CSCORRIDOR RFC 9

CZECH – SLOVAK RAIL FREIGHT CORRIDOR (RFC 9)

EXECUTIVE BOARD

REPORT OF THE RESULTS OF THE IMPLEMENTATION OF RFC 9

ARTICLE 22 OF REGULATION (EU) NO 913/2010

Prepared by the Executive Board of Czech – Slovak Rail Freight Corridor:
Ministry of Transport of the Czech Republic
Ministry of Transport, Construction and Regional Development of the Slovak Republic

2015

Obsah

Introduction

Regulation (EU) No 913/2010 ("the Regulation") requires in the Article 22 to report the results of the implementation of the corridor every two years´ time. In this report the Executive board reports on the most relevant works and tasks of RFC9, which contributed to creating and operating shortest rail freight corridors successfully, thanks to the contribution of all involved Transport Ministries and participating Infrastructure Managers. In line with the Article 22 of the Regulation, the Executive board assumes full responsibility for the present report however, due to practical considerations (such as access to the necessary data), the Management board and other IM staff provided significant inputs for several with the higher share of work. On the other hand some chapters are exclusive output of Executive board (e.g. chapter 10 and 11).

RFC9 came into reality at 7th November 2013 and started to operate as one of the first rail freight corridor all over Europe besides five other corridors. RFC9 is also known under name Czech – Slovak corridor or shortly CS corridor. This description is used further in text. It has to be mentioned that it was preceded by two years of preparatory work in all level of cooperation. Furthermore it has to be emphasized that this railway cooperation could never be realized at this magnitude in Europe before.

Besides the fact that we can be justly proud of our works, the first two years of operation signifies a milestone, which can highlight the results of our efforts and experiences we gained from the beginning. Based on the above knowledge it is highly outlined where we are, what we would like to achieve and the direction of the further development of the corridor.

According to our goals this document gives an overall picture of our corridor, which hopefully can support the work of the European Commission in order to evolve the Single European Rail Area and the Network of the Rail Freight Corridors at the required quantity and quality.

Last but not least, thanks to the efficient management of the RFC9 and the continuous consultation process with the stakeholders of the market the flexible approach developed over-time which tends to serve better both the needs of our customers and the duties stemming from the regulation as well.

1 Motivation, background of this report

In order to establish and continuously develop the internal market of the European Union, transport is a vital. With a view to reduce the greenhouse gas emissions and the carbon dependence of transport, the European Commission's 2011 White Paper on Transport highlighted the need for specially developed freight corridor that provide a reliable, congestion-free and economic alternative to shippers on medium and long distance. In this context, on 22nd September 2010 the European Parliament and the Council adopted regulation (EU) 913/2010 in order to promote a competitive alternative to other modes of transport, so the international rail freight services should offer more effective and environmentally friendly solution on the market. For this purpose, an easily passed, reliable, good quality and sufficiently financed railway infrastructure should be established which could provide the rail freight users with a high quality service (e.g. concerning commercial speed, journey times, train length, loading gauge or axle load).

In order to reach these goals the European Union designated 9 international rail freight corridors (RFC) in the EU rail network. The long-term vision with the RFC-concept is the creation and setup of international market-oriented rail freight corridors, with a view to strengthen cooperation between rail infrastructure managers as regards both investments and the management of capacity and traffic. The appropriate treatment of international freight trains shall also be achieved in terms of capacity allocation on lines designated to the corridor that also cater passenger trains.

Since the launch of the corridor the management tries to serve a very demanding business environment with an outstanding flexibility taking into consideration the needs of the market. Due to the fact that plenty of capacity is available on lines involved into the corridor, Railway Undertakings do not plan long time ahead when it comes to reservations of capacity for the operation of their freight trains. Therefore path requests happen rather on a short time basis than in the form of "Pre-arranged Paths" the key product introduced by the RFC concept.

The corridor calls two European countries for an international cooperation according to the requirements of the Regulation, namely: Czech Republic, Slovak Republic (Slovakia). CS corridor follows the route starting in Praha – Horní Lideč / Bohumín / Havířov / Žilina – Košice – Čierna nad Tisou (alternatively Maťovce) – Slovak-Ukrainian border. These two European countries with their two railway Infrastructure Managers, who play a role of Capacity Allocation Bodies, established a corridor.

The CS corridor is important transport artery connecting Central Europe with Eastern Europe Schengen Border. Its strategic position arises from its direct relation with Ukraine and indirectly whit Russian and Chinese markets. That is why the corridor wants to offer a good, reliable service based on harmonised technical and procedural conditions.

All the two parties involved into the setup and operation of CS corridor will work hard to achieve the targets of the RFC concept, serve the demands of the market in its best way possible therefore try to contribute to the long-term vision of creating a Single European Rail Area.

The fact of the involved Member States Czech Republic and Slovakia could rely on 40 years long term cooperation from common era of Czechoslovakia, which has continued since 1993 after division of former common state Czechoslovakia until now, the infrastructure managers (SŽDC and ŽSR) involved into the works of the corridor have not had any problems with the harmonisation of working language, operational rules, terms and conditions for the usage of infrastructure.

2 Objectives and challenges for the corridor

Almost two years of RFC9 in operation provides enough data, information and knowledge to evaluate corridor position and performance. However, the last two years clearly show there have not been created any new market with an evident potential for RFC design which could in praxis bring an increase of traffic volumes on the route dedicated to the corridor or use the tools developed. Instead of growth the corridor has faced

Ukrainian-Russian crisis and affected by economic embargo. That is why new challenges and opportunities still waiting to be discovered and to confirm corridor´s added value.

To fulfil the goals of Reg. 913/2010 the prolongation of corridor No 9 up to 2020 is must.

In accordance to annex 1 of Regulation (EU) No 1316/2013 of the EP and Council establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 RFC9 is to extend to Bavaria (Germany) as branch of future Rhine – Danube RFC. There are going to be long distance overlapping sections with RFC7. This extension is a great opportunity for development of RFC9.

Another opportunity for development of RFC9 is seen in construction of brand new "open access" intermodal terminal in Žilina, which is good shifting point from road to rail.

The big potential is seen by improving cooperation with third countries. Members of RFC9 welcome initiatives of EU to improve cooperation between RFCs and OSJD corridors. There is the same routing of RFC9 as OSJD corridor No 4. This potential depends especially on lasting of Russian – Ukrainian crisis, but it could be improved technological transfer of broad/normal gauge vehicles through Schengen border SK/UA and back (e.g. better technology of transferring wagons through X – ray) which could cause developing of RFC9.

3 Corridor description

The CS corridor belongs to so called 2013 rail freight corridors. With only 972 km it is the shortest corridor among all the rail freight corridors defined in the Regulation 913/2010. It links only two member states – the Czech Republic and Slovakia – what makes it also a bit special. Moreover, this corridor connects countries which used to be a single state for 75 years so there could be found a lot of similarities which play a role in its performance, regime applied and its organizational structure.

This corridor also characterizes a particular isolation as it only shares one section with RFC7 (Praha – Česká Třebová) and some cross-sections with RFC5 (from November 2015). This particular isolation also plays a role in its attractiveness for freight operators. Furthermore, a missing connection westwards of Prague has been a disputable issue since the introduction of the Regulation. Both countries are these days economically significantly linked to economies of Germany and Austria and other western countries however the original alignment of the corridors did not reflect this fact. In this regards the new TEN-T policy and the update of the Regulation (913/2013) which arrived with the Regulation (EU) No 1316/2013 granted our requests with the establishment of RFC Rhine – Danube. We hope this new situation will improve the position and attractiveness of the corridor in next decades as rail freight corridors become not only fully operational but also functional and holistic network.

From west the corridor starts in Praha heading eastward towards Přerov. Beyond Přerov at Hranice na Moravě the corridor splits into two branches. The northern line links Ostrava industrial region, the southern branch goes via Vsetín and Púchov to Žilina in Slovakia where both branches merge again. The Slovak section

between Žilina and Košice with the continuation towards the state border Slovakia/Ukraine is invariant. The only one exception is the very eastern part where several branches link terminals in Čierna nad Tisou, at Dobrá and Maťovce (see Figure 1).

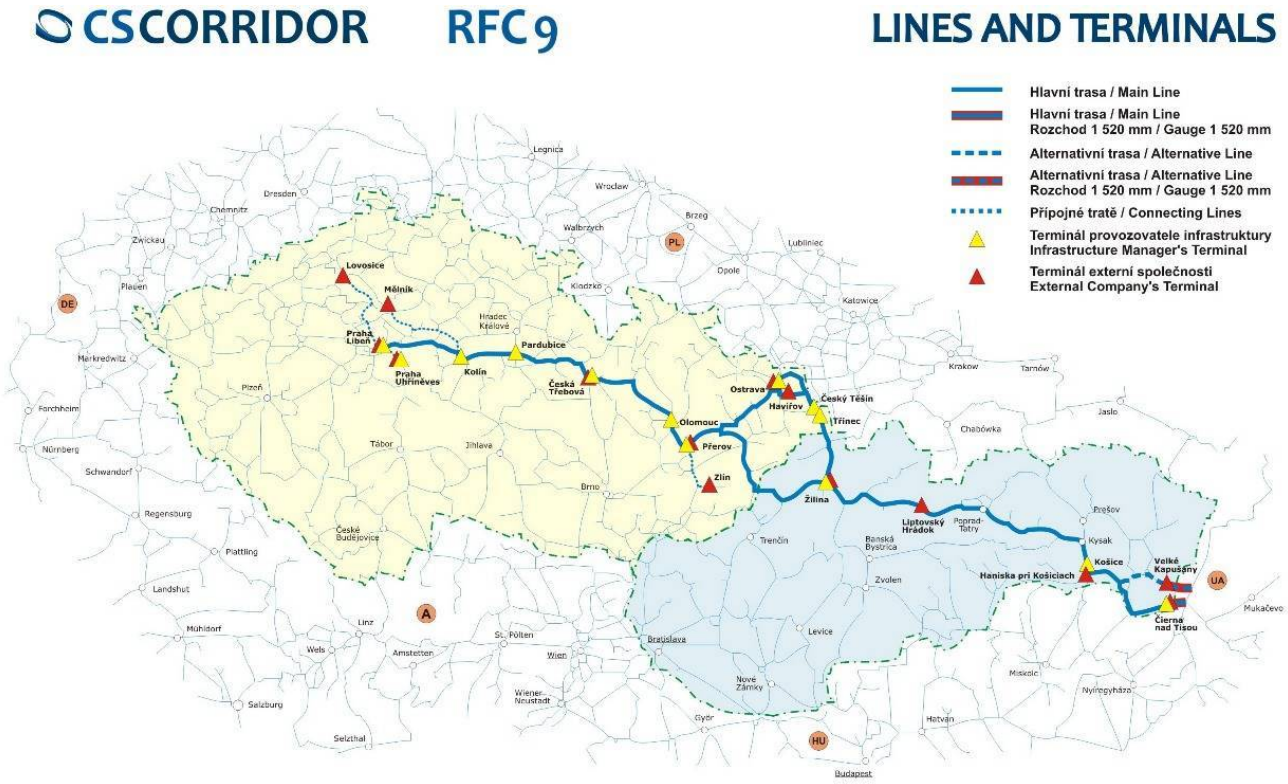


Figure 1: CS corridor map with lines and terminals (source: RFC9)

From the historical perspective it should be mentioned the current alignment of the CS corridor follows de facto a former railway backbone of Czechoslovakia with the crucial importance for heavy industry. Despite of the fact that the situation has changed significantly since the fall of planned economy and splitting Czechoslovakia, especially due to structural changes in economy followed by a significant decrease of volumes goods transported on rail, an overall performance of the rail freight still plays a very important role on this axis. This is due to its persisting importance of rail freight for heavy industry, especially for iron works located in Košice and Ostrava region where an iron ore imported from Ukraine and Russia is still predominantly used for their production. On the other hand Czech and Polish coal and coke produced in Silesian mining and industrial region is exported to iron works in Košice so the goods flows for heavy industry work more or less on mutual basis.

On the other hand for many reasons it would be overstated to claim this corridor plays an important role within the European corridor structure or Europe. So far that is not that case. It has more local – Central European – significance however its role could be increased in the future albeit some measures must be undergone. At the same time the starting position of CS Corridor comparing to other east-west oriented corridors – RFC6, 7 and 8 – is not so advantageous.

A simple comparison relieves the most significant characteristic of this corridor are long longitudinal slopes which make its usage for freight a bit unfavourable especially while taking into consideration a flat land of Hungarian part of RFC6 and Polish stretches of RFC8. Going from Prague to the Slovak/Ukrainian border the train must overpass a several mountainous terrains. The most significant are on the Czecho-Slovak border with passes approx. 500 m high above sea, in eastern Slovakia and especially in central Slovakia where a latitude of 850 meters in the pass between High- and Low Tatras must be overtaken. The longitudinal slopes on some sections thus exceed 16 ‰. This situation leads to a necessity of using a double traction for freight trains on the most exposed sections. In the same time this factor also restricts a length of trains operating there. The most common length of train is currently only between 500–600 meters. It should be also mentioned there are no significant changes expected for the future due to unreasonable high cost.

Figure 2: Freight train waiting at Margecany station with most common freight double-section loco (class 131) used on Slovak (and partly Moravian) infrastructure belonging to CS corridor, Photo: J. Ilík

On the other hand CS Corridor is one of three European corridors (RFC6, 8 and 9) which have some interface with the broad gauge of 1520 mm infrastructure. While in the case of passenger transport a bogie changing from standard gauge to broad gauge (and vice versa) is well known technology in the case of freight a transhipment of goods from "Russian" gauge to the standard one is the most common procedure. In Eastern Slovakia there are two important transhipment yards located at Čierna nad Tisou and Maťovce. They represent significant transport interface between Europe and Asia and Central, Southern and Western Europe. They significantly share in traffic flows on RFC9. Eastern Slovak transhipment yards ensure transhipment of more than 90% of raw materials and commodities imported to Slovakia by rail from Eastern Europe and Asia. They also play a very important role in supplying the Czech iron works located in Silesian (Ostrava) region. Apart from that these terminals play a key role for the CS corridor and its further development as they can be understood as the terrestrial ports.

Transhipment of raw materials or commodities from Eastern Europe and Asia from broad gauge to standard gauge is carried out in the border crossing station Čierna nad Tisou. Transhipment of commodities exported from Slovakia to Eastern Europe and Asia is carried out in the border crossing station Chop (Ukraine). Border crossing station Maťovce serves, primarily, for transport of consignments to broad gauge branch tracks but also for transhipment of bulk substrates, such as coal and ore.

3.1 Key characteristics of the corridor

So far mostly the geographic characteristics (e.g. alignment) of CS Corridor have been described. The following chapter gives information about technical features related to railway infrastructure and terminals. This part not only describes a current situation and perspectives (investments) based on national investment plans but also analyses and checks all the characteristics of railway infrastructure and its compliance with the parameters specified in the Regulation 1315/2013. The main objective is the identification of sections, which are critical for efficient transport flows.

Among the most significant technical characteristics with a high significance for freight belongs electrification, number of tracks, speed, longitudinal slopes, utilization of line capacity, length of trains, signalling system. Most of them, or their target standards, are also directly required and defined in the Regulation 1315/2013.

3.2 Electrification and number of tracks

The corridor is supplied by 3 kV DC on its whole length. Some sections were electrified immediately after the WWII. The motivation was to increase an efficiency of traction on the sections with high longitudinal slopes esp. on mountain sections between Žilina and Spišská Nová Ves where the works started already in 1949. The electric power was the only one viable solution to fulfil increasing demand of national economy.

Until August 2015 the whole corridor stayed under 3 kV supply. Nonetheless the last summer brought a big change when at Púchov the railway junction located on the southern branch the electric system was changed to 25 kV. Nowadays this is the only one station working on 25 kV AC within the whole corridor. This should be changed in the future because Slovak inframanager ŽSR plans to switch the entire current 3 kV system to 25 kV within Bratislava – Košice – Čierna nad Tisou modernization programme in coming years. In the Czech Republic the idea to change the electric system is also very actual but the decision has not been taken yet.

As the CS corridor uses the infrastructure which was very important in the past all the lines dedicated to the corridor dispose by two or more tracks. In contradiction to this fact several sections can be found which can be identified as sections with a lack of capacity as described below.

3.3 Longitudinal slopes and speed

One of corridor´s signs are mountain regions what brings a significant limitations for the routing of the railway lines. In this regards to achieve the target parameter of 12,5 ‰ it is not possible without spending huge amount of money and new routings which will be probably never cost efficient. As already mentioned earlier in this

text the most exposed sections are located on both branches between the Czech Republic and Slovakia with the critical section across the pass between High and Low Tatra Mountains. Finally the eastern section between Košice and Slovak/Ukrainian border requires to overcome Slanské hills. Despite a mayor modernization of the whole Slovak section between Žilina and Košice is foreseen in coming years it looks this investment will not be able to solve the critical inclines and these will remain also for the future.

As regards the requirement of speed for freight trains it could be confirmed the parameters of current infrastructure already fulfil the limit of 100 km/h given by the Regulation. Nonetheless there can be seen several exceptions identified. The problem of speed is related to wider Ostrava junction/region where speed restrictions are caused by undermined territories and infrastructure conditions on some sections. On the southern branch the problem occurs on the Czech side between Hranice na Moravě and the state border CZ/SK where several curves limit the speed which is mostly only between 70 – 80 km/h for freight trains. On the other hand this part of infrastructure has not been modernized yet so the planned modernization will bring some improvements but due to hilly terrain these cannot be expected significant improvements. Some speed restrictions are remaining also in south-eastern Slovakia close to the border.

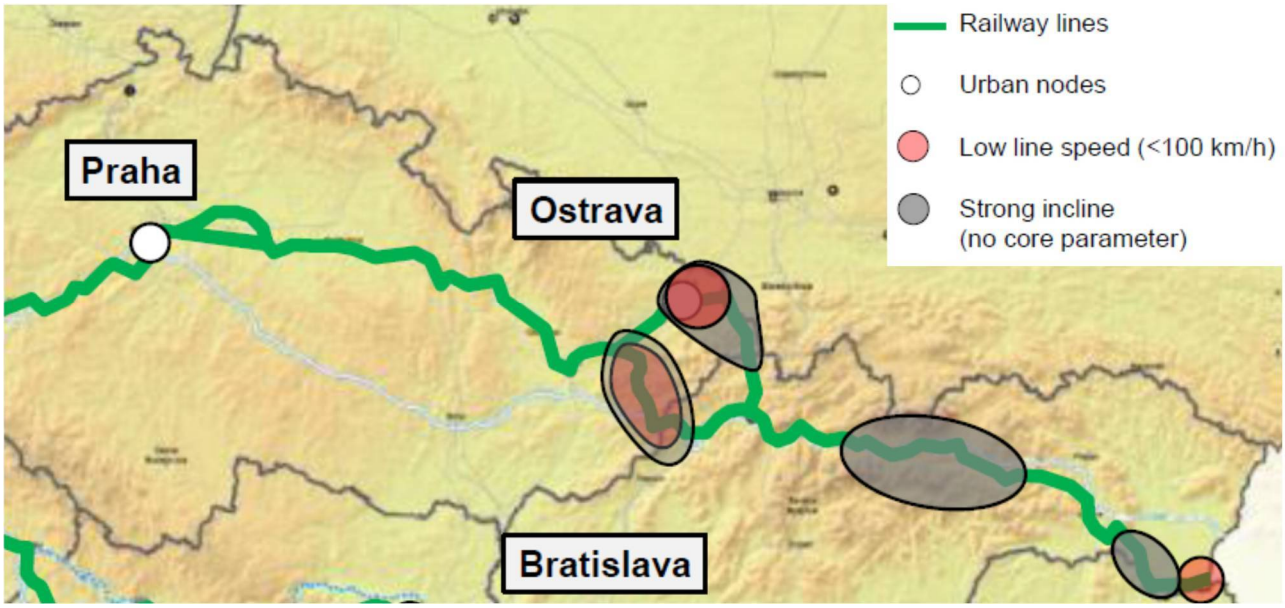


Figure 3: Critical speed and inclines along the corridor (source: TMS CNC Rhine – Danube)

3.4 Train length and signalling system

These two factors are the most critical as regards the fulfilment of parameters according to the Regulation. None of sections fulfil the parameter of train length of 740 m. Even sections which were already modernized on the European standards in the past do not fit with this parameter. Two things must be clarified here. Due to high inclines the strict fulfilment of this parameter must be carefully handled as a single locomotive is not capable to haul a long heavy train so the solution which will allow to meet both, requirement of the Regulation and operational needs must be found. Furthermore there is a significant difference between the Czech and Slovak modernization approach. Slovakia began with the modernization of railway corridors later the Czech

Republic where works started in 1993. Nevertheless Slovakia strictly stick to AGTC parameters so the parameter of 750 m has been achieved on all modernized sections (currently outside the corridor Bratislava – Púchov). The Czech Republic resigned to respect this parameter. That is why most of stations allow the maximus train length only about 650 m so the further measures are foreseen to make the operation of long train possible in standard conditions.

Signalling system is the same in both countries due to historical reasons. As regards ERTMS implementation there is only a limited progress. In the Czech Republic GSM-R is already in operation. The only one exception is the southern branch from Hranice na Moravě to CZ/SK state border. The situation with ETCS is less optimistic when only a section from the outskirts of Prague to Česká Třebová is currently under development with a commercial use expected since 2016. In Slovakia the infrastructure has not been modernized yet. No lines of RFC 9 are equipped with system of the ERMTS on whole corridor´s length. The deployment of ETCS and GSM –R on RFC 9 will start after 2020 and the whole corridor should be equipped by 2030.

3.5 Capacity on the corridor

Considering the aspect of capacity CS corridor characterizes particularly highly utilised railway lines dedicated to the corridor. Especially in the Czech Republic the situation looks critical where a high traffic volumes lead to a high capacity exploitation on a significant part of the corridor. The most critical sections are Poříčany – Pardubice and Choceň – Česká Třebová as well as junctions Prague and Ostrava where the usage of capacity available reaches more than 90 %. The high usage of the capacity on the stretch between Prague and Česká Třebová is not only an impact of mixed traffic of that line combining freight, suburban and express trains but also an effect coming from a specific role of this line. It is used for all trains connecting Central Bohemia to Poland, Slovakia, eastern Austria and Hungary and other eastern countries so all the trains going eastwards usually use the line because there is no real alternative to it.

On the Slovak section there has not been identified any serious capacity problems along CS corridor. The only one exception is the very eastern part of the corridor close to 1435 – 1520 terminals where the utilisation of capacity reaches 50 – 90 %.

The liberalization of passenger market plays a role here as well. The open access model of competition which has been applied on the line between Prague and Ostrava and further to Slovakia is demanding a lot of capacity. Unfortunately the segment which is suffering from this development is especially a freight transport because this segment does not have a clear ordering party as all PSO and open access private companies do. This situation often leads to a very frequent overtaking of freight trains what significantly decrease their average speed and thus also their competitiveness.

It should be also mentioned the section Kolín – Česká Třebová is the part of RFC 7 Oreint/East-Med what makes the overall situation even worse as the capacity for freight trains must be distributed on both of these two freight corridors.

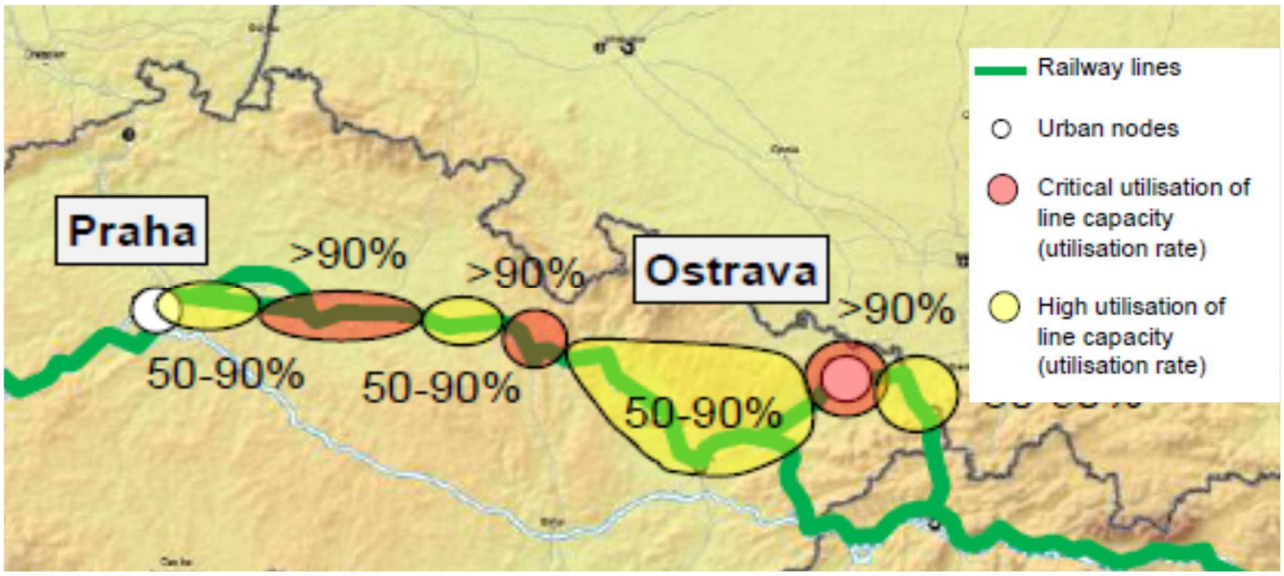


Figure 4: Capacity utilization (source: TMS CNC Rhine – Danube)

3.6 Terminals

Railway lines and terminals together specify the Corridor. 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. In this report terminals are understood as terminals in a common meaning – e.g. container terminal and also marshalling yards which allow to execute train compositions. There are 14 marshalling yards in the Czech Republic (Praha-Libeň, Kolín, Pardubice, Česká Třebová, Olomouc, Přerov, Hranice na Morově, 3x Ostrava, Český Těšín, Třinec, Valašské Meziříčí and Vsetín) and 8 rail-road terminals along CS corridor – 2x Prague, Pardubice, Česká Třebová, Přerov, Zlín (Lípa nad Dřevnicí), Ostrava – Paskov, Havířov – Suchá. A special role for the corridor plays a marshalling yard at Nymburk which is used for trains to/from Mlada Boleslav where Škoda Auto has its main plant.

The situation in Slovakia is represented by 2 marshalling yards located in Žilina and Košice. There are also several capacities (smaller marshalling yards) located at Púchov, Ružomberok, Poprad, Spišská Nová Ves and Kysak. As regards rail-road and rail(1435)-rail(1520) terminals there are 4 representatives located at Žilina, Košice and at Haniska pri Košiciach and Dobrá.

All rail-road terminals are linked with the national road and rail networks, although there is in some cases a need to improve the quality of “last mile” connection or to solve capacity problems. A development of combined transport and thus also of Rail road terminals bring a big potential for the corridor especially with the connection with other (“feeding”) RFCs.

4 Organization and governance structure

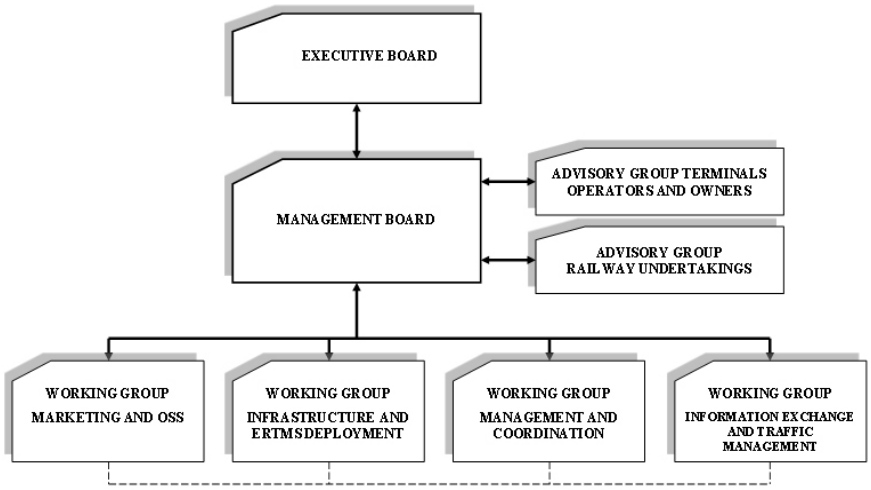


Figure 5: CS Corridor organizational structure.

4.1 Executive Board

The Executive board of the CS corridor was formally established by the signature of the Memorandum of Understanding between Czech Republic and Slovak Republic on 3 January 2012. The members of the Executive board are representatives of the Ministries of Transport of both participating countries. The Board adopts all its decisions by mutual consent of both parties.

The members of the Executive board are representatives of:

- Ministry of Transport of the Czech Republic (CZ)
- Ministry of Transportation, Construction and Regional Development of the Slovak Republic (SK)

The Executive board meets at least 1 yearly during bilateral session on the field of railways. In praxis the meetings take place 3-5x/year as a part of other bilateral meeting where CS corridor meetings are organized as a side meetings.

4.2 Management Board

The Management board of Rail Freight Corridor 9 has approved the document Internal rules of CS Corridor on 10 May 2013. The members of the Management Board are representatives of both Infrastructure Managers involved. The Management board adopts all its decisions by mutual consent of both parties.

The members of the Management board are representatives of:

- Správa železniční dopravní cesty (SŽDC)
- Železnice Slovenskej republiky (ŽSR)

The Management board meets 2 – 3 times yearly during bilateral session on the field of railways or separately.

4.3 Working Groups

The Management board of the corridor decided to divide the activities into four working groups corresponding to their focus:

- Marketing and OSS,
- Infrastructure and ERTMS deployment,
- Information exchange and traffic management,
- Management and coordination.

The Working Groups meet as necessary.

4.4 Advisory Groups

There are two Advisory Groups acting at the corridor:

- Advisory Group Terminals operators and owners (TAG),
- Advisory Group Railway undertakings (RAG).

Advisory Groups meetings are organized usually separately in their countries by SŽDC and ŽSR. The Management board may organize joint meetings of Advisory Groups members and Management board in both countries. The communication with Advisory Groups is also provided usually separately in their countries by SŽDC and ŽSR through the Working Group Marketing and OSS members.

4.5 Corridor One Stop Shop (C-OSS)

The Corridor One Stop Shop (C-OSS) is a single contact point of the corridor for corridor customers. Both parties of Management board have agreed on a rotating model of the C-OSS seat with an annual periodicity. SŽDC fulfilled the role of C-OSS in the first period from November 2013 with the C-OSS seat in Prague. ŽSR fulfilled the role of C-OSS in Bratislava for the period from November 2014. The next period will be served of C-OSS by SŽDC again in Prague.

5 Corridor operating procedures

5.1 Framework for capacity allocation

The framework for capacity allocation (FCA) is the single most important document, which is to be elaborated, approved and delivered by the Executive board. The EU-Regulation gives relatively little guidance on the scope of the document. The European Commission however specified some of the most important procedures and approach in the Handbook. From the legislative point of view the most important fact is FCA should be legally binding, and should be published. In the case of CS corridor this duty was fulfilled in time – the FCA was approved and published during the summer 2013 on 8th July 2013.

This document was elaborated on the basis of FCA module prepared originally by RFC1 and RFC2 and also used on RFC7 where both countries also cooperate. The motivation was to ease the whole process of preparation and adoption. The written procedure was successful and both Member gave its approval. The FCA came into force on 13th December 2013.

The main part of the FCA, as well as the annexes I–III are very similar to the other FCAs. Differences are in formal issues and the following two substantial ones:

- The Management board drafted a more detailed list of activities within the timetabling process in Annex II. It does not contradict the provisions of other FCAs, it only enriches the list with further deadlines thereby describing the procedure more accurately.
- There is no obligation for the application of reservation fees

A new Annex IV, not to be found in other FCAs, includes all the provisions, which are not in other FCAs, but were deemed necessary to be regulated on the level of the Executive board. The main provisions are the following:

- deadlines for the reply on capacity requests by the C-OSS,
- general approach on charging (it belongs to the national regime),
- reduction of the time limit set out in Article 14(5) of the EU-Regulation from 60 to 30,
- detail regulations on non-RU applicants.

CS corridor has been participating on preparation and negotiation process to the common European FCA. The Executive board was aware of the need to unify all the procedures and deadlines to make the whole document consistent within all corridors and better understandable for customers.

5.2 Capacity allocation procedures

As a unique contact and coordination point the C-OSS simplifies and standardise the process of international capacity planning, application and allocation using the common European IT tool Path Coordination System (PCS) developed by RNE. All available path product of the corridor are registered in PCS and can be easily booked via this system. C-OSS will manage the request through the whole phase providing maximum ‘care’

as a single service provider acting as one IM on behalf of all involved IMs. The whole procedure how the allocation process works can be seen in the figure 5.

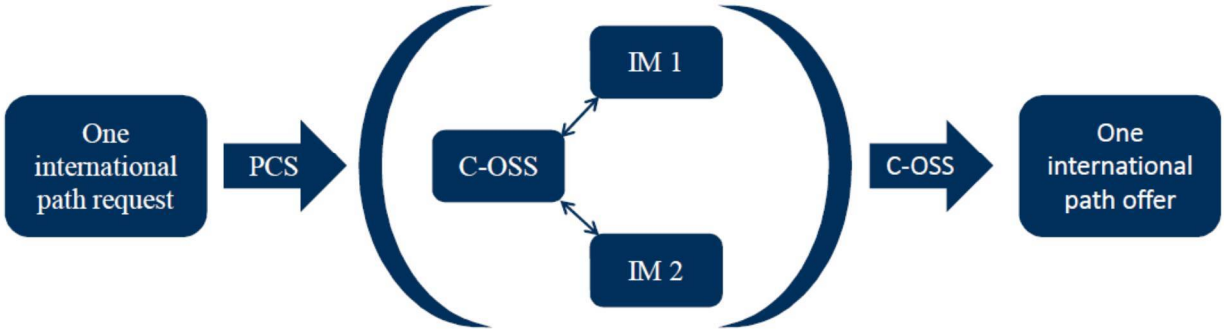


Figure 6: Capacity allocation procedures (source: RFC9)

A specific feature as regards the capacity allocation process and the activities and duties dedicated to C-OSS should be mentioned with the CS corridor. Both countries agreed on rotating principle. This brings a change of C-OSS every year. In 2013 and 2014 the responsibility for a maintenance the C-OSS was given to SŽDC, in 2015 this role accrued to the Slovak inframanager ŽSR. This principle is possible to spread the knowledge how to manage the corridor on both sides and is also based on very close relations between both cooperating partners. This design is going to be kept until the moment it becomes a part of RFC Rhine-Danube.

6 Corridor documents (summary of most important elements)

6.1 Implementation Plan

The Implementation Plan is the most complex document of the corridor, which summarizes the measures taken in every professional field for the sake of establishing and operating the corridor. It was prepared as an obligation deriving from the Regulation, but it has proved to be a useful tool in many respects.

The Implementation Plan presents

- the organization of the corridor,
- the characteristics of the corridor,
- the essential elements of the Transport Market Study,
- the performance objectives of the corridor and their monitoring,
- Processes of Capacity Allocation on Corridor (the procedure applied for coordination of works, the rules of C-OSS operation, the content and availability of the Corridor Information Document),
- the traffic management rules,
- the investments planned along the corridor.

The final version was approved on 7th of November 2013.

Each chapter of the document was drafted by close cooperation of Management board members that means by representatives of SŽDC and ŽSR, until reaching a final version. The complete Implementation Plan was approved by the Management board before its submission to the Executive board.

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

At the same time, the Implementation Plan presents to the Executive board and to the European Commission the main characteristics of the corridor, the measures taken so far and the procedures of corridor operation.

As the Implementation Plan is published on the website of RFC9, it ensures transparency, encourages networking with other corridors and aims to attract the interest of the potential business partners. Because of no language barrier between members´ states RFC9 the Implementation plan of RFC9 is written in Czech or Slovak languages. After evaluation of operation the Executive board has decided that updated version would be English version.

6.2 Transport Market Study (TMS)

The Transport Market Study was prepared by internal human resources of ŽSR research institute.

The study was elaborated based on data provided by SŽDC and ŽSR and information from relevant external studies were also utilized.

The process of creating the Transport Market Study (TMS) for RFC9 began during the autumn 2012 and adopted on May 2013 by Management board RFC9.

The TMS RFC9 consists of 4 chapters:

1. Introduction, 2. Analysis of Currant Situation “as it is”, 3. Future development situations ‘expectations “To be” and 4. Conclusions & Recommendations.

The current version of Transport Market Study was approved by the Management board on 7th November 2013.

The main aim of the Transport Market Study was a support of increasing the qualitative terms and competitiveness of international rail freight transport.

The study deals with:

- establishment of rail freight corridor 9 (RFC9) Prague – Horní Lideč – Žilina – Košice – Čierna nad Tisou (Slovak/Ukrainian border),
- 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.

The information in TMS was gathered by the following data sources:

- existing national/international studies,
- RNE´ brochures,
- Eurostat, National Statistics office and relevant Ministry´s statistics
- Information systems and national Network statements of SŽDC and ŽSR.

Finally the TMS was submitted to the Executive board of RFC9 as a part of the Implementation Plan.

6.3 Corridor Information Document (CID)

According to the Article 18 of the EU-Regulation the Management board is requested to draw up, regularly update and publish a document containing all information concerning the network statement for national networks regarding the freight corridor. This comprehensive document shall also contain the list of terminals, information of the operative procedures regarding ”One-stop shop”, allocation of capacity to freight trains, handling of the authorised applicants, traffic management, traffic management in case of disturbance.

On the basis of RNE guidelines the structure of this corridor document was harmonised among the 9 rail freight corridors. There are 5 Books which are points of reference that can continuously support the work of involved companies.

RNE designated the documents as Corridor Information Document (CID). It is similarly structured on all RFCs, edited in one of languages of EU (English language is preferred) and can be found on every RFC web-page. All 5 Books are independent but integrated and have different updating needs.

According to the regulation RFC9 CS corridor had to be established by 10th November 2013 which included the publication of CID as well. Consequently, the RFC9 Management board approved the CID before its operation start.

Both IMs SŽDC and ŽSR together coordinated the preparation work of drawing up the CID.

The split of work was organised according to the following principles:

- Book 1 and Book 2 (first drafts): expert from ŽSR was appointed to be the coordinator, and SŽDC was addressed as data providers
- Book 3: Marketing and C-OSS WG was dedicated to prepare this part

- Book 4: Marketing and C-OSS WG was dedicated to prepare this part
- Book 5: all affected parties

The final version of CID was approved by the Management board on 7th October 2013.

The first CID:

- was valid for 1 TT year
- was edited in Czech and Slovak language only
- National contact persons were available for give further information

Chart 1: The legal character of each Book

Book	Legal character
Book 1 – Generalities	Binding, depending on the quality of the information given in the following book
Book 2 – Network Statement Excerpts	Depending on the national legislation governing the NS
Book 3 –Terminal description	Depending on the national legislation governing the Terminal
Book 4 – procedures for Capacity and Traffic management	Binding if defined exclusively by the Corridor according to Regulation 913/2010 article 14 (1). If not, it will depend on the character of the NS Excerpt (Book 2)
Book 5 Implementation Plan	Binding

The upgrades were done concerning the most important changes. It covered mainly the changes of the OSS rules and some common procedures of the Traffic management. These modifications were made primarily due to the request of the regulation and it was made for our customers and business partners as well who should be provided with relevant and fresh information concerning their pre-arranged path requests, how to apply, what to do in order to run on our corridor.

The overall revision of the CID and also of the TMS will be done at the later stage, as it is requested by the European Commission proposed in year 2017 (after 4 years of the corridor's start).

RNE has launched a project in spring 2015 concerning the harmonisation of the content and structure of all RFC's CID. The work on expert level is ongoing.

Next version of CID will be publishing in English language.

6.4 The Corridor Web site

The webpage of RFC9 works with following domains on the addresses www.rfc9.eu, www.cskoridor.eu, www.cscorridor.eu and www.rfc-czech-slovak.eu (all of them links to www.rfc9.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.

The main focus of the website is on informing customers about the offer of the corridor, so under the major menu point "Documents" the corridor presents the list of pre-arranged paths and reserve capacity of the actively offered timetables, provides – in the Corridor Information Document – the description of the characteristics of corridor lines and the conditions of corridor operation and capacity allocation. There are also accessible the legal framework and the basic documents of the corridor there.

6.5 User Satisfaction Survey

Regulation (EU) No 913/2010 requires Rail Freight Corridors' (RFC) Management board to measure the satisfaction level of their users yearly and publish the results of the survey. The aim is to provide detailed picture of users' opinion and experience regarding the services and products of RFCs, and to reveal motivations of potential users for the further development of rail freight corridors.

RNE has launched a project to create a common platform of Corridor Satisfaction Survey for all RFCs willing to participate, in order to make the results more comparable, to ease the answering for respondents and to ensure a modern research technics for the survey series.

The MB of RFC9 decided to join RNE Satisfaction Survey Platform.

The „Common form for all corridors" conception has raised some question to be answered by the method of the survey:

- Common definition of target population
- Different RU number by country – target population size
- Different level of English knowledge
- Different scale usage
- Different anchor points interpretation
- Different network parameters
- Different services
- Different operation process
- Different market share structure (incumbents weighting problem)
- Different culture

RNE and Satisfaction Working Group of RFCs have developed a harmonised questionnaire including standard blocks covering relevant topics.

An independent market research institute (market mind) has been commissioned by RNE to carry out the survey from the fieldwork to the analysis of the closed questions. The research methodology is based on CAWI

(Computer Assisted Web Interview). CAWI can diminish the language banister, increase the response rate, it fits to the target group profile and provides automated data collection and pre-cleaning (logical, irrelevant values).

The high level of standardisation (not only in the questionnaire, but also in main directions of analysis as well as in database and output form) endeavours to reach the more complete comparison.

In the first wave RFC9 decided to target the whole 'population', which was absolutely justifiable, since we did not have any information about our users/potential users in connection with this new conception of rail freight corridors. However, based on the experience of the first wave the target population definition, as well as the questionnaire and research methodology could be modified to make them more effective.

For the second wave the following new target population definition was elaborated to target the relevant segment more precisely: Those applicants (RUs, Authorized Applicants / non-RU applicants, Terminals along the corridor) who meet the following selection criteria

- Real customers/users of the RFC: Applicants (RUs and non-RU applicants) applying for PaP and/or reserve capacity on the RFC
- Those terminals along the RFC, who are not applicants
- Potential users (RUs and non-RU applicants who have real commercial interest in acquiring international train paths and are familiar with the RFC's product and service portfolio):
    - RUs carrying out international rail freight business / non-RU applicants cooperating with RUs carrying out international rail freight business
    - RUs/Terminals/non-RU applicants, who have already participated in RAG/TAG meetings

Major amendments in the questionnaire were the followings:

- Up-dating: relevant new questions (e.g. Flex-PaP, Net-PaP)
- Structural changes (some sections had to be merged / divided into more sections)
- Selecting: the different target groups (RUs, non-RU applicants, terminals) see only the questions relevant for them to avoid any disturbance originating from incompetency
- Verbatim scale usage (very unsatisfied, unsatisfied, slightly unsatisfied, slightly satisfied, satisfied, very satisfied) instead of a numerical scale (from 1 to 6) in order to avoid any misinterpretation deriving from international differences in numerical scales (inverse scale problem).
- Highlighting the possibility that open-ended questions can also be answered in mother tongue
- 'Don't know / no answer' option is provided at each question to reduce interview interruption

Important change in the methodology, that the respondents can choose the topics they are in charge of, and in case of the rest of the questionnaire they have the possibility to involve other expert colleagues by forwarding the relevant topics to them through the market mind's system, which sends to the additional invitees an automatic invitation e-mail with the links to the sections they have been appointed to answer. Duplications are excluded.

The fieldwork of second wave has started on 08/09/15. According to plan the Delivery of RFC-specific results will be available on 22/10/15.

6.6 The main results of first wave

The survey was conducted for the first time in 2014. The time of the fieldwork: from 3rd September to 6th October 2014.

Interviewing statistics of RFC9 was the following:

- 24 respondents
- 5 RFC9 users / 0 potential users
- 4 full interviews / 1 partial interviews

Detailed information is available at web page.

6.7 Infrastructure capacity offered on RFC9

This chapter describes the offer of infrastructure capacity on RFC9 in quantitative terms.

6.7.1 Basics

Capacity on a corridor consists of three main products:

- PaPs for the annual timetable, published each year on the second Monday of January
- PaPs for late requests, from the remaining non-requested PaPs
- Reserve capacity PaPs, published each year on the second Monday of October

The publication of late request offer depends on the actual IM decision whether to claim back non-requested PaPs at the end of April or not. Returned capacity can be used during the elaboration of national timetable or can be re-published further as reserve capacity.

In all three cases the capacity is available in the form of PaP dossiers (i.e. origin – destination path sections) in PCS.

During the preparation of the offer the following information is taken into account:

- Transport Market Study outcomes,
- customers' feedbacks and expectations,
- results of the customer satisfaction survey

6.7.2 *Offer for timetable 2014 and 2015*

During the November 2013 the corridor published its first path catalogue, displaying reserve capacity (RC) for timetable 2014. In line with the Art. 14 of the Regulation these pre-arranged path products were dedicated to the corridor and protected from national changes.

Pre-arranged paths (PaPs) for timetable 2015 were published in January 2014.

In both cases according to the capacity analysis and market demand analysis (usage of existing RNE catalogue paths) the following pre-arranged paths and train parameters such as load and length were suggested by the Transport Market Study.

Chart 2: Reserve capacity (year 2014)

ID	Origin	Destination	Sold	Weight (t)	Lenght (m)
45750	Čierna nad Tisou	Praha-Malešice		2200	616
45751	Praha-Malešice	Čierna nad Tisou		2200	616
45752	Čierna nad Tisou	Česká Třebová		2200	616
45753	Česká Třebová	Čierna nad Tisou		2200	616
45754	Maťovce	Česká Třebová		2200	616
45755	Česká Třebová	Maťovce		2200	616
45756	Čierna nad Tisou	Praha-Malešice		1600	616
45757	Praha-Malešice	Čierna nad Tisou		1600	616
45758	Velká Ida	Česká Třebová		1600	616
45759	Česká Třebová	Velká Ida		1600	616
45760	Haniska pri Košiciach	Česká Třebová		2200	616
45761	Česká Třebová	Haniska pri Košiciach		2200	616
45778	Žilina	Hranice na Moravě		2200	616
45779	Hranice na Moravě	Žilina		2200	616
45780	Žilina	Hranice na Moravě		2200	616
45781	Hranice na Moravě	Žilina		2200	616
45782	Žilina	Hranice na Moravě		2200	616
45783	Hranice na Moravě	Žilina		2200	616
45784	Žilina	Hranice na Moravě		1600	616
45785	Hranice na Moravě	Žilina		1600	616

45786	Žilina	Hranice na Moravě		1600	616
45787	Hranice na Moravě	Žilina		1600	616
45788	Žilina	Hranice na Moravě		2200	616
45789	Hranice na Moravě	Žilina		2200	616

Chart 3: PaPs fort the annual timetable, year 2015

ID	Origin	Destination	Sold	Weight (t)	Lenght (m)
45750	Čierna nad Tisou	Praha-Malešice	yes	2200	616
45751	Praha-Malešice	Čierna nad Tisou		2200	616
45752	Čierna nad Tisou	Česká Třebová		2200	616
45753	Česká Třebová	Čierna nad Tisou		2200	616
45754	Maťovce	Česká Třebová		2200	616
45755	Česká Třebová	Maťovce		2200	616
45756	Čierna nad Tisou	Praha-Malešice		1600	616
45757	Praha-Malešice	Čierna nad Tisou		1600	616
45758	Velká Ida	Česká Třebová		1600	616
45759	Česká Třebová	Velká Ida		1600	616
45760	Haniska pri Košiciach	Česká Třebová		2200	616
45761	Česká Třebová	Haniska pri Košiciach		2200	616
45778	Žilina	Hranice na Moravě	yes	2200	616
45779	Hranice na Moravě	Žilina		2200	616
45780	Žilina	Hranice na Moravě		2200	616
45781	Hranice na Moravě	Žilina		2200	616
45782	Žilina	Hranice na Moravě		2200	616
45783	Hranice na Moravě	Žilina	yes	2200	616
45784	Žilina	Hranice na Moravě		1600	616
45785	Hranice na Moravě	Žilina		1600	616
45786	Žilina	Hranice na Moravě		1600	616
45787	Hranice na Moravě	Žilina		1600	616
45788	Žilina	Hranice na Moravě		2200	616

45789	Hranice na Moravě	Žilina		2200	616

Chart 4: Reserve capacity (year 2015)

ID	Origin	Destination	Sold	Weight (t)	Lenght (m)
45751	Praha-Malešice	Čierna nad Tisou		2200	616
45752	Čierna nad Tisou	Česká Třebová		2200	616
45753	Česká Třebová	Čierna nad Tisou		2200	616
45754	Maťovce	Česká Třebová		2200	616
45755	Česká Třebová	Maťovce		2200	616
45756	Čierna nad Tisou	Praha-Malešice		1600	616
45757	Praha-Malešice	Čierna nad Tisou		1600	616
45758	Velká Ida	Česká Třebová		1600	616
45759	Česká Třebová	Velká Ida		1600	616
45760	Haniska pri Košiciach	Česká Třebová		2200	616
45761	Česká Třebová	Haniska pri Košiciach		2200	616
45779	Hranice na Moravě	Žilina		2200	616
45780	Žilina	Hranice na Moravě		2200	616
45781	Hranice na Moravě	Žilina		2200	616
45782	Žilina	Hranice na Moravě		2200	616
45784	Žilina	Hranice na Moravě		1600	616
45785	Hranice na Moravě	Žilina		1600	616
45786	Žilina	Hranice na Moravě		1600	616
45787	Hranice na Moravě	Žilina		1600	616
45788	Žilina	Hranice na Moravě		2200	616
45789	Hranice na Moravě	Žilina		2200	616

6.7.3 Lessons learned: improved flexibility and diversity

Unfortunately the first year of operation did not meet any interest (see Chart 2). Learning from the first experiences and quickly reacting to the market's feedback the corridor management decided to improve some elements of its offer fitting more to the characteristics of the region. One of the crucial steps was an introduction of flexible approach which gave us a better flexibility and also a higher flexibility to customers. This more flexible approach was an attempt to cope with no interest from railway operators in 2014.

Originally in the timetable 2014 the corridor capacity was offered exclusively in the form of reserve capacity. Furthermore the corridor capacity offer included only fixed paths for which there were no modification options. This mean that customers would have to accept the paths in exactly the same form in which the prearranged paths for RC were offered. This, combined with the fact that it was a new product which was probably not sufficiently introduced to the customers (and whose benefits were not explained) led to insufficient interest in the offered paths.

In 2015, standard pre-arranged paths (PaP) were already offered as well, with a flexible approach, meaning that only border crossing times were fixed. This concept aimed for better capacity utilization offering more customer-friendly "tailor-made" solutions on domestic sections and pre-arranged paths on borders. At the same time RNE started to develop the 'Flex PaP' product in PCS so the technical background became available for the implementation. Customers showed interest only in three of 24 offered paths. Low interest can be once again attributed to low customer awareness and ignorance of the benefits that the corridor product may bring. At the same time it is more and more evident, especially large customers in the market are very conservative and prefer to use tried and tested processes through which they can acquire capacity on the corridor lines. More active communication between the inframanagers and customers has been launched (see Charts 3 and 4).

It should be also mentioned that in all the three instances of PaP use, these were not new transports shifted to the rail sector from competing modes of transport, but rather existing transports so the added value can be disputable. All PaPs allocated have been so far ordered by railway undertakings through the standard process of annual timetable design so no Authorised Applicant experience is available on RFC9.

6.7.4 Offer for timetable 2016

For the timetable 2016 another improvements in communication and quality of PaP was applied. The result has brought a significant improvements in PaP sales but the demand is limited only to the cross-border section between Hranice na Moravě and Žilina. Long distance PaPs are still not very attractive for the customers (see Charts 5 and 6).

Chart 5: PaPs fort the annual timetable (year 2016)

ID	Origin	Destination	Sold	Weight (t)	Lenght (m)
45750	Čierna nad Tisou	Praha-Malešice		2200	616
45751	Praha-Malešice	Čierna nad Tisou		2200	616
45752	Čierna nad Tisou	Česká Třebová		2200	616
45753	Česká Třebová	Čierna nad Tisou		2200	616
45754	Maťovce	Česká Třebová		2200	616
45755	Česká Třebová	Maťovce		2200	616
45756	Čierna nad Tisou	Praha-Malešice		1600	616
45757	Praha-Malešice	Čierna nad Tisou		1600	616

45758	Velká Ida	Česká Třebová		1600	616
45759	Česká Třebová	Velká Ida		1600	616
45760	Haniska pri Košiciach	Česká Třebová		2200	616
45761	Česká Třebová	Haniska pri Košiciach		2200	616
45778	Žilina	Hranice na Moravě		2200	616
45779	Hranice na Moravě	Žilina		2200	616
45780	Žilina	Hranice na Moravě		2200	616
45781	Hranice na Moravě	Žilina	yes	2200	616
45782	Žilina	Hranice na Moravě	yes	2200	616
45783	Hranice na Moravě	Žilina	yes	2200	616
45784	Žilina	Hranice na Moravě	yes	1600	616
45785	Hranice na Moravě	Žilina		1600	616
45786	Žilina	Hranice na Moravě		1600	616
45787	Hranice na Moravě	Žilina	yes	1600	616
45788	Žilina	Hranice na Moravě	yes	2200	616
45789	Hranice na Moravě	Žilina	yes	2200	616

Chart 6: Reserve capacity (year 2016)

ID	Origin	Destination	Sold	Weight (t)	Lenght (m)
45750	Čierna nad Tisou	Praha-Malešice		2200	616
45751	Praha-Malešice	Čierna nad Tisou		2200	616
45752	Čierna nad Tisou	Česká Třebová		2200	616
45753	Česká Třebová	Čierna nad Tisou		2200	616
45754	Maťovce	Česká Třebová		2200	616
45755	Česká Třebová	Maťovce		2200	616
45778	Žilina	Hranice na Moravě		2200	616
45779	Hranice na Moravě	Žilina		2200	616
45780	Žilina	Hranice na Moravě		2200	616
45781	Hranice na Moravě	Žilina		2200	616
45782	Žilina	Hranice na Moravě		2200	616
45783	Hranice na Moravě	Žilina		2200	616
45784	Žilina	Hranice na Moravě		1600	616

45785	Hranice na Moravě	Žilina		1600	616
45786	Žilina	Hranice na Moravě		1600	616
45787	Hranice na Moravě	Žilina		1600	616

6.7.5 Conclusion on the corridor offer

Despite the corridors has contended with a lack of interest from a customer side who probably prefer using a standard way of capacity allocation the management of the corridor has made an effort to improve the corridor offer. This can be seen in Chart 7 where the development of total length of PaPs and reserve capacity is described since the launch of the corridor.

Chart 7: Basic characteristics of capacity offered

TT period		Fixed PaP km*days	Flex PaP km*days	**Total km*days**
TT 2014	PaP	–	not introduced	–
	RC	10,211,000	not introduced	**10,211,000**
TT 2015	PaP	14,762,000	not introduced	**14,762,000**
	RC	7,723,000	109,000	**7,832,000**
TT 2016	PaP	2,327,000	13,625,000	**15,952,000**
	RC	n/a[1]	n/a[1]	**n/a[1]**

All unrequested PaP paths are returned to infrastructure managers (IMs) for adjustments within the X-7,5 deadline, so that they can be published within the X-2 deadline as a reserve capacity in the modified form. In this mode, they are available to the corridor OSS (C-OSS) until the Y-30 date (i.e. 30 days before the date of travel) when they are returned to the IM.

The Czech inframanager SŽDC and Slovak inframanager ŽSR have widely used these paths to allocate capacity in ad-hoc mode, both for cross-border trains, as well as for capacity allocation for national trains. In both cases, the capacity has been allocated exactly in the form (and time position) in which it has been prepared and offered by the corridor OSS. These paths are also complemented by a set of additional paths. The use of pre-defined paths in standard mode is shown in the chart 7. It can be seen there is some demand existing on the corridor and also the quality of PaPs prepared is attractive for some railway operators.

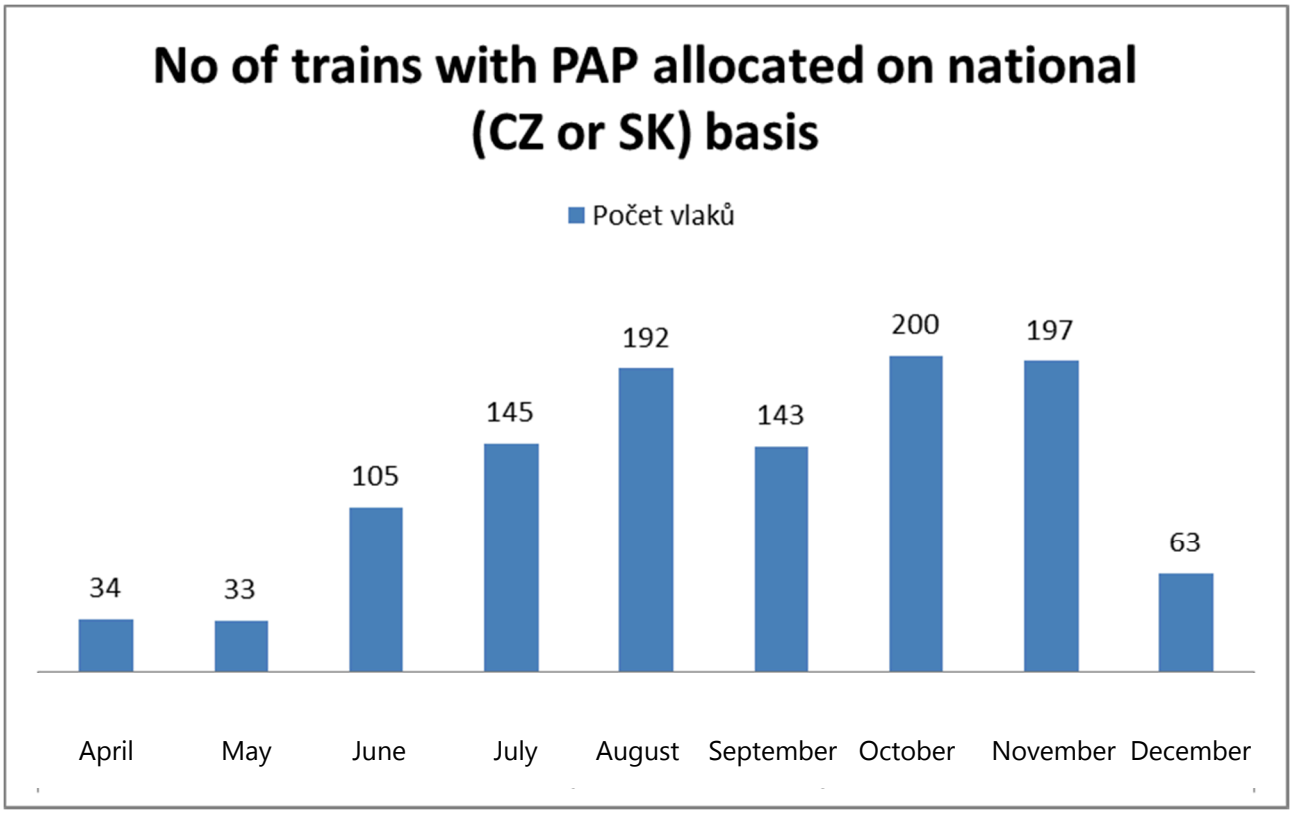


Figure 7: Number of trains using original corridor PAPs allocated in 2014 by SŽDC and ŽSR on national basis

On the other hand the overall situation is not optimistic. That is why beyond the information referred to chapter 6.7.3 "Lessons learned" the Executive and Management boards are working together to find the appropriate tools to support PaPs as a standard and attractive offer in international operations. In general our current consideration are following:

- prerelease - to promote awareness of the whole process by the railway undertakings (promotional materials, presentations at professional conferences, RAG/TAG meetings, etc.)
- during the implementation - harmonization of priority rules at the level of traffic control
- economic incentives - non-application of sanctions for unused capacity

So far no decision has been made in this field but the current knowledge reveals more active communication is needed as well as more attractive offer which should be also focused on RFCs offer generally.

7 Corridor performance: demand and quality indicators

This chapter analyses the performance of RFC9 in its first two years of operation. So far the corridor performance has been analysed in terms of RFC9 offer and demand which is not a great success. On the other hand to plan further steps is necessary to know more about the performance realized on corridor routes. That is why an alternative approach was developed. The ambition was to get a picture about real operation realised on the corridor routes using the data of TT2014 data. The used data set (Chart 8) is consisting of trains which could theoretically meet a parameter of "RFC9 train" however their capacity was not allocated via C-OSS. Only the trains crossing the border were chosen and thus could be, according to us, labelled as the corridor trains. The analysis looks at an amount of trains crossing the border between the Czech Republic and Slovakia, their punctuality and speed. Also a responsibility for delays was analysed. These data have been requested by the Executive board from the Management board and have been collected and processed by SŽDC and ŽSR.

The Chart 8 presents a more detailed view on the "pre-defined" train data set where not only the capacity ordered in a yearly timetable could be seen (2nd column) but also its real utilization (3rd and 4th column) incl. its share on total journeys ordered in timetable. The Chart 8 does not include only starting and ending point of particular path but also other important relations linked to a specific train number are pictured. In other words the table shows starting and ending points/stations given to a specific PaP (train number) derivative from PaP and also a share of trains which ran under this number but not necessarily on the whole stretch of the prearranged path.

Using an example of train 4511 it means: starting point of this PaP is Česká Třebová. Žilina is the terminus. 89,1 % of 4511 PaPs ordered were used. 86,4 % of them were used in the whole length from Česká Třebová until Žilina-Teplička terminal. Other relations (e.g. Česká Třebová – Púchov) were much less important than the dominant pre-defined by stations Česká Třebová and Žilina. The threshold of trains pictured was defined on the level of share 2 % +.

Chart 8: Train data set used for the analysis of quality

path (No)	Planned journeys	valid journeys	share of valid journeys	relačnost výchozí	relačnost cílový bod	Validní jízdy	Podíl na plánovaných jízdách
45711	221	197	89,1 %	Česká Třebová	Žilina-Teplička	191	86,4 %
45713	257	232	90,3 %	Česká Třebová	Žilina-Teplička	220	85,6 %
45740	209	145	69,4 %	Košice	Valašské Meziříčí	139	66,5 %
45742	231	136	58,9 %	Čierna nad Tisou	Valašské Meziříčí	101	43,7 %
				Košice	Valašské Meziříčí	21	9,1 %
				Púchov	Valašské Meziříčí	5	2,2 %
47849	257	51	19,8 %	Zebrzydowice	Haniska (KE) USSK	14	5,4 %
				Zebrzydowice	Petrovice u Karviné	9	3,5 %
				Zebrzydowice	Ostrava hl.n.	8	3,1 %
				Zebrzydowice	Mosty u Jablunkova	7	2,7 %
48720	73	16	21,9 %	Čierna nad Tisou	Mladá Boleslav	10	13,7 %
				Púchov	Mladá Boleslav	2	2,7 %

				Púchov	Valašské Meziříčí	2	2,7 %
48721	74	16	21,6 %	Mladá Boleslav	Čierna nad Tisou	12	16,2 %
49700	257	214	83,3 %	Dobrá	Třinec	64	24,9 %
				Čierna nad Tisou	Třinec	52	20,2 %
				Čierna nad Tisou	Ostrava-Bartovice	43	16,7 %
				Dobrá	Ostrava-Bartovice	29	11,3 %
49701	257	114	44,4 %	Ostrava-Kunčice	Čierna nad Tisou	65	25,3 %
				Třinec	Čierna nad Tisou	28	10,9 %
				Ostrava-Kunčice	Žilina-Teplička	18	7,0 %
49702	257	222	86,4 %	Dobrá	Třinec	70	27,2 %
				Čierna nad Tisou	Třinec	61	23,7 %
				Čierna nad Tisou	Ostrava-Bartovice	52	20,2 %
				Dobrá	Ostrava-Bartovice	27	10,5 %
49703	257	175	68,1 %	Třinec	Čierna nad Tisou	159	61,9 %
49704	257	235	91,4 %	Čierna nad Tisou	Třinec	68	26,5 %
				Dobrá	Třinec	67	26,1 %
				Čierna nad Tisou	Ostrava-Bartovice	59	23,0 %
				Dobrá	Ostrava-Bartovice	30	11,7 %
49705	257	193	75,1 %	Ostrava-Kunčice	Čierna nad Tisou	116	45,1 %
				Třinec	Čierna nad Tisou	51	19,8 %
				Ostrava-Kunčice	Žilina-Teplička	18	7,0 %
49706	257	229	89,1 %	Čierna nad Tisou	Ostrava-Bartovice	74	28,8 %
				Čierna nad Tisou	Třinec	69	26,8 %
				Dobrá	Třinec	42	16,3 %
				Dobrá	Ostrava-Bartovice	29	11,3 %
				Čierna nad Tisou	Ostrava-Kunčice	9	3,5 %
49707	257	172	66,9 %	Ostrava-Kunčice	Čierna nad Tisou	87	33,9 %
				Třinec	Čierna nad Tisou	62	24,1 %
				Ostrava-Kunčice	Žilina-Teplička	16	6,2 %
49708	257	226	87,9 %	Dobrá	Třinec	66	25,7 %
				Čierna nad Tisou	Třinec	62	24,1 %
				Čierna nad Tisou	Ostrava-Bartovice	51	19,8 %
				Dobrá	Ostrava-Bartovice	32	12,5 %
Total	3635	2573	70,8 %				

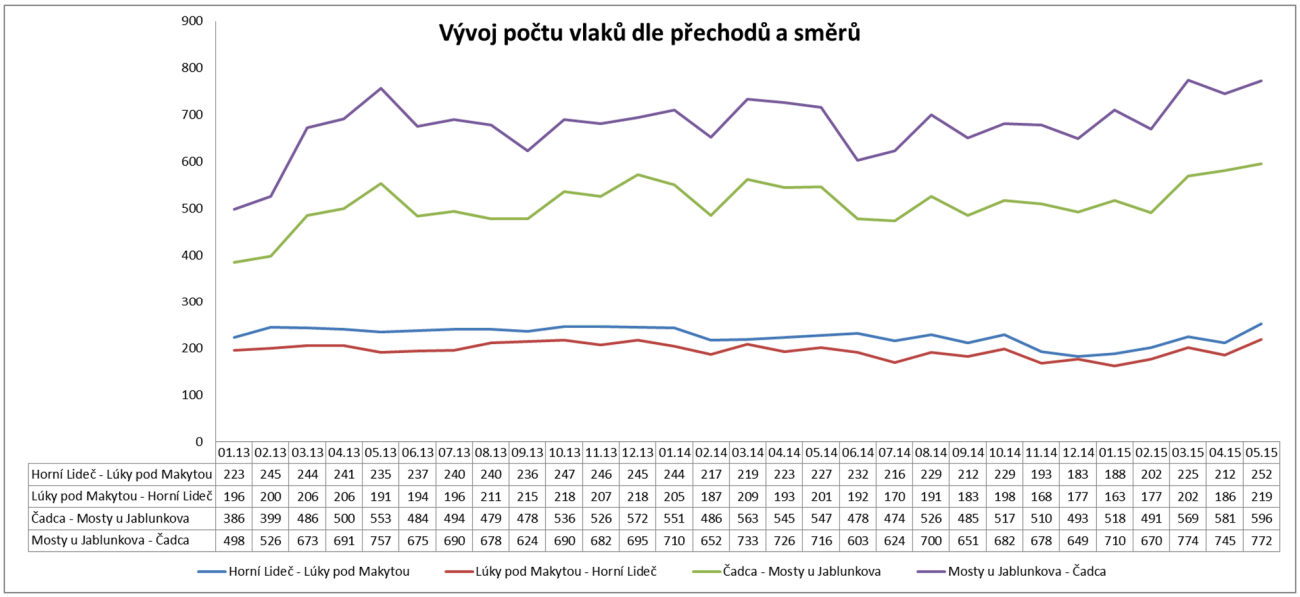
A positive information is that more than 70 % of ordered capacity was consumed. This gives a clear signal there is a potential for a shift towards RFC labelled PaPs for the future. It is also obvious the most capacity ordered roughly reflect an amount of working days (+- 250/year) what represents one train daily. On the other hand there were more trains a day linking the same regions esp. brought gauge terminals at Dobrá and Čiearna nad Tisou and Ostrava industrial region. It is also obvious the most of trains using RFC9 route predominantly link these two regions and the role of others is less important what should be considered in corridor future planning. As we already described above that is because of significant part of corridor performance is used for

heavy trains transporting iron ore and coal as written already in the chapter 3 of this report where main characteristics of the corridor are described.

From this data set used for the analysis six trains used the southern branch via Horní Lideč – Púchov and ten of them the northern branch via Silesian region what more or less gives a share ⅔ for northern route. This share confirms the fact the corridor is mostly used for heavy transportations between Ostrava region and eastern Slovakia.

7.1 Corridor demand

The first step to understand a behaviour and activity of the corridor was to know the total amount of trains crossing the Czech-Slovak border. This simple measure was made for the long period of two and half years. The years 2013 and 2014 were taken into consideration as well as the first five months of 2015. Also both border-crossings – Horní Lideč/Lúky pod Makytou and Mosty u Jablunkova/Čadca – were analysed. The overall situation can be seen on the Figure 8 where an imbalanced performance between northern (Silesian) and southern (Wallachian) route can be seen as the most distinctive feature. The performance of northern branch is twice-to three times higher than the southern one. Another characteristic is the higher imbalance on the northern branch were an amount of trains in export/import which reaches approximately 150 trains/month.



	01.13	02.13	03.13	04.13	05.13	06.13	07.13	08.13	09.13	10.13	11.13	12.13	01.14	02.14	03.14	04.14	05.14	06.14	07.14	08.14	09.14	10.14	11.14	12.14	01.15	02.15	03.15	04.15	05.15
Horní Lideč - Lúky pod Makytou	223	245	244	241	235	237	240	240	236	247	246	245	244	217	219	223	227	232	216	229	212	229	193	183	188	202	225	212	252
Lúky pod Makytou - Horní Lideč	196	200	206	206	191	194	196	211	215	218	207	218	205	187	209	193	201	192	170	191	183	198	168	177	163	177	202	186	219
Čadca - Mosty u Jablunkova	386	399	486	500	553	484	494	479	478	536	526	572	551	486	563	545	547	478	474	526	485	517	510	493	518	491	569	581	596
Mosty u Jablunkova - Čadca	498	526	673	691	757	675	690	678	624	690	682	695	710	652	733	726	716	603	624	700	651	682	678	649	710	670	774	745	772

Figure 8: Data for timetable 2013 - 15 includes all trains running across the CZ/SK border via Horní Lideč/Lúky pod Makytou and Mosty u Jablunkova/Čadca

The most important finding is the monthly development through the crossings observed reveals that this corridor has a potential to attract corridor trains by an appropriate addressing of the offer on the customer. In other words that may "overturn" their trains (now running in standard yearly timetable PaPs) into proper corridor trains but probably further conditions must be fulfilled to attract them.

7.2 Quality indicators

For the attractiveness of the corridor also a reliability plays an important role. This section of the document evaluates the quality of the corridor by means of some quantifiable indicators. This mean Delays of the set of potential RFC9 trains at their destination on CS Corridor (Origin, final and border cross). The reasons of delay were researched and level of punctuality as well as reasons of delays classified by RNE indicators.

7.2.1 Travel times and speed of trains running on RFC9 route

To provide attractive and efficient services one of the key requirements is (except the price offered) a time of delivery. Two indicators are important in this regards – travel time and speed. Both refer to a difference between the planned and realized travel time, or in other words a difference between an average speed planned and that realized in praxis. Taking into consideration a speed parameter it must be stated this corridor is staying behind the common standard. An average planned speed on this corridor was 40 km/h. Nonetheless the real picture is even a bit worse. The real peed of trains was 29 km/h in average. It means about 25 % less than was the plan ("PaP"). Comparing to road infrastructure where flexibility is much higher the same as speed this gives a clear point why this corridor is mostly used for transportations which are not time sensitive.

7.2.2 Punctuality of trains using RFC 9 "PaPs"

The Figure 8 shows reliability of punctuality of trains running in „corridor" PaPs prepared in the west-east direction designed via southern branch via cross-border stations Horní Lideč – Lúky pod Makytou. The deviation was measured at several points – starting station (origin), CZ cross-border station (arrival and departure), SK cross-border station (arrival and departure) and also at the terminus in various months.

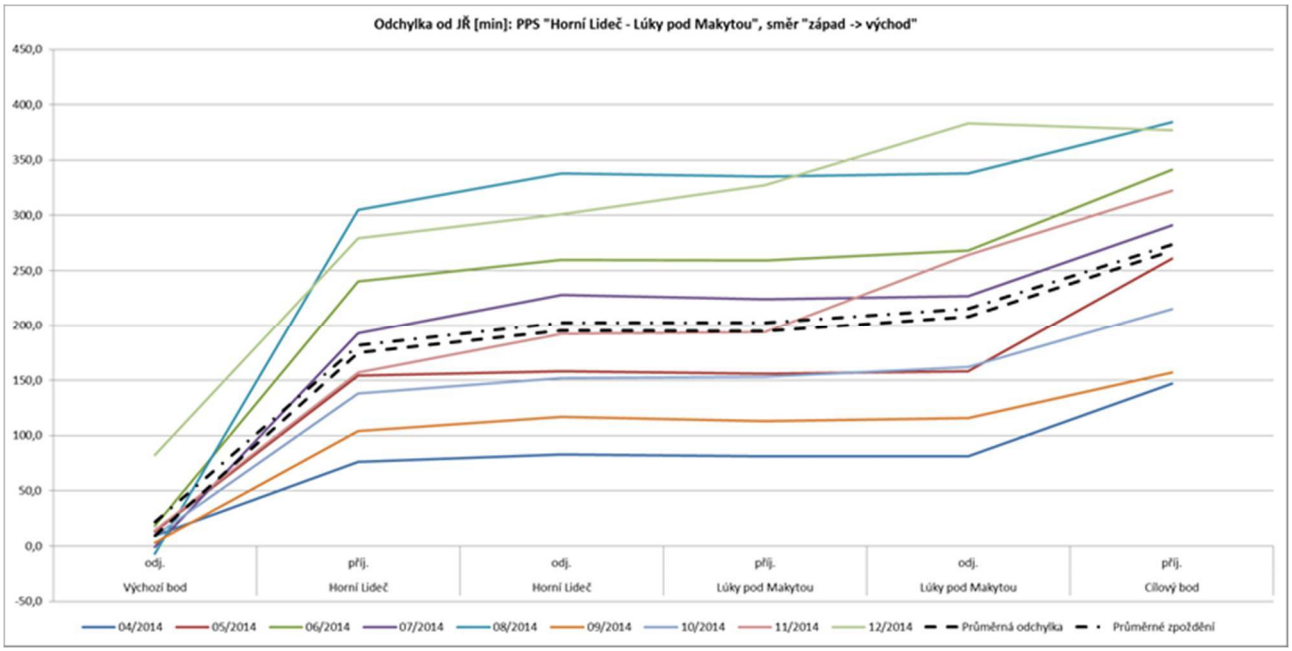


Figure 9: Deviation from the schedule at origin, border and terminus via Horní Lide (direction CZ-SK)

The chart shows the most of trains started their run in time during the whole observed period. However the variety of delays significantly rose on the way to reach the border with the minimum average delay approx. 70 minutes which was reached in April 2014 in contrast with the highest in August exceeding 5 hours. The average of all observations done reaches more than three hours (200 minutes). A characteristic feature is an increase of delay between starting point and terminus with a significant development of delay between the starting terminal and state border. It is also interesting to see the delay is almost in all cases increased at handing over station at the border. In this case at Horní Lideč, which is used as the handing-over station on this cross-border section. This situation shows delays which probably causes another difficulties when (in this case) Slovak operators taking over a train. This can be easily recognized when looking on individual curves. The less delayed the train is the less increase of delay occurs at the border. This relation can be easily confirmed when looking on the opposite direction i.e. from East to West. In this case the handing-over station is again Horní Lideč where trains with the lowest delays do not suffer by additional increase. Despite in this East-West direction (see the Figure 9) the intensity of this relation is much lower as in the opposite direction this conditionality can easily recognized.

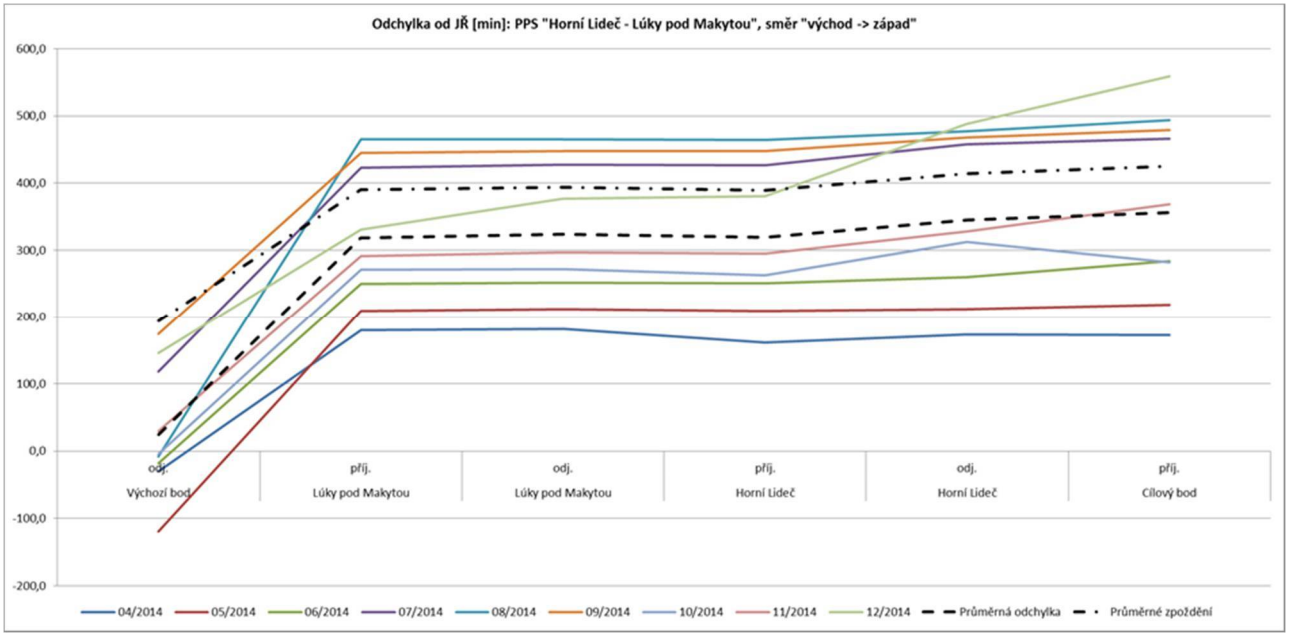


Figure 10: Deviation from the schedule at origin, border and terminus via Horní Lide (direction SK - CZ)

Comparing West-East and East-West direction at Horní Lideč it is also interesting to point out on the fact the punctuality is much worse in the later. The difference reaches almost 2 hours (100 minutes) as the average in one direction oscillates around 200 minutes while on the other one around 300 minutes. It should be also said the delay reached in East-West direction is more or less kept until the terminus while the delay from the border to eastern terminals is continue in its raise. In the East-West direction the share of trains delayed already at their starting station is much higher than in opposite direction.

The situation at Mosty u Jablunkova – Čadca i.e. on the northern branch of the corridor looks similarly to some extent. When looking on the average delays the level reaches a value of 200 min. however, trains most of trains already started with this delay at their origin what makes the biggest difference between the northern and southern branch where most of them during the observing period were on time. Comparing the opposite direction (Čadca – Mosty u Jablunkova) the situation is even worse when the average delay of approximately 450 minutes was reached at the border. This makes a big contrast to the origin point which most of trains left on time i.e. according to the timetable.

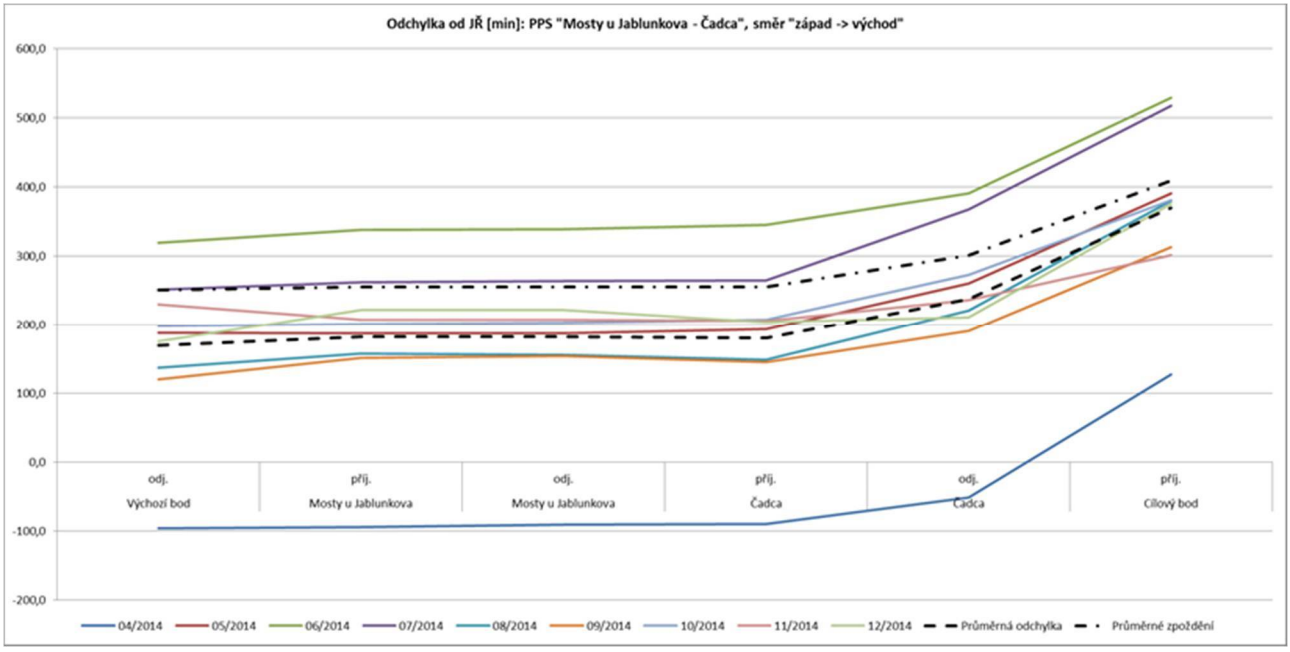


Figure 11: Deviation from the schedule at origin, border and terminus via Čadca (direction CZ-SK)

It is also evident there is impossible to find any relationship between punctuality and the season. So far a variety of punctuality among individual months observed is too high to formulate any conclusion. This means a further evaluation based on longer observations and measures must be done to make some clear interpretation possible. In this regard it could be stated the figures used are probably very influenced by intensive modernization works of main railroad. Especially in 2014 many construction works led to frequent and often long-time lasting lockouts with a significant influence on railway operations in Slovakia and also in the Czech Republic. This was probably one of the strongest factors determining the punctuality not only of freight trains but the traffic generally. In all cases the problem of delays occurs also at the hand-over stations at the border. A further explanation is provided in following charts.

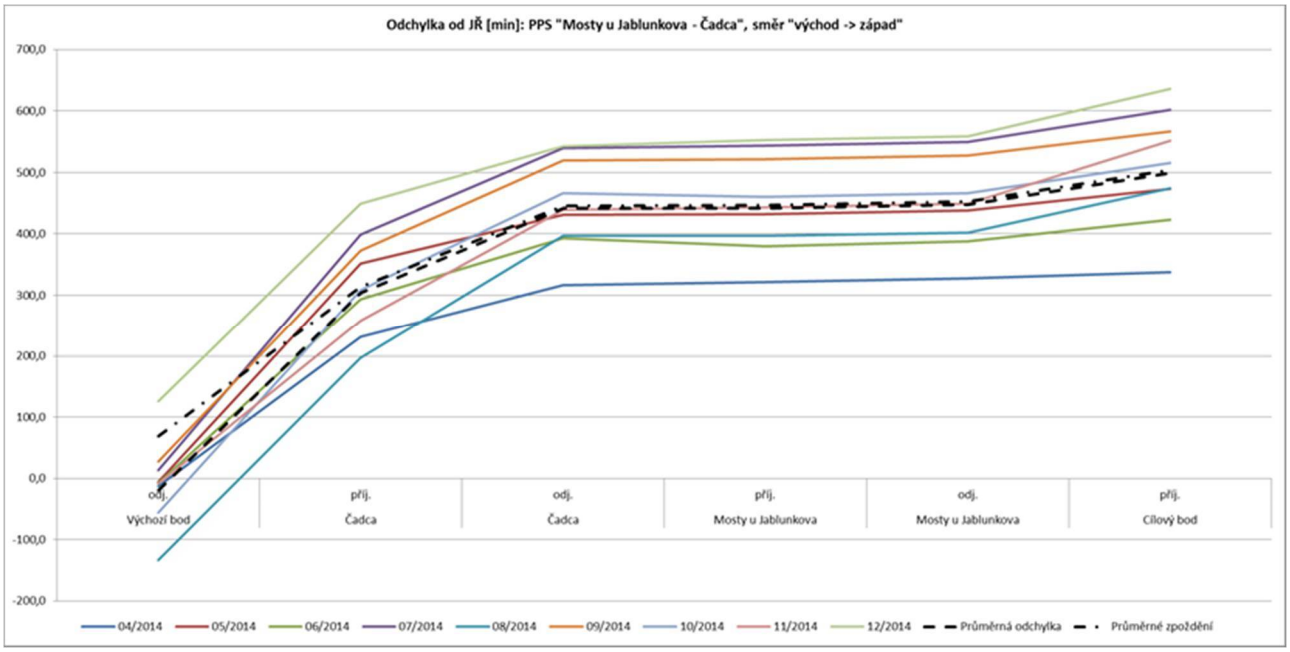


Figure 12: Deviation from the schedule at origin, border and terminus via Čadca (direction SK-CZ)

7.3 The level of accuracy

To understand a matter of delays better we decided to calculate and make a ranking of the whole trains data set observed in a different way – to check the level of punctuality. In this analyse all the trains from the data set (trains running internationally – see the Figure 12) were assessed and classified according their delay. This indicator provides an information on the accuracy of the punctuality of trains monitored. The methodology was the same as in the previous case – measure were done at origin, CZ border point, SK border point and at the terminus. The outputs of this analysis give a startling information – freight trains are in reality not stuck to PaPs given in the timetable. In other words the timetable in freight operations is more or less theoretical concept as none of observed trains was not on time.

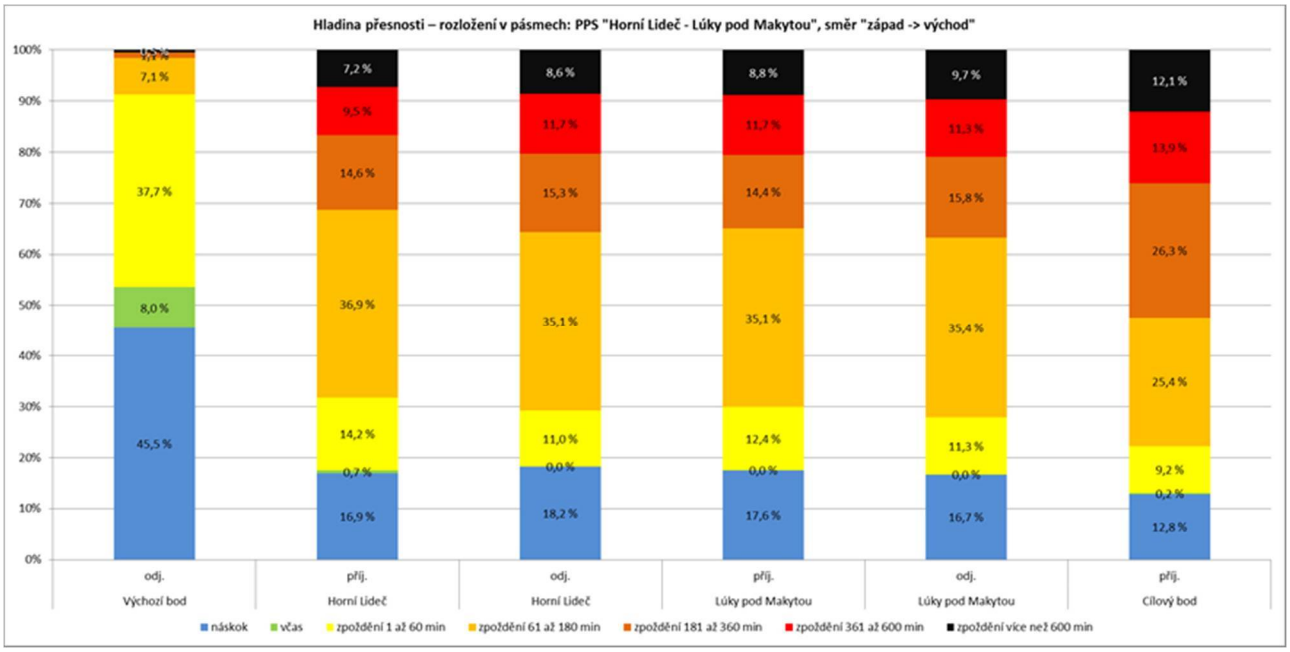


Figure 13: Level of accuracy at origin, border and terminus via Horní Lide (direction CZ-SK)

It is common freight trains often start their run with a margin. A lot of them keep the margin but the share is lover at other „checking points“ as it was at the origin with share 45 % of all trains observed. It can be stated the situation on the border crossing Horní Lideč – Lúky pod Makytou characterizes a bit higher reliability comparing to the northern branch as the maximum delay 180 minutes met approximately 60 % of trains running from the Czech Republic to Slovakia and around 40 % in opposite direction. The situation on Čadca – Mosty u Jablunkova border crossing is much less reliable especially when taking into account the direction from Slovakia to the Czech Republic where the parameter of 3 hours met less than 20 % of trains. Generally in the direction from the Czech Republic to Slovakia the bit higher reliability and punctuality has been achieved. The highest range of scatter can be seen at Horní Lideč in a direction from Slovakia to the Czech Republic where not only a high share of trains running with a margin but also with significant delay (over 600 minutes) was found out. This imbalance in the direction SK-CZ has was probably caused by vast modernization works in both countries. More detail information about the situation provide figures 12 – 15).

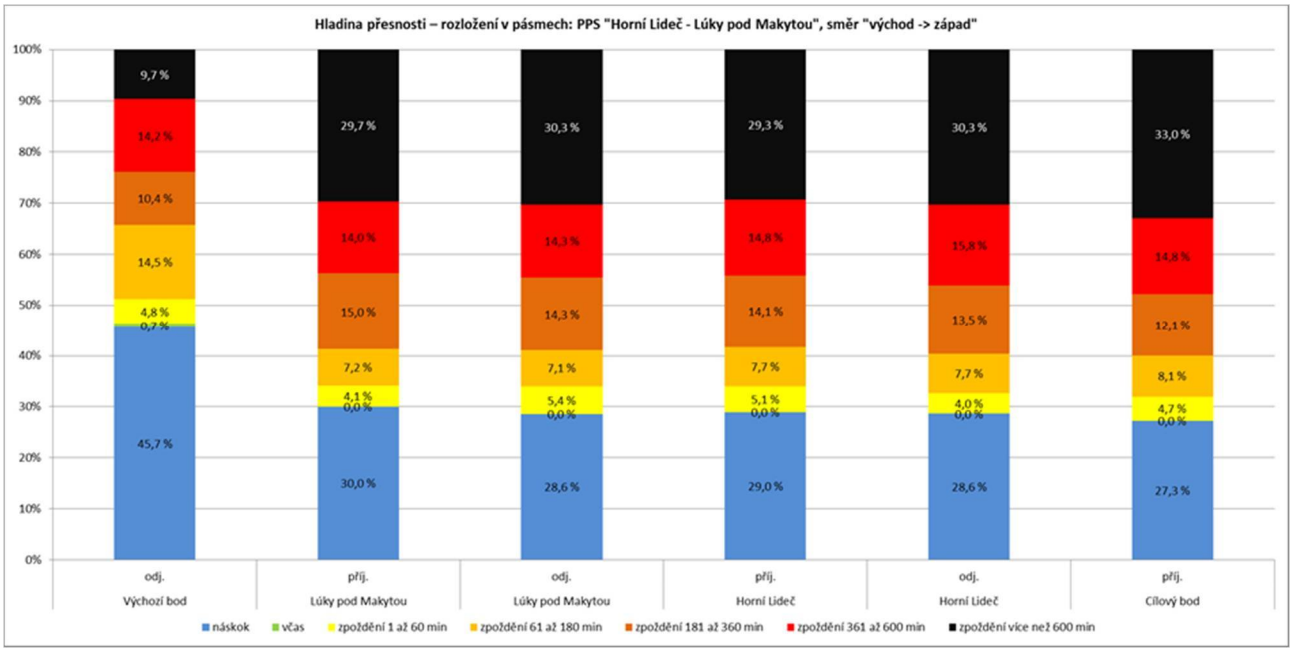


Figure 14: Level of accuracy at origin, border and terminus via Horní Lide (direction SK-CZ)

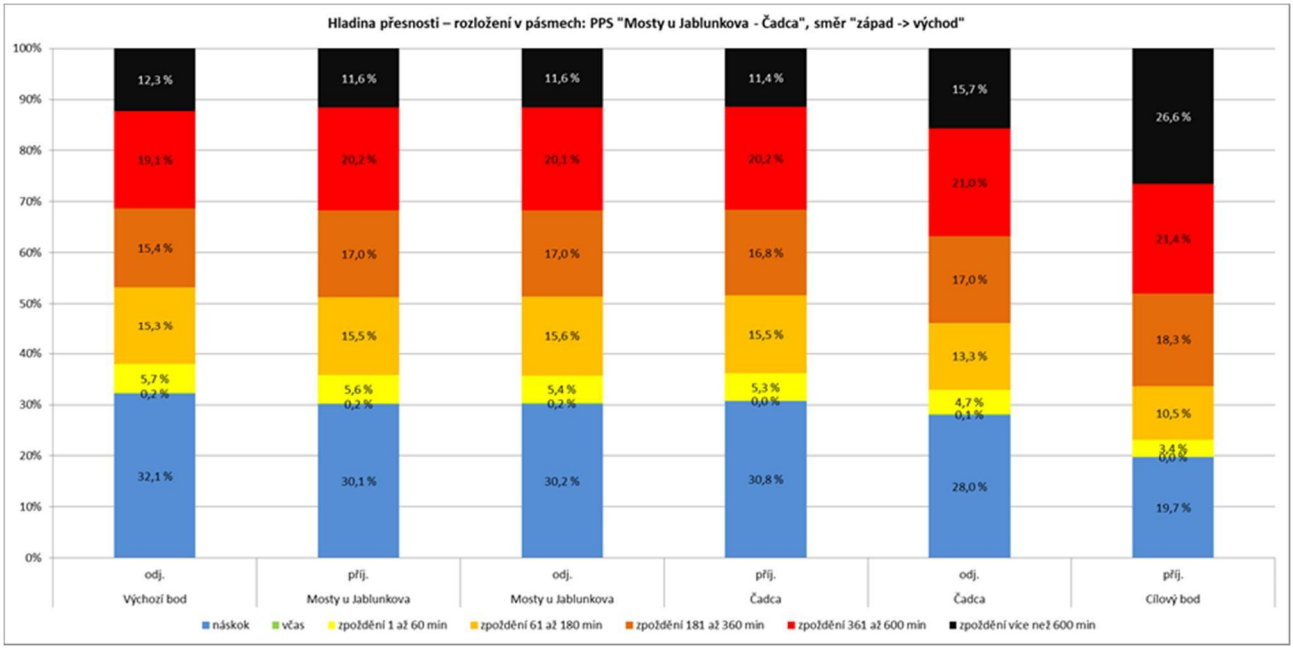


Figure 15: Level of accuracy at origin, border and terminus via Čadca (direction CZ-SK)

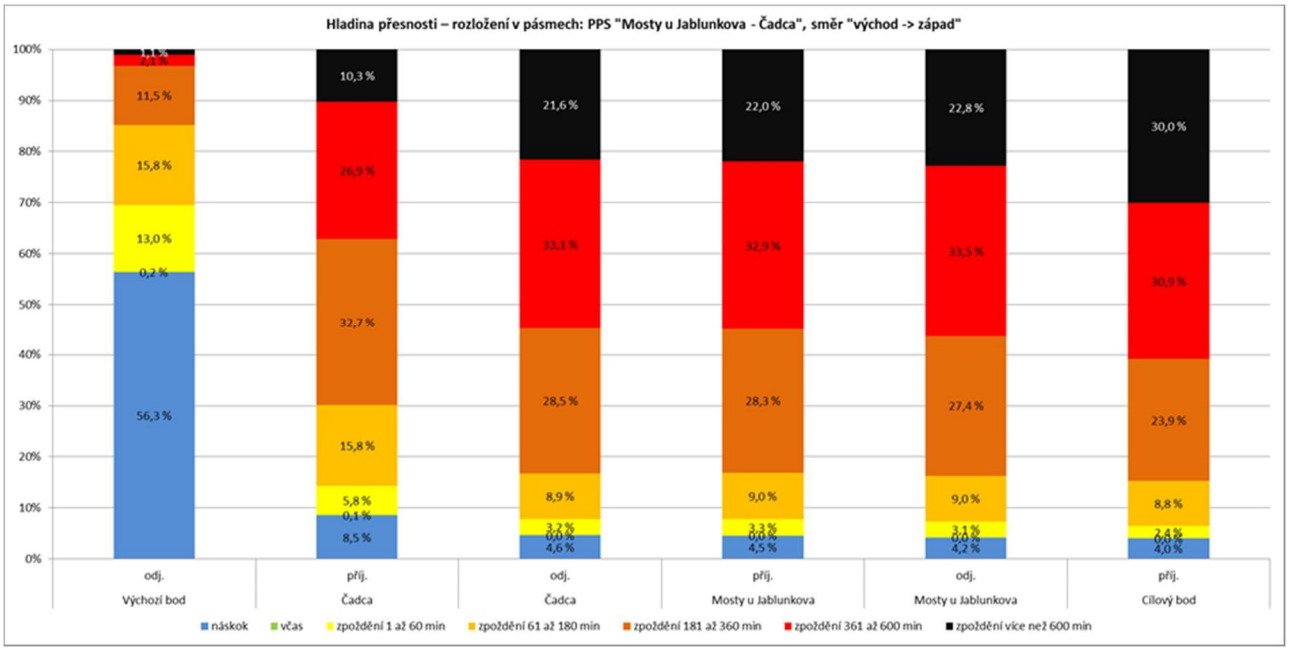
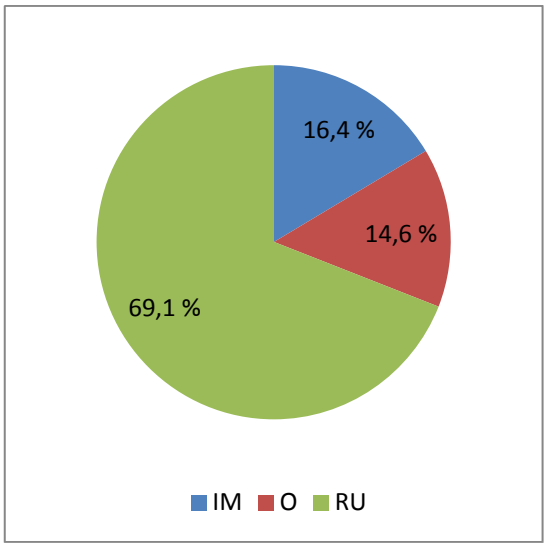


Figure 16: Level of accuracy at origin, border and terminus via Čadca (direction SK-CZ)

7.4 Responsibility for delay

Another important aspect which can help to understand a performance of the corridor and the structure of delays is the indicator called responsibility of delays. This indicator provides the information about an infrastructure manager, railway undertaking or other subject which is in charge of responsibility for the delay or its increase.



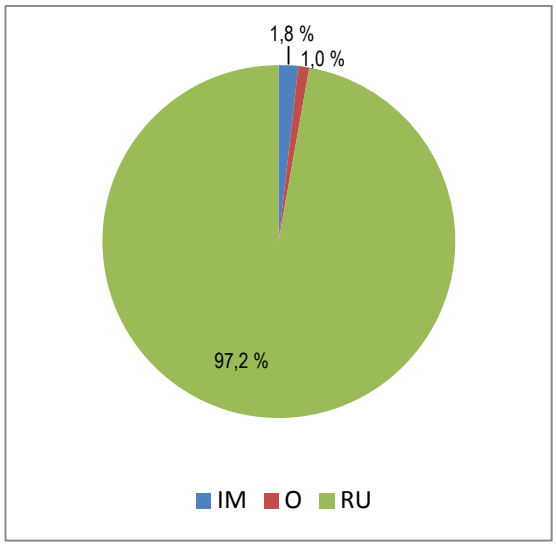


Figure 17+18: Responsibility for delays at cross-border station Horní Lide (direction CZ-SK and SK-CZ)

As can be seen on the example of southern branch the highest share of responsibility lies on railway operators albeit their role differs when you compare the direction. When comparing the direction from the Czech Republic towards Slovakia around one third of all delays measures were caused by inframanagers and other subjects. On the contrary on the opposite direction the share of railways undertakings predominate with the more of 90 %.

The same analysis was made for the route via Mosty u Jablunkova and Čadca where similar observations have been found. The highest share was also assigned to railway operators. In comparison with the situation on the southern branch the higher share of responsibility of railway undertakings was registered in the direction from Slovakia to the Czech Republic. Nonetheless the share of other categories is only around 17 % as can be seen on cake charts bellow.

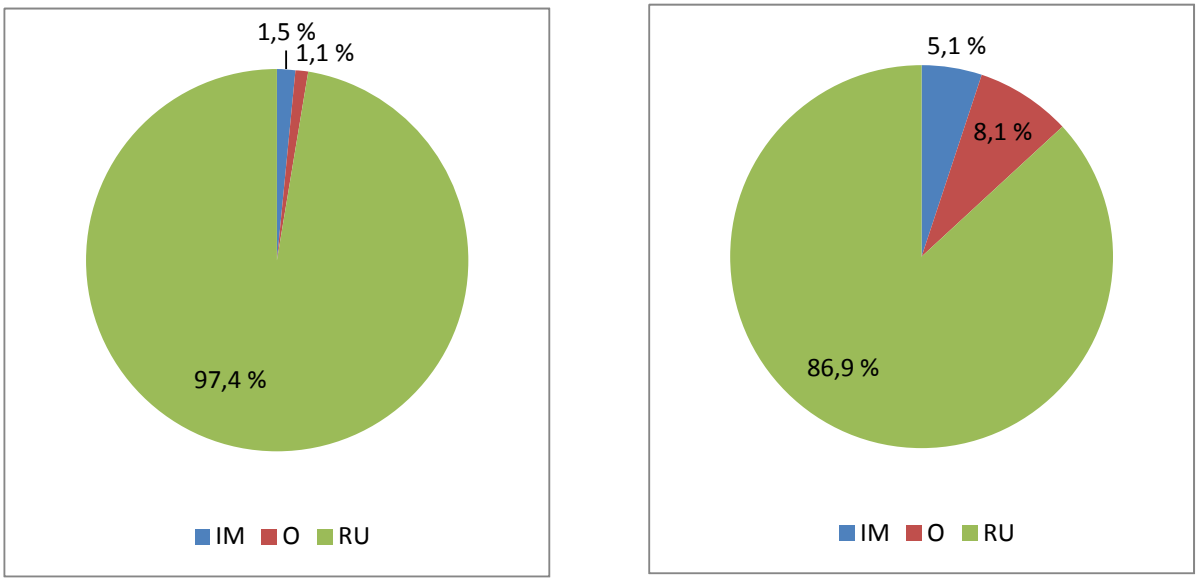


Figure 19+20: Responsibility for delays at cross-border station Čadca (direction CZ-SK and SK-CZ)

In a more detailed view – i.e. using the same structure of information as in the previous analysis giving the information about the a responsibility of delays at certain points (origin station, border crossing arrival, border crossing departure and terminus) the share of individual subjects significantly differs. The example in the Figure 21 gives a clear evidence how the situation in the case of Horní Lideč – Lúky pod Makytou. It should be also mentioned in other cases the share of responsibility at certain points differs significantly. Almost in all cases the highest share is given to railway operators.

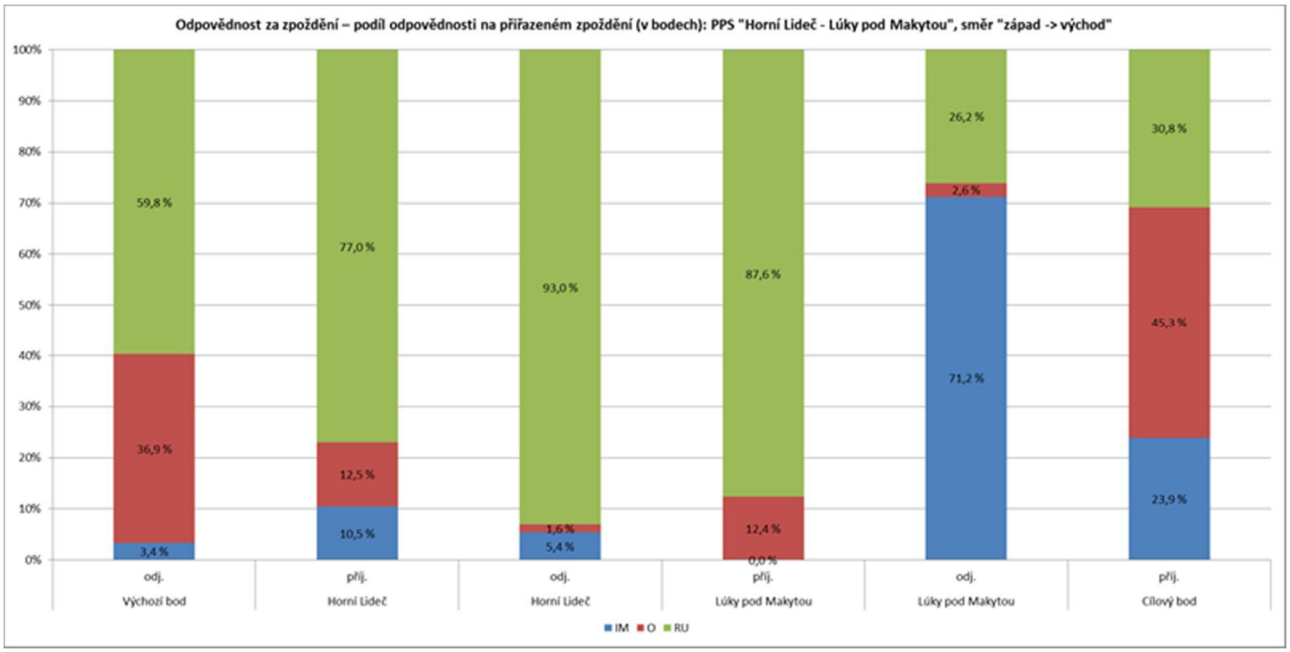


Figure 21: Responsibility for delays at origin, border and terminus via Horní Lide (direction CZ-SK)

Similarly even more detailed information about the delay can be analysed using the UIC decree No. 450 using a structure of codes to specify the information about the reasons of delay. The information about a reason of delay was gained from TIS IT tool use by both inframanagers. In the figure 21 the situation on the whole stretch via southern branch can be seen in the direction eastwards. This is only an example to show how many different variables enter into the game. In spite of this it is evident that the structure of reasons of delay significantly varies at individual "check" points. The variety of reasons of delays is of high extent when comparing the direction from Slovakia to the Czech Republic or the northern branch. That is why any generalization can be done.

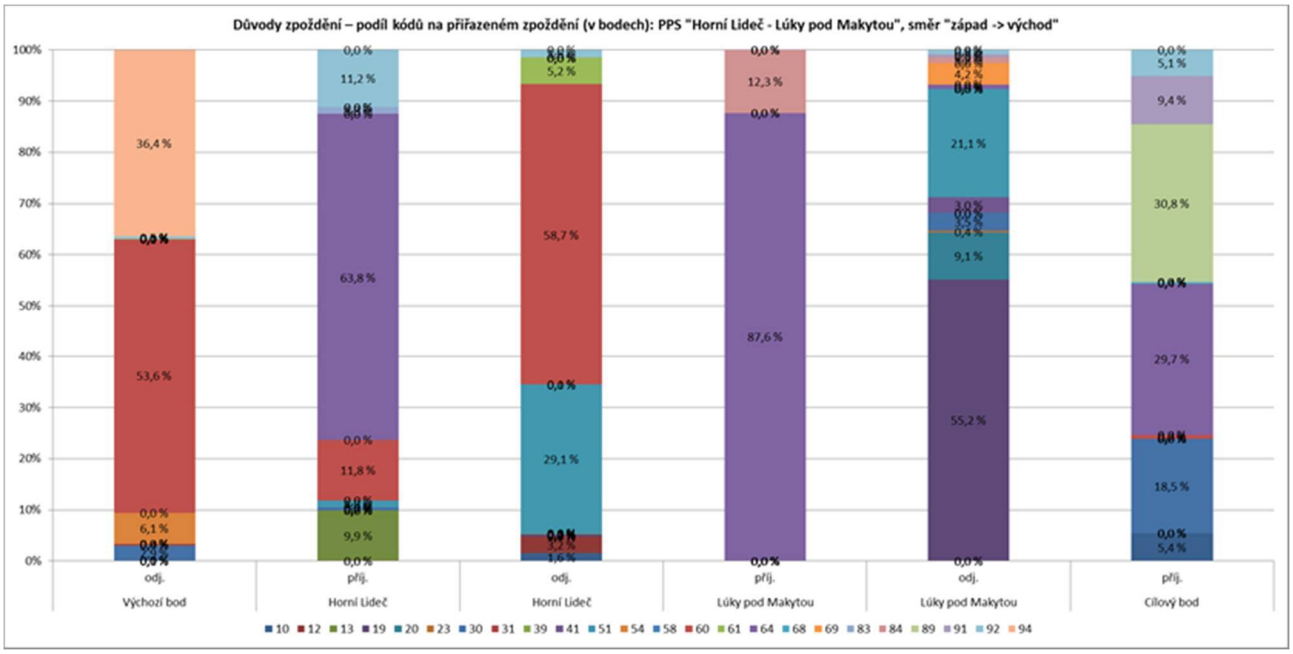


Figure 22: Responsibility for delays at origin, border and terminus via Horní Lide (direction CZ-SK) according to UIC codes

The codes are as follows:

Code	Description	Code	Description
10	Timetable elaboration	58	Personal
12	Mistakes in operations procedures	60	Planning of runs, runs re-planning
13	Wrong application of priority rules	61	RU train composition works
19	Other reasons	64	Faults on locomotives and railcars
20	Signalling	68	Personal
23	Electric power equipment	69	Other reasons
30	Planned construction works	83	Weather and natural causes
31	Irregularities in execution of construction works	84	Delays caused by externs on connecting network
39	Other reasons	89	Other reasons
41	The delay caused by the previous IM	91	Track occupation caused by delay this train
51	RU request	92	Track occupation caused by delay of other train
54	Commercial preparation of train	94	Connection

8 Interface between 1520 and 1439

This chapter describes one of characteristic features of CS Corridor which is one of the three European RFC (apart RFC9 also RFC6 and 8) having interface with the broad gauge of 1520 mm infrastructure. In Eastern Slovakia there are two important transhipment yards located at Čierna nad Tisou and Maťovce. They represent significant transport interface between Europe and Asia and Central, Southern and Western Europe. They significantly share in traffic flows on RFC9. Eastern Slovak transhipment yards ensure transhipment of more

than 90 % of raw materials and commodities imported to Slovakia by rail from Eastern Europe and Asia. They also play a very important role in supplying the Czech iron works located in Silesian (Ostrava) region and steel work located close to Košice. Apart from that these terminals play a key role for the CS corridor and its further development as they can be understood as the terrestrial ports. Among rarities of this territory should be mentioned goods can be transported without transhipment from Slovakia to Romania and several Ukrainian places because of standard gauge existing from the past. This line crosses the border at Diakovo – Halmeu. However, transport of dangerous goods and out of gauge goods is not possible. Also in current economic conditions this line is not of a high importance.

8.1 Čierna nad Tisou and Dobrá intermodal terminal

Čierna nad Tisou belongs to the most important transhipment terminals located on EU eastern border. Transhipment of raw materials or commodities from Eastern Europe and Asia from broad gauge to standard gauge is carried out here at the border crossing station which offers a wide range of services. The railway station Čierna nad Tisou is the Schengen cross - border railway station between Slovakia and Ukraine, which services standard and broad gauge trains running from/to Slovakia and to/from Ukraine. The neighbour cross – border railway point on Ukrainian side is Chop. Both check – points are connected by 1 broad a 1 standard gauge electrified lines (3 kV DC).

Figure 23: Cross-border section between Slovakia and Ukraine (left side 1520 track, right side 1435 track) Photo: J. Ilík

The area of the railway station and surroundings consists of many service points e.g. groups of standard and broad gauge marshalling yards with humper yards, arrival, composition and departure tracks, where loading and unloading, transhipment of goods, train formation, shunting, changing of bogies and custom services is possible. There were carried materials which were transferred from/to broad gauge and to/ from standard gauge

wagons. Close to complex at Čierna nad Tisou is located intermodal terminal at Dobrá. This terminal is suitable for transhipment and storage of containers, swap bodies and semitrailers between broad and standard gauges and shifting them from road to rail. This terminal is operated by Slovak company ZSSK Cargo Slovakia.

Figure 24: Intermodal Terminal at Dobrá Photo: ŽSR

Figures 25 and 26 show the traffic performance realized across Čierna nad Tisou – Chop border line. During the observed period the transport volumes on broad gauge line has not changed dramatically. In comparison with volumes carried on the standard gauge characterized by the decrease between years 2014 and 2013 because of Russian – Ukrainian crisis. It blames the decline in shipments mainly in the automotive transported to Russia and car components to Ukraine´s fitting factory localized close to Chop. On the other hand the stability of broad gauge is encouraging. This is related to various bulks materials transferred from/to broad gauge to/from standard gauge were a material for Czech and Slovak steel works hold an important position. When comparing volumes directed to Slovakia and in the opposite direction the situation seems to be balanced.

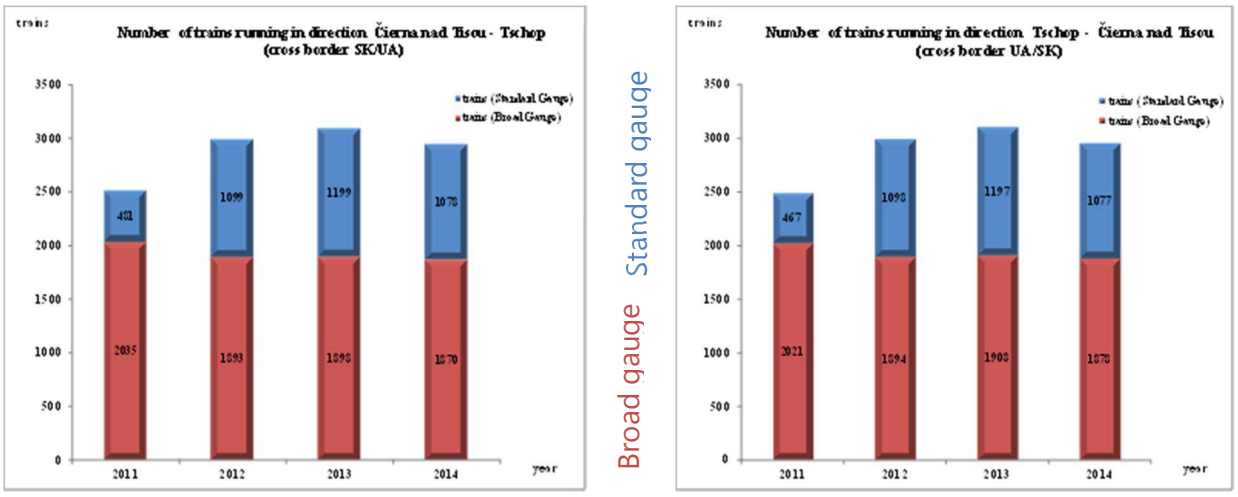


Figure 25+26: Number of trains running across the SK/UA border at Čierna n. T – Tschop and v.v.

When comparing volumes realized between Čierna nad Tisou and Košice (or further) and Dobrá intermodal terminal and Košice it is evident a traditional character of use of rail freight still prevails. The combined transport processed at Dobrá and represented mostly by container trains reached approximately only one-third

of volumes (measured in trains – see Figures 27 and 28) done at Čierna nad Tisou transhipment facilities represented by 12 thousand of mix and block trains. It is highly plausible the share of combined transport will grow in the future despite that the recent figures do not look convincingly. The decrease observed since 2012 is not at all dramatic as the difference is 794 trains a year what means approximately 2 trains daily. On the other hand combined transport is still used for automotive transports (car components) quite a lot so the possibility to predict a further development in this segment is not viable.

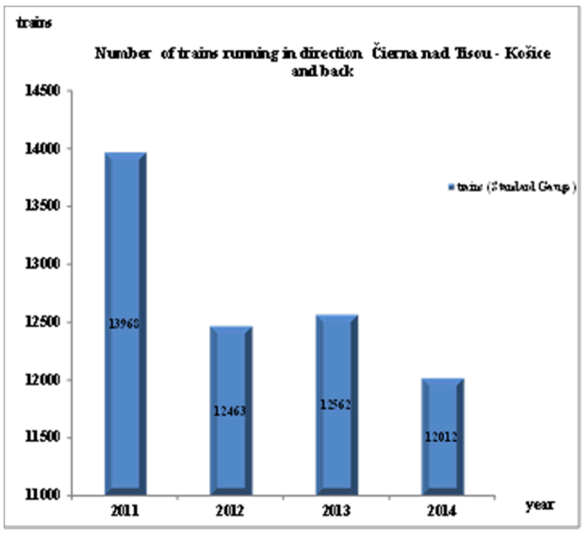


Figure 27: Number of trains: Čierna n. T. – Košice

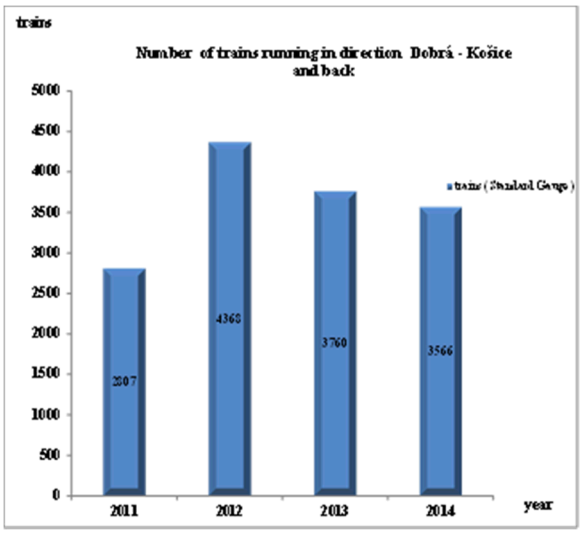
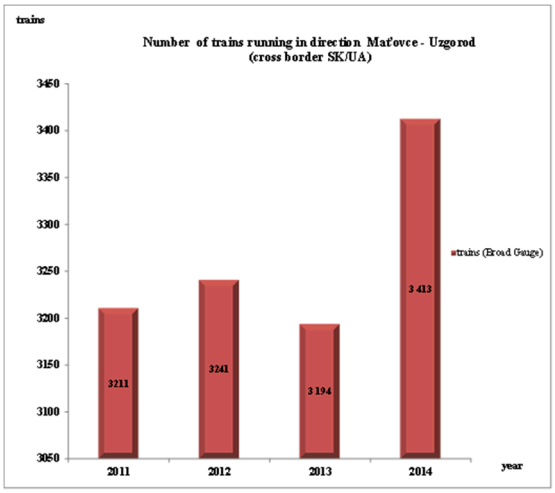


Figure 28: Number of trains: Dobrá - Košice

8.2 Maťovce

The railway station Maťovce is Schengen cross-border railway station between Slovakia and Ukraine which is served by trains running on broad gauge line from/to Slovakia and to/from Ukraine. The Ukrainian cross–border railway station is called Uzgorod. The 88 km long single track electrified broad gauge from the border via Maťovce to Košice–Haniska located close to USS Steel play a key role here. The broad gauge line is used only for freight transportations. Transhipment of goods between broad and standard gauge is possible at Premako Terminal located in Maťovce. A standard gauge line runs parallel to broad gauge line in direction Košice.

Border crossing station Maťovce serves primarily for transport of consignments to broad gauge branch tracks but also for transhipment of bulk substrates, such as coal and ore. There is bogie change-out system from broad gauge to standard gauge and vice versa that serves mainly for changing the bogies of wagons carrying the dangerous goods.



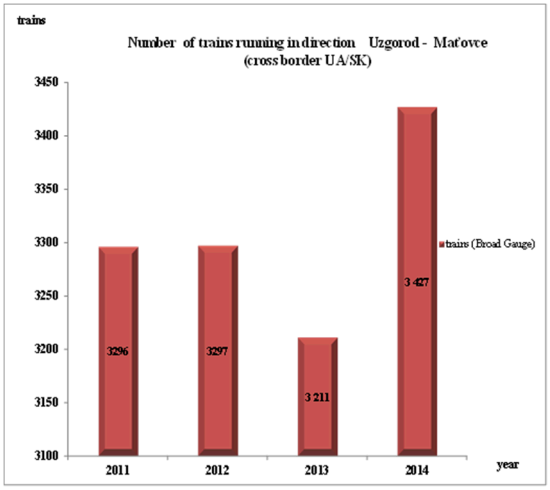


Figure 29+30: Number of trains running in direction Maťovce – Uzgorod and v.v. (cross border SK/UA)

The increase of volumes through cross-border station Maťovce in 2014 was caused especially by bulk consignments rerouted from polish ports to Maťovce using a railway transportation on the whole chain from Russia to end customers.

9 Proposed actions to increase corridor performance

From the analysis made a lesson could be done for the future operation and the offer of the corridor. We fully hope these measures and arrangements will increase the attractiveness of the corridor among railway operators who also ask for some advantages getting from corridor PaPs. From the corridor perspective to offer more competitive PaPs means especially to:

- optimize travel times
- pre-define better quality PaPs parameters
- reduce waiting time at the borders
- increase an overall reliability with an ambition to guarantee the timetable given

On the other hand the current system allows a very high amount of flexibility what still motivates railway undertakings to use the current allocation system. At the same time they already know all the procedures very well so there is only a little interest to learn another ways to reach the same results. For this reason we would like to make the corridor offer as much flexible as it can be possible. We also have to admit our ambition is not necessarily make a progress with an amount of trains labelled as "corridor trains" but our emphasis will be focussed on overall improvement of attractiveness of the corridor route, especially to attract some new transportations – esp. form automotive industry and combined transport which could increase the usage of the corridor.

That is also an argument why we did not pay a high attention to a quality indicators related e.g. to C-OSS work as we expect all the processes were running properly during the observed period. In this regards parameters as

e.g. the response time of the C-OSS or lead time of the request for the reserve capacity made by applicant are (in contrast with the performance of the corridor) too "bureaucratic". Our approach when compared to other corridors is focussed on information about the trains running on the corridor route to understand all the principal characteristics. On the other hand the analysis does not include important inputs about procedures and waiting times at SK/UA border. The same problem is at CZ/SK border where not enough data about reasons of delays caused by railway undertakings is available as can be seen in the Figures 17 – 20. This should allowed us to understand possible needs of customers and after that react – to improve the offer of the corridor. Afterwards we would like to focus also on the quality of work done by C-OSS.

10 Evaluation of the corridor development by the Executive Board

This chapter provides an evaluation of the implementation of the CS corridor from the perspective of the Executive board and also provisions given in the Regulation. First of all, we would like to emphasize that the CS corridor has fully fulfilled all formal obligations and liabilities specified by the Regulation.

In the implementation phase, more than two years of preparatory work involving all stakeholders concerned, resulted in the fulfilment of all necessary conditions to establish the corridor by 7th November 2013. In the operational phase since then, the established corridor governance entities addressed the continuous workload for on a daily basis.

The cooperation among the Executive body of the corridor and the operative management is based on frequent communication and a fair and smooth relationships. The established governance structure performs properly concerning the duties and obligations derived from the Regulation in regard to make the corridor as much effective as possible. This strategy includes also low-cost approach using largely internal resources. This approach means:

- no special legal entities to be established, but tight intensive cooperation is a preferred work
- no corridor director but RFC 9 is led by both parties together,
- rotating model of the C-OSS seat with an annual periodicity
- preparation of key documents and studies using internal research units

Building on the experiences gained in the first two years of operation and from regular consultations with the corridor business partners and other stakeholders, the Management board, the C-OSS manager and the working groups have tried to achieve with their common effort to prepare reliable and attractive business corridor offer to meet the customer needs.

Furthermore a good and smooth cooperation is a consequence of the fact that both countries, both corridor members – the Czech Republic and Slovakia – are still working in a "Czechoslovakian mode" which continues to be applied also 23 years after the split of Czechoslovakia. That is why both levels – Executive board and Management board and other IM employees involved into corridor tasks work on collegial (better saying informal) basis what eased the establishment of the corridor and is very practical when managing an operating

it. Moreover harmonized working language, operational rules, terms and conditions for the usage of infrastructure are good additional benefits for efficient corridor operation.

As already mentioned despite all these benefits present on the side of human resources the performance of the corridor is disputable as any increase of volumes on the networks of SŽDC and ŽSR has been observed and really negligible demand on corridor offer has been registered. Partly this could be a consequence of the development beyond EU border, especially on the Ukrainian and Russian markets damaged by the political crisis. Partly also the fading economic crisis could be blamed for a poor performance as well as the economic structure of regions along the corridor.

In this regards the new "single-point service model" applied on rail freight corridor has not brought any significant benefit for customers comparing to traditional way of "PaP" order which brings higher flexibility. Flexibility and free ad-hoc capacity are critical aspects which are customers looking for. Their relevance is valid twice in the case of CS corridor as there are only two countries participating. As long as these ad-hoc services cannot be requested via the C-OSS, railway undertakings contact the national capacity allocation bodies to make and complete their orders. In the end, using the centralised capacity allocation sometimes even increases the administration of the railway undertakings. Even tools given by the regulation as prohibition of cancelling an allocated train path (Art. 14(8)) or possibility to the possibility to comment within advisory groups has not brought interest.

From first operative experiences the corridor management learned it is difficult to attract new customers without improving the offer of the corridor as described more in detail in subchapter 6.7.3. One of crucial points to be solved is linked to capacity issue.

The corridor management learned that one of the reasons could be the cost-sensitivity of the region that makes customers (RUs) more inclined to make ad-hoc path requests. This procedure does not require booking fees what is in the contrary with PaPs allocation in phase up to X-8. This is because customers often reassess their business routes on short notice, e.g. due to unpredictable demand fluctuations, even if this increases the handling time required for making the path requests. Consequently, there is low demand for a fully integrated infrastructure service request system by other RFCs, while for RFC9 it would be a key factor for further growth. Such a system, however, cannot be developed by a single RFC alone, as the RFCs have agreed to apply an identical system (in fact, this tool has been the first fully harmonised system in the context of the RFCs). We hope at least the launching of RFC5 and 8 could bring some positive effect which could be reflected on CS corridor.

Another attractive feature, which could be important for the business partners in the corridor is the punctuality. We can state that after the first analysis the punctuality of the corridor trains is unfortunately far below business acceptance. For that reason some targets defining this field is needed. Therefore as an important action the Management board invited the relevant working group to set up the Corridor Performance Management process in order to improve the performance of RFC9.

Overall, it must be said the corridor was established. This means all the administrative requirements have been achieved however, our goal is to increase rail freight market share of the European transport by providing the

corridor's customers with the conditions for easier, faster and more reliable transport across national borders is staying behind expectations as well as to introduce tools which were able to increase the efficiency of rail freight transport comparing to other modes of transport. On the other hand the cooperation has been set up, the operational procedures and measures have been also implemented and two years´s time too short to make a significant changes. Because of this development we still feel the need to improve further enhance institutional cooperation and business offer of the corridor. The CS corridor representatives believe that there is big potentials for the development of rail freight business in the region in the long term thanks to the significant investments and improvements of infrastructure and also thanks to development of connecting network other rail freight corridors.

11 Further perspectives of the corridor development

Based on the evaluation of corridor implementation and knowledge gained, this chapter summarizes the perspective of the Executive board on further corridor development. This involves suggestions addressed both to the Management board as the entity responsible for the management of the corridor. This chapter provides brief information about mid- and long term perspectives of the corridor and its development and describes some of future happenings which will significantly influence its further position within the corridor structure and will also probably have effects on its performance.

11.1 The EU policy

As mentioned above, CS corridor currently does not play a determining role within the corridor structure. This corridor characterises prevailing local importance which is primarily given by several reasons where a particular isolation from other corridors should be mentioned among the first ones. A partial role could play also a common Czecho-Slovak history as most of operating procedures and also "small CS interoperability" given esp. by technical standards and language could evoke an impression of particular closeness of this corridor. Thirdly a factor of geo-economical structure of regions along the corridor´s route can play a role as location of industries significantly predefines spatial flows and thus also a role of the corridor within the entire European context. Furthermore mountain terrain with competing lines across flat Poland and Hungary can play a role here especially when taking into account a potential for international transportations. All in all this situation does not bring enough attractiveness in particular for companies which are not located in any of these states. Moreover our experience shows the market is asking for a higher flexibility and short time capacity allocation "on demand".

On the other hand it must be clearly said that a simple retrospective look confirms there is a potential for real European role of this corridor as some interesting "continental" transportations were realized in the past via CS corridor. These transportations were usually linked to automotive e.g. container transportation of BMW from Germany to China which used the terminal at Dobrá. Another example are Kia cars from Žilina to Western Europe which originally used the route via Děčín but nowadays these transportations use Chalupki border crossing very often so they use only a very short stretch of CS corridor. Some of automotive transportations which were running via CS corridor and further to the West using Cheb or Furth im Wald border crossing have been diverted via Bratislava and Passau. In many cases routing changes usually happened

after an overtaking the businesses by other (foreigner) railway undertakings. Nevertheless, a further evaluation of this experience must be assessed to understand all the reasons and motivations and to improve corridor offer.

Having in mind all these facts the ambition of Executive board and both participating ministries was a better integration of CS corridor into European wide corridor structure. This change arrived in late 2013 with the introduction of new regulations 1315 and 1316 where CS corridor was redefined and has become a part of future CNC/RFC Rhine-Danube Corridor. The new TEN-T policy thus brings a significant change as regards an integration of CS corridor esp. when talking about insufficient interconnection westward of Prague where not only a corridor branch had been missing since the introduction of corridor concept but where also a technical limitation plays a role. The problem is not only a limited capacity doe to several single track sections but mainly a missing electrification across the Czech-German border. Together with longitudinal slopes on both lines (via Domažlice and via Cheb) this situation needs to use double diesel traction what makes both ways not attractive for private operators but also for state owned companies. Electrification thus represents a key element which (according to us) can attract new loads and businesses.

We also believe a full PaP based operation of southern branch of RFC8 since timetable 2017 could be a good stimulus for higher attractiveness of the CS corridor esp. for combined transport using this route. In the midterm horizon a merger with Rhine-Danube corridor will definitely bring interesting effects for the whole northern branch. However, as already indicated some technical measures are inevitable to achieve a success. Currently a lot of technical barriers and limitations are a significant restriction of a higher use of the further western branch between Plzeň and Regensburg/Nürnberg. Furthermore the establishment of the Baltic-Adriatic RFC will increase a potential of the corridor coming from the better interconnection to ports located by the Baltic- and Adriatic Sea.

On the other hand it should be clear this corridor will be always be more sensitive to geopolitical situation between EU, Ukraine and Russia so not only organizational and technical measures can improve its overall performance. This wider geopolitical and derivative socio-economic climate significantly influence volumes of goods transhipped on eastern EU border and thus the whole performance of the corridor. We nonetheless believe a direct connection and partial overlap with OSJD Corridor No. XXX may generate additional demand on CS corridor. Two positive factors can be mentioned here – further development of Euro-Asian Landbridge and closer economic cooperation between EU and Ukraine which can boost transport flows.

11.2 RFC services and traffic management

Despite the justified focus at the current stage on the issues of reliability (punctuality) and flexibility, the Executive board also wants to address another aspect influencing the quality and competitiveness of the corridor offer. As shown in chapter 7 the problem of the corridor is the average speed reaching only 30 km/h which can be hardly competitive and also punctuality. There are valid reasons why this is currently the case, including infrastructure-related restrictions on some sections and the infrastructure works which should be mentioned among the most frequent reasons however, in order to improve the competitiveness of rail vis-à-vis road freight transport, the transport times made possible by CS corridor PaPs should nevertheless be improved to make the offer attractive e.g. for combined transport. On the side of inframanagers it also means to plan and

coordinate infrastructure works better. In some cases infrastructure works that significantly affected PaPs were announced on very short notice by infrastructure managers. Also some works planned which led to a restricted construction of PaPs were not realized. The Executive board urges the infrastructure managers to cooperate with the Management board in fulfilling the task to coordinate works.

Information from the Management board and indicates that the causes for delay are in many cases complex and cannot be attributed to only to one actor (infrastructure managers or railway undertakings); instead they result from the coordination between IMs and RUs (or rather the lack thereof). The Executive board appreciates that the Management board and the infrastructure managers have committed themselves to address the issue in joint consultations involving both infrastructure managers and railway undertakings. The Executive board asks the Management board to provide information on the state of play and results of these consultations on a continuous basis.

11.3 CEF funding

The CS corridor did not apply for CEF co-funding to support is activities so far. The Management board explained the single most important reason to abstain from a CEF application was the minimum budget required for CEF applications (about 1 million Euro) would have implied that the contribution of the corridor members would have had to increase to match the 50 % CEF co-funding. Furthermore, the Management board reported that other corridors, which did apply for CEF funding, raised concerns about the administrative effort associated with the CEF co-funding. These explanations appear to be perfectly reasonable for the Executive board. We can therefore exclude a possibility to ask the Management board to monitor opportunities for EU co-funding, e.g. in the framework of the CEF Programme Support Actions. At the same time, we encourage the European Commission to make sure that CEF funding is available to the Rail Freight Corridors under conditions that are both, accomplishable and attractive and therefore provide a real support for the work of the RFCs.

Figure 31: Marschaling yard at Žilina-Teplička, Photo: ŽSR