past, the Slovak Republic belonged to the EU countries with the highest rail infrastructure access charges. It has changed from 1 January 2011 by modification of the structure and the level of rail infrastructure access charges.

Based on the analysis of the structure and the level of rail infrastructure access charges, we can conclude that charging policy of respective countries does not have negative effect on the establishment of the rail freight corridor.

Capacity analysis

Based on the capacity analysis, we can conclude that the planned corridor has sufficient free capacity, so the present infrastructure would be capable of serving an increased rail transport flow without major changes. However, for smooth absorbing of a potential extra transport volume, it is necessary, to eliminate the capacity-restrictive sections on the corridor. The most capacity-restrictive line sections are on the territory of the Czech Republic and Slovakia.
The reasons for the high rate of capacity utilization are:

- Czech Republic: strong traffic volumes,
- Slovakia: short section of a single track line inside the node of Bratislava.

Table 2: Summary of lines with high rate of capacity utilization

Country	Lines with capacity utilisation higher than 90%
Bulgaria	n/a
Czech Republic	Poříčany - Pardubice (65 km)
	Choceň - ČeskáTřebová (25 km)
Greece	has no line with capacity utilization higher than 90%
Hungary	has no line with capacity utilization higher than 90%
Austria	has no line with capacity utilization higher than 90%

Romania	has no line with capacity utilization higher than 90%
Slovakia	Bratislava hl. st. - Bratislava NovéMesto (6 km)

Majority of corridor lines with capacity utilization under 50% are on the territory of Slovakia and Hungary.

SWOT analysis

Within SWOT analysis, the particular strengths and weaknesses, opportunities and threats associated with establishment of RFC 7 are identified, on the basis of evaluating the respective factors that derive from creation of the corridor. By interdependency of strengths and weaknesses on the one hand and opportunities and threats on the other hand, we can obtain new information about the current status and about the benefits stemming from the establishment of the rail freight corridor.
In processing and evaluating the individual factors, the opinions of all countries, involved in the establishment of RFC 7, have been taken into account.

SWOT analysis generates a conceptual aspect for system analysis. It aims at the key factors for further strategic decision making.

Evaluation primary factors are:

- partnerships
- technical aspect
- capacity
- charges
- flexibility (time aspect)

Table 3: SWOT analysis at the corridor level

Strengths	Weaknesses
Partnership strengthening. Good technical conditions (in comparison with the other parts of national networks). Sufficient free capacity (especially in Slovakia, Hungary, Greece). Ecological transport mode. Effective bulk transportation. Safety.	Low state contribution to infrastructure costs → high infrastructure access charges. Low technical level, out-of-date infrastructure, high rate of failures. Lack of foreign language knowledge. Lack of free capacity on some lines (Czech Republic, Romania) for freight transport increase. Small flexibility. Low line speed (outside modernized sections). Restrictions on border lines (in many cases these are single track lines with increased capacity).
Opportunities	**Threats**
Government transport policy (transport reforms). Organizational reform. Improvement of cooperation between corridors. Establishment of new partnerships. Cross-border cooperation (in improvement of technical parameters of border lines). Mutual cooperation in remedying the deficiencies in corridor establishment. Support of RoLa. Performance increase in cross-border stations. Support to intermodal transport. Confidence trains (without technical/commercial inspections). Elimination of waiting times at cross-border stations. Harmonization of annual timetabling between respective countries. Increase of road freight transport costs. Incorporation into logistic processes, into existing large logistic centres. Acquisition of new transportations, construction of branch tracks to newly-built industrial parks, companies (car companies). Connecting to logistic centres. Construction of intermodal transport terminals. Support of branch tracks. Shift of dangerous transport to safer transport mode (shift from road to rail). State policy support (legislation arrangement). Track modernization. Doubling of the tracks, ERTMS deployment. Development of terminals, infrastructure and industry around the terminals. Construction of terminals.	Differences in performance regimes. Economic crises. Intermodal alternatives. Re-evaluation of EU mega trucks. Increased performance can lead to increasing of fault rate. Prioritizing road transport. Non-competitive running times of long distance trains. No interface with logistic chains and centres. Mass transportation attenuation. High costs of .sidings Unfavourable state transport policy. Increased difficulty of short distance passenger traffic in the surrounding of centres. Giving priority to passenger traffic rather than freight traffic.

Implementation of the measures only in some countries will not lead to significant increase in the competitiveness of international rail freight transport. Therefore, it is necessary to implement the measures jointly, based on mutual agreement of all member states of the corridor.

3.1 Estimated Changes of Transport Flows

Traffic volume scenarios

Estimated changes of transport flows on corridor RFC 7 are simulated in 3 scenarios. The basic characteristics of the scenarios are as follows:

Optimistic scenario – characters of economic revival from 2013, sustainment of positive economic indicators up to 2021, modernization and reconstruction of lines according to planned schedule, yearly decreasing of waiting times on borders, flexibile elimination of technical and capacity problems, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport, low growth of demand after bulk substrata traffic.

Medium scenario - slow economic revival from 2013, gradual improvement of economic indicators, modernization and reconstruction with 1-2 years delay, yearly decreasing of waiting times on borders, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport, stagnation of demand for bulk substrata traffic.

Pessimistic scenario - characters of economic revival from 2015, sustainment of positive economic indicators from 2015, modernization and reconstruction with 2-3 years delay, slow yearly decreasing of waiting times on borders, slow increasing of RU´s flexibility during handover of trains on borders, slight increase of transport volumes is supported by the slight ratio of new intermodal transport, stagnation of demand for bulk substrata traffic.

The following diagram and table illustrate the general prognosis of the transport demand growth, needed for the puposes of this Study.

Diagram 2:Development of transport volumes in Million tkm according to particular scenarios

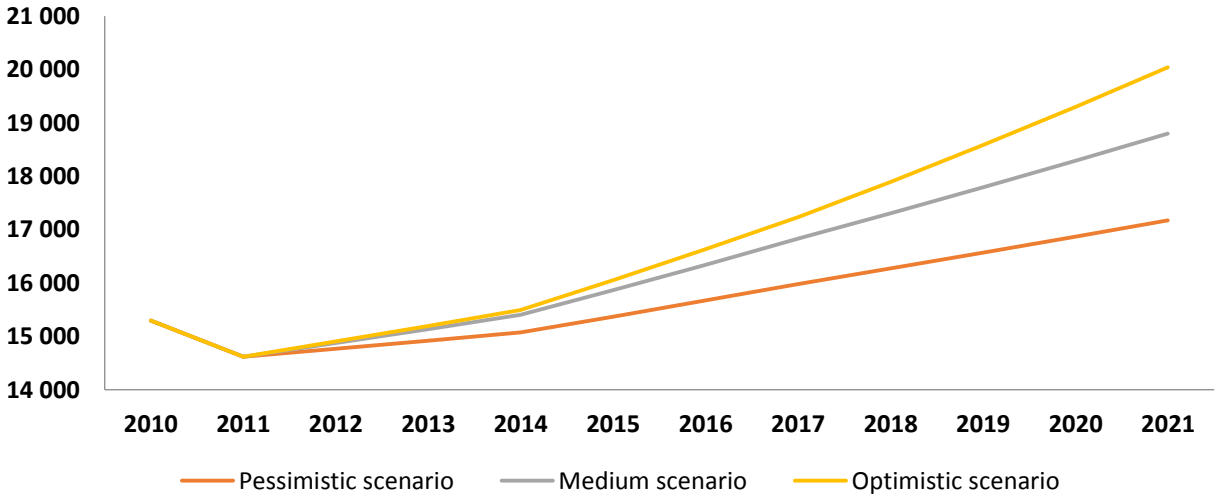


Table 4: Development of transport volumes in Million tkm according to particular scenarios (yearly)

Years	2012	2015	2018	2021
Pessimistic scenario	14 768,9	15 370,3	16 270,0	17 173,9
Medium scenario	14 875,2	15 864,5	17 301,8	18 799,0
Optimistic scenario	14 904,0	16 051,4	17 891,4	20 039,1

Notice: development on main lines

Risks of prognosis

The most important influence which coud considerably change the prognosis is the estimated time period of the economic crisis. The longest time period of economic crisis is in the pessimistic scenario, i.e. up to the end of 2014. The lenght of economic crisis will result in decreasing of investments, so enhancement of the technical status of infrastructure and elimination of capacity barriers will slow down, and waiting times on borders will increase, which require extra flexibility of RU´s, too. In most involved countries EU co-financing forms an essential basis for development of the technical status of infrastructure. Using of money from the subsidy funds of EU for modernisation and reconstruction of railway lines and stations contributes not only to the enhancement of technical status of infrastructure but to the growth impulse of economy as well. Delay in using money from subsidy funds of EU for modernisation and reconstruction of railway lines and stations can lead to the decrease of potential positive effects for the economy of the particular countries.

The other factor that may effect the reliability of the prognosis is the growth of freight transport by other modes of transport, while railway transport may stagnate. For this reason it is very important for the competitiveness of railway freight transport to provide high-quality infrastructure, cooperation and coordination of neighbouring IMs as well as flexibile cooperation between small and incumbent RUs by handover of trains on borders.

The low level of technical equipment at border sections and stations causes higher problems than similar bad parameters at inland sections. Such technical limitations may be: low speed, single track and non-electrified lines.

3.2 Socio-Economic Benefits Stemming from the Establishment of RFC 7

The most important socio-economic benefits stemming from the establishment of the rail freight corridor are:

- reduction of waiting times at the borders (micro effect),
- reduction of transport times in freight transport (impact of investments),
- reduction of external costs (macro effect).

The estimated changes of the structure of transport flows can also become an important socio-economic advantage deriving from operating the corridor.

The parameters of different socio-economic effects (micro and macro) of creating RFC7 are calculated based on performances realized on the main lines of the corridor, due to the fact that the

key-performances on the corridor are focused, i.e. the alternative and connecting lines support the increase of performances on the main lines.

Reduction of waiting times at the borders

The update of the Transport Market Study puts a high emphasis on the demonstration of the waiting times at the borders due to the fact that the respective signatory Ministries of RFC7's Action Programme committed to examine this issue deeply. The Traffic Management Working Group analyses deeply the procedures at the border-crossings and the final results and conclusions are going to be included into the TMS as well with potential suggestions for further progress in order to reduce the waiting times at the borders.

Today the waiting times at the borders of RFC7 are often quite long. The actors causing the lengthy waiting times at the border crossings are:

partly the RU´s: **internal processesof RUs** (mostly waiting for locomotive and/or staff of the cooperating RU, technical control, etc.),

partly the IM´s: **lack of interoperabiliy of infrastructure** (the differences on the corridor are mostly in the electric systems, signalling devices, technical equipment of border stations and lines),
low capacity (e.g: single track line, restricted capacity of stations / line section),
restricted speed (e.g. max. speed of 60 km/hod).

Infrastructue Managers can decrease waiting times by enhancement of interoperability and communication, by modernisation and reconstruction of lines.

Railway Undertakings can decrease waiting times (from technical point of view) by enhancement of flexibility and cooperation during exchange of trains at the borders, by using multi-system locomotives, by certification of locomotive drivers, or by operating one RU on more infrastructures, thus performing the train transport by one RU on the whole route. Practice proves that small RUs have the longest waiting times at borders due to the lack of locomotives or staff.

Ad-hoc trains usually have higher waiting times at borders than regular trains.
In case technical or commercial inspections are needed at the border station, it may increase the duration of the procedure by 30–90 minutes.
The length of waiting times at borders ranges from 10 minutes to 48 hours.

The average waiting times are:

- for incumbent RUs: 10–40 minutes,
- for smaller RUs operating on more infrastructures: 0-5 minutes,
- for smaller cooperating RUs: 2–10 hours.

One of the possible solutions to improve waiting times from the RUs point of view is the increasing of „confidence trains", which mean trains running without technical / commercial inspections. Such kind of trust could be applied not only for regular trains but also for ad-hoc trains, as the number of

ad-hoc trains is rapidly increasing: today the proportion of ad-hoc trains is 40%, and that of regular trains is 60%.

The folowing sheet summarizes actual data, and also contains prognosis up to year 2021.

Table 5: Waiting times at the borders (actual status/ prognosis)

Country	Station*	Reality		Prognosis 2021
		Waiting time at the border	Average waiting time	Average waiting time
Bulgaria	Vidin (RO/BG)	n/a	n/a	n/a
	Kulata (BG/GR)	n/a	n/a	n/a
Czech Republic	Břeclav (CZ/AT)	3-60min	30	5
Greece	Promachonas (BG/GR)	220	220	30
Hungary	Rajka (SK/HU)	n/a	n/a	n/a
	Komárom SK/HU)		25	5
	Lőkösháza (HU/RO)	30 min	30	5
Austria	0 min (handover of trains is realized on the network of Czech Republic and Hungary)			
Romania	Curtici (HU/RO)	100 - 240 min	140	30
	Calafat (RO/BG)	100 - 240 min	140	20
Slovakia	Kúty (CZ/SK)		120	20
	Štúrovo (SK/HU)		140	20

** the waiting times at stations situated on the main lines are used for the purposes of calculation*

The calculation method is:
Reduction ofwaiting times at the borders= (average waiting times in 2011 – average waiting times in year X [year 2012 - 2021]) x (number of trains in particular border lines)

Socio-economic benefits were calculated for every year by taking into account the following factors:

- reduction of waiting times at the borders (calculated by using the above scheme)
- estimated volume of freight transport at the borders according to the transport prognosis
- time of implementation 2012 – 2021
- expected improvement of technical status
- value of the time bound to cargo (2010): 1,28 €/t.hour.

The value of the time is indexed from the end of the year 2010 to the next years of analysis + 1% (estimated annual rate of the growth of GDP/ habitant).

The reduction of waiting times concerns only stations and estimated freight transport volumes on the main lines.

Table 6: Final Net Present Value (NPV)

Reduction of waiting times at the borders in €	
NPV 2021 (pessimistic scenario)	128 713 568
NPV 2021 (medium scenario)	141 207 475
NPV (optimistic scenario)	146 019 575

Notice: external contribution on main lines

Financial evaluation of external costs (macro level)

The creation of a European rail network for competitive freight can lead to the increase of rail freight transport share at the expense of the existing as well as the newly generated road transport. By diverting goods from road to railway the negative impacts of transportation (e.g. congestions, accidents, pollution, climate change) can be decreased.

The level of the external impacts is evaluated based on unit costs to ton-kilometre, following the instructions listed in the Handbook on estimation of external cost in transport sector (2007) prepared by the consortium led by CE Delft on behalf of DG TREN.

The following factors were used for the derivation of the value of unit costs:

- development of GDP and purchasing power parity per capita,
- for air pollution, we have also integrated another factor in the calculation: 1% annual decrease due to technological improvements which lead to the reduction of emission.

Table 7: External costs in eurocent to ton-kilometre

Freight transport	Congestion	Accidents	Air pollution	Noise	Climate changes	Total
Truck	2,17	0,03	0,22	0,09	0,22	**2,73**
Freight train	0,01	0,01	0,07	0,04	0,1	**0,23**

Source: Handbook on estimation of external cost in transport sector (2007), prepared by the consortium led by CE Delft on behalf of DG TREN

External benefits were calculated on the basis of unit costs for freight transport according to the above-described scenarios of transport demand development. The results are presented in the following table.

Table 8: Final NPV (2021) in € according to particular scenarios

External costs in €	
NPV (2021) pessimistic scenario	104 015 168
NPV (2021) medium scenario	170 585 805
NPV (2021) optimistic scenario	208 441 878

Notice: external contribution on main lines

3.3 Expected Impact of Planned Investments

The enhancement of the technical satus, modernisation and reconstruction of infrastructure can increase the capacity of the lines and shorten transport times. The decrease of transport times is determinated based on the estimated change in technical speed. The main focus is on line sections with maximal technical speed lower than 100 km/h (data based on „as-is situation“).
The below table summarizes the planned major investments on the corridor and their expected impact.

Table 9: Expected investments into RFC 7 (main and alternative lines)

Country	Expected investments	Impact of investments
Bulgaria	Modernization of corridor section Vidin - Sofia	Increase of speed, enhancement of technical parameters, reduction of transport times
Czech Republic	New terminal in ČeskáTřebová	Increase of demand for railway transport
	Construction of new logistic centres in Brno, Pardubice	
	Modernization of TEN–T net from the subsidy funds of EU	
Greece	Construction of freight terminal in ThriassioPedio (nearby Athens) incl. intermodal transfer devices (track portal cranes), maintenance center, parking area and other complex services for freight transport	Increase of demand for railway transport, enhancement of quality of railway services
	Infrastructure and superstructure upgrade, singalling and ERTMS installation, electrification, construction of the underground line section Athens RS-3Gefyres with 4 lines, R.Station upgrades, the subleveling of the triple rail corridor section of Redi S.S. to Athens	Achievement of interoperability goals
	New double railway line, bypassing Acharnes Municipality in the section 3 Gefyres-SKA	Achievement of interoperability goals and reduction of travelling time
	Upgrading of the existing line and structures, ERTMS installation, Restitution of electrification in the section SKA-Inoi	Achievement of interoperability goals
	Restitution of electrification and ERTMS installation in the section Inoi -Tithorea	Achievement of interoperability goals
	New double-track high speed railway line with electrification, ETCS level 1 and GSM-R in the section Lianokladi - Domokos	Achievement of interoperability goals
	ERTMS installation in the section Domokos-Thessaloniki	Achievement of interoperability goals
	Limited upgrade of the existing line,	Achievement of interoperability goals and reduction of travelling time

Country	Expected investments	Impact of investments
	electrification and ERTMS installation in the section Thessaloniki-Strimonas - Promachonas	
	Construction of railway infrastructure, superstruction and installation of signalling, tele-commanding and electrification in section Kiato -Patras of the new railway line Athens - Patras (New Port)	Achievement of interoperability goals and reduction of travelling time
	Upgrading of the existing Strymonas – Toxotes – Alexandroupoli railway line'	Achievement of interoperability goals and reduction of travelling time
Hungary	Szolnok - Szajol - track rehabilitation	Decrease of possessions
	Gyoma - Békéscsaba - track rehabilitation	Decrease of possessions
	Murony - Békéscsaba - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Békéscsaba - Lőkösháza border - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Budapest-Ferencváros - Lőkösháza border – installation of ETCS 2	Enhancement of technical parameters and the quality of provided services
	Győr – Sopron – second track	Increase of capacity
	Budapest-south connecting railway bridge - renewal	Enhancement of technical parameters
	Vác station – renewal , Vác – Verőce section renovation	Increase of capacity, enhancement of technical parameters
Austria	Upgrade of the section Wien – Břeclav to 160 km/h instead of 140 km/h	Increase of speed especially for passenger transport
	Completion of ETCS 2 instead of national control system or ETCS 1	Increase of capacity
	Full coverage with GSM-R	Enhancement of the quality of provided services
	Loading gauge upgrade to LPR 1 (Gabarit C) instead of national ZOV 7	Enhancement of technical parameters
Romania	Modernization of corridor started and is expected to be completed by 2020	Increase of capacity, elimination of restricting sections, enhancement of technical parameters (160 km/h for passenger trains and 120 km/h for freight trains, introduction of ERTMS / ETCS 2)
Slovakia	Modernization of railway station Bratislava	Elimination of restrictions

Country	Expected investments	Impact of investments
	hl. st.	
	Completion of GSM–R	Increase of capacity, enhancement of the quality of provided services
	Modernization of the line Kúty - Bratislava Lamač for the speed 160 km/h and ETCS	Enhancement of the quality of provided services

3.4 Conclusion of TMS

To fulfill the expected benefits stemming from the establishment of the freight corridor, it is necessary to take into consideration the interests of the RUs so that they increase their flexibility and consequently the total time of transport (from consignor to consignee) will decrease. In order to reach this goal, financial support is highly needed for modernization and reconstruction of infrastructure as well as for establishment of rail freight corridors in accordance with Regulation 913/2010 (set up of Corridor-OSS, meetings with customers, promotion of corridor, new information systems and technologies, conducting of satisfaction surveys, transport market studies, etc.).

A lot of European studies and also practical experience of infrastructure managers confirm that a great deal of the goods transported today on the lines of future RFC 7 originates in German ports.

The member IMs of RFC 7 in the first stage of the implementation in 2013 did not consider it necessary to extend the initial freight corridor towards Germany during the process of corridor establishment. One of the main reasons was that capacity situation in Germany differs from the capacity situation in member countries of initial corridor RFC 7 (i.e. German lines have strong traffic flows, while RFC7 line sections at that stage had weaker traffic flows), so Germany needs to deal with other type of issues than RFC 7 countries.

This position will be changed in the future. For the first period of operation members of corridor RFC 7 prefer to have Germany in an observer status and in member status in the later stage.

The above mentioned TMS extracts were set in the first half of 2013 therefore the possible influence of the finalized and published Annex II of Regulation 1316/2013/EU could not be taken into account. From 2014 the corridor has entered into a more mature stage, the consultation process with AG members has developed, so the perspective of the corridor, or its possible extensions could became more detailed and clarified.

The potential extension towards Turkey, after accomplishment of Marmaris Project in Turkey (Bosporus Tunnel) and further extentions of OEM Rail Freight Corridor to direction of Northern- respectively South-Eastern-Europe became realistic based on the new regulation. The extension from Athens to Patras in the future is foreseen in Annex II of Regulation 1316/2013/EU. 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.

The corridor RFC7 in the future would then connect Asia, Black Sea and Mediterranean Ports with Central and Western Europe.

Definition of Pre-arranged Paths of RFC7

The set of pre-arranged paths of Orient Corridor for year 2014 has been defined jointly by OSS WG and Marketing WG of the corridor.

The list of pre-arranged paths was assembled based on:

- the results of the TMS in respect of existing and expected traffic flows in rail freight transport and rail passenger transport,
- the amount of paths and train parameters from the past annual time tabling, and
- the existing framework agreements (on SŽDC: main line Praha – ČeskáTřebová, on ŽSR: connecting line Bratislava – DunajskáStreda – Komárno).

The definition of pre-arranged paths is carried out in line with RNE Guideline for Pre-arranged Paths.

Based on capacity analysis and market demand analysis (usage of existing RNE catalogue paths) the following pre-arranged paths are suggested by the Transport Market Study:

1. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
2. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
3. CZ – SK – HU: Děčín - Kúty - Rajka , 2000 t, 690 m
4. CZ – SK – HU – RO: Petrovice - Kúty – Rajka - Curtici -Malina , 2000 t, 540 m
5. CZ –SK – HU- RO: Děčín- Kúty - Štúrovo - Curtici, 2000 t, 690 m
6. CZ- SK – HU – RO-BG: Petrovice - Kúty - Komárom- Curtici- Sofia , 2000 t, 620 m
7. CZ– SK – HU – RO: Děčín - Kúty - Rajka -Ciumesti , P/C 45/375, 1500 t, 550 m
8. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros, P/C 45/375, 1500 t, 550 m
9. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
10. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
11. HU- RO- BG- GR: Ferencváros – Curtici – Kulata– Promachonas - Thessaloniki- Larissa/Volos-Larissa-SKA- Thriassio – Port Ikonio Pireaus, SKA- Athens RS- Pireaus, 1250 t, 580 m
12. SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom- Ferencváros, P/C 70/400,1500 t, 580m
13. SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom, P/C 70/400, 1500 t, 580 m
14. CZ – HU: Brno Maloměřice – Kúty - Bratislava UNS - Komárom – Ferencváros, P/C 70/400, 1500 t, 580 m,
15. CZ - HU: Brno Maloměřice – Kúty - Bratislava UNS - Štúrovo – Vác – Ferencváros – Soroksár Terminal; P/C 70/400, 1500 t , 580 m
16. SK – HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok- Lőkösháza – București; - Constanta P/C 45/375, 1500 t, 550 m
17. SK- HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok – Biharkeresztes - ClujNapoca; P/C 45/375, 2000 t, 600 m
18. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
19. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
20. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
21. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m

Note: paths 1-2, 7-10 and 12-13shall have time connection with paths 18-21.

Detailed information about the process of PaP definition and allocation is found in the C-OSS Operation Rules chapter of the Implementation Plan.

Definition of reserve capacity

Observations of the Transport Market Study in respect of reserve capacity are as follows.

“Reserve capacity shall allow for a quick and appropriate response to ad-hoc requests” (Article 14, point 5 of Regulation 913/2010).
Based on capacity analysis, market demand analysis (usage of existing RNE catalogue paths) and the relatively high number of suggested pre-arranged paths (21 pairs), it is possible to suppose that not all pre-arranged paths will be sold during the annual timetabling process. Unbooked pre-arranged paths are then recommended (in accordance with RNE Guidelines Pre-arranged path and Corridor OSS) to be used as Reserve capacity.

“Time limite for capacity reserve shall not exceed 60 days.“ (Article 14, point 5 of Regulation 913/2010).
Market demand analysis showed that more than 90% of ad-hoc path reqests are submitted less than 5 days before the requested train departure. IMs have a flexible approach to such short-term path requests, and they are able to allocate the paths within a few minutes or hours. As pre-arranged paths and reserve capacity shall be allocated by Corridor-OSS (Article 13, point 3 of Regulation 913/2010), and the national information systems for operation are not fully connected with Corridor-OSS IT-tool (PCS), it would be more convenient to keep the allocation of very short-term path requests on the national level, which is flexible enough to handle them.
Consequently, the recommended time limit for capacity reserve is no less than 30 days.

Detailed information about the process of reserve capacity definition and allocation is found in the C-OSS Operation Rules chapter of the Implementation Plan.

3.5 Utilization of Comments Made by Advisory Groups

Before finalization of the TMS in May 2013, the opinion of the Advisory Groups of RFC 7 was requested. It has to be also noted that the comments made by the railway undertakings at that time could not take into account the new provisons of the regulation 1316/2013/EU.

As extracts from the TMS, below you find the description of how they were considered during completion of the study.

Extension of RFC 7 towards Germany

AG of Terminals

Bohemia Kombi	Business Park Štúrovo	RCA + Wiencont
Yes. It is desirable to connect RFC7 from Prague with the cross point of both RFC3 and RFC8 (in Hannover?)	Definitely yes, Germany is one of our main destination in goods and transport flow	From our point of view it's right that most of the traffic flows starts or ends in Germany and further Western Countries not only in ports. But as it was mentioned in the market study, the corridor itself has a fully other structure and fully other challenges to make it more attractive than the German network. To focus the work we suggest starting the corridor as defined in CZ; including the location of Lovosice (as mentioned by Mr.Fiser from Bohemiacombi) makes absolutely sense.
Not accepted	Not accepted	Accepted

AG of RUs	
MetransDanubia	**CFR Marfa**
RFC7 should extend, especially towards the port Hamburg and Bremenhaven. It will ensure connection between biggest German ports and Central Europe.	The extension would be unnecessary for the time being.
Not accepted	Accepted

The TMS made in 2013 had not supported yet the extension of RFC 7 towards Germany, because:

- the German IM, DB Netz prefers to extend RFC 8 towards Prague as connection to the transport flow of SZDC;
- the capacity situation in Germany (strong traffic flows, lack of capacity) differs from that of RFC 7 member countries (weak traffic flows, sufficient or surplus of capacity).

Extension towards Turkey

AG of RUs	
CFR Marfa	**RCH**
It could be a plus, the extension towards Turkey could determine new customers to use this corridor and bring new traffic on the corridor.	It could be advantageous to extend towards Turkey could determinate new customers to use this corridor and bring new traffic on the corridor
Accepted	Accepted

AG of Terminals		
Bohemia Kombi	**Business Park Štúrovo**	**RCA + Wiencont**
positive	Turkey is not in connection with our activities	From our point of view this extension is absolutely useful.
Accepted	Not accepted	Accepted

The TMS concluded that extension towards Turkey is useful even though not all members of AGs are involved in the traffic flows towards Turkey.

It also has to be noted that comments and notes coming from the AG partners (RUs and representatives of the Terminals) in 2013 have influenced in a certain manner the compilation of conclusions of the TMS.

Definition of lines and terminals of RFC 7

AG of RUs	
MetransDanubia	**RCH**
We suggest putting the line Bratislava Petržalka - Bratislava Petržalka border as the main line	We suggest Szob border - Vác -Budapest line be considered as main line. We advice to join Hegyeshalom border -Győr-Komárom-Budapest line (1)(with sections Rajka border - Hegyeshalom and Sopron border-Győr-Komárom border -Komárom) and Szob border - Vác-Budapest line (70) with lines Budapest-Cegléd (100a) und Budapest-Újszász (120a) regarding the elements of railway circle of Budapest
Not accepted	Accepted

AG of Terminals		
Bohemia Kombi	**Business Park Štúrovo**	**Final AG Terminals (decision of RCA + Wiencont)**
We recommend to fill in Terminal Lovosice (50 km from Prague) and Megahub Hannover	We do not agree with definition of Hungarian main and alternative lines. Line Szob border - Vác - Rákospalota - Újpest - Angyalföldelág. - Kőbányafelső should be considered as a main line	The general definition of the corridor is from the terminals perspective clear.
Accepted (Lovosice)/ Not accepted (Hannover)	Accepted	-

The proposals of MetransDanubia and Bohemia Kombi were not accepted in 2013, because:

- line Bratislava Petržalka – border SK/AT is the main line on RFC 5 and only alternative line on RFC 7;
- due to non-extension of RFC 7 towards Germany, Hannover cannot be the part of RFC 7

4. List of measures

4.1 Coordination of Planned Temporary Capacity Restrictions

Planned Temporary Capacity Restrictions (TCRs) are necessary to keep the infrastructure and its equipment in operational condition and to allow changes to the infrastructure necessary to cover market needs. However, there is a strong customer demand to know in advance which capacity restrictions they will be confronted with. Corridor-relevant TCRs have to be coordinated, taking into account the interests of the applicants. The corridor's aim is to do this by regularly updating the information and presenting all TCRs in an easily accessible way.

The legal background to this chapter can be found in Regulation (EU) No 913/2010 Article 12 "Coordination of works". *"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."*

A framework has been developed by RNE in the "Guidelines for Coordination / Publication of Planned Temporary Capacity Restrictions".

Detailed rules and procedures are described in Chapter 4 of Corridor Information Document Book 4.

4.2 Corridor OSS

RequirementsDefined by Regulation 913/2010

According to Art. 13 of the Regulation 913/2010, the requirements for the C-OSS's role are defined as follows:

- Contact point for Applicants to request and receive answers regarding infrastructure capacity for freight trains crossing at least one border along a Corridor
- As a coordination point provides basic information concerning the allocation of the infrastructure capacity. It shall display the infrastructure capacity available at the time of request and its characteristics in accordance to pre-defined parameters for trains running in the freight Corridor
- Shall take a decision regarding applications for pre-arranged paths and reserve capacity
- Forwarding any request/application for infrastructure capacity which cannot be met by the C-OSS to the competent IM(s) and communicating their decision to the Applicant
- Keeping a path request register available to all interested parties.

The C-OSS shall provide the information referred in article 18, included in the Corridor Information Document drawn up, regularly updated and published by the RFC MB:

- Information contained in the Network Statements regarding railway lines designated as a Rail Freight Corridor
- A list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminal
- Information about procedures for:
    - o Set up of the C-OSS
    - o Allocation of capacity (pre-arranged paths and reserve capacity) to freight trains
    - o Applicants
    - o Procedures regarding traffic management on the Corridor as well as traffic management in the event of disturbances
- Information regarding the Implementation Plan with all connected documents.

Documentation related to the RFC 7 C-OSS

Documents, which could contribute to the C-OSS operation are as follows:

- EU Regulation 913/2010 (including the Handbook to the Regulation): spells out the overall framework for setting up the C-OSSs
- EU Directive 2012/34 Establishing a single European railway area
- RNE Guidelines for C-OSS
- RNE Guidelines for Pre-arranged Paths
- RNE Guidelines for Coordination / Publication of Planned Temporary Capacity Restrictions
- RNE Guidelines for Punctuality Monitoring.
- RNE Framework for setting up a Freight Corridor Traffic Management System
- RNE Key Performance Indicators of Rail Freight Corridors

Tasks of the C-OSS

Based on Article 12 of Regulation 913/2010

As the C-OSS shall display infrastructure available at the time of request (Art. 13.2), it would be practical if the C-OSS was involved at an early stage in this process and could communicate the

impact on the available capacity on Corridor sections as an input for RFC 7 MB decisions regarding the number of pre-arranged paths (PaPs) to be published.

Based on Article 13 of Regulation 913/2010

According to Article 13 the tasks of the C- OSS are to:

- Give information regarding access to the Corridor infrastructure
- Give information regarding conditions and methods of accessing terminals attached to the Corridor
- Give information regarding procedures for the allocation of dedicated capacity on the Corridor
- Give information regarding infrastructure charges on the Corridor sections
- Give information on all that is relevant for the Corridor in the national network statements and extracted for the CID
- Allocate the Corridor pre-arranged paths, as described in Art. 14 (3), and the reserve capacity, as described in Art. 14 (5) and communicate with the IM of the Corridor regarding the allocation (please see Section 7 for further description)
- Keep a register of the contents described in Art. 13 (5)
- Establish and maintain communication processes between C-OSS and IM, C-OSS and Terminals attached to the Corridor, as well as between C-OSSs.
- Report to the RFC 7 MB regarding the applications, allocation and use of the Pre-arranged Paths, as input for the report by the RFC 7 MB, referred to in Art. 19 (3).

Based on Article 16 of Regulation 913/2010

The C-OSS shall be able to provide information regarding traffic management procedures on the Corridor; this information will be based on the documentation drawn up by the RFC 7 MB and on the RNE Guidelines for Freight Corridors Traffic Management.

Based on Article 17 of Regulation 913/2010

The C-OSS shall be able to provide information regarding traffic management procedures in the event of disturbances on the Corridor; this information will be based on the documentation drawn up by the RFC 7 MB and on the RNE Guidelines for Freight Corridors Traffic Management.6.5 Based on Article 18 of Regulation 913/2010

Mandatory tasks for the C-OSS based on Art. 18 are to:

- Give information regarding access to the Corridor infrastructure
- Give information regarding conditions and methods of accessing terminals attached to the Corridor
- Give information regarding procedures for allocation of dedicated capacity on the Corridor
- Give information regarding infrastructure charges
- Give information on all that is relevant for the Corridor in the national network statements and extracted for the CID

- Give information concerning procedures referred to in Articles 13,14,15,16 and 17 of Regulation 913/2010.

Based on the RFC 7 C-OSS Agreement the C-OSS coordinates the preparation and updating process of Book 1 (Generalities), Book 2 (Network Statement Excerpts) and Book 4 (Procedures for Capacity and Traffic Management).

Customer Confidentiality

The C-OSS is carrying out his assigned working task on behalf of the RFC 7 Managing Board consistent of cooperating IM in a RFC. The task shall be carried out in a non discriminatory way and under customer confidentiality keeping in mind that the applicants are competing in many cases for the same capacity and transports. The functionality of the C-OSS is based on trust between all involved stakeholders.

Detailed rules and procedures for construction, publication and allocation of Pre-arranges paths (PaPs) and reserve capacity (RC) are described in annex 'C-OSS Operational Rules'.

4.3 Capacity Allocation Principles

The Executive Board of RFC 7 adopted the new Framework for Capacity Allocation which will be published on the Corridor website (Written approval October 2016).

This document is expected to provide an overview on the principles of:

- The supply of PaPs by the national IMs and Abs;
- The allocation of PaPs and RC by the C-OSS;
- Regulatory control;
- Applicants (see chapter 4.4);
- Priority rules

The Framework for Capacity Allocation (FCA) constitutes the basis for capacity allocation via the C-OSS.

4.4 Applicants

According to article 15 of the Regulation, an applicant means a railway undertaking (RU) or an international grouping of RU's or other persons or legal entities, such as shippers, freight forwarders and combined transport operators, with a commercial interest in procuring infrastructure capacity.

If the applicant is not a RU, it shall assign the responsible RU for execution of the traffic as early as possible, but at the latest 30 days before the first running day. The appointment of the executing RU(s) is only valid if at 30 days before the first circulation of the train, the appointed RU(s) possesses all the necessary authorisations, including licences, certificates and contracts with the involved IM/AB(s). If the necessary authorisations are not provided at this date, the PaP/RC will be treated as cancelled by the applicant, and national rules for the cancellation of a path will be applied, including its financial consequences.

The C-OSS will forward the name of the RU(s) to the concerned IM(s)/AB(s), without prejudice of the conditions of the IMs/ABs.

If RFC 7 does not supply PaPs/RC on a line, the applicant can request a catalogue or tailor-made path for this segment only if it is authorised in the national legislation to do so. The deadline for the appointment of the executing RU(s) will also follow the national legislation in this case.

4.5 Traffic Management

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 and to reduce the overall recovery time of the network.

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 Chapter 5 of Corridor Information Document Book 4.

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.

The communication procedure is described within Chapter 5 of Corridor Information Document Book 4.

4.7 Information Provided

The structure of Corridor Information Document follows the recommendation of RNE, which is widely accepted and generally applied by rail freight corridors:

Book 1	Generalities
Book 2	Network Statement Excerpts
Book 3	Terminal Description
Book 4	Procedures for Capacity Allocation and Traffic Management
Book 5	Implementation Plan

Book 1 and Book 2 is updated annually based on the validity period changes.

Concerning **Book 3** decision had to be made whether detailed information about Terminals shall be included in the Corridor Information Document, or only references (internet link) to the webpage of Terminals shall be provided in the CID. The MB of RFC 7 chose the latter solution because of the number of Terminals, the uncertainty of their data-supply and the difficulty of providing up-to-date information in the CID in case of modification of Terminal data.

The RNE WG Network Statement has approved the proposal of RFC7 Marketing WG regarding the common structure of Terminal information to be published on web pages of Terminals for purposes of corridor operation. RFCs and RNE suggests that the Terminals use the reference "Information Related to RFCs" on their website.

The structure of harmonized Terminal information template complies with the logic of the Network Statements, but in a much simplified manner, adjusted to the Terminals' context.

Structure of **Book 4** about Procedures for Capacity Allocation and Traffic Management is based on the RNE CID Common Structure Specification.

Book 5, present Implementation Plan of the corridor, is published after its approval by the Executive Board.

The complete Corridor Information Document is accessible for the public on the website of the corridor.

4.8 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.

4.8.1 Performance Monitoring Report

The measurement of performance of rail freight transportation on RFC7 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 RFC7 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.

A. On RFC7 the following common KPIs are measured:

- Capacity management: measuring the performance of RFC7 in constructing, allocating and selling the capacity of RFC7 (in line with Articles 13 and 14 of the Regulation), monitored in terms of:
    - Volume of offered capacity

- Volume of requested capacity
- Volume of requests
- Volume of pre-booked capacity
- Number of conflicts

The KPIs included in this area correspond to the KPIs listed in the Annex 3 of the Framework for Capacity Allocation on the Orient/East-Med Rail Freight Corridor.

- The KPIs of Operations, which measure the performance of the traffic running along RFC 7 monitored in terms of punctuality, volume of traffic and delay reasons:
  - Punctuality at origin
  - Punctuality at destination
  - Number of train runs
  - Delay reasons

- The KPIs of Market development, which measure the capability of the RFC 7 in meeting the market demands are monitored in terms of:
  - Traffic volume

In order to use the same quality of data and to reduce the overall efforts of the RFCs and RNE, mainly the same IT tools are used for the calculation of the commonly applicable KPIs. The data are provided by PCS and TIS, while the data processing tool is OBI. Having regard to the scope of the Market development KPI the necessary data is provided by the Infrastructure Managers' national tools. The calculation formulas of common KPIs can be found in the Guidelines for Key Performance Indicators of Rail Freight Corridors.

Planned common IT tool for monitoring of quality is TIS, however in the first stage (until full implementation of TIS by all members of RFC7) the quality reports will be compiled from national IT systems. RFC7 will make use of RNE work and experiences in Train Performance Management.

The results of the Capacity management and Operation KPIs shall be published in the Annual Report of RFC7.

B. RFC7 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 max. 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
- Dwelling time in border stations

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 ad-hoc paths . At the first stage, the traffic flows will be monitored by national systems and compiled together, later the usage of TIS is assumed (monitored indicators are described in chapter VI.4).

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

4.8.2 User Satisfaction Survey

Under RNE coordination, a Customer Satisfaction Survey was held in 2016 for all Rail Freight Corridors. Having a common survey managed by RNE provided for comparable results and avoided that the same customers, operating on different corridors, could be subject to different questionnaires with different structures.

Results of RFC 7 Satisfaction Survey can be found on the website of RFC 7.

5. Objectives/Performance

Management Board of RFC 7 made decisions on performance-related issues based on the proposals prepared mainly by Marketing WG, Traffic Management WG and OSS WG of the corridor. The below description reflects the major topics discussed and decisions made by RFC 7 MB in this field.

Performance objectives - quality of service

The timeframe for allocation of pre-arranged paths and reserve capacity is described in the RNE Guidelines for Pre-arranged paths and C-OSS, and RFC 7 intends to apply the provisions therein.
Response time to questions of customers related to the information function of C-OSS shall be: as soon as possible, but max. within 5 working days.
IT tools helping to C-OSS to answer the questions of customers are CIS, interactive maps with corridor description (national in the first stage, common in a later stage), common databases.
The process for monitoring performance is described in RNE Guidelines for Punctuality targets.
Delay codes follow the UIC coding system.

Planned common IT tool for monitoring of quality is TIS, however in the first stage (until full implementation of TIS by all members of RFC7) the quality reports will be compiled from national IT systems. RFC7 will make use of RNE work and experiences in Train performance management.

Performance objectives - capacity of the corridor

As discovered by the Transport Market Study, Orient/East-Med Corridor is relatively in a good situation in respect of capacity, so the Management Board does not expect major overload due to path requests for freight transport. Nevertheless, railway infrastructure manager companies involved intend to enhance railway operation improving the state and capacity of their infrastructure. The removal of bottlenecks will be in line with the suggestions of the Transport Market Study and the Investment Plan of the corridor.

Promoting compatibility between performance schemes

Actual performance schemes differ from country to country. In the future the usage of European performance regime is estimated. Details of EPR are described in the EPR Handbook, its implementation will follow after conclusion of the EPR project on RNE/UIC level.

6. Investment Plan

6.1 List of Projects

In accordance with Article 11 of the Regulation the Management Board of RFC 7 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, which includes details of indicative medium and long-term investments in infrastructure along the freight corridor.

This plan includes:

- description of the present state of the corridor,
- list of bottlenecks,
- volume of effect of each bottleneck,
- list of necessary developments,
- list of developments being under progress or preparation,
- deployment plan of ERTMS,
- financial sources available for development and suggestions on how to proceed.

The complete Investment Plan forms Annex 7 of the Implementation Plan. The periodically update will be done according to the legal requrements deriving from the regulation. The Secretariat will make an up-date information via WEB site concerning the actual situation of the investment project list. The format and the necessary/useful data were consulted with AGs.

6.2 Deployment Plan

The RFC 7, defined in accordance with the Regulation, is overlapping with ETCS Corridor E that was defined by the TSI CCS CR (2009/561/ES) and enlarged by the south branch via Bulgaria to Greece.
In the establishing process of the RFC 7 was agreed that the ETCS Corridor E project structures will be included in the organization structure of the RFC 7. In this process the ETCS Corridor E Management

Committee was transformed to the ERTMS Deployment WG of the RFC 7 organization structure and the new companies that represent the south branch of the RFC 7 were joined into the WG.

Interoperability & ERTMS WG

- is a supporting instrument for the Governance structure of the Rail Freight Corridor, it prepares data and documents for making decisions and realizes these decisions
- the basic task is 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

Statute of the Interoperability & ERTMS WG

The Interoperability & ERTMS WG provides for the RFC Governance structure the organization of following activities in the area of the ERTMS deployment on the RFC 7 lines:

- monitoring of the preparation and the realization of the investment plans of involved companies through an Annual Status Report
- exchange of the information among the involved IM's and RU's in the ERTMS deployment domain for the ensuring of the ERTMS deployment coordination on the corridor level
- establishing the expert teams for technical tasks and operational rules tasks and setting up ad hoc groups during the life cycle of the project – if necessary
- the negotiation on technical and operational rules tasks in frame of the RFC by expert teams (ad hoc groups) on the corridor level and on the bilateral level for the specific cross border sections
- the contact to the ERTMS Users Group (EUG) for the negotiation of selected tasks for the cross corridor coordination based on MoU signed between the EUG and the ETCS Corridor E Management Committee in 2008.

Activities and coordination issues of the WG

- Since the beginning of the ETCS Corridor E project more bilateral technical consultations have taken place between SZDC and ZSSK Cargo, MÁV, CFR, ZSR
- 2010 - creation of "Technical Requirements for Technical Requirements for Development of ERTMS/ETCS L2 on the Czech part of Corridor E" (TR)
- 2011 - discussion of the TR with all ETCS Corridor E members and EUG, the consolidated version is put at the disposal of all corridor members

- The representatives of the ERTMS Deployment WG participated in the meeting of the Traffic Management WG held in Prague on 28th August 2012. The main discussed task was the necessity for close cooperation and good communication between both WG
- On 16th and 17th October 2012 there was a common meeting of the Czech representatives of the ERTMS Deployment WG and the ERA ERTMS Operational Feedback WP in Prague. The main discussed task was the possible harmonisation of the ETCS Operational rules and information on technical solutions used in the Czech Republic
- On 23rd November 2012 a bilateral meeting was organized between the ÖBB and the SŽDC and their ETCS suppliers so as to start the cooperation for the technical solution of the interconnection of both ETCS L2 systems in the cross border section CZ – AT
- Dates of further meetings are under discussion, the workflow is managed via e-mail correspondence.

Implementation of the ETCS on the RFC 7 line sections

CZ - SŽDC

The ETCS L2 trackside v. 2.3.0d on the Czech corridor south branch from the state border SK/AT – Břeclav – ČeskáTřebová – Kolín (277 km) is under construction. The completion of this section is set for the end of 2014.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor north branch from the state border DE – DolníŽleb – Děčín – PrahaLibeň – Kolín (215 km): the preparatory documentation is being elaborated. The realization of this section depends on finishing modernization and optimisation works on this section (see chapter 5 of Investment plan). The realization is expected 2014 – 2017.

AT – ÖBB

The ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from the state border CZ (Břeclav) – Vienna (78 km) is under construction. The completion of this section is set for the end of 2013.

The ETCS L1 trackside v. 2.2.2 on the Austrian corridor part from Vienna - Border HU (Hegyeshalom) (68 km) is in operation. An upgrade of system version or level is planned for the future (after 2015).

SK – ŽSR

The main path of the Slovak corridor part in the sections border CZ (Breclav) - Kuty - Devinska N. Ves (58 km) and Devinska N. Ves - Junction 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. The realization is expected in 2015 – 2016.

HU – MÁV

The section state border AT - Hegyeshalom – Budapešť (198 km) is already equipped by ETCS L1 v. 2.2.2 and in operation. An upgrade to ETCS L2 is planned after 2015.

The section Budapest - Szajol - Lőkösháza – state border RO (Curtici) (225 km) is prepared to be equipped by ETCS L2 v. 2.3.0d by 2015, the tender process is in preparation.

Budapest (Bp.-Kelenföld - Bp. Ferencváros) – the intention is to equip this part of the junction Budapest by ETCS L2 v. 2.3.0d by 2014, the tender process is in preparation.

RO – CFR

In the section Campina – Bucharest (92 km) ETCS L1 v. 2.3.0d is in operation.
The sections Predeal – Câmpina (53 km) and Bucharest – Constanta (225 km) are under construction.
The ETCS L1 v. 2.3.0d will come into operation by 2013.
The section Lökösházа – Predeal (510 km) will be equipped by ETCS L2 v. 2.3.0d step by step – the start in 2015. The whole section will come into operation by 2020.

Status of ERTMS implementation on RFC7 in Romania (February 16th, 2015)

No.	Line Section	Level of ETCS	Software Version	Commercial Operation	Observations
1	Hungarian Border – Km 614	Level 2	2.3.0d	No	Under construction; estimated deadline for works finalization: December 2015
2	Km 614 - Simeria	Level 2	2.3.0d	No	Tender under preparation; estimated deadline for works finalization: 2020
3	Simeria – Sighişoara	Level 2	2.3.0d	No	Under construction; estimated deadline for works finalization: 2018
4	Sighişoara – Predeal	Level 2	At least 2.3.0d	No	Bidding documentation under preparation
5	Predeal – Câmpina	Level 1, without GSM-R	2.3.0d	No	Under construction, finalization deadline: TBD
6	Câmpina – Brazi	Level 1, without GSM-R	2.2.2	No	Installed on site
7	Brazi – Buftea	Level 2	2.3.0d	No	Under construction; estimated deadline for works finalization: December 2015
8	Buftea – Bucureşti	Level 1, without GSM-R	2.2.2	No	Installed on site
9	Bucureşti - Feteşti	Level 1, without GSM-R	2.3.0d	No	Under construction, finalization deadline: TBD
10	Feteşti - Constanţa	Level 1, without GSM-R	2.3.0d	No	Installed on site
11	Arad – Caransebeş	Level 2	At least 2.3.0d	No	Tenders under evaluation for the elaboration of the feasibility study
12	Caransebeş – Craiova	Level 2	At least	No	Tender documentation

			2.3.0d		under preparation for the elaboration of the feasibility study
13	Craiova – Golenţi (Calafat)	Level 2	At least 2.3.0d	No	Revision of the feasibility study under preparation
14	(Calafat) Golenţi – Bulgarian Border	Level 1, without GSM-R	2.3.0d	No	Installed on site

BG – NIRC

On the section Plovdiv – Dimitrovgrad the ETCS L1 v. 2.3.0d is already installed and tested. ETCS L1 v. 2.3.0d is under construction also on the section Dimitrovgrad – Svilengrad – Turkish/Greek borders (83 km). The commercial operation will start together on the whole line Plovdiv – Svilengrad – Turkish/Greek border in 2014.
The ETCS L1 v. 2.3.0d is under construction on the sections Septemvri – Plovdiv (53 km). The operation will start by 2015.

GR – OSE
ETCS L1 v. 2.3.0d is under construction on the section Thriasio – Ikonio (20 km), the commercial operation will start by 2020.
ETCS L1 v. 2.3.0d is under construction also on the section SKA - Promachonas (541 km), the commercial operation will start by 2020.

This overview shows that the migration process to the ETCS trackside on the main path of the RFC 7 lines has started. There is a very good chance to operate under ETCS supervision on more cross-border sections between neighbour member states by 2020 .
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. Then this can accelerate the deployment process and decrease the investment costs.

Implementation of the ETCS on-board

The situation in the equipping of vehicles by ETCS on-board units is shown in the table 6. 2 of Investment Plan.
There is a very well managed Austrian project for equipping about 200 locos that will be completed in this year. This project gained the co-financing from the special budget of TEN-T fund for acceleration of ETCS deployment.
The equipping of the vehicles by ETCS is for RUs more difficult from the financial view. This process will be very slow in the future without the possibility of co-financing the vehicle equipping for RUs.

6.3 Capacity Management Plan

As the capacity is concerned there are two types of capacity in general in terms of rail freight corridor. One is in term of capacity of PaPs and another in terms of capacity of the infrastucture along the

corridor. The general goal is to eliminate capacity bottlenecks in order to accelerate the international rail freight traffic flow through RFCs.

The following key technical parameters, infrastructure requirements set in Article 39 of Regulation (EU) No 1315/2013, were considered obligatory and common part of the future elements of the transport infrastructure for freight transport capacity.

- full electrification of the line tracks and sidings
- at least 22,5 t axle load
- 100 km/h line speed
- freight trains with a length of 740 m
- full deployment of ERTMS
- track gauge for railway lines 1.435 mm

For common understanding we take into consideration the same definition of bottlenecks as per set in (15) of Definitions Article 2 of Regulation (EU) No 1316/2013. Bottleneck means a physical, technical or functional barrier which leads to a system break affecting the continuity of long-distance or cross- border flows and which can be surmounted by creating new infrastructure, or substantially upgrading existing infrastructure or substantial improvement in the area of interoperability, that could bring significant improvements which will ease the bottleneck constraints.

This Implementation Plan provides a description of the main bottlenecks identified along the corridor, integrating information given by Infrastructure Managers. The regular analysis and up-date can help Member States, Infrastructure Managers and other stakeholders to prioritize key infrastructural and capacity projects, which constitute bottleneck removal actions. Development and implementation of these projects are critical to increase rail services and improve performance of rail freight sector. The Management Board together with relevant working groups (as Infrastucture WG, Marketing WG, Traffic Management WG, OSS WG and C-OSS manager) are working in close cooperation to monitor the available corridor capacity and follow the changes with harmonised measures.

6.4 Reference to Union Contribution

For the time being RFC 7 has not been involved in any EU financial contribution.