



ANNUAL REPORT 2021

RAIL FREIGHT CORRIDOR RHINE-ALPINE



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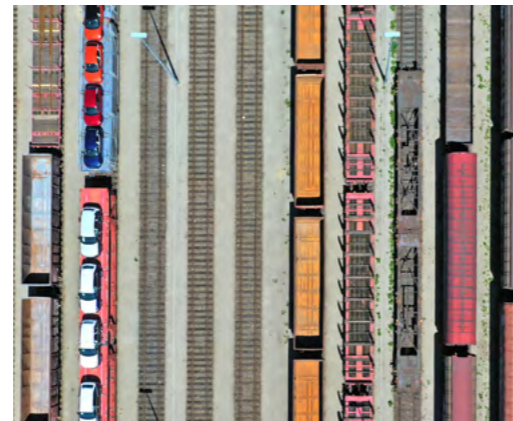
Learn more about the Corridor and its organisational structure.



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This chapter provides information about traffic developments at borders and the modal split in transalpine traffic and in the ports of Antwerp, Rotterdam and Genoa as well as about the most recent KPIs on capacity management and operations. The KPIs have been coordinated with external stakeholders like RUs and MoTs and are the same for all RFCs.

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This chapter reports on projects which made significant progress or were completed during 2021. These projects are part of the Implementation Plan of RFC Rhine-Alpine.

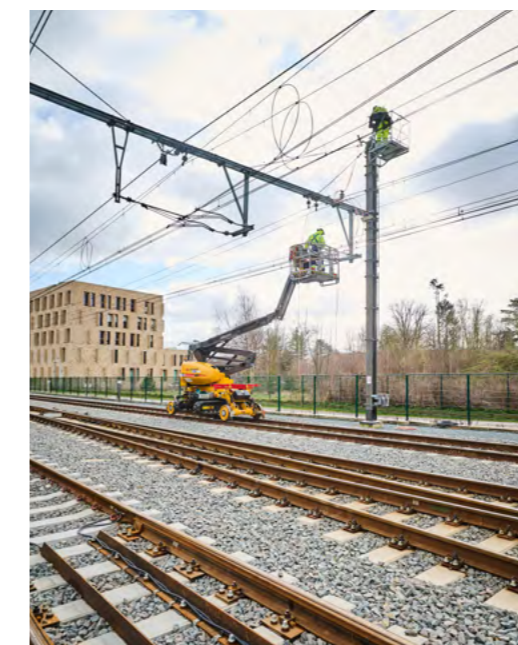
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**KEY TOPICS
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Many different topics were addressed by all stakeholders in RFC Rhine-Alpine during 2021 and many achievements were accomplished. Despite challenges, especially due to the COVID-19 pandemic, we jointly supported the gradual improvement of conditions for rail freight on the Corridor. Here are RFC Rhine-Alpine's focus topics for 2021, with joint information from the Management Board and Executive Board.

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3,900 km
OF CORRIDOR LINES

MORE THAN
100
TERMINALS



* North Sea Port - merger of the ports of Ghent, Vlissingen and Terneuzen

6.6 million
PATH-km ALLOCATED BY
THE C-OSS FOR TT2022

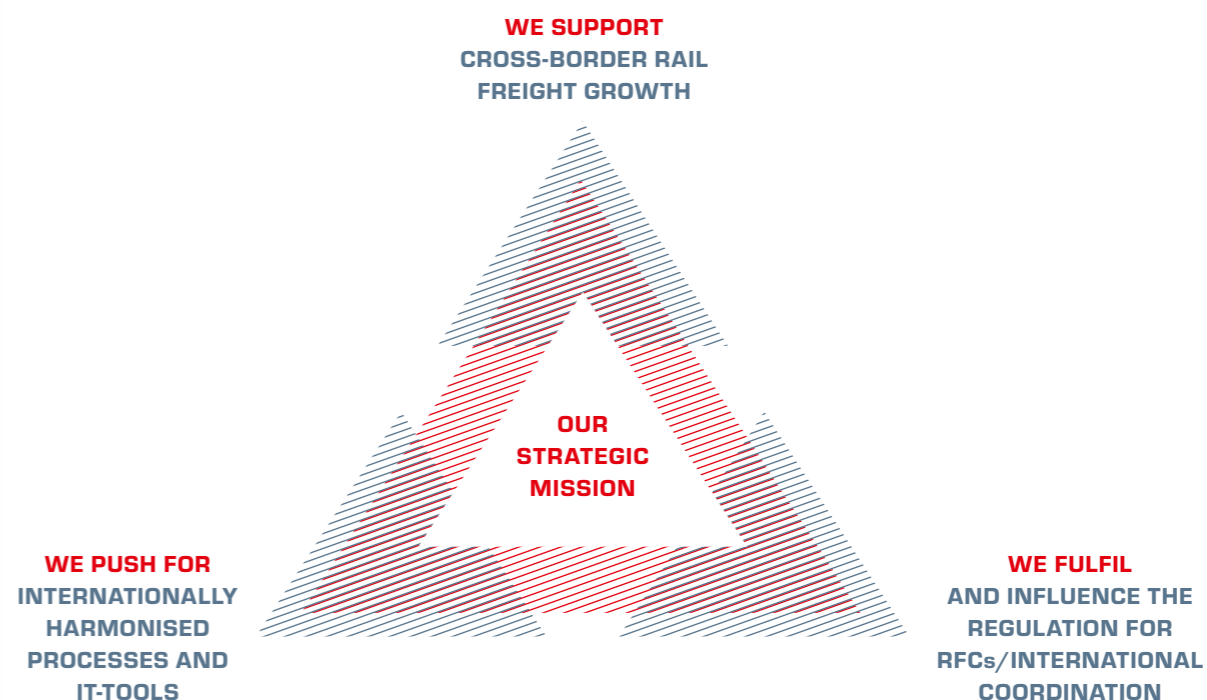
WORLD'S LONGEST
RAILWAY TUNNEL
GOTTHARD BASE TUNNEL **57.1** km

VISION

With our services, we facilitate cross-border rail freight transport to create a competitive advantage against other transport modes. Our partner IMs cooperate intensively to achieve a consistent transport chain and to provide better railway services for international freight transport in Europe.

By enhancing flexibility and quality of rail freight services on our Corridor and optimising the use of scarce capacity through a high level of international cooperation, we want to foster rail freight services as a sustainable transport mode in Europe. Jointly, we make the shift from road to rail happen.

The objectives of RFC Rhine-Alpine were formulated as strategic missions by the Management Board in January 2021. They describe the objectives of RFC Rhine-Alpine (growth of rail freight, international harmonisation and coordination), and also indicate the role the RFC can realistically play in pursuing these objectives (support, push and fulfil/influence).



IN 2021, RAIL FREIGHT GOT BACK ON TRACK.

Despite the major impact of the COVID-19 pandemic on the European rail freight sector, 2021 has seen a normalisation of processes and transport volumes on Rail Freight Corridor Rhine-Alpine. Although COVID-19 and multiple lockdowns across Europe were still a significant challenge in 2021, the economic recovery was on its way to pre-pandemic levels. Rail freight and intermodal transport were able to continue their recovery, which already began in the second half of 2020. All stakeholders in the transport chain did their very best to adapt operations according to the higher freight volume whilst protecting the health of their operational staff. RFC Rhine-Alpine experienced no track closures on account of COVID-19 infections.

Thanks to the increased economic activity, the number of cross-border freight trains on RFC Rhine-Alpine reached pre-pandemic levels. Even though the International Contingency Management incidents on the Corridor (heavy floods in Belgium and Germany in July, total closure of the right side of the Middle Rhine Valley from 15 March to 2 May after a rockslide) impacted rail freight volumes. The overall number of cross-border freight trains in 2021 increased by 7.84 % compared to 2020. A negative effect of the increase in the number of both freight and passenger trains was a decline in performance. The overall RFC Rhine-Alpine exit punctuality (30 min threshold) decreased from 59 % to 52 % in 2021. Compared to pre-pandemic levels (2019), the performance on the Corridor slightly decreased from 55 % to 52 %.

One of the most important infrastructure developments in 2021 was the opening of the new elevated Theemsweg route, in the Netherlands, on the Harbour railway line in November. The new route runs in Rotterdam from the Botlek yard over a new railway viaduct along the Theemsweg and re-joins the existing railway track near the Europoort yard. The Theemsweg route significantly improves the accessibility of the Port of Rotterdam. Freight trains no longer have to wait for the Caland Bridge, which is opened several times a day for shipping traffic.

Another milestone was the increase of capacity between Bellinzona (Switzerland) and Luino (Italy) by opening a new crossing station and a partly double track upgrade. In 2021, the infrastructural upgrade of the crossing station in Pino (Italy) for 740m freight trains was finalised. Completion and full availability of 750m tracks was done in December 2021.

The main contributions of RFC Rhine-Alpine colleagues to international coordination during 2021 are detailed in chapter “Key Topics in 2021”, p. 40. They include among others:

- **ERTMS:** deployment overview and information on ongoing developments; evaluation of the vehicle authorisation process; implementation and use of ERTMS risk monitoring with many stakeholders;
- **End of a feasibility study** for Railway Collaborative Decision Making (R-CDM) and definition of next steps towards implementation with the involvement of RNE;
- **Joint study** with RFC North Sea-Mediterranean to explore the current state of the **market and the interoperability** between the two Corridors;
- **Capacity bottleneck analysis** enriched with the perspective of the RUs and published in spring 2021;
- **PaP offer** remained on the same level as in previous years and all deadlines for Draft and Final Timetable 2022 were met;
- **The updated ICM handbook** approved by the RNE GA in May 2021 with valuable inputs from RFC Rhine-Alpine;
- **Implementation of new parameters in CIP**, like maximum train length and maximum speed as well as the implementation of re-routing scenarios;
- **Start of the coordination** for the TCR in Rastatt in 2024;
- **Joint LinkedIn page** for information on the RFC Network.

The Executive Board closely followed the developments and supported them, for example in the form of intensive discussions in the ERTMS task force, in the new established Infrastructure Task Force and by looking into interoperability barriers (e.g. train driver language and braking performance) as well as by promoting initiatives on digitalisation and quality. All Member

States and the European Commission made strong financial support available to the wider economy in general and to the rail and logistics industry, in particular to cover losses from the COVID-19 pandemic. Furthermore, they pushed the infrastructure and ERTMS development on RFC Rhine-Alpine.

The Railway undertaking Advisory Group (RAG) pointed out the major challenges that the lack of capacity is posing to rail freight operations; both in service facilities and on the main lines along the Corridor itself and on re-routing lines. This will continue to be a major issue also with increased TCRs over the coming years and we will jointly need to find solutions.

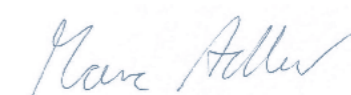
This Annual Report provides an overview of the main developments on RFC Rhine-Alpine regarding KPIs, performance, infrastructure and key topics in 2021. We would like to thank all persons involved for their contribution to improved international cooperation and infrastructure in 2021.



Peter Hondebrink
Chairperson of the
Executive Board



Guus de Mol
Chairperson of the
Management Board



Marc Adler
Managing Director of
RFC Rhine-Alpine

RFC RHINE-ALPINE IN A NUTSHELL

ORGANISATION

The Regulation (EU) 913/2010 concerning a European rail network for competitive freight entered into force on 9 November 2010. It defined the establishment of Rail Freight Corridors with the overall purpose to increase rail freight's competitiveness and market share on the European freight transport market. European Infrastructure Managers embrace this chance for enhanced collaboration and work together in eleven corridors running across Europe.

The cooperation of Infrastructure Managers (IMs) and the Allocation Body (AB) in RFC Rhine-Alpine is organised by a joint office and has the legal form of a European Economic Interest Grouping (EEIG). All IMs and the AB of the Corridor countries are members or contractors of the EEIG:

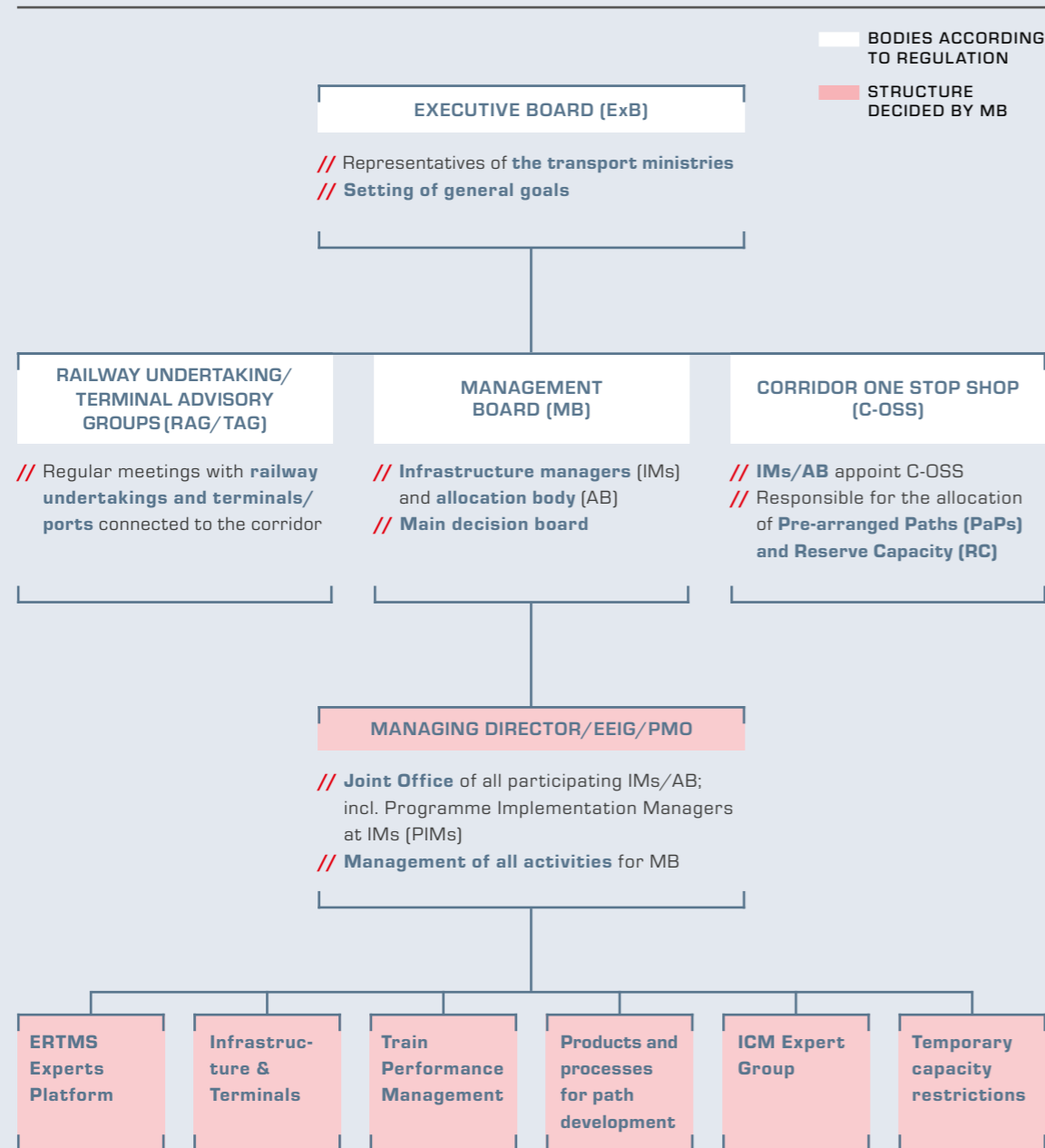
- ProRail (The Netherlands)
- Infrabel (Belgium)
- DB Netz AG (Germany)
- SBB Infrastruktur (Switzerland)
- BLS Netz AG (Switzerland)
- TVS (Swiss Allocation Body)
- RFI (Italy).

The Executive Board (ExB) represents the Member States of the Corridor, through the participation of the Ministries of Transport and takes landmark decisions for cooperation on the Corridor. The Executive Board is chaired by Peter Hondebrink from the Dutch Transport Ministry.

The Management Board (MB) consists of high-level management representatives of the IMs/AB and is responsible for the further development of the international cooperation of the IM/AB partner organisations. The MB has set up a Programme Management Office (PMO) as the permanent working organisation.

The PMO is represented by the permanent office team and one delegate of each IM/AB, the so-called Programme Implementation Managers (PIM). They are responsible for the coordination and reporting of their national project implementation to the Corridor organisation. Furthermore, the PMO monitors the goals and actions of currently six RFC Rhine-Alpine Working Groups (WG) and Expert Groups. These groups were established to work efficiently on various topics for the improvement and support of cross-border rail freight services on the Corridor.

ORGANISATIONAL STRUCTURE OF RFC RHINE-ALPINE



Six working groups with experts from IMs of the corridor; yearly agreement on workplans and objectives

The Railway undertaking Advisory Group (RAG) and the Terminal Advisory Group (TAG) are advisory groups to the MB. They serve as exchange platforms to involve railway undertakings (RU), terminals and ports as well as stakeholders of the intermodal transport chain to discuss customer opinions and requirements for the development of RFC Rhine-Alpine from an external point of view. The Corridor One-Stop-Shop (C-OSS) facilitates train path management for international rail freight. It is the single point of contact allowing applicants to request and receive answers regarding infrastructure capacity for international freight trains.

In September 2021, Marc Adler took over as Managing Director (MD) of EEIG Corridor Rhine-Alpine EWIV from Dr. Christiane Warnecke, who left the Corridor after five and a half years of service. Before taking over as MD, Marc Adler worked as senior project manager in leading development projects at DB Netz AG for several years. Before starting his career in the railway industry, he worked in management positions in the health sector, including the management of a hospital. RFC Rhine-Alpine thanks Dr. Christiane Warnecke for her outstanding services in the last five and a half years.

RFC Rhine-Alpine also welcomed in 2021 a new member to the office team, Philipp Hansel. He took over the responsibilities for communication and marketing as well as accounting from Lina Berg.

PERFOR MANCE REPORT

This chapter provides information about traffic developments at borders and the modal split in transalpine traffic and in the ports of Antwerp, Rotterdam and Genoa as well as about the most recent KPIs on capacity management and operations. The KPIs have been coordinated with external stakeholders like RUs and MoTs and are the same for all RFCs.

MARKET DEVELOPMENT KPIs

This chapter gives information on the development of the KPI numbers of trains per border for RFC Rhine-Alpine and the modal split of rail in selected ports and in transalpine traffic. The information on the number of trains is provided by the IMs and is mainly related to the border points on the Corridor. Regarding the modal split, existing information from different sources is compiled in this report. The KPI Ratio of the Capacity Allocated by the C-OSS and the Total Allocated Capacity can be found in chapter "Capacity Management KPIs", p. 26.

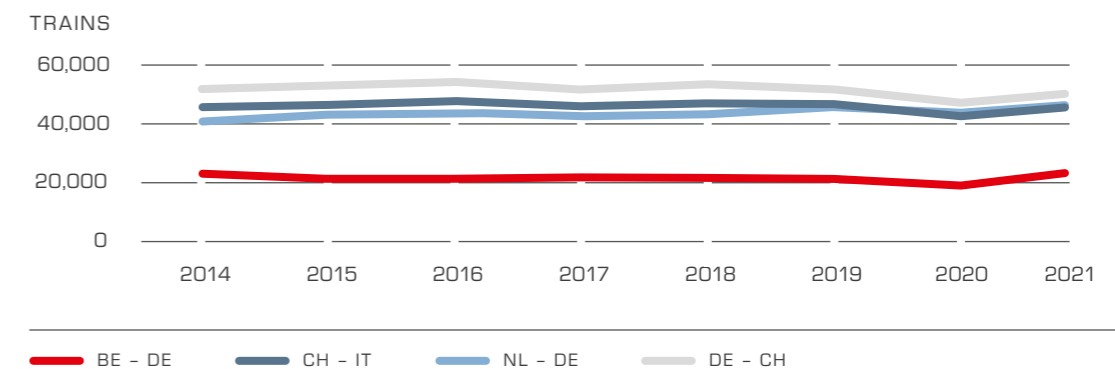
KPI NUMBER OF TRAINS PER BORDER

The general evolution in 2021 for the entire Corridor, compared to 2020 was an increase in traffic of 7.84%.

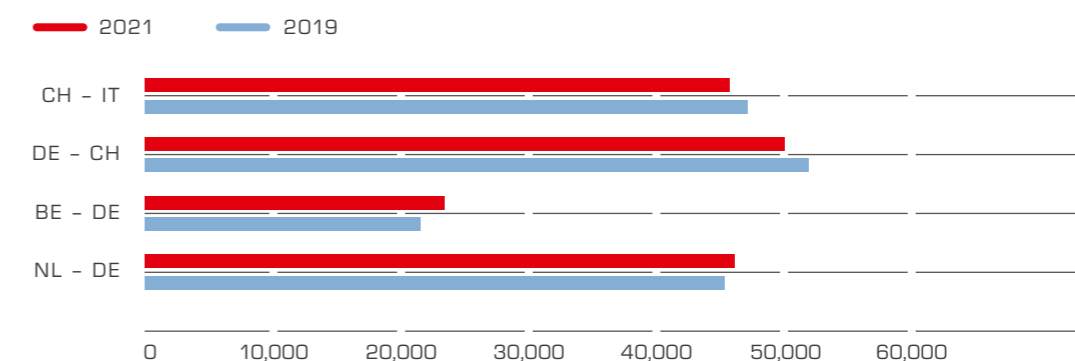
This increase should be taken with some reservation. When compared to the volumes of 2019 (without the impact of COVID-19) the volumes of 2021 show a slight decrease of -0.3%. It may be safer to conclude that in 2021, traffic has re-established itself to the level from before the COVID-19 crisis. Furthermore, trade and supply disruptions were negative factors for the traffic on RFC Rhine-Alpine.

KPI NUMBER OF TRAINS PER BORDER

Number of commercial freight trains crossing selected border points

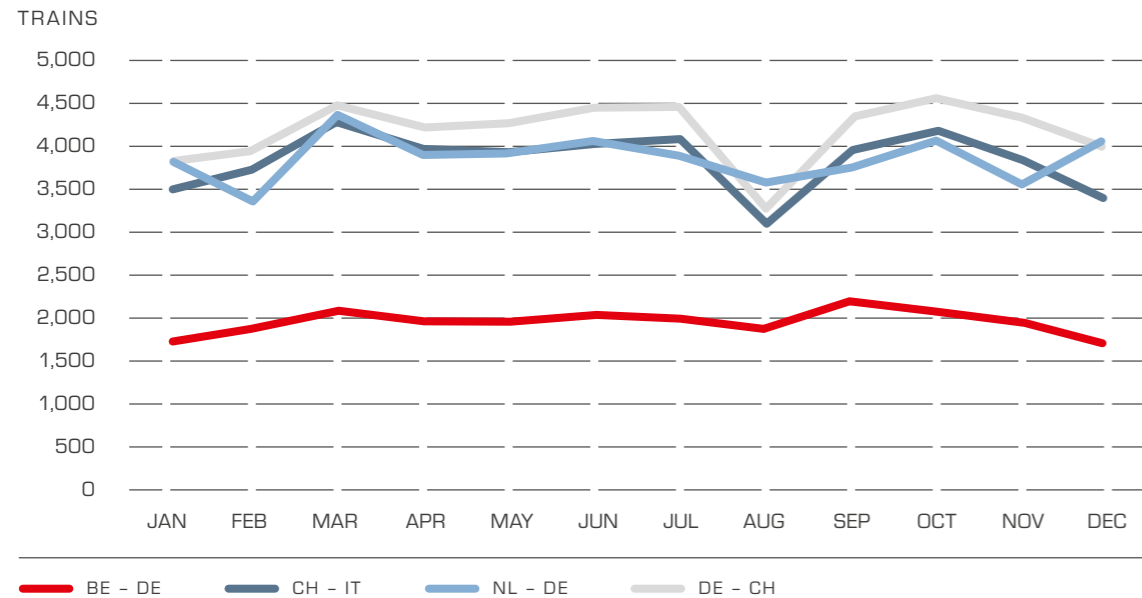


KPI NUMBER OF TRAINS PER BORDER - COMPARISON 2021/2019



MONTHLY NUMBER OF TRAINS PER BORDER

Number of commercial freight trains crossing selected border points



BORDER CROSSINGS NL - DE

2021 was the busiest year ever at the border points between the Netherlands and Germany, with an increase in traffic of 6% compared to 2020. The growth was not only in comparison to 2020, the year which caused the number of freight trains to decline, but also in comparison to the situation before COVID-19. Compared to 2019, traffic rose by 1.7%.

This growth was realised in spite of :

- Many long term TCRs with great impact on the German side of the border:
 - Between Zevenaar and Oberhausen (e.g. July and December, a total line closure for several consecutive weeks which led to additional traffic via the Venlo border)
 - Between Venlo and Viersen (August to November, a total line closure for several consecutive weeks
 - >> additional traffic via Emmerich (also more traffic via the border point Heerlen - Herzogenrath (not on the Corridor routing) and also more traffic via Montzen.
 - The connection of the Theemsweg route in the Port of Rotterdam in November

>> less traffic to/from the Port of Rotterdam (and subsequently also less traffic at the border points)

- Problems due to the weather: in the beginning of February there was no or far less traffic due to wintry conditions.

This report does not show the border point Heerlen - Herzogenrath, because it is not on the Corridor routing. Nevertheless, it was used by some 450 freight trains. This is a modest number when compared to the other border points, but still a significant increase in comparison to the previous years.

BORDER CROSSING BE - DE

In Belgium, in 2021 the traffic at the Montzen/ Aachen West border point increased by 19.1% compared to 2020. Because of the COVID-situation in 2020, we also compared the volumes with those of 2019, which resulted in an increase of 9.5%. The increase is mainly due to more intensive traffic of the non-incumbent RUs. Moreover, a total line closure for several consecutive weeks between Venlo and Viersen, between August and November, led to an increase in traffic via Montzen.

BORDER CROSSING DE - CH

Compared to 2020, traffic at the Basel border point increased by 5.5% in 2021. However, when compared to the volumes of 2019, the result is a decrease of -3.7%.

BORDER CROSSINGS CH - IT

In 2021, in Italy, the overall evolution compared to 2020 was an increase in traffic of 7.2%. However, when compared to the volumes of 2019, the result is a decrease of -3%.

MODAL SPLIT IN TRANSALPINE TRAFFIC AND IN SELECTED PORTS

TRANSALPINE TRAFFIC

In 2021, the recovery of transalpine freight transport is clearly visible compared to 2020, which was marked by the COVID-19 crisis. In total, 37.9 million tons were transported by road and rail in transalpine freight traffic in 2021. Compared to the previous year, this corresponds to an increase of +3.1 million tons or +8.8%.

Transalpine road freight transport recorded a decline in volume of -3.1%, whereas the volume on rail increased by +13.4% and amounted to 28.4 million tons in 2021. This represents the second largest volume ever transported across the Swiss Alps behind 2016.

The increase in the volume of transalpine rail freight traffic caused a further increase in the market share of rail in total transalpine freight traffic. The rail share of total transalpine freight traffic in Switzerland was 74.9% in 2021, which is 3.1 percentage points higher than in 2020 and 2.4 percentage points higher than in the reference year 2019 before the COVID-19 crisis. Thus, the highest rail share in 30 years was registered in 2021 (the last time the rail share was higher was in 1992).

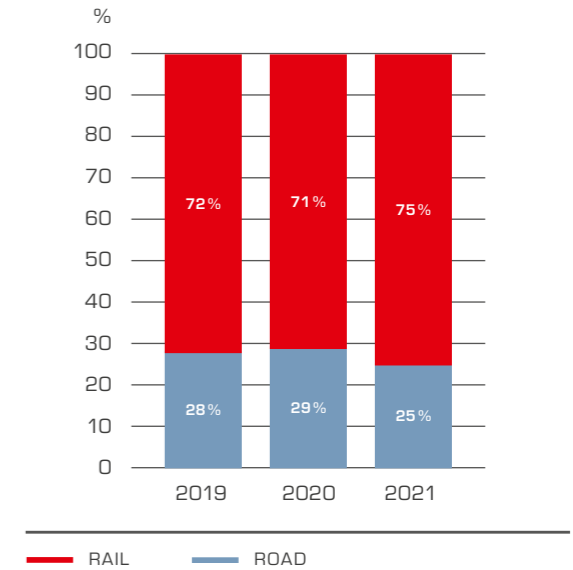
As the information is usually not available for the previous year when the Annual Report is compiled, only the development up to 2020 is shown.

PORT OF ROTTERDAM

The total volume of transshipment share* in the Port of Rotterdam in 2020 compared to 2019 de-

*Transshipment refers to the transfer of maritime cargo from large deepsea vessels to smaller shortsea vessels.

MODAL SPLIT OF TRANSALPINE FREIGHT TRANSPORT 2019-2021



creased by 1.5%. In 2020, compared to 2019, the share of road increased by 0.8% while the share of inland waterways (IWW) decreased by 0.5%, and the share of rail traffic decreased by 0.3%.

PORT OF ANTWERP

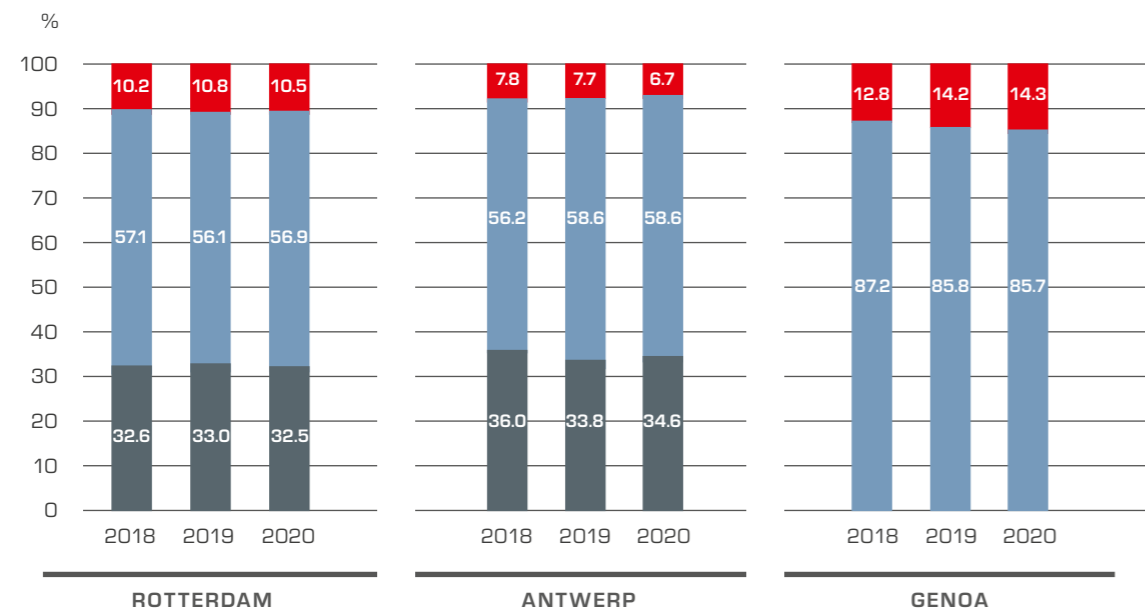
In 2020, the transshipment share in the Port of Antwerp has slightly increased to 39.8%. Combined with a light increase in the total maritime transshipment, this means that the volume of hinterland traffic remained stable at 7.2 million TEU. The share of road also remained stable at 58.6%. However, compared to 2019, the share of rail decreased from 7.7% to 6.7%. This decrease was absorbed by IWW (34.6% compared to 33.8% in 2019).

PORT OF GENOA

In 2020, Genoa port traffic by rail increased by almost 3%, reaching more than 7,600 trains during the year. The COVID-19 pandemic affected the port's overall throughput, but rail volumes performed well, mainly pushed by the increase in the Pra/Voltri container terminal after the upgrading of the local rail infrastructure.

More than 307,000 TEUs were shipped by rail, with a modal split reaching 14.3%.

MODAL SPLIT IN PORTS 2018 - 2020



Definition: modal split [%] of freight traffic at the Ports of Rotterdam, Antwerp and Genoa; the modal split is calculated for hinterland container traffic on the basis of TEUs.

OPERATIONS KPIS

PUNCTUALITY REPORT 2021

Punctuality calculation is performed using the Train Information System (TIS) data by comparing the timetable delivered to TIS and the running time in operations at defined measuring points. On the Customer Information Platform (CIP), RFC Rhine-Alpine publishes three reports on a monthly basis:

- The punctuality development management summary, with punctuality figures, number of trains and distribution of delay reasons.
- The punctuality overview report with different delay thresholds.
- The punctuality development report on RFC Rhine-Alpine lines and at relevant points and borders.

To provide reliable statistics and reports, high data quality is required. Therefore, the Train Performance Management (TPM) experts of RFC Rhine-Alpine are involved in the RNE Data Quality project, providing valuable input to expand a European-wide process for the identification of RFC trains and assigning them to a specific RFC. Another issue which affects data quality is the linking of trains: about 10 % of international train runs on RFC Rhine-Alpine are still not indicated in TIS because they run with national train numbers and are not linked to each other, for example in case of re-routing.

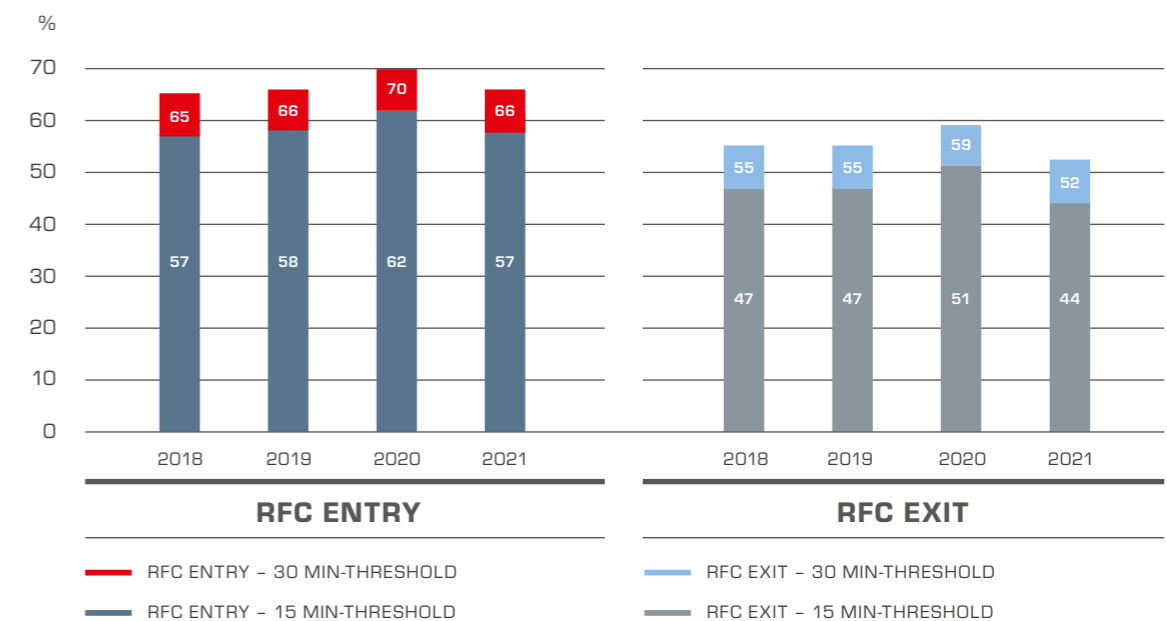
In the context of improving data completeness in TIS, a "Load Shifting Basel" project was launched. TIS is able to process Train Composition Messages (TCMs). The mapping based on TCMs has been improved significantly in 2021 as there are more and more RUs providing TCMs to TIS now. This is solving the problem of different Train-IDs wherever TCM is provided sufficiently, as e.g., in Basel.

Two main procedures for linking based on TCM are being implemented:

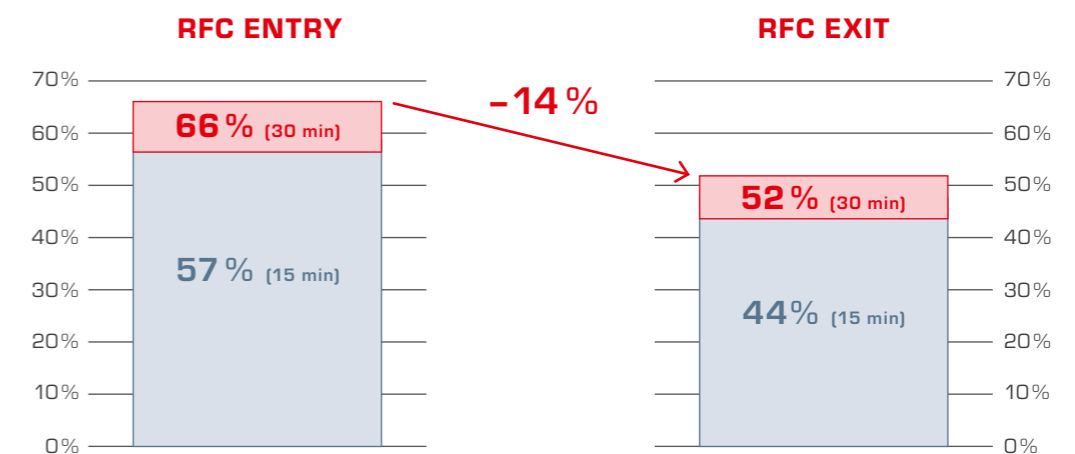
- Linking of trains based on a comparison of wagons and total load of two consecutive TCMs at the border or, if at least 80 % of the parameters mentioned before are matching, the link will be performed.

- The RUs are sending the train numbers used at the border. If the TCM contains the information which train number is used on the previous or on the next IM section, TIS can easily take this information into account and can link trains with different train numbers.

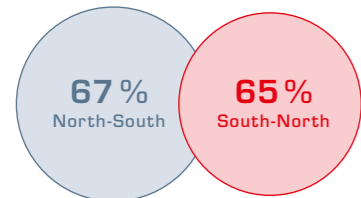
PUNCTUALITY DEVELOPMENT



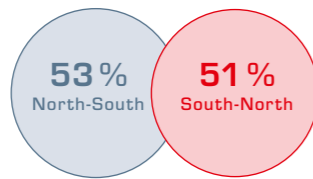
KPI RFC ENTRY AND EXIT PUNCTUALITY IN 2021



RFC ENTRY AND EXIT PUNCTUALITY PER DIRECTION IN 2021 (30' THRESHOLD):



RFC ENTRY



RFC EXIT

The RFCs agreed on considering international freight trains on the Corridors as punctual when they are not more than 30 minutes delayed. Other international Working Groups set a 15-minute threshold. For this reason, both figures are shown as an overall punctuality KPI for RFC Entry and RFC Exit. To understand the graphs correctly, it is necessary to know that RFC Entry is defined as the location where the train first enters an RFC line (first point on the train run belonging to the RFC). RFC Exit indicates the location where

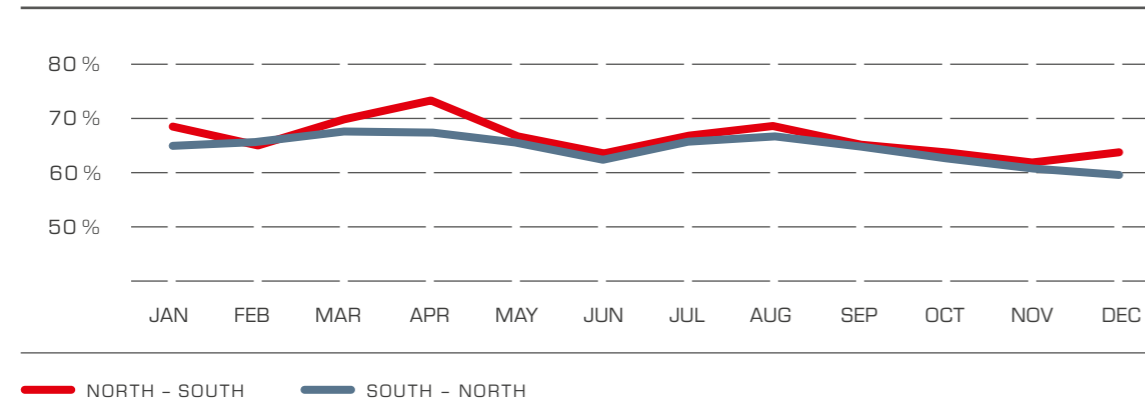
the train exits the RFC line the last time (last point of the train run belonging to the RFC).

In 2021, punctuality was no longer influenced by the COVID-19 situation, with the exception of the month of April, when passenger services were temporarily reduced, and thus more capacity was available on the network. This confirms that the punctuality of freight trains is directly influenced by the capacity on the tracks.

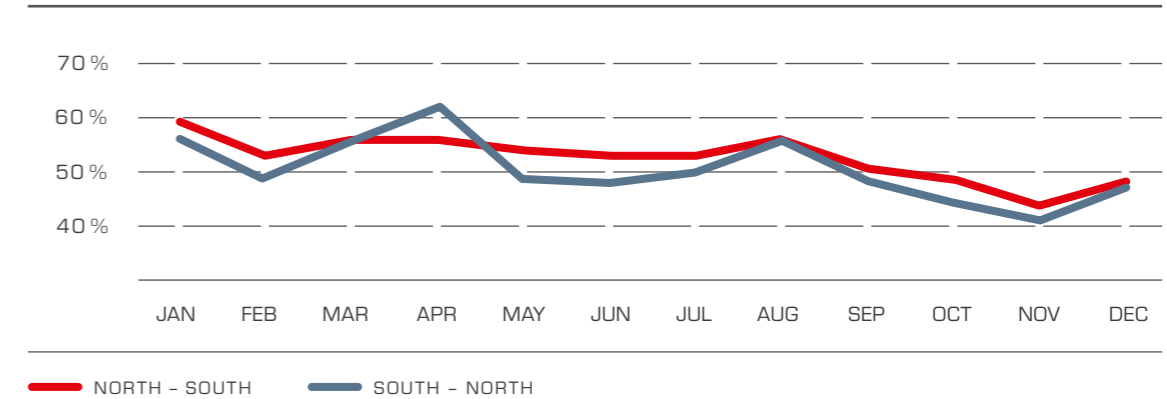
In the first quarter of 2021, the WG TPM performed a comprehensive analysis based on the reports provided by RNE via data delivered to TIS. Critical points and heavily delayed trains were identified. Several technical issues related to data quality and data provision to TIS were addressed and to a large extent solved. Furthermore, problems related to structural timetable problems were tackled and passed on to the concerned timetable departments. In some situations, however, no or little improvement was reached, mostly due to the lack of resources at RUs and to the infrastructure bottlenecks which reduce capacity. The Management and Executive Boards were informed and took note that the breakthrough in boosting performance on RFC Rhine-Alpine is not possible under the current framework conditions.

Premium products with higher priority offered by IMs have a direct impact on reliability and punctuality. For instance, in Germany, with the train path price promotion in rail freight trans-

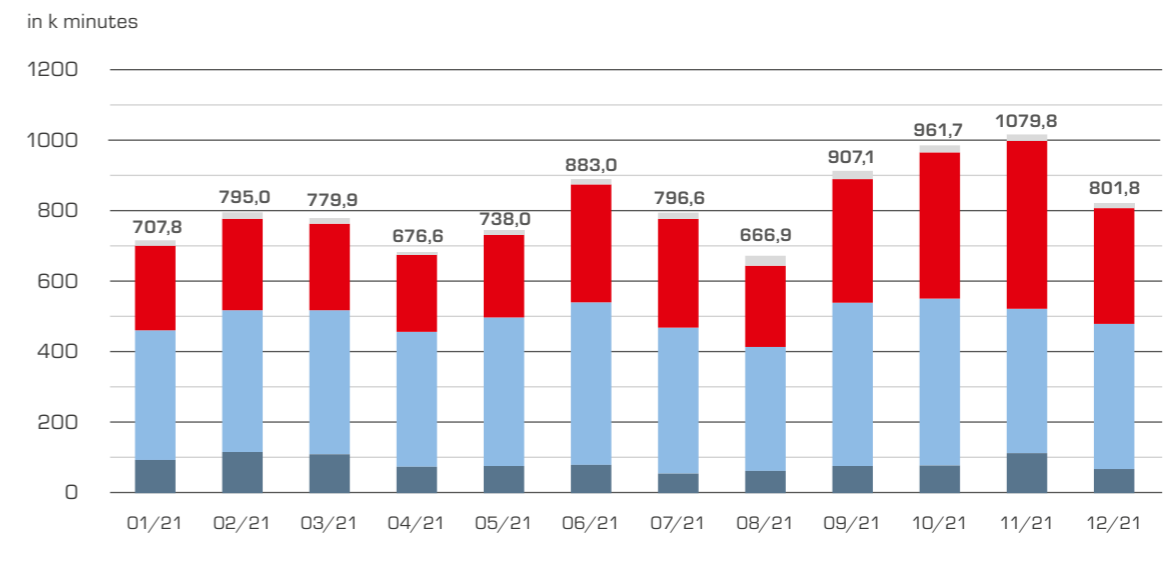
MONTHLY RFC ENTRY PUNCTUALITY PER DIRECTION



MONTHLY RFC EXIT PUNCTUALITY PER DIRECTION



TOTAL NUMBER OF DELAY MINUTES REPORTED TO TIS FOR BOTH DIRECTIONS



The graph above shows the total number of delay minutes reported by the IMs to TIS for both directions.

SUM OF DELAY MINUTES

- IM
- RU/ OTHERS
- SECONDARY
- EXTERNAL

IM delay reasons: e. g. timetable planning, dispatching errors, infrastructure failures, temporary capacity restrictions (as far as not considered in timetable), unplanned works.
RU/others' delay reasons: e. g. train preparation, train formation by RU, rostering/re-rostering, rolling stock failures, loading irregularities, RU staff. RU/others' delay reasons also include delays caused by terminals (loading, unloading) or other parties (e. g. truck drivers) before handing the train over to the RUs.
Secondary delays: delays indirectly caused by the previous reasons, e. g. delayed circulation of another train and the resulting track occupation or conflicts within nodes. Incidents with trains/dangerous goods are also displayed here.
External reasons: delays which are out of the influence of IMs and RUs, e. g. weather conditions, natural events, authorities.

port (TraFöG), the federal German government promotes rail freight traffic by partially funding the train path prices for premium products. DB Netz AG supports the federal government and the rail freight companies in implementing the funding. In order to cope with the consequences of the COVID-19 pandemic, the federal government increased the funding by 217 million euros in a supplementary budget of April 2021 for the period from 1 June 2021, so that DB Netz AG submitted an application to increase the funding rate in May. On 27 May 2021, the EBA (Federal Railway Authority) approved the application and granted a funding rate of 97.8%. The sustained positive development in operating performance and a sharp rise in demand for express train paths have resulted in increased use of the subsidies. In order to prevent the need to suspend funding on a daily basis during the funding period, DB Netz AG has applied for a reduction in the funding rate to 87.6% as of 1 October 2021. The application was approved by the EBA.

FACTORS AFFECTING OVERALL CORRIDOR PUNCTUALITY IN 2021



THE NETHERLANDS

In winter, there were problems with snow and ice on the entire ProRail network, but most of all on the Rotterdam Harbour line. This situation began on 7 February and on 12 February most problems were solved. A lot of freight trains were cancelled or were running with a huge amount of delay.

During the year, there were some longer periods of total closure of the German railway between Emmerich and Oberhausen. During these periods, freight trains from and to Germany had to run via the border stations Oldenzaal (Bentheim route) and Venlo (Brabant route). These are both routes with not only freight traffic but also with heavy passenger traffic. The punctuality of the freight trains running via these routes is always lower as on the dedicated freight train route Betuweroute. During these re-routing periods, there were

regular problems with the capacity of the yard Venlo and the German yard Viersen, where trains in the direction of the Ruhr area had to change front.

In the months August to November, the German railway line between Kaldenkirchen and Viersen was totally closed due to construction works. In this period, there was no good alternative route available for trains in case of disruptions on the Emmerich-Oberhausen line. So, especially in November 2021, there were major disruptions on the Emmerich-Oberhausen line, resulting in low punctuality.

During the year, there were also some infrastructural disruptions on the Rotterdam Harbour line and the Betuweroute affecting the punctuality on RFC Rhine-Alpine.

BELGIUM



Due to the exceptional weather in July (heavy rain fall on 13 and 15 July), causing floods and damages which triggered an ICM case, there were high delays and many cancellations. Because of the cancellations, this event was not reflected in the top 10 causes for delay on the network. The problem was aggravated by an ICM case in France on the artère Nord-Est.

The biggest causes of delay on the network were exceptional weather, technical breakdowns, train driver mistakes, incidents involving a person/car and delays from the neighbouring IM, causing a total delay of 34,813 minutes for freight traffic.

- There were two incidents where exceptional weather conditions led to a delay for freight traffic. The total number accrued was 12,288, caused by sudden winter weather and a tree on the tracks.
- Technical breakdowns led to 9,465 minutes of delay in two instances: There was a malfunctioning of the foam installation in the Antigoon tunnel and the breakdown of a switch.
- Mistakes by train drivers were responsible for 3,122 minutes delay to the freight traffic.

- There were 3 instances where an incident involving a person/car was the cause of delay, which added up to 6,291 minutes of delay for freight in total.
- In two instances, the delay from the neighbouring IM was responsible for a total of 3,647 minutes for freight traffic.



GERMANY

Storm Tristan in Germany (February 2021)

From 7 to 12 February, Deutsche Bahn had to halt its rail services throughout Germany as storm Tristan wreaked havoc across Germany. Tristan was causing heavy snowfall and extreme weather conditions of up to -20°C in Germany. The rail traffic was partly at a standstill. Neighbouring infrastructures were also affected, e.g. most of the train traffic in the Netherlands had been interrupted. The wind created most problems, especially with snow drifts. The motorways and the railways were partially closed in large parts of the country by consultation with the transport ministry.

Several strike waves of loco drivers' union GDL

In the collective bargaining conflict between Deutsche Bahn and the loco drivers' union GDL, there were several waves of strikes in August and September 2021. Thousands of freight trains were affected by three waves of strikes lasting several days each. An agreement was announced in mid-September.

Moreover, several long-term construction works affected punctuality in 2021:

Emmerich-Oberhausen

On the upgraded Emmerich-Oberhausen line, DB Netz AG almost always works under running operation. For the three-track upgrade of the line, works were necessary during the summer holidays, which at times required the line to be completely closed. For the Betuweroute expansion in the Oberhausen, Voerde, Dinslaken, Wesel and Rees-Haldern sections, DB was working at full speed in parallel.

Cologne-Dortmund: Infrastructure expansion for Rhein-Ruhr-Express

The Rhine-Ruhr region is the most populous metropolitan region in Germany and is one of the five largest metropolitan areas in Europe. The railway capacities on the core routes between Cologne and Dortmund are saturated, effecting not only RFC Rhine-Alpine. The Rhein-Ruhr-Express (RRX) is a program which is currently being implemented to equalise regional traffic on the core route of the Ruhr area and the central Rhineland to include local traffic and thus also relieve freight traffic. In addition to numerous short-term closures, the route between Cologne and Düsseldorf was completely closed from Friday, October 8, 2021, 9 p.m. to Friday, October 22, 2021, 9 p.m.

Karlsruhe-Basel

The 182 km Karlsruhe-Basel rail link is the centrepiece of RFC Rhine-Alpine. The existing Rhine Valley Railway section is over 150 years old. Serving up to 300 trains a day, its capacity limits have been stretched and exhausted so that upgrading this section to satisfy the rail traffic requirements of today and tomorrow is a critical mission. The project is divided into nine sections and 21 planning approval sections and includes the following main deliveries over 15 years.

On two consecutive weekends, the Rhine Valley Railway between Offenburg and Freiburg was completely closed to rail traffic. The reason for this was the renewal of tracks and points between Offenburg and Orschweier, 30 km to the south, sometimes at the same time on two sections even further south. Due to a parallel closure on the Gäubahn - the second north-south axis that is important for crossing the Alps - as an exception, freight traffic had to be re-routed via the Black Forest route on these two weekends, which was not an easy situation for everyone involved.

At the end of October, DB started the work for the second construction phase in Müllheim. In addition to building several new bridges, DB newly designed the station and its surroundings.

Since 15 November 2021 the new electronic signal box (ESTW) in Müllheim is in operation. It controls a total of 92 signals from Müllheim to

Schliengen. Thanks to the ESTW, DB Netz AG operations are increasingly automated at this station. This improves the utilisation of the tracks for all traffic.

During the period from 5 November to 20 December, there were capacity restriction in Lecco Maggianico, due to a train diversion, which affected trains from/to Chiasso.

During the period 25 January to 19 February, there were capacity restrictions in Busto Arsizio, due to construction works (PC/80).

During the period 20 December 2020 to 20 January 2021, the Laveno - Ternate - Gallarate line was closed due to construction works; trains were rerouted via Sesto Calende - PM Ispra.

Some heavy snow events have affected the Domodossola pass at the beginning of 2021.



SWITZERLAND

In general, the difficult weather conditions in summer and winter affected the punctuality. In winter, this was mainly in the period from 14 to 19 January. The floods in Chiasso Smistamento on 27 July and 4/5 August also had a major impact on punctuality, where in some cases up to 17 switches were flooded. Worth mentioning is also the speed restriction on the Luino line due to danger of landslide from 8 March to 1 July together with the already existing speed restriction from 8 February to 2 July as an additional accumulation. Finally, unforeseen construction works in the Gotthard Base Tunnel (1/3 closure) in the nights 2/3 August - 30/31 August are to be mentioned as well.



ITALY

The Luino line was closed from 6 April to 23 May due to construction works, trains were cancelled or re-routed via Domodossola and Chiasso. During the period from 7 July to 6 August and from 22 November to 6 December, Pino Tronzano was not available to manage train crossings because of track length works.

During the period from 18 July to 29 August, trains circulated on the single line between Sesto San Giovanni and Monza due to construction works (PC/80).

The access line to Basel Badischer Bahnhof under construction – this section is a crucial part of the 182 km long Karlsruhe-Basel rail link project.



CAPACITY MANAGEMENT KPIs

This chapter provides information on the development of the Pre-arranged Paths (PaPs) and Reserve Capacity (RC) offered by RFC Rhine-Alpine.

Contrary to previous years, all RFC Rhine-Alpine IMs and non-RFC Rhine-Alpine IMs were able to meet the deadlines for draft and final timetable.

Although the process with clear framework conditions in case of not meeting the deadlines was implemented, we didn't need to apply them.

KPI Volume of Offered, Requested and Pre-allocated Capacity

This KPI shows the development of offered, requested and pre-allocated PaPs for the 2017 – 2022 timetable (TT). Generally, the offered PaPs are planned for operation on seven days a week, yet some connections might have a lower availability (e.g. 4 or 5 running days), or a given PaP might not be available on some days throughout the year due to TCR. For TT2022, the volume of requested capacity (PaPs) increased by 30% compared to the previous year. 36% of the offered capacity were requested for TT2022. Due to conflicts between some requests, it was only possible to assign 85% of the requested capacity as PaPs. The remaining 15% were answered with tailor-made paths. In addition to the requests for PaPs, a high amount of connected feeder and outflow paths was requested and allocated.

A reserve capacity of 1.8 million path-km was offered for TT2021. As in previous years, no requests were received. For TT2022, the offer remains on the same level.

KPI Number of Requests including Number of Conflicts at X-8

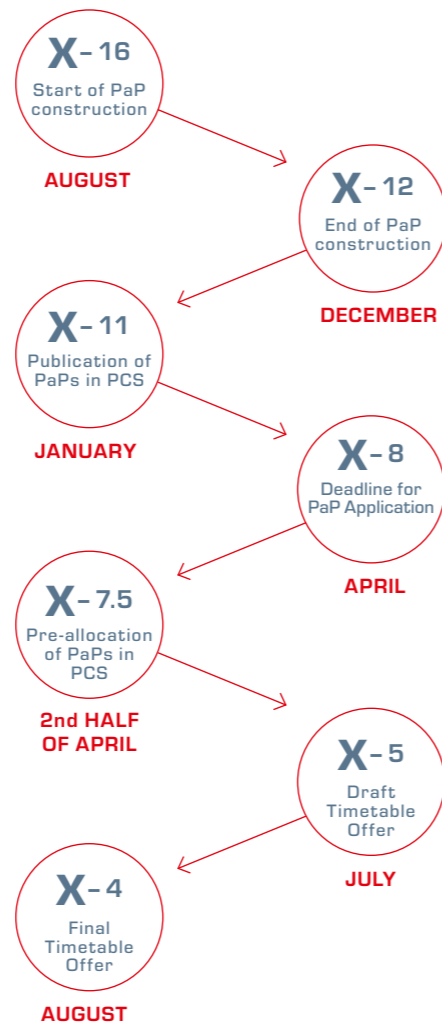
This KPI shows the total number of requests and the number of conflicting and clean requests (i. e. dossiers) made by the applicants in the Path Coordination System (PCS). The number of requested dossiers for TT2022 remained on the same level compared to the previous year. The amount

of conflicting PaP requests slightly decreased by 4. All applicants that couldn't receive a PaP after the conflict solving process were answered with an alternative path offer within the deadlines for the draft and final timetable.

KPI Ratio of the Capacity Allocated by the C-OSS and the Total Allocated Capacity

The KPI Ratio of the capacity allocated by the C-OSS and the total allocated capacity is calculated with data provided by the IMs and the C-OSS of RFC Rhine-Alpine, both after the finalisation of the

PAP SALES PROCESS

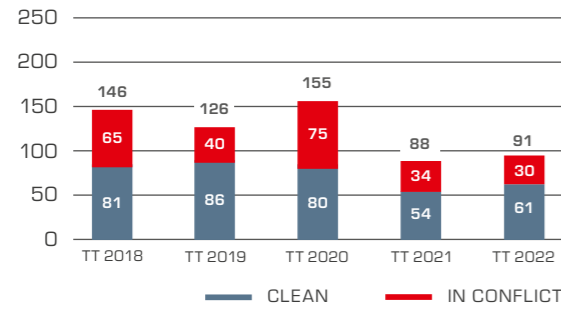


KPI VOLUME OF OFFERED, REQUESTED AND PRE-ALLOCATED CAPACITY

This KPI shows the volume of PaPs in the phases of PaP publication (X-11), PaP requesting (X-8) and PaP pre-allocation (X-7.5) in million path-km per year.



KPI NUMBER OF REQUESTS INCLUDING NUMBER OF CONFLICTS AT X-8



This KPI shows the total number of requests and the number of clean dossiers (multiple path requests placed in PCS which referred to the same PaP on RFC Rhine-Alpine).

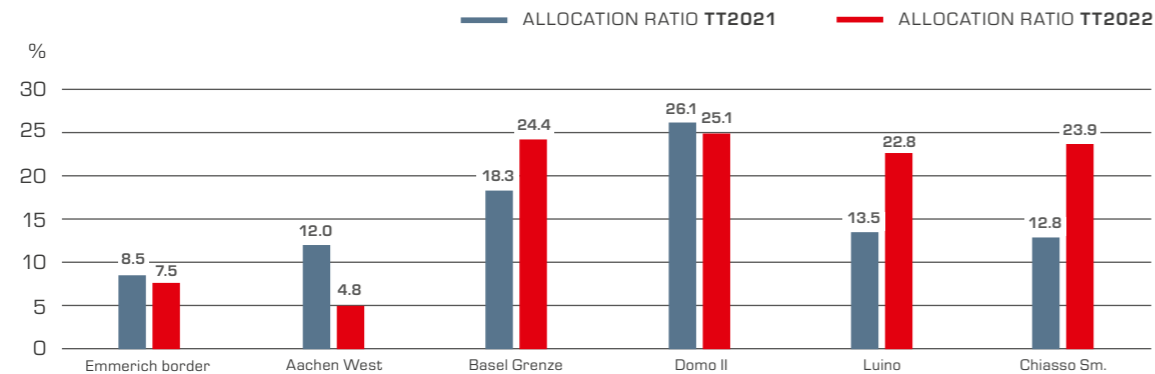
allocation process. At every border of the Corridor, the number of crossing trains, which have been allocated via PaPs in PCS (including feeder/outflow and tailor-made paths), is compared to the number of international freight trains, which were requested via PCS or national systems and allocated by the IMs along the Corridor. Regarding the allocation status, Basel again has the highest number of allocated trains in the annual timetable on RFC Rhine-Al-

pine in absolute numbers, followed by Emmerich, Aachen/Montzen and Chiasso. Having a closer look on the number of allocated trains in the annual TT, the highest numbers are located in the southern part of the Corridor where the requests increased for TT2022. Further traffic shifts within the Swiss axis led to a stable number of allocated trains but changed distribution within the borders Domo II, Chiasso and Luino.

KPI Average Planned Speed of PaPs

The KPI Average Planned Speed shows the planned commercial speed of the PaPs on Corridor sections with pre-defined origins and destinations, selected for Long PaPs, Short PaPs as well as for subsections on RFC Rhine-Alpine. For TT2023, the sections (O/Ds) were kept in order to achieve better comparability with the previous timetable year 2022. The PaPs running on the respective O/D have to cover the whole section to be included into the calculation. At some borders, a longer stopping time is caused by e.g. customs handling or the applicants' desired change of operation. This leads to a lower average speed than at borders without dwelling time. The selected O/Ds serve as examples. Further connected O/Ds would show hardly any difference regarding planned speed [e.g. Amsterdam instead of Maasvlakte].

KPI RATIO OF CAPACITY ALLOCATED BY C-OSS AND THE TOTAL CAPACITY



This KPI shows the ratio of trains which were allocated by the C-OSS as PaPs compared to trains which were requested via PCS or national systems and allocated by the IMs.

KPI AVERAGE PLANNED SPEED OF PAPs FOR TT2023

This KPI shows the average of the planned commercial speed of the PaPs in km/h for selected connections

70.8 km/h



AVERAGE SPEED OF **20** PAPs

46.1 km/h



AVERAGE SPEED OF **25** PAPs

39.6 km/h



AVERAGE SPEED OF **8** PAPs

61.3 km/h



AVERAGE SPEED OF **20** PAPs

51.0 km/h



AVERAGE SPEED OF **13** PAPs

53.9 km/h



AVERAGE SPEED OF **3** PAPs

50.5 km/h



AVERAGE SPEED OF **5** PAPs

47.8 km/h



AVERAGE SPEED OF **24** PAPs

58.6 km/h



AVERAGE SPEED OF **24** PAPs

INFRASTRUCTURE PROJECTS

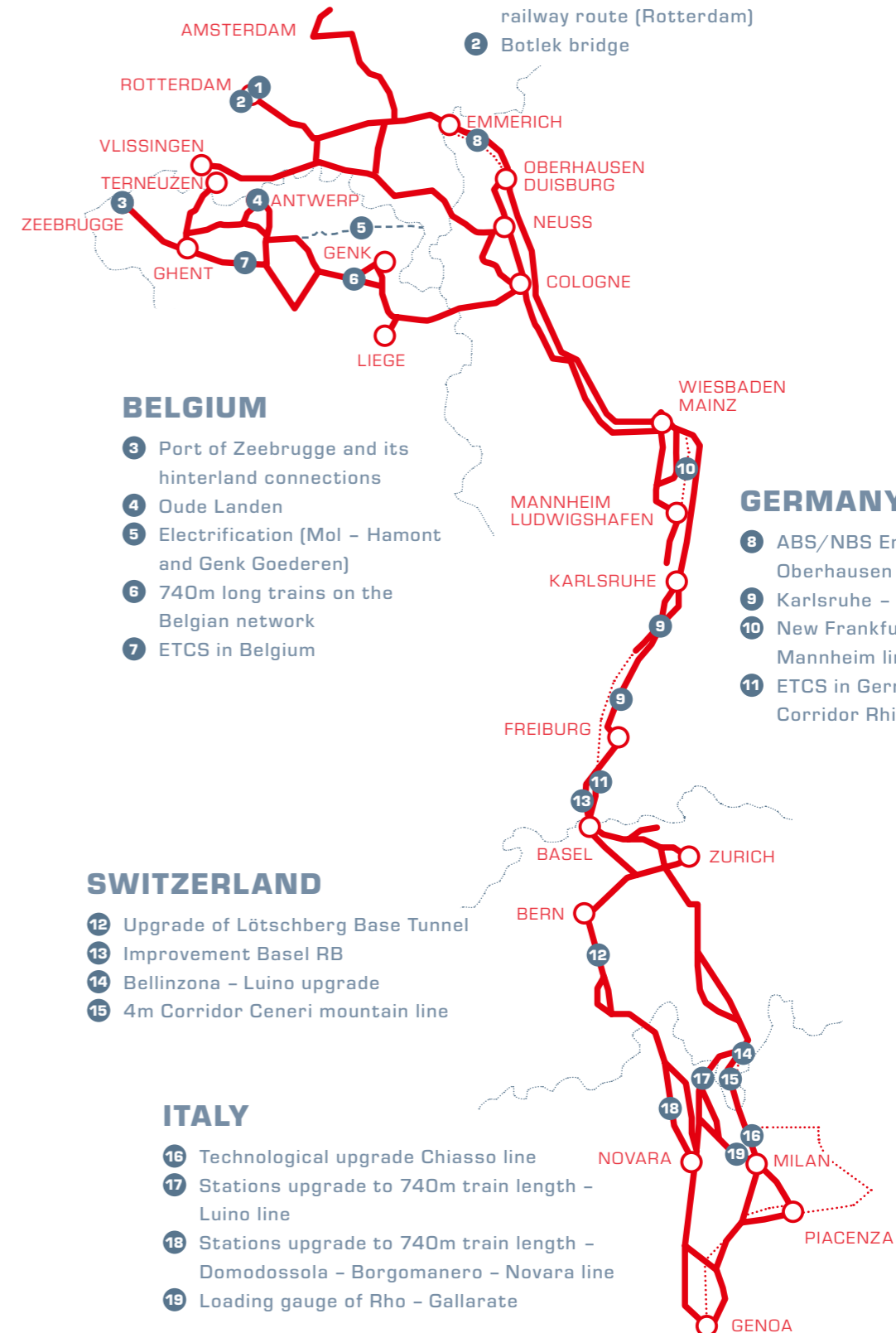
This chapter reports on projects which made significant progress or were completed during 2021. These projects are part of the Implementation Plan of RFC Rhine-Alpine.

OVERVIEW MAP

PROJECTS ON RFC RHINE-ALPINE

THE NETHERLANDS

- 1 The new Theemsweg elevated railway route (Rotterdam)
- 2 Botlek bridge



BELGIUM

- 3 Port of Zeebrugge and its hinterland connections
- 4 Oude Landen
- 5 Electrification (Mol - Hamont and Genk Goederen)
- 6 740m long trains on the Belgian network
- 7 ETCS in Belgium

GERMANY

- 8 ABS/NBS Emmerich - Oberhausen
- 9 Karlsruhe - Basel
- 10 New Frankfurt - Mannheim line
- 11 ETCS in Germany on Corridor Rhine-Alpine

SWITZERLAND

- 12 Upgrade of Lötschberg Base Tunnel
- 13 Improvement Basel RB
- 14 Bellinzona - Luino upgrade
- 15 4m Corridor Ceneri mountain line

ITALY

- 16 Technological upgrade Chiasso line
- 17 Stations upgrade to 740m train length - Luino line
- 18 Stations upgrade to 740m train length - Domodossola - Borgomanero - Novara line
- 19 Loading gauge of Rho - Gallarate

PROJECTS IN THE NETHERLANDS

1 THE NEW THEEMSWEG ELEVATED RAILWAY ROUTE

In November 2021, the new elevated Theemsweg route on the Harbour railway line came into service.

The new route runs from the Botlek yard over a new railway viaduct along the Theemsweg and rejoins the existing railway track near the Europoort yard. The Theemsweg route significantly improves the accessibility of the Port of Rotterdam. Freight trains no longer have to wait for the Caland Bridge, which is opened several times a day for shipping traffic.

2 BOTLEK BRIDGE

In the summer of 2021, the track on the new Botlek Bridge was put into service.

In addition to the extra capacity, this link also restores the direct shunting connection between the Pernis and Botlek yards.

PROJECTS IN BELGIUM

3 PORT OF ZEEBRUGGE AND ITS HINTERLAND CONNECTIONS

The construction of a new fan of sidings in the existing marshalling yard at Zeebrugge, which started in February 2019, continued in 2021. Two tracks will be able to accommodate 740m long trains. At the end of 2021 the eight tracks in the siding Zeebrugge are constructed. The commissioning is foreseen in November 2022.

Regarding the third track between Brugge and Dudzele, preliminary works started in July 2021 on the northern part of the third track. Due to budgetary constraints, only limited and urgent works will be carried out in the period 2022-2024.



Rail Force One freight train on the Harbourline in Rotterdam.

The works on the construction of a third and fourth track between Ghent and Brugge also continued in 2021. The construction works in Aalter and Maria-Aalter were finalised in August 2021.

4 OUDE LANDEN

Today all trains from the Port of Antwerp to the hinterland travel via a single line between Antwerp North and Mortsel (L 27A). This line has reached its capacity limits. The construction of a flyover, called Oude Landen, in order to replace the current junction Schijn at the entrance of the marshalling yard Antwerp North, is a first step on the way to enhancing the capacity on the line L27A. This project can be considered as the first phase of a long-term solution to improve the access to the Port of Antwerp, consisting in the construction of a completely new railway line between Antwerp North and Lier, the so-called second railway access.

The building permit for the project 'Oude Landen' was obtained in December 2021. The first works will start in January 2022. If all goes according to plan the flyover should become operational by the end of 2031.

5 ELECTRIFICATION

Infrabel started the electrification works of the line between Mol and Hamont (L19) in autumn 2018. In June 2021, this 33km long electrified line was taken into service. In addition, 3 new traction substations were built along this line in Lommel, Neerpelt and Hamont. The total investment of the electrification works amounted to 30.9 million € and was supported by Europe (Connecting Europe Facility – 40 %).

In May 2021, electrification works started on the line between Genk-Goederen and Bilzen (L21C) and were finalised in the first quarter of 2022. The connection with L34 and L 21A will make it possible to use this line as a deviation route for electric freight trains. These works are financed with money from the Recovery and Resilience Facility (RRF).

6 740M LONG TRAINS ON THE BELGIAN NETWORK

In the framework of the works regarding the masterplan Hasselt, the construction of 2 long tracks was considered when reconfiguring the tracks. They were taken into service in 2021.

In December 2020, it was decided to start a specific project "side tracks 740m" to identify the locations on the Rail Freight Corridors (TEN-T Core Network) where investments are essential to allow running trains of 740m with-



Electrification works on the line between Mol and Hamont (L19).

out any restrictions. After an initial analysis, 12 locations for side tracks for 740m trains were proposed in addition to locations already included in ongoing projects. For these 12 locations, feasibility studies have been performed in 2021, 2 of which are located on RFC Rhine-Alpine: Brugge and Merelbeke. The results of the project will now be presented to the Infrabel management for further decision-making.

7 ETCS IN BELGIUM

ETCS deployment continued with the aim of the whole network to be equipped by 2025. In 2021, several stretches on RFC Rhine-Alpine were equipped with L1 LS: Y Zuid Everstein – Zelzate (L55, not including the border transition), Hasselt – Genk – Bilzen (L21 ACD), Olen – Mol (L15) and Mol – Neerpelt (L19, not including the border transition). ETCS will become mandatory from TT 2026 (14.12.2025)

PROJECTS IN GERMANY

8 ABS/NBS EMMERICH – OBERHAUSEN

In 2021, the design and approval planning for the third track continued. In the sections Oberhausen, Dinslaken, Voerde and Rees additional tendering processes for the construction works started. The entire construction works have been awarded in the planning approval section 1.1 Oberhausen.

In section 1.1 Oberhausen, the last rail bridge of a total of five was completed. The extension of the railway line as well as the relevant catenary is being constructed.

In Rees, Voerde and Dinslaken catenary and engineering construction works started in 2021. Those building measures will be continued in 2022.

In building section 3, the area of Wesel, the road engineering company of North Rhine-Westphalia built an overpass alongside the A-Road B58n. Those construction plans were aligned and supported by the project team of ABS 46/2.

In December 2021 in Rees-Haldern, building section 4b, an information centre for people affected by the building measures as well as for every other interested person was opened. It stands for transparent communication all around the project and also serves as a community centre.

The lawsuits against the planning permissions for the sections 1.4 and 3.1 got dismissed by the Federal Administrative Court after a comparison was made. In conclusion, the planning permissions are legally valid.

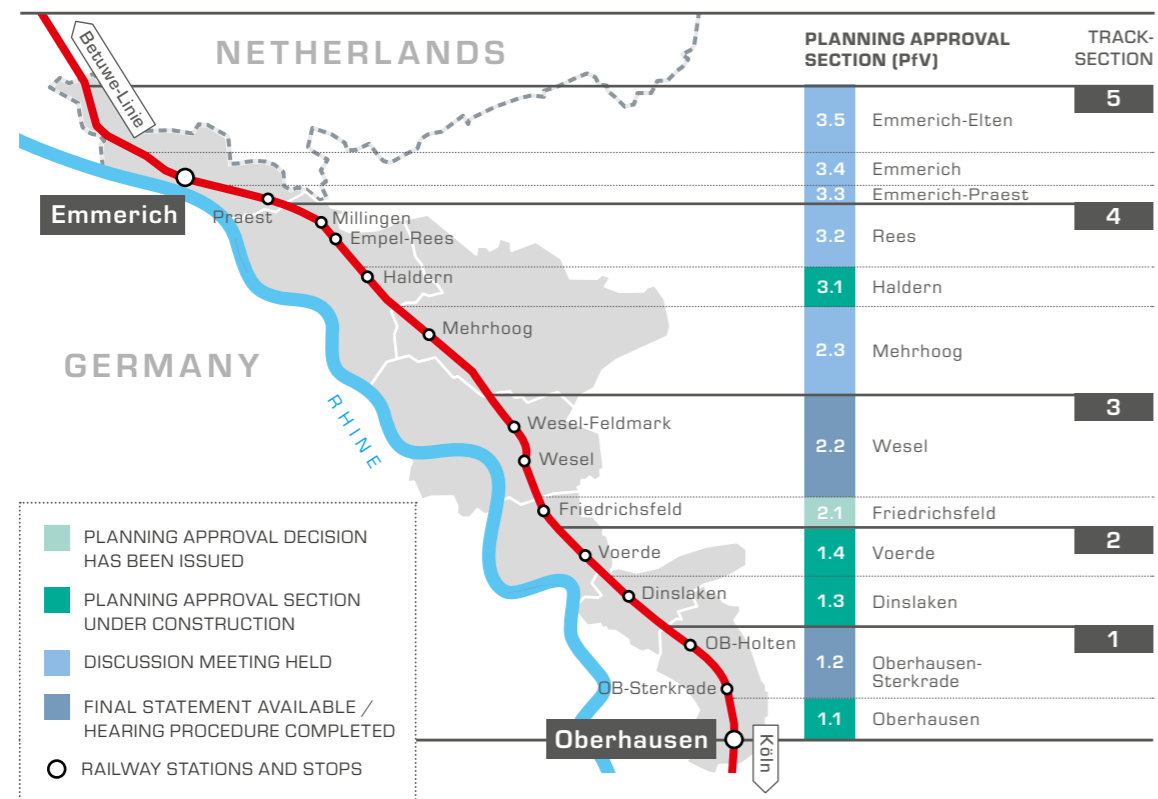
As a consequence of a verdict by the European Court of Justice, additional planning procedures were required. The planning approval decision for the sections 1.2 Oberhausen Sterkrade and 2.2 Wesel is expected during 2022.

9 KARLSRUHE - BASEL

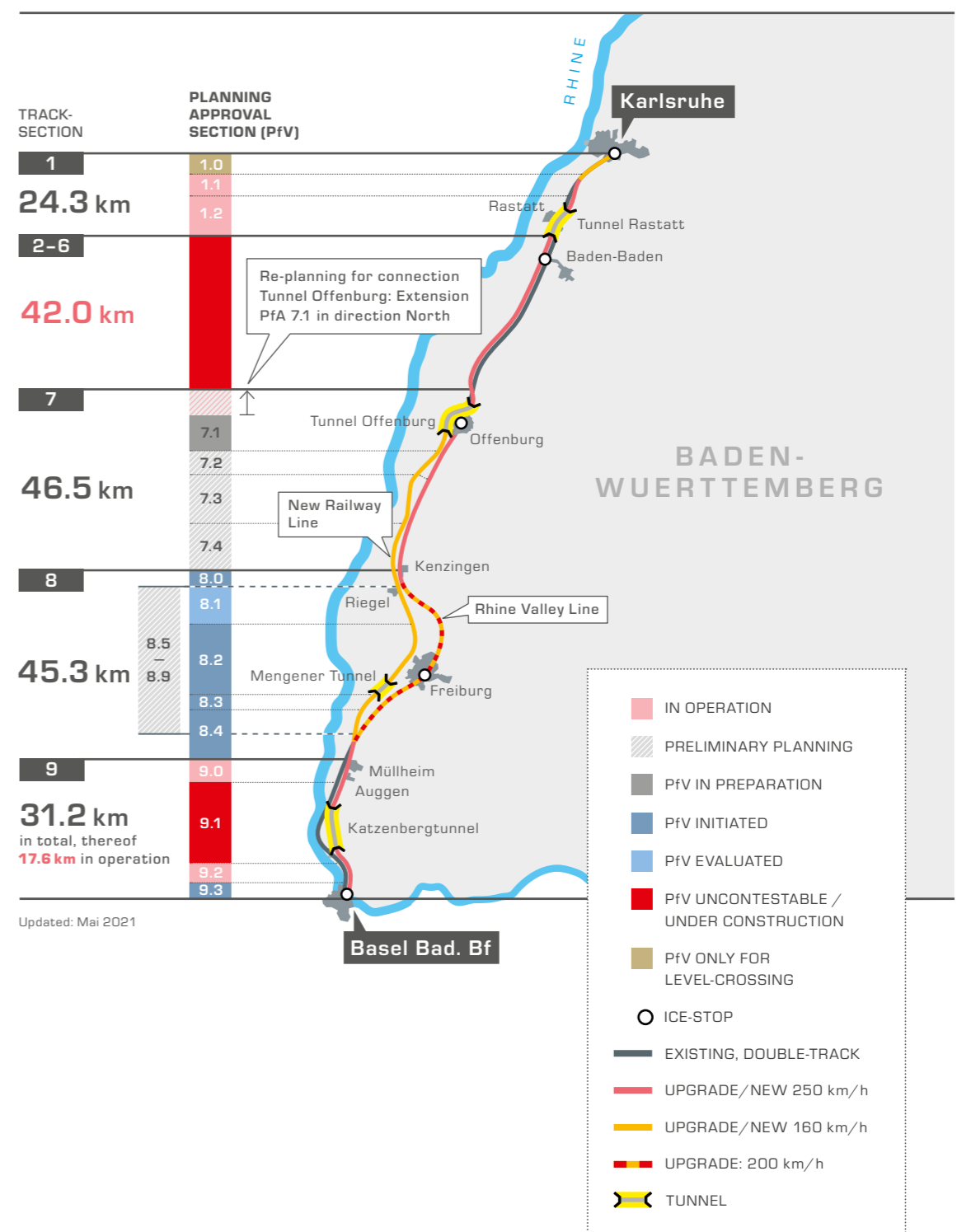
In 2021, the project Karlsruhe - Basel made further progress both in the planning approval process and in the construction works:

- In section 1 on December 6th the second tunnel drilling machine reached its destination. Now the tunnel tubes are connected and preparation works to dig out the wrecked (first) drilling machine will be continued. The investigation and arbitration process are still ongoing
- In section 7 the general planners finished their work on the preliminary design according to the decisions of the German Bundestag (German Federal Parliament), respecting the recommendations of the advisory committee. The documents for

PROJECT OBERHAUSEN - EMMERICH



NEW DEVELOPMENTS ON KARLSRUHE - BASEL



Updated: Mai 2021

- IN OPERATION
- PRELIMINARY PLANNING
- PfV IN PREPARATION
- PfV INITIATED
- PfV EVALUATED
- PfV UNCONTESTABLE / UNDER CONSTRUCTION
- PfV ONLY FOR LEVEL-CROSSING
- ICE-STOP
- EXISTING, DOUBLE-TRACK
- UPGRADE/NEW 250 km/h
- UPGRADE/NEW 160 km/h
- UPGRADE: 200 km/h
- TUNNEL

the approval process of Tunnel Offenburg were created and were submitted in 2021. Early public participation for the other parts of section 7 will take place after supplementary examinations of the construction process are finished.

- In section 8 the approval process for all PfA [approval sections] is continued. In PfA 8.0 the public consultation took place. Deutsche Bahn is evaluating all objections and notices in preparation for the public discussions.
- In section 9, PfA 9.0, construction works continued. The preparations for new barrier-free platforms and for building the track will be continued. The final works and documentation in PfA 9.1 (in operation since 2012) are on time. The construction works in PfA 9.2 are ongoing, especially the construction of new barrier-free platforms and track works. PfA 9.3 has finished the planning approval in Switzerland and construction works started immediately.

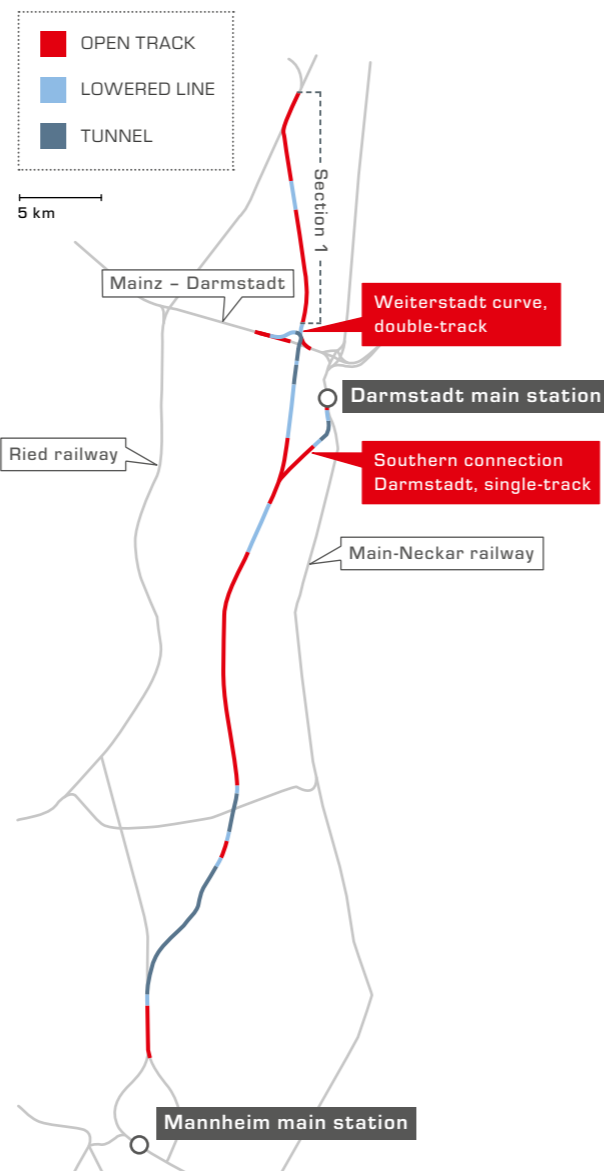
10 NEW FRANKFURT – MANNHEIM LINE

At the end of 2020, the preferred variant for the new Frankfurt-Mannheim line was determined. The route identified had proved to be the best in comparison to more than 30 variants. The new line from Frankfurt to Mannheim is a central link in Deutsche Bahn’s high-speed network. It closes the gap between the two ICE connections Cologne-Rhine/Main and Mannheim-Stuttgart. The two existing lines Ried line and Main-Neckar line will be relieved by the new line and the local and long-distance transport offer in the region will be significantly improved.

Since 2016, the Participation Forum, with around 100 representatives of all interest groups from politics, the environment and the public, has been involved in the planning of the new rail line. The Forum played a key role in the discussion and evaluation of the more than 30 variants of the route. The next step is to design the preferred variant and optimize it with regard to the requirements of the region. To this end, committees have been set up with the members of the Forum to draw up the regional requirements for parliamentary referral.

At the end of 2021, the planning approval documents for section 1 from Zeppelinheim to the Darmstadt northern link were submitted to the Federal Railway Authority. In 2022, planning for the legal construction procedure for section 2-3.1 (Weiterstadt-Pfungstadt) is to begin. In addition, the planning permission documents for sections 3.2 and 4 (Pfungstadt to Einhausen) are being prepared.

NEW FRANKFURT – MANNHEIM LINE



11 ETCS IN GERMANY ON CORRIDOR RHINE-ALPINE

ETCS deployment in Germany continued in 2021 and significant progress has been achieved:

In preparation of ETCS L1 LS installations the progress of civil works (e.g. cable tunnels) is on schedule.

In preparation of ETCS L2 deployment between Basel and Offenburg two electronic interlockings have been completed and successfully taken into service (Heitersheim and Müllheim). In that context the neighbouring electronic interlockings in Leutersberg, Bad Krozingen and Buggingen have been successfully adapted to the new ETCS L2 control system. In addition, the modern and secure communication system KISA has been implemented at all locations.

In the area of Darmstadt-Eberstadt “ETCS Ready” works have successfully been completed in order to allow ETCS L2 implementation in 2022.

In view of increasing demands on crypto key management, DB Netz AG has awarded a tender for the development of an online key management system in order to ensure sufficient service quality in the future.

Further ETCS installations between the border points of Basel (CH) and Venlo (NL) will be completed stepwise until 2028.

PROJECTS IN SWITZERLAND

12 LÖTSCHBERG BASE TUNNEL

The “partial extension” of the Lötschberg Base Tunnel (2nd tube Ferden – Mitholz) is part of the national “2035 Rail Expansion Step (ES 35)” investment plan, which was approved by the parliament at the end of 2019. The project is



New tracks laid in Olten East (Switzerland).



Inside the Lötschberg base tunnel.

expected to be approved by the Swiss Federal Office of Transport (FOT) in April 2022.

In the meantime, the FOT commissioned the project planning for the “full extension” of the Lötschberg Base Tunnel (2nd tube for the whole length of the tunnel). The project planning continues.

The parliament will decide by the end of 2023 whether the “partial” or “full extension” of the Lötschberg Base Tunnel should be implemented.

13 IMPROVEMENT BASEL RB

It is planned to rebuild the shunting yard Basel. New parking areas for locos will be constructed and existing sidings will be extended up to 750m. In addition, the overall capacity will be increased. First capacity improvements are expected in 2022.

14 BELLINZONA – LUINO UPGRADE

Between Bellinzona and Luino the overall capacity was increased by a new crossing station and a partly double track upgrade. In addition, the quality was improved. The double track between Contone and Quartino was already opened in 2019. In 2021 the upgrade of the crossing station in Pino for 750m trains was built. Completion and full availability of 750m tracks was in December 2021.

15 4M CORRIDOR CENERI MOUNTAIN LINE

The project aims to upgrade the Ceneri mountain line up to 4m profile. Along the about 27 km mountain line several stations, signals and 6 tunnels will be adjusted to fulfil the requirements of the 4m profile. Currently the construction works are being prepared and will start in 2022. Go-live is planned for December 2023.

PROJECTS IN ITALY

16 TECHNOLOGICAL UPGRADE OF THE CHIASSO LINE

A further phase of the technological upgrading project of the Chiasso line concerning the Milano Node was completed between Milano Greco Pirelli and Sesto San Giovanni section.

17 STATIONS UPGRADE TO 740M TRAIN LENGTH – LUINO LINE

The works concerning the upgrade of Pino Tronzano and Porto Valtravaglia stations were completed in 2021. Gallarate upgrade is expected to be completed in 2022, which will allow to increase the number of longer trains running through the border crossing as agreed with SBB Infrastruktur.

18 STATIONS UPGRADE TO 740M TRAIN LENGTH – DOMODOSSOLA – BORGOMANERO – NOVARA LINE

In 2021, the Gravelona Toce station was completed. Further stations upgrade are expected in 2023 and 2024. The commercial activation is subject to the completion of the Novara Node.

19 LOADING GAUGE CHANGES

- Luino and Chiasso line: Trains can run with P/C 80-410 profile without special authorisation on both lines.
- Rho – Gallarate: The interventions have been completed and trains can run with P/C 80-410.

OVERVIEW MAP



SBB Cargo freight train on the Cenerie base tunnel access route.

KEY TOPICS IN 2021

Despite the challenges, especially due to the COVID-19 pandemic, we jointly supported the gradual improvement of conditions for rail freight on the Corridor lines and for cross-border traffic. Here are RFC Rhine-Alpine's focus topics for 2021, with joint information from the Management Board and the Executive Board.

COVID-19

In 2021, the COVID-19 pandemic still had many implications for the European rail freight sector and continued to influence our work and private lives throughout the year. In the second year of the pandemic, rail freight and intermodal transport remained a very resilient mode of transport. All stakeholders in the transport chain did their very best to keep up operations on RFC Rhine-Alpine, protecting the health of their operational staff and shifting as much as possible to contactless operations:

- IMs managed to keep all routes open (excluding ICMs).
- RUs could run the requested trains and reacted flexibly to changed operational needs of customers and end customers.
- Terminal operators enabled contactless pick-up and delivery.

As a result, RFC Rhine-Alpine experienced no track closures on account of COVID-19 infections in 2021. As shown in the chapter "Market development KPIs", see [p. 15](#), the overall higher economic activity in 2021 compared to the first pandemic year 2020 resulted in a substantial increase in the freight volumes of RFC Rhine-Alpine. The number of trains slowly reached pre-pandemic levels in 2021. A negative side effect of the increase in the number of trains both in rail freight and passenger traffic was a significant decrease in performance of rail freight trains (see chapter "Operations KPIs", see [p. 18](#)). Not all stakeholders in the transport chain were able to repeat the 2020 performance in this situation. There was also a spike in infrastructure works in 2021, which partly could not be executed during the first year of the pandemic. However, with the number of trains and TCRs getting back to normal levels in the first half of 2021, the delays began to increase again.

POLICY DEVELOPMENTS

At the EU level, important policy initiatives have been launched:

- The smart and sustainable mobility strategy from December 2020 states that rail freight traffic will increase by 50% until 2030 and double by 2050.
- The 2 June 2021 publication of the Commission evaluation of the Rail Freight Corridor Regulation 913/2010/EU. The evaluation notes limited impact of the present RFC implementation and indicates 3 policy options for further harmonization especially on a strengthened framework;
- The 3 June 2021 Council conclusions on railways with a high emphasis on the need of modal shift for both rail passenger and rail freight transport;
- The 14 July 2021 proposals from the European Commission to ensure a fairer level playing field between all modes of transport ("Fit for 55") and to reach climate proof transport policy;
- The 14 July 2021 publication of the CEF II Regulation for the period 2021-2027 and the launch of the 2021 CEF Transport call for proposals in September and the invitation for the technical assistance in December.
- The 14 December 2021 proposal for a revision of the TEN-T guidelines which includes proposals to accelerate ERTMS deployment by 2040 on the entire TEN-T network, the P400 loading gauge as a new infrastructure parameter, implement 740m trains on the TEN-T network with a reinforced definition and introduce 160km/h line speed on the (extended) core passenger network. The EU transport Council

and the European Parliament will have to decide on these proposals from 2022 onwards;

- The Commission communication on the action plan to boost long distance and cross-border passenger rail from 14 December 2021 which underlines the challenge to improve also international rail passenger transport. The increased demand for and political attention for international rail passengers may also impact the Rhine Alpine mixed traffic stretches.

At the level of the Network of Executive Boards of RFCs, the follow-up of the Berlin 2020 Declaration was monitored, i. e. the network decided in December 2021 to launch in 2022 for each RFC a case study on an ICM case to promote

proper coordination between all partners on contingency cases and deviation routes.

To strengthen the cooperation, RFC Rhine-Alpine and RFC North Sea-Mediterranean held joint Executive Board Meetings on 5 March, 2021 and 29 November, 2021. The meetings covered the topics regarding the re-routing possibilities, TCRs, interoperability (740m trains and P400), international contingency management, traffic analysis and national freight strategies. The plans on the overview of the national freight strategy show that all the countries have a very active investment plan in infrastructure and innovation. Furthermore, it has been stated that the capacity and the demand forecasting should be connected within the two corridors.

IMPLEMENTATION PLAN

In December 2021, the regular update of the Implementation Plan was published in CIP based on a decision by the Executive Board. The document and its annexes give a comprehensive picture of the developments in all fields

of the RFC since the last update in 2018. Large focus was laid on the investment planning, capacity bottlenecks and ERTMS implementation. The Implementation Plan was also consulted among RAG and TAG members.

TEMPORARY CAPACITY RESTRICTIONS

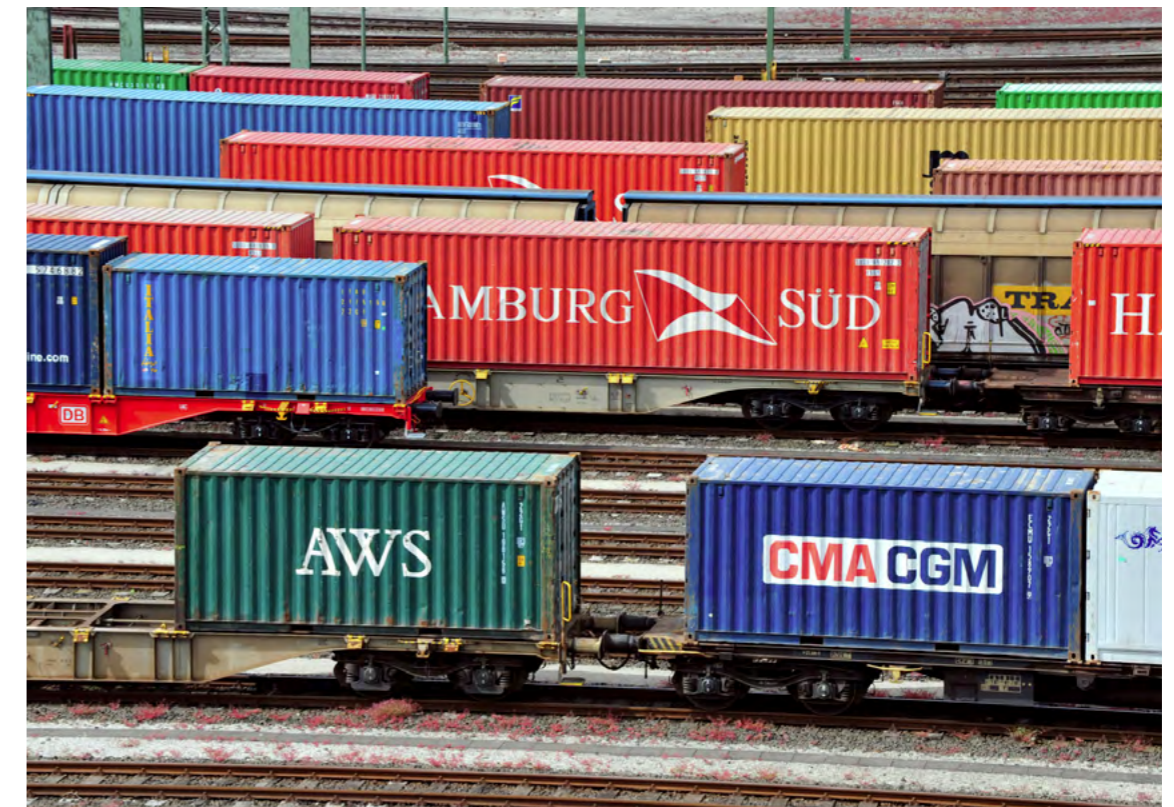
In 2021, the pilot of using the TCR Tool was continued in order to help RNE with the development of this tool.

Bi- and trilateral coordination to mitigate the impact of TCRs has taken place intensively. There is a high need for this as the number of TCRs will increase in the upcoming years. In 2021, the coordination of TCRs between RFC Rhine-Alpine and RFC North Sea-Mediterranean was started to offer better re-routing possibilities for upcoming projects in 2024 and 2025.

BLS Cargo Re 485 passes through Basel Badischer Bahnhof on its way from Freiburg (Breisgau) to Novara Boschetto.



Shunting yard during a freight train formation.



INTERNATIONAL CONTINGENCY MANAGEMENT

The updated ICM handbook was approved by the RNE GA in May 2021 and published. Main updates are related to the capacity allocation rules and the definition of the processes between the RFC and IMs in case of disruptions. RFC Rhine-Alpine supported the initiative actively and participated in several working groups.

The ICM Expert Group is currently planning a simulation on the updated ICM handbook in 2022 jointly with RFC North Sea-Mediterranean.

The re-routing scenarios were updated together with the WG Infrastructure and Terminals and are available in CIP, as an excel and in the interactive map.

The ICM process was activated several times in 2021 because of a rock slide in Kestert and flooding in Belgium and Western Germany.

ROCK SLIDE IN KESTERT (MIDDLE RHINE VALLEY)

A rock slide on the right-hand Rhine route on 15 March impacted the important freight train route in the Middle Rhine Valley for several weeks. Fortunately, there were no injuries, and no vehicles or trains were hit. On several occasions rock outcrop had to be blown away by artificial explosions till 23 March, which additionally led to some blockage of the railway on the left bank of the Rhine also. A 70-ton crane had to come from North Rhine-Westphalia, rocks had to be crushed and removed with excavators. Only by 9 May, both tracks could be released after intensive restoration works, whilst the full closure of federal highway 42 ended on 19 April.

FLOODING IN BELGIUM

Extreme rainfall during several days forced Infrabel on 15 July 2021 to interrupt the traffic on large parts of the network in Wallonia for



Damaged bridge during the floods in Belgium in July

safety reasons. The resulting floods led to huge damages to the railway infrastructure, which triggered an ICM case on the next day.

Given the vast scope of the damages (25 lines were concerned) and the simultaneous impact on the 3 RFCs running through Belgium, it was decided that the coordination of this incident would be led by Infrabel's account management team. For several weeks, regular teleconferences were held among IMs and between IM and RUs to inform them about the operational capacity in the flooded region and to give updates on the planning for the gradual re-opening of the network. Additional stakeholders were informed via the RFCs, mainly RFC North Sea-Mediterranean, the most heavily impacted Corridor (both principal line and diversionary line blocked).

The impact on RFC Rhine-Alpine and RFC North Sea-Baltic was rather limited since the Montzen-route (L 24) going to the German border could already be taken into service again on 16 July.

The concerned lines on RFC North Sea-Mediterranean were partly open again on 16 August (Athus - Meuse). Less than 6 weeks after the

damaging floods, only 3 sections were still to be restored. All lines of the Corridor were fully operational again on 18 October 2021.

RAIN AND FLOODING IN NORTH RHINE-WESTPHALIA

In connection with the weather depression "Bernd" in Germany and the neighbouring countries, particularly in the period from 12 to 15 July, 21 regionally very pronounced heavy rain events occurred. In North Rhine-Westphalia and Rhineland-Palatinate in particular, these led to pronounced flooding, which was the cause of a high number of deaths and considerable damage to the infrastructure.

In North Rhine-Westphalia, almost all tributaries of the Rhine and many of their tributaries and streams have overflowed their banks. In some cases, they reported historic heights and caused damage of an unprecedented extent. Damage of around 1.3 billion euros was incurred at Deutsche Bahn alone. 50 bridges, 40 signal boxes, 180 level crossings, more than 1,000 catenary and signal masts and many train stations were damaged. According to Dr. Volker

Hentschel from DB Netz AG, the goal was to bring around 80% of the damaged infrastructure back into shape by the end of the year 2021. While the work has already been accom-

plished in some places, some stretches are still damaged or have completely disappeared. It will take several years to get all of this back to work.

TRAIN PERFORMANCE MANAGEMENT

The **feasibility study on Rail Collaborative Decision Making (R-CDM)** was launched in 2020 and concluded in June 2021. The consultants HaCon and To70 presented the results of the study to the Management and Executive Boards, RAG, TAG, RNE and DG MOVE.

Starting from the experiences gained in the aviation sector, which largely implemented the Collaborative Decision Making approach during the last 15 years in Europe and worldwide, a transferability assessment was made, concluding that R-CDM could be introduced in the railway sector, too, provided that there is a common willingness among all stakeholders in the intermodal transport chain to share their data. The final report summarised the requirements for R-CDM development and implementation and proposed a potential roadmap to successfully reach the goal. An implementation manual

should be elaborated and an implementation program with the involvement of a "coalition of the willing" should carry out trials adopting the R-CDM methodology.

The executive board and management board considered the R-CDM feasibility study as a high potential innovation to support cooperation between all stakeholders of the corridor and quality improvements. To introduce this high level commitment from the stakeholders is necessary and concerted efforts to build up a European approach to develop a standard for R-CDM.

As R-CDM should be initiated with a network-wide approach and not only on one single corridor, the Management Board of RFC Rhine-Alpine decided to approach the Managing Board of RNE with the request to take the R-CDM approach into consideration while developing the European Traffic



Class 152 of DB Cargo underway with sea containers.

Management Network (ETMN). In this way, all IMs are involved and synergies can be used in an optimal way. The RNE General Assembly supports this approach and the R-CDM principles will be considered in the next project phases of the ETMN project. In the meantime, RFC Rhine-Alpine is eager to develop together with RNE and potentially also with the support of external consultants the implementation manual. Moreover, RFC Rhine-Alpine is interested in carrying out trials and organising cooperation with stakeholders.

The WG TPM discovered that punctuality suffers in Rheinhausen due to capacity bot-

tlenecks, especially for international long trains. Therefore, DB Netz AG with the support of RFC Rhine-Alpine started a dedicated task force at the terminal yard Rheinhausen with the involvement of RUs, Duisport as connecting infrastructure manager, shunting operators and the regional traffic control centre. The aim of the task force is to deeply analyse the processes of handover into/ from the terminal yard to DB Netz AG and to identify and implement concrete measures to improve departure punctuality. The participants are very committed and willing to cooperate; first results could already be achieved.

CHANGES TO THE OPERATIONAL FRAMEWORK

HEAVY TRAINS IN ITALY

In 2021, a clarification and simplification for heavy trains running on the Italian network was reached. With the amendment of a regulation, the safety management systems of the railway undertakings now include the responsibility for the planning and operation of heavy trains on a set of lines, defined in RFI operational rules (Annex X - PGOS-IF). On these lines which can be updated under request, it is possible to operate with a total mass of 2500 tons. By this, the involvement of RFI is still needed only to upgrade this set of lines.

REFLECTIVE PLATES

The European Commission proposed in 2019 (Implementing Regulation 2019/773) that from 1 January 2022 all Member States must accept freight trains equipped with a rear end signal in

the form of 2 reflective plates along the RFCs and from 1 January 2026 on the whole European Union rail network. The aim is to phase out the notified national rules which require freight trains to be equipped with 2 steady red lights as applied in a number of Member States. After a recommendation of ERA and taking into account reported safety concerns, the European Commission (Implementing Regulation 2021/2238 of 15 December 2021) decided to postpone the deadline of 1st of January 2022 for some Member States, i. a. to the 1st of January 2026 for Belgium. Precondition is that the involved Member States prepare a detailed action plan by 1 March 2022 and precise targets ensuring the elimination of the requirement for red lights as rear end signals and report on the progress every 6 months thereafter. Full harmonisation at Union level is still planned by 1 January 2026.

ERTMS DEVELOPMENTS

ERTMS EXPERTS PLATFORM

In 2021, the cooperation on Corridor level was continued successfully. Nevertheless, the COVID-19 pandemic has led to the situation, that meetings in presence were not possible. Michael

Wyss and Georg Streckert have joined the group of participants. Michael Wyss from SBB Infrastruktur is the successor of Marc Zurflüh and Georg Streckert from DB Netz AG (representative of the project Emmerich-Oberhausen).



Track work by DB Netz AG in Koblenz.

The group thanks Hanspeter Haenni and Peter Brugts on their retirement for their long standing and highly committed contribution to the task force. Both have supported ERTMS roll-out on RFC Rhine-Alpine since the beginning in 2006. The following activities and achievements can be highlighted:

- Regular reporting to the ERTMS task force on the progress of ETCS deployment along the Corridor;
- Support of the ERTMS task force in the preparation of the agenda and contribution to specific topics;
- Further improvement of the user interface and the functionality of the SharePoint App (joint tool for risk assessment);
- Update of the database, creation and communication of an ETCS risk report. Risk evaluation and reporting will be continued;
- Two updates of the RFC Rhine-Alpine ETCS deployment overview and publication after approval by the ExB and MB on the RFC Rhine-Alpine website and CIP;
- Update of the ERTMS information in the Customer Information Platform;
- Preparation of the chapter Deployment Plan (ERTMS) for the 2021 update of the Implementation Plan of RFC Rhine-Alpine;
- Exchange with RUs and vehicle owners about the expected schedule and type of ETCS installations;
- Investigation on the content of ETCS cross-border agreements and notification to the EC;
- Preparation of a joint request on improvements in the trackside approval procedure based on first experiences of the IMs (new procedure according to the 4th railway

package) and presentation to the task force;

- Investigation and analysis of the initial situation regarding the development and introduction of an online Key Management;

The ERTMS Experts platform will continue its work in 2022 based on the work plan agreed with the MB.

ERTMS TASK FORCE

In 2021, the ERTMS task force of the Executive Board held five online meetings with participation of DG MOVE, ERA, NSA and IM representatives. Due to the COVID-19 pandemic, no meetings in presence have been possible for the second year in a row. Michael Riemenschnitter has joined the group of participants in June as the successor of Hanspeter Haenni, who retired. Hanspeter Haenni has supported ERTMS roll-out on RFC Rhine-Alpine since the beginning in 2006. The main activities in 2021 included:

- Review of the state of play of ERTMS deployment and the approval of the Deployment Plan (ERTMS) for the 2021 update of the Implementation Plan of RFC Rhine-Alpine. The documents are published on the RFC Rhine-Alpine website and in CIP;
- Evaluation of the vehicle authorisation process. This activity led to a clearer understanding of the requirements and corresponding explanations in the RFC deployment overview. It was agreed that reports from the retrofit project in the Netherlands should be given at intervals in order to get a real picture;
- Exchange regarding on-board migration and funding schemes in the Member States participating in the RFC Rhine-Alpine. Task force members agreed that the OBU migration is a

challenging task. The cooperation and discussion within the task force will be continued in order to coordinate common strategies;

- Support of an initiative prepared by the ERTMS experts platform requesting improvements in the trackside approval procedure. The Executive Board sent a letter to DG MOVE and ERA on behalf of the ERTMS task force. Further activities on this matter are expected in 2022;

The risk report of the ERTMS experts platform presented in August was well appreciated and led to a dedicated initiative regarding the radio strategy. Feedback for the next report was given from the discussion. The risk analysis is to be continued in 2022, as it is seen as a good tool for evaluating the state of play of the introduction of ERTMS and deriving further initiatives and measures.

For 2022, the task force has agreed on tasks and objectives and presented them to the Executive Board, which agreed. Four meetings are planned to continue the work on the different topics on the agenda.



The north portal of the Gotthard Base Tunnel in Erstfeld.



Ballast leveller in operation on the German network.

INFRASTRUCTURE AND CAPACITY

The capacity challenge initiative started in 2020 and was followed up in 2021.

For example, the **capacity bottleneck analysis** was enriched with the perspective of the RUs before being published in spring 2021 and was also included as an annex of the Implementation Plan update 2021. The document now gives a comprehensive representation of the capacity bottlenecks on the RFC until 2030 with information from the RUs on their experience of capacity availability and the IMs' perspectives on capacity and operational performance.

Initiated by the RAG, the topic of capacity planning in service facilities was put on the agenda

of the RFC. A thorough state-of-play of available capacity was prepared by the RUs which was then complemented with information from the IMs. The discussions will be continued in 2022.

The ExB of RFC Rhine-Alpine looked on expected traffic volumes and the creation of transparency regarding the currently different national perspectives and infrastructure planning. This topic will also be followed-up in 2022 by the ExB.

As a basis for all discussions, information in **CIP** regarding the infrastructure parameters was kept up to date.

MARKETING AND CUSTOMER RELATIONS

EUROPEAN YEAR OF RAIL

2021 was declared the European Year of Rail by the EU Commission to enhance rail traffic as a sustainable, innovative and safe mode of transport through events, campaigns and initiatives which took place throughout the European Union. As part of the European Year of Rail, the Connecting Europe Express criss-crossed the continent from 2 September to 7 October 2021, stopping in over 100 cities in 26 countries and also making multiple stops along the Corridor. As part of the Connecting Europe Express, RFC Rhine-Alpine participated in several discussion rounds around the topic of the future of rail freight in Europe, for instance in Milano, or at an event dedicated to new initiatives in cross-border rail in Berlin. Moreover, the RFC Network launched a series of discussions as part of the European Year of Rail on different topics, such as including timetable redesign, ICM handling and cross-border rail freight in general.

RAILWAY UNDERTAKING ADVISORY GROUP

In 2021, the actions of the Railway undertaking Advisory Group (RAG) and RFC Rhine-Alpine complemented each other very well. Several topics were discussed and followed up together.

Some highlights are described below.

Strengthening the cooperation between the RFC and the RAG was one of the key points in the meetings in 2021. The MB of RFC Rhine-Alpine agreed to have a RAG slot in its meetings to further enhance the bilateral communication. Another topic raised by the RAG was the capacity in service facilities managed by the IMs. The RAG presented an as-is situation based on their experiences. The IMs analysed the information from their perspective and indicated where the topics can best be followed up. The information was also presented to the Executive Board during the first meeting of 2022.

Another focus topic of the RAG was the ongoing COVID-19 pandemic and its effects on the RUs in the near future. Both, RUs and IMs, experienced a spike in transport volumes in 2021 compared

to the previous year, which was partially higher than pre-pandemic demand. Concerning TCRs, the RAG presented the costs of TCRs for RUs and that the communication of line closures has to be improved in the future.

Concerning the TCR in Rastatt in 2024, DB Netz AG as leading IM started the coordination with the RUs in March 2021 to prepare possible re-routing scenarios together. Furthermore, the results of the User Satisfaction Survey and the derived actions were presented to RAG and TAG. The Implementation Plan update was also consulted with RAG and TAG, including the investment plan and the ERTMS deployment.

TERMINAL ADVISORY GROUP

The first joint meeting of the TAG members of RFC Rhine-Alpine and RFC North Sea-Mediterranean was held online on 3 March 2021 where discussions of growth perspectives were discussed. Moreover, the ports of Antwerp and Zeebrugge gave information on planned capacity extensions in the upcoming years. The current and future long-term capacity bottlenecks, especially in the southern part of RFC Rhine-Alpine as well as the different effects of the COVID-19 pandemic on cross-border traffic were discussed. UIRR presented an overview of the latest developments in European transport policy related to climate change/protection and the new CEF II infrastructure co-financing programme.

Additionally, workshops on innovation activities promoted by terminal operators were held, such as the end-to-end monitoring between Lyon and Bettembourg.

USER SATISFACTION SURVEY

The User Satisfaction Survey 2021 was conducted for the second time jointly with all eleven Rail Freight Corridors. In 2021, the RFC Network further developed the questionnaire first used in 2020. The survey was conducted between September and October 2021, with 15 answers received (14 in 2020). The overall satisfaction of users with RFC Rhine-Alpine

RESULTS OF THE USER SATISFACTION SURVEY: TOPICS WHERE IMPROVEMENTS ARE NEEDED

efficiency of measures taken to improve punctuality	67 %
involvement of customers	60 %
infrastructure parameters	60 %
parameters of PaPs (train length/weight)	57 %
quality and usability of re-routing scenarios	56 %
measures taken to improve infrastructure standards	53 %
time-table of alternative offers	47 %
infrastructure capacity	47 %
CIP not used	47 %
consideration of AG's opinion in the MB	46 %
consideration of AG's opinion in the ExB	46 %

decreased to 92% (compared to 100% in 2020). RFC efforts were recognised, e.g. with respect to the further development of CIP and the commercial offer. The good cooperation between IMs is highly valued. Points for improvement mostly refer to infrastructure-related capacity bottlenecks, train performance management and TCRs. The results of the survey will be analysed in detail and discussed in the Management Board, Working Groups and with stakeholders alike.

CUSTOMER INFORMATION PLATFORM

The Customer Information Platform (CIP) was further developed and improved in 2021. The main achievements were:

- The completion of the roll-out of RFC Rhine-Danube. Now the stakeholders of all eleven Rail Freight Corridors benefit from the joint data platform
- Several developments to improve the user friendliness and an update of the graphical user interface

- General improvement regarding completeness of information on properties and projects
- Implementation of the re-routing scenarios for ICM situations, including the possibility to download re-routing maps and properties in an automatically created PDF.
- Launch of a CIP marketing campaign including **promotional videos**.

NSA WORKING GROUP REPORT

The NSAs of RFC Rhine-Alpine and RFC Scandinavian-Mediterranean are organised as "NSA Group" which deals with NSA related topics on both corridors. Besides an overall Steering Committee, there exist two main working groups concerned with ERTMS and vehicle authorisation issues; NSA WG and Task Force Interoperability (TFI). The following sections report about the activities of these working groups with regard to the implementation of the 4th Railway Package on RFC Rhine-Alpine in 2021.

(1) NATIONAL SAFETY AUTHORITY WORKING GROUP (NSA WG)

The NSA WG develops a common understanding of ERTMS technical issues such as errors, different interpretations and open points in order to achieve a common ERTMS standard on RFC Rhine-Alpine and Scandinavian-Mediterranean. In addition, the scope of the NSA WG covers operational issues on the Rail Freight Corridors. Issues identified by the group, which cannot be solved on Corridor level or might have a broader impact, are addressed to ERA.

Freight train running in Switzerland.



NSA WG TOPICS IN 2021

CCS TSI REVISION 2022

In 2021, text changes to the CCS TSI for the TSI Revision 2022 were provided by ERA. For this revision, approximately 40 change requests (CRs) are to be considered and included. Those CRs are error corrections and new specifications for issues called "Game Changers", like e.g. Automatic Train Operation (ATO), Future Railway Mobile Communication System (FRMCS) and ETCS Level 3. Main topics in 2021 were provisions on ETCS System Compatibility (ESC)/Radio System Compatibility (RSC) procedures, aligned transition regime of CCS vehicle specifications with vehicle related TSI and the handling of error corrections. The NSA WG discussed the text changes to attain a common understanding on the impact and consequences of those text changes to contribute to the discussions in the respective ERA working parties. This work will continue in 2022.

NATIONAL TECHNICAL RULES (NTRs) CCS

The NSAs are continuously discussing the NTRs in the area of CCS that are relevant for vehicle authorisation in order to get a mutual understanding of these rules. Based on this work, trilateral discussions took place in 2020, starting with Germany, Austria and Switzerland to explore possibilities to harmonise rules that are similar in two or more countries. The results of those discussions were summarised by and shared within the NSA WG. In 2021, each member of the NSA WG started to add their rules to the summary. Discussions on those will continue in 2022.

HARMONISATION OF DRIVER MACHINE INTERFACE (DMI) TERMINOLOGY

A subgroup of the NSA WG (Germany, Austria, Switzerland) started working on harmonising the DMI terminology. ETCS as the European harmonised train control system will offer the possibility to run throughout Europe without the need to switch the train control systems. To promote this goal, it would be helpful from an operational point of view to harmonise also the respective DMI terminology. Operational language is usually the language of the respective Member State and even the "same" native

language might differ from Member State to Member State, e.g. different German terminology in Switzerland, Austria and Germany. So, the goal of the subgroup is to achieve a specific terminology in one language, whereas the remaining part stays in the respective language of the Member State.

CONTINUOUS EXCHANGE OF EXPERIENCE WITH ERTMS VEHICLE PROJECTS

The Dutch ETCS project on retrofitting the Dutch freight locomotive fleet to ETCS Baseline 3 and the Dutch ERTMS project coordinating the ERTMS roll-out in passenger rail traffic regularly share updates on their state of play with the NSA WG. The focus is on lessons learned and newly arising issues, e.g. concerning national technical rules and derogation procedures, new specifications upcoming in the CCS TSI Revision 2022 as well as the procedures and responsibilities according to the 4th Railway Package.

ERTMS INFRASTRUCTURE PROVISIONS BY DIRECTIVE (EU) 2016/797

In 2020, the NSA WG developed a common understanding on how to apply the provisions required in Art. 18 (6) of the Interoperability Directive, concerning ERTMS renewal or upgrade of infrastructure projects during the authorisation process. In 2021, the discussion went on in the ERA working group ERTMS NSA Network and was concluded with a common procedure. This procedure foresees a yearly notification to ERA of APIS's (authorisation of placing into service) for ERTMS renewal or upgrade projects, including a short description of the procedure and reasons for the decisions.

Due to the transposition of the 4th Railway Package, an ERTMS trackside approval issued by ERA is a precondition to obtain an APIS for ERTMS projects. ERTMS trackside approval is to be issued before the start of tendering. In this process, ERA checks if the technical solutions envisaged for ERTMS implementations are fully compliant with the relevant TSIs and are therefore fully interoperable. In 2021, more and more projects applied for the ERTMS trackside approval, so the NSA WG started sharing experiences on this new procedure and will continue to do so in 2022.

OBJECTIVES OF THE NSA WG FOR 2022

According to the annual work plan of the NSA WG for 2022, the Group will in particular focus on the following main objectives:

CCS TSI Revision 2022

- One of the main topics in 2022 will still be the revision of the CCS TSI for 2022. Therefore, the NSA WG will address topics arising in the ERA working party on TSI CCS and in ERA's associated topical working groups (TWG), such as TWG train architecture.

Guidance for projects

- The NSA WG intends to continue guiding CCS vehicle projects with regard to derogation aspects concerning national technical rules for ERTMS and Class B systems. It will also continue to identify and share best practices with the sector with respect to CCS authorisation.

Cross-border interoperability issues

- The NSA WG will tackle issues hampering cross-border traffic related to ERTMS as well as operational problems identified on the Corridor falling under the responsibility of the NSAs.

National technical rules (NTRs) related to CCS

- The NSAs will continue discussing the NTRs in the area of CCS that are relevant for vehicle authorisation. The purpose is to get a mutual understanding of these rules and – if possible – to promote their harmonisation.

(2) TASK FORCE INTEROPERABILITY (TFI)**a) Impact of 4th Railway Package on TFI**

The TFI is a working group aiming at facilitating the authorisation of vehicles in the networks of Austria, Germany, Italy, the Netherlands and Switzerland.

In June 2019, the 4th Railway Package entered into force: Italy and the Netherlands transposed the Interoperability Directive (EU) 2016/797

and the Railway Safety Directive (EU) 2016/798 of the technical pillar of the 4th Railway Package into national law on that date.

Germany transposed both Directives into its national legal framework in June 2020; Austria implemented them in January 2021.

Switzerland, a non-EU Member State, revised its national railway legislation in June 2020 to be compliant with the principles of the 4th Railway Package, too.

Therefore, ERA became the authorising entity for international vehicles in the Dutch, German, Italian, Swiss and Austrian networks and hence gained an active role in the TFI.

Up until June 2019, the five NSAs from Austria, Germany, Italy, the Netherlands and Switzerland used cross-acceptance procedures on the basis of the 2007 Memorandum of Understanding (D-A-CH-I-NL) to facilitate first and additional authorisations of interoperable vehicles, in continuation of the activities of the previous years.

The 4th Railway Package brought some changes to the TFI. The authorisation process changed from "authorisation for placing into service" to the new concept "authorisation for placing on the market".

The legal basis for the authorisation for placing vehicles on the market (requirements, process steps, responsibilities, timeframes, evidences) is provided by the Implementing Regulation (EU) 2018/545.

The One-Stop-Shop (OSS), an IT tool governed by ERA, shall be used as instrument to file, manage and proceed all applications.

Furthermore, all authorisations for international vehicles are now issued by ERA as authorising entity in cooperation with the NSAs, which remain responsible for assessing the notified national technical rules.

For that purpose, the NSAs mentioned above signed formal cooperation agreements with ERA on the basis of Article 76 of ERA Regulation (EU) 2016/796.

To reflect ERA's new role as authorising entity, the TFI modified its composition and now includes experts from ERA and NSAs as well as Infrastructure Managers of the Member States mentioned above, which all provide their specific experiences in vehicles, the authorisation process and the interfaces between vehicles and infrastructure to the group. Thereby, the cooperation between ERA and the NSAs will be strengthened.

Beyond that, the TFI also invites representatives of vehicle manufacturers to the meetings to discuss and solve concrete issues occurring in the authorisation of vehicle projects on the Corridor.

The TFI provides an excellent platform for applicants to clarify general items with regard to the process of placing vehicles on the market and with regard to the operation of authorised vehicles in the Corridor countries.

As authorising entity, ERA now has an active role in the TFI and exchanges documents and information with the NSAs and other participants of the meetings.

b) The current tasks of the TFI in 2021 have been as follows:**Harmonising the content of European Register of Authorised Types of Vehicles (ERA-TV) and the content of authorisations especially with regard to restrictions and conditions of use**

- Including waiving restrictions from former authorisations (see clarification note from ERA 1209-70, dated 08.04.2020);
- Depending on national legislation and formulations in the authorisations, there are differences between the Member States;
- There exists a huge variety of how ERA-TV types have been entered in ERA-TV, so far. Furthermore, several NSAs revealed a need for clarification/improvement concerning the use of ERA-TV.

Notification according to Article 16 (4) of Regulation (EU) 2018/545

- In a huge number of cases in which the entity managing the change is not the holder of the vehicle type, authorisation of the changes will be notified to the authorising entity.

Management of authorisation of a vehicle after small changes, according to Article 15 (1),(b) of Regulation (EU) 2018/545

- This case is relevant if authorised vehicle types and/or vehicles undergoing some design modifications, are classified by the entity in charge of modification as small changes, according to Article 15(1), (b) of Regulation (EU) 2018/545. When the new technical dossier impacts the ERA-TV recorded data (e.g. update of CE certification, ...), an update of the relevant ERA-TV parameters is required (see clarification note from ERA 1209-066, dated 13.02.2020). Impact of this topic is different for interoperable vehicles or "single State" vehicles, regarding the authorities responsible for the management of the update.

Short cross-border vehicle authorisation

- This task is ongoing between NSAs/Member States, currently on basis of existing infrastructure manager agreements.

TSI non-application/derogation

- This topic becomes relevant if an applicant requests for a non-application of or a derogation from TSIs, e.g. by using the transition phases regulated in the TSIs (non-application).
- Main discussion topics have been related to possible harmonised provisions in order to minimise impacts in case of different results for an application submitted to each relevant Member State by an applicant for an interoperable project.

Continuous application of existing cross acceptance agreements for network-wide authorisation projects as long as Art. 14 (10) of Directive (EU) 2016/797 has not yet been implemented

Authorisation process for additional area of use and/or change including entry into ERATV for vehicles that were authorised before the 4th Railway Package

- See also clarification note from ERA 1209-100, dated 19.01.2021.

Reference Document Database (RDD)

- Cleaning up of notified national technical rules (NNTRs) in RDD is ongoing,
- Open: technical opinions from ERA on the NNTRs submitted by the Member States,
- RDD will be maintained until new single rules database (SRD) is fully paced in service,
- Current state of NNTRs is published at the NSAs` websites.

ERTMS National Implementation Plans

- Exchange of experiences from each involved TFI authority on the ongoing ERTMS National Implementation Plans, which introduce specific issues related to technical solution and/or rules application and require a harmonised coordination with ERA for the vehicle authorisations.

Joint tasks/issues from TFI and NSA Working Group RFC Rhine-Alpine and ScanMed: 4th Railway Package issues regarding (ERTMS-) vehicle authorisation

- Permanent dialogue between CCS experts from infrastructure managers and NSAs` experts in the NSA WG,
- ERA, TFI and NSA WG are ready for processing real CCS vehicle projects.

(3) MISCELLANEOUS: CONTRIBUTION TO ERA ERTMS WORKING GROUPS

Since the NSAs of RFC Rhine-Alpine also participate in the ERTMS working groups organised by ERA, the NSAs coordinate their views in order to achieve – if possible and appropriate – a common Corridor position in the respective working groups. Furthermore, ERTMS issues occurring on RFC Rhine-Alpine can be address to ERA, which is the system authority for ERTMS and an authorising entity in all Corridor countries.

ANNEX: LIST OF ABBREVIATIONS

AB	Allocation Body	PCS	Path Coordination System
ABS	Ausbaustrecke (upgraded line)	PfA	Planfeststellungsabschnitt (approval section)
APIS	Authorisation for Placing Into Service	PIM	Programme Implementation Manager
ATO	Automatic Train Operation	PMO	Programme Management Office
CCS	Control, Command and Signalling	R-CDM	Railway Collaborative Decision Making
CEF	Connecting Europe Facility	RAG	Railway undertaking Advisory Group
CID	Corridor Information Document	RBC	Radio Block Centre
CIP	Customer Information Platform	RC	Reserve Capacity
C-OSS	Corridor One-Stop-Shop	RDD	Reference Document Database
DG MOVE	EC's Directorate-General for Mobility and Transport	RFC	Rail Freight Corridor
DMI	Driver Machine Interface	RISC	Rail Interoperability and Safety Committee
EC	European Commission	RNE	RailNetEurope
EEIG	European Economic Interest Grouping	RU	Railway Undertaking
ELETA	Electronic Exchange of ETA information	TAG	Terminal Advisory Group
ETMN	European Train Management Network	TCM	Train Composition Message
ERA	European Union Agency for Railways	TCR	Temporary Capacity Restriction
ERA-TV	European Register of Authorised Types of Vehicles	TEN-T	Trans-European Network – Transport
ERTMS	European Rail Traffic Management System	TFI	Task Force Interoperability
ES 35	2035 Rail Expansion Step (Swiss infras- tructure investment plan)	TIS	Train Information System
ETA	Estimated Time of Arrival	TPM	Train Performance Management
ETCS	European Train Control System	TraFöG	Trassenpreisförderung im Güterverkehr (Train path promotion for rail freight in Germany)
ExB	Executive Board	TSI	Technical Specifications for Interoperability
FOT	Swiss Federal Office of Transport	TT	Timetable
FRMCS	Future Railway Mobile Communication System	TVS	Schweizerische Trassenvergabestelle (Swiss Allocation Body)
GSM-R	Global System for Mobile Communication, subset Rail	UIC	International Union of Railways
ICM	International Contingency Management	UIRR	International Union for Road-Rail Combined Transport
IM	Infrastructure Manager	WG	Working Group
IWW	Inland Waterways		
MB	Management Board		
MoT	Ministry of Transport		
NBS	Neubaustrecke (new line)		
NExBo	Network of Executive Boards		
NNTR	Notified National Technical Rule		
NSA	National Safety Authority		
NTR	National Technical Rules		
OBU	On-Board Unit		
PaP	Pre-arranged Path		

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EEIG Corridor Rhine-Alpine EWIV
Adam-Riese-Straße 11-13
60327 Frankfurt am Main
www.corridor-rhine-alpine.eu

Concept

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EEIG Corridor Rhine-Alpine EWIV

Adam-Riese-Straße 11-13
60327 Frankfurt am Main
Germany

rfc-rhine-alpine@deutschebahn.com
www.corridor-rhine-alpine.eu

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