

**CORRIDOR**  
RHINE-ALPINE



20  
23

**ANNUAL  
REPORT**

**RAIL FREIGHT  
CORRIDOR  
RHINE-ALPINE**



Funded by  
the European Union

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This chapter provides information about traffic developments at borders and the modal split in trans-Alpine traffic and in the ports of Antwerp, Rotterdam and Genoa as well as about the most recent KPIs on capacity management and operations. Target values were defined for four new core objectives. The progress is being reported here.

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This chapter reports on projects that made significant progress or were completed during 2023. These projects are part of the Implementation Plan of RFC Rhine-Alpine.

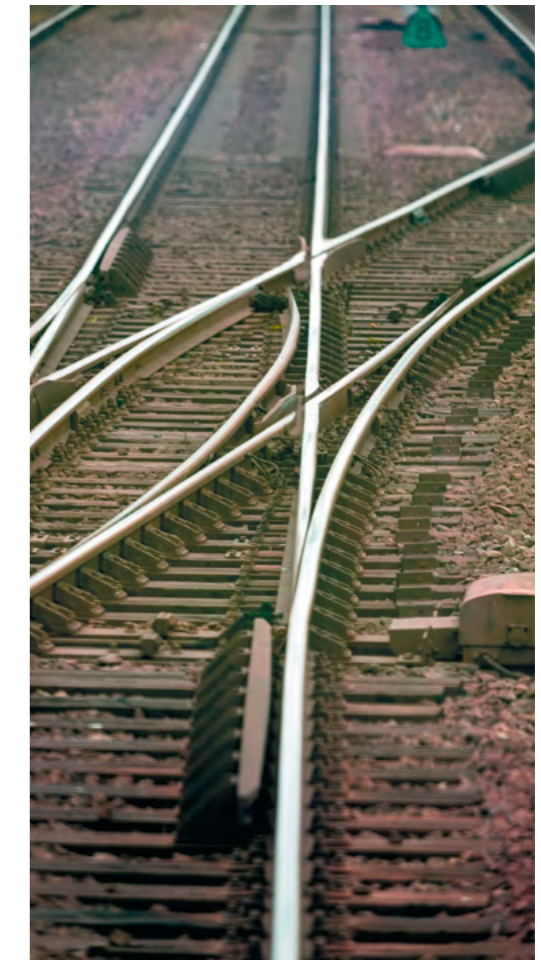
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Despite the many challenges, we jointly supported the gradual improvement of conditions for rail freight on the Corridor lines and for cross-border traffic. Here are RFC Rhine-Alpine's focus topics for 2023, with joint information from the Management Board and the Executive Board.

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**3,900** KM  
OF CORRIDOR LINES

**5**

**SEAPORTS**

- AMSTERDAM
- ANTWERP-BRUGES\*
- GENOA
- NORTH SEA PORT\*\*
- ROTTERDAM

**FACTS & FIGURES**

**47,450**

**FREIGHT TRAINS**

AT THE BUSIEST BORDER  
DE-CH IN 2023

MORE THAN

**100**

**TERMINALS**

**8.3**  
MILLION

**PAP-KM**

PRE-ALLOCATED BY THE C-OSS  
FOR TT2024

\*North Sea Port - merger of the ports of Gent, Vlissingen and Terneuzen  
\*\*Name of the unified port company after the merger of Antwerp and Zeebrugge

**VISION**

With our services, we facilitate cross-border rail freight transport to create a competitive advantage against other transport modes. Our partner IMs/AB 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 the 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 2023, OLD AND NEW CHALLENGES PUT RAIL FREIGHT TO THE TEST

The overall economic situation in Europe was stagnant in 2023. The effects of the Russian war of aggression against Ukraine on the economy continued to be clearly felt. Inflation, driven by the continued high energy costs in the Eurozone, only slowed down significantly towards the end of the year.

The deterioration in the general economic situation exemplified by the lower throughput in the ports led to a reduction in the number of trains at all border points of the Corridor except on the border between Belgium and Germany. The overall RFC Rhine-Alpine exit punctuality (30min threshold) increased from 48% to 50% in 2023, but a significant decline in the second half of the year was noticed, in part due to the closure of the Gotthard tunnel. Severe weather conditions across the entire Corridor also negatively impacted performance.

Despite the overall economic influence, lack of capacity on the Corridor lines remains the biggest growth constraint on RFC Rhine-Alpine. Even though steady progress is being made in some sections, the situation will only improve

when the largest projects on the Corridor lines are completed, e.g., Emmerich-Oberhausen, Karlsruhe-Basel and the node of Milan.

In Germany, a new construction regime was established to speed up the renewal and partial extension of the most important Corridors in Germany. The so called "Hochleistungsnetz" (= High-Performance Network) will contribute to a significant improvement in the quality and reliability of the entire network by closing major stretches for half a year to carry out basic renewal works while diversionary routes are offered. Most of the lines of RFC Rhine-Alpine are included in the High-Performance Network, which is why significant construction activity must be expected on the Corridor routes until 2030. The re-routing of trains due to major construction activity in Germany will be a focus point of discussion in the coming years and we are working together to find solutions that also include international re-routings.

Over the last years, a stable amount of Pre-arranged Paths (PaPs) was offered on different sections of RFC Rhine-Alpine. Some PaPs were affected by TCRs and days had to be cut out. This influenced the volume of offered PaP-km for TT2024. Main areas of improvement for the PaP offer were the corresponding parameters, such as higher profiles and adapted routings, taking into account the wishes of applicants. Despite a slight decrease in the offer, a substantial increase in the volume of requested PaP-km was seen for TT2024 compared to TT2023 (+23% at X-8).

Already in 2022, the Executive Board of RFC Rhine-Alpine started a joint dialogue with Infrastructure Managers, Railway Undertakings and Terminals to identify problem areas

causing a decrease in quality and to solve them in the short to medium term. Activities to improve quality and performance on RFC Rhine-Alpine were jointly carried out in 2023 by establishing the Quality Core Group, with three projects being selected to be developed further. Presentation of the outcomes of the work of the Quality Core Group is foreseen in 2024.

The Railway undertaking Advisory Group (RAG) pointed out the major challenges that arose due to the increased construction activity and closure of the Gotthard tunnel following an accident in August 2023.

On the 10th of August, a freight train derailed on its journey through the Gotthard Base Tunnel and severely damaged the tunnel infrastructure. Following the accident, an ICM was declared, as both tubes of the tunnel had to be shut down for further inspection. One tube of the tunnel was reopened on 23 August and the ICM was closed. The second tube of the Gotthard tunnel will be closed until September 2024, as more than 7km of tracks have to be renewed. By opening up capacity mainly via the Lötschberg route and re-routing passenger trains via the Gotthard mountain line, the impact of the closure on freight transport was minimised.

Furthermore, in December 2023 the Executive Board of RFC Rhine-Alpine adopted the updated Implementation Plan for the Corridor. The Implementation Plan includes i.a. targets for four core objectives and new information on infrastructure projects and ERTMS deployment planning.

The European Commission, Council and Parliament reached a political agreement (trilogue of 18 December 2023) on

the revision of the TEN-T regulation. Council and Parliament are expected to vote on the new regulation early 2024. The revised regulation includes changes to the Rail Freight Corridor regulation 913/2010, setting new targets for the work of the Rail Freight Corridors as they become part of the newly introduced European Transport Corridors. In addition, the revised TEN-T regulation includes the merger of RFC Rhine-Alpine and RFC North-Sea – Mediterranean. The new merged Corridor will be called North Sea – Rhine – Mediterranean and will include additional railway lines that have not been covered by the two existing Rail Freight Corridors, e.g., Koblenz – Trier – Saarbrücken.

In addition, the proposal for a regulation on the use of railway infrastructure capacity in the single European railway area was published by the European Commission in July 2023. The proposal includes new entities for capacity allocation and performance management on a European level and would lead to a repeal of regulation 913/2010.


This Annual Report provides an overview of the main developments on RFC Rhine-Alpine regarding KPIs, performance, infrastructure and key topics in 2023. We would like to thank all persons involved in the Corridor for their contribution to improved international cooperation and infrastructure in 2023.



**Ebru van Schie Akdag**  
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

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 embraced this chance for enhanced collaboration and work together in eleven corridors running across Europe.

The cooperation of Infrastructure Managers (IMs) and Allocation Body (AB) on RFC Rhine-Alpine is organized 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).

\* As of 01/01/2024 DB Netz AG has become DB InfraGO AG

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 ExB is chaired by Ebru van Schie Akdag from the Dutch Transport Ministry.

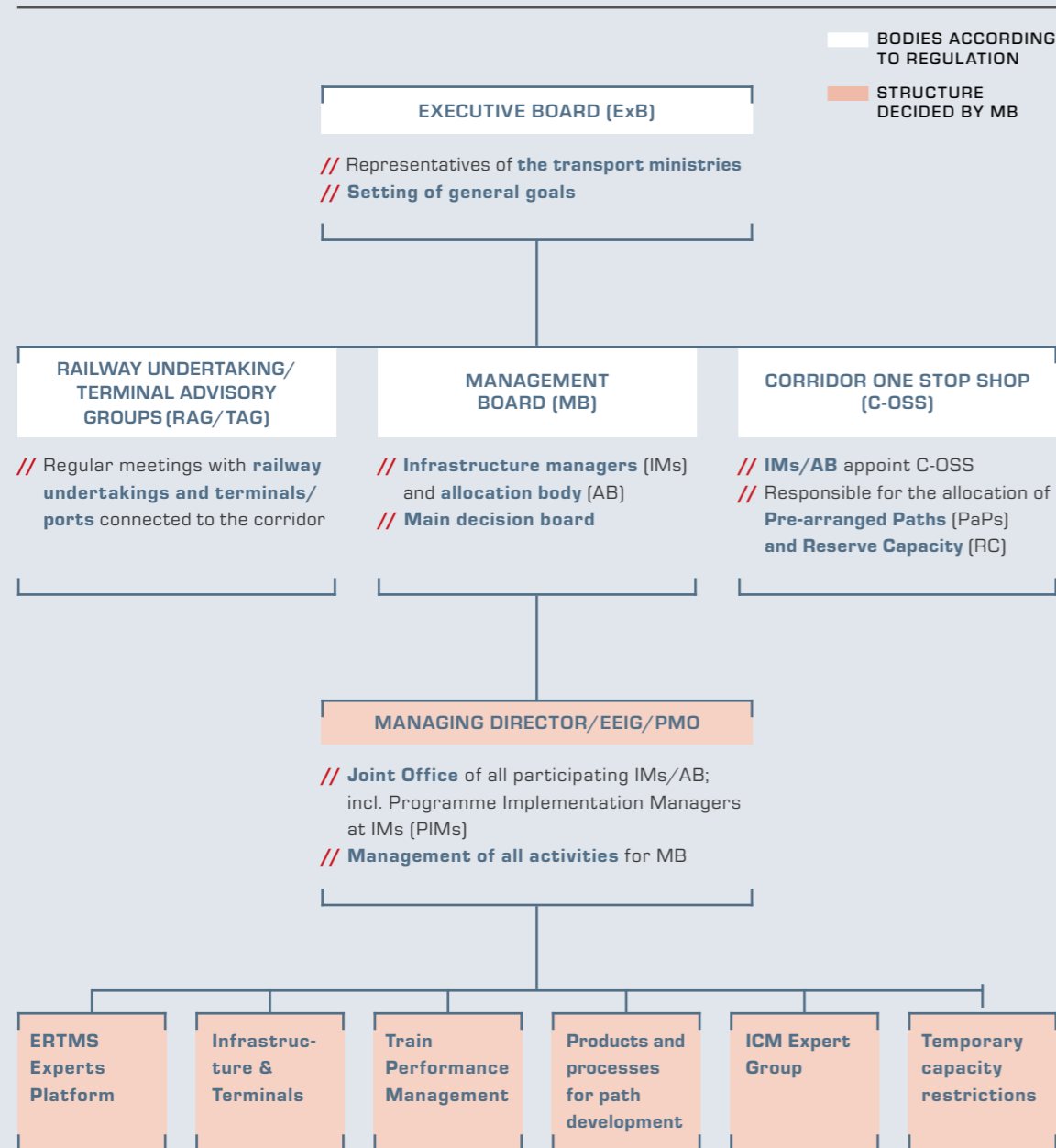
The Management Board (MB) consists of high-level management representatives of the IMs/AB and is responsible for the further development of the international cooperation of the IM/AB partner organisations. The MB has set up a Programme Management Office (PMO) as the permanent working organisation.

The PMO is represented by the joint office team and one delegate of each IM/AB, the so-called Programme Implementation Managers (PIM). They are responsible for the coordination and



Meeting of the Management Board at the offices of BLS Netz in Spiez in February 2023.

**ORGANISATIONAL STRUCTURE OF RFC RHINE-ALPINE**



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

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.

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.

This year, the diversity of the team was enhanced by welcoming a group of individuals with varied backgrounds and perspectives. In March 2023, Konstantin Meermann left the joint office team of the Corridor after 5 years of service. RFC Rhine-Alpine thanks him for his outstanding commitment. In September, Shadi Daerezaee, and in October, Nicolai Bader, have joined the team to take on the role of Corridor Manager.

At the start of 2023, Daniel Haltner retired from his position at TVS. Andreas Gaberthüel took over as Managing Board member for TVS.

# PERFORMANCE

## REPORT

This chapter provides information about traffic developments at borders and the modal split in trans-Alpine 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.

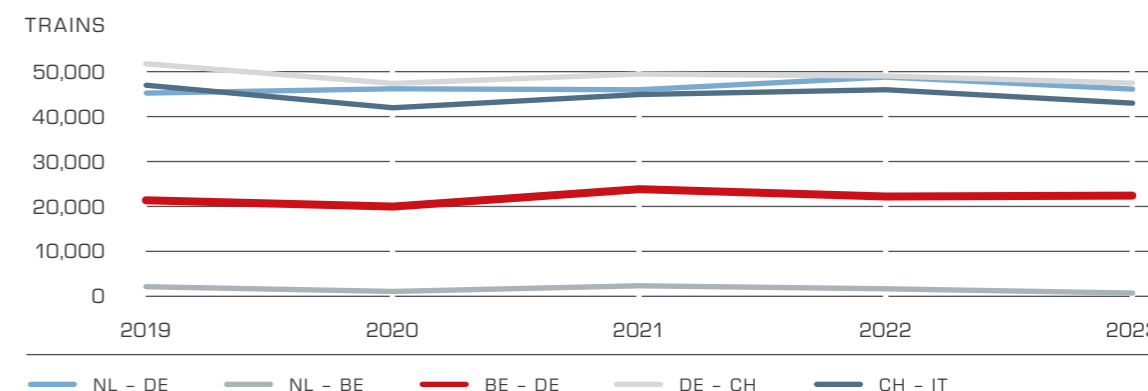
With the update of the Implementation Plan in 2023, **four new core** objectives for the Corridor were defined with target values. The core objectives and their progress are monitored in the following performance report under the related KPI category.

## MARKET DEVELOPMENT KPIs

This chapter gives information on the development of the KPI number of trains per border for RFC Rhine-Alpine and the modal split of rail in selected ports and in trans-Alpine freight 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 Numbers of trains per border is heavily influenced

by the overall economic situation and the associated throughput in the ports, both of which show a negative trend for 2023. Consequently, together with an increase in construction activity on Corridor lines, a significant decline in the number of cross-border freight trains on all borders was registered, except on the border between Belgium and Germany. General evolution in 2023 for the entire Corridor, compared to 2022 was a decrease in traffic of -4.52%.

KPI NUMBER OF TRAINS PER BORDER



CORE OBJECTIVE 1: KPI NUMBER OF TRAINS PER BORDER

BORDER CROSSING	NL - DE	NL - BE	BE - DE	DE - CH	CH - IT
AVERAGE 5 YEARS & GOAL FOR 2025	45,590	1,877	21,594	50,585	45,754
<b>2023 FIGURES</b>	<b>46,187</b>	<b>1,510</b>	<b>22,232</b>	<b>47,450</b>	<b>43,644</b>
DEVIATION IN %	1.3%	-19.6%	2.95%	-6.2%	-4.6%

For this existing KPI, RFC Rhine-Alpine defined as target to keep the number of trains per border on the Corridor (regrouped per country) stable until 2025. This core objective was set while keeping in mind the increase in TCRs on Corridor lines in the upcoming years and the economic growth of the Corridor regions. Hence, to measure the progress

in this area, RFC Rhine-Alpine uses the average number of trains in the last five years (2018-2022) as the base value, which is indicated in the table above. In 2023, the borders between the Netherlands - Germany and Germany - Belgium already met the target set for TT2025.

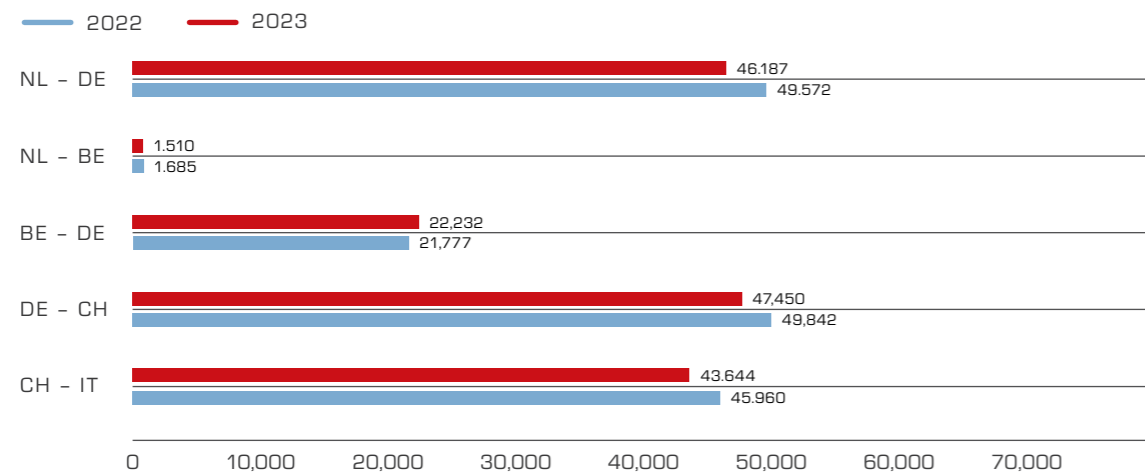


**BORDER CROSSING NL - DE**

At the border points between the Netherlands and Germany, traffic volumes went down by -6.8% in 2023 compared to 2022. In the intermodal segment the decrease was less pronounced [-3%].

The downturn is due to several factors: less coal trains because of the war in Ukraine, less single wagon load trains, less trains deviated from Montzen and a lot of TCRs.

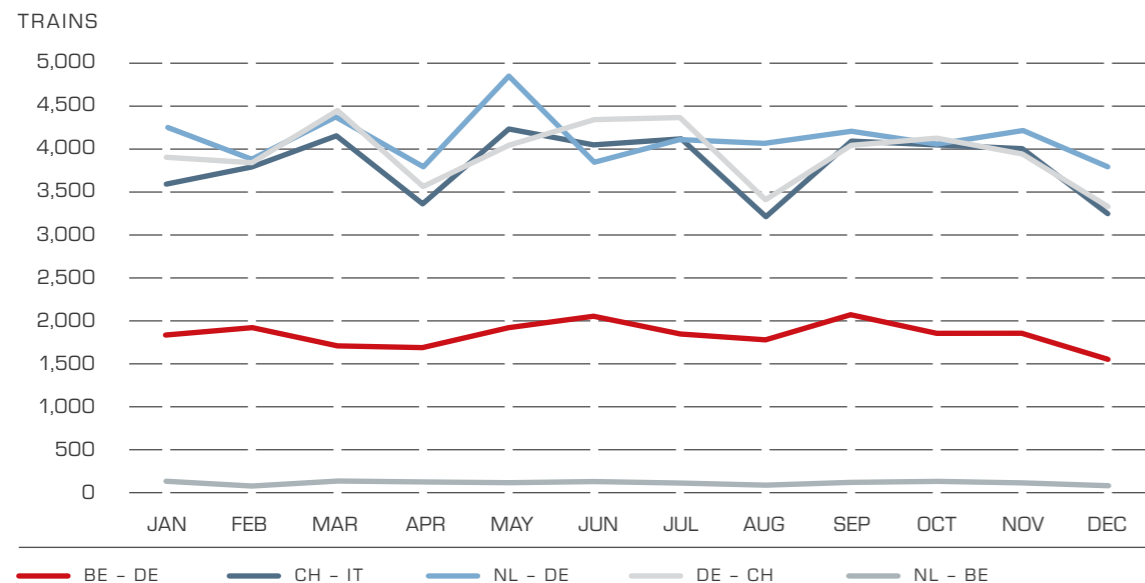
**KPI NUMBER OF TRAINS PER BORDER - COMPARISON 2023/2022**



*Disclaimer: The Bad Bentheim border point (NL - DE) is included to have a full picture of the traffic between the Netherlands and Germany to take into account re-routed trains due to works between Emmerich and Oberhausen, even though this border point is not part of the Corridor.*

**MONTHLY NUMBER OF TRAINS PER BORDER**

Number of commercial freight trains crossing selected border points



**BORDER CROSSING NL - BE**

In this report, the volumes at the Sas van Gent/ Zelzate border point are published for the first time, as there are now enough historical figures to recognise a trend. This is the border point between the ports of Terneuzen (NL) and Gent (B), which are jointly known as North Sea Port.

In 2023 volumes went down by -10.4% in comparison to 2022. This is mostly due to a decrease of traffic from and to the North Sea ports in general.

**BORDER CROSSING BE - DE**

In 2023, traffic at the Montzen border point increased by 2.1% compared to 2022. This increase can partly be explained by a two-week closure of the railway line linking Montzen to Germany during the second half of May 2022, which led to a drop of -7.1% in traffic in the previous year.

**BORDER CROSSING DE - CH**

Compared to 2022, traffic at the Basel border decreased by -4.8% in 2023.

**BORDER CROSSINGS CH - IT**

In 2023, the overall evolution at the border crossings between Switzerland and Italy, compared to 2022, was a decrease in traffic of -4.6%.

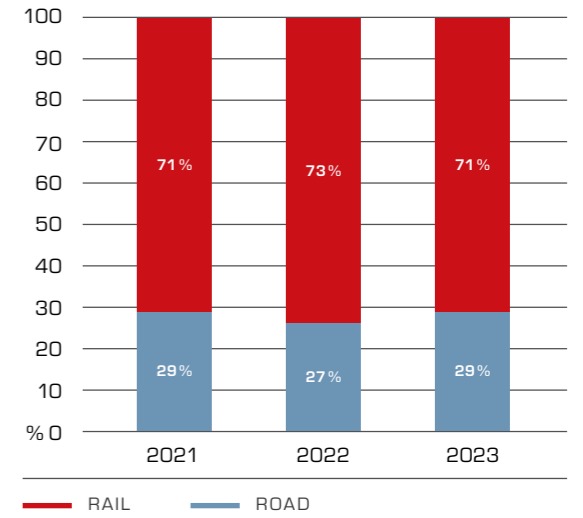
The incident in the Gotthard tunnel in August seriously impacted the volumes in that month. However, the impact on the remainder of 2023 was not significant.

**MODAL SPLIT OF TRANS-ALPINE FREIGHT TRANSPORT AND IN SELECTED PORTS**

**TRANS-ALPINE TRAFFIC**

In 2023, the trans-Alpine freight transport decreased compared to the previous year. In total, 37 million tons were transported by road and rail in 2023. Compared to the previous year, this corresponds to a decrease of -4.7%. Trans-Alpine road freight transport recorded a decline in volume of -1.4%, where-

**MODAL SPLIT OF TRANSALPINE FREIGHT TRANSPORT 2021-2023**



*Official numbers for 2021 and 2022 were corrected by the SWISS FOT after the publication in the Annual Report 2022 of RFC Rhine-Alpine.*

as the volume transported via rail decreased by -5.9%. The total of goods transported via rail amounted to 26.4 million tons, with changes due to the closure of the Gotthard tunnel as well as slow economic growth in 2023. Even though the rail share in modal split of trans-Alpine traffic remains high, the changes in volume of freight transport influenced the general modal split significantly. In 2023, the modal split of rail freight was 71%, which is 2 percent lower than in the previous year.

*As the information is usually not available for the previous year when the Annual Report is compiled, only the development for the ports up to 2022 is shown.*

**PORT OF ROTTERDAM:**

In 2022, the modal split of rail in transporting containers remained the same as in 2021. In absolute terms, a limited growth from 1.100.000 TEU in 2021 to 1.160.000 TEU in 2022 for rail was noticed.

**PORT OF ANTWERP**

In 2022, the market share of rail in the transportation of maritime containers remained almost unchanged [7.6% versus 7.4%]. Despite

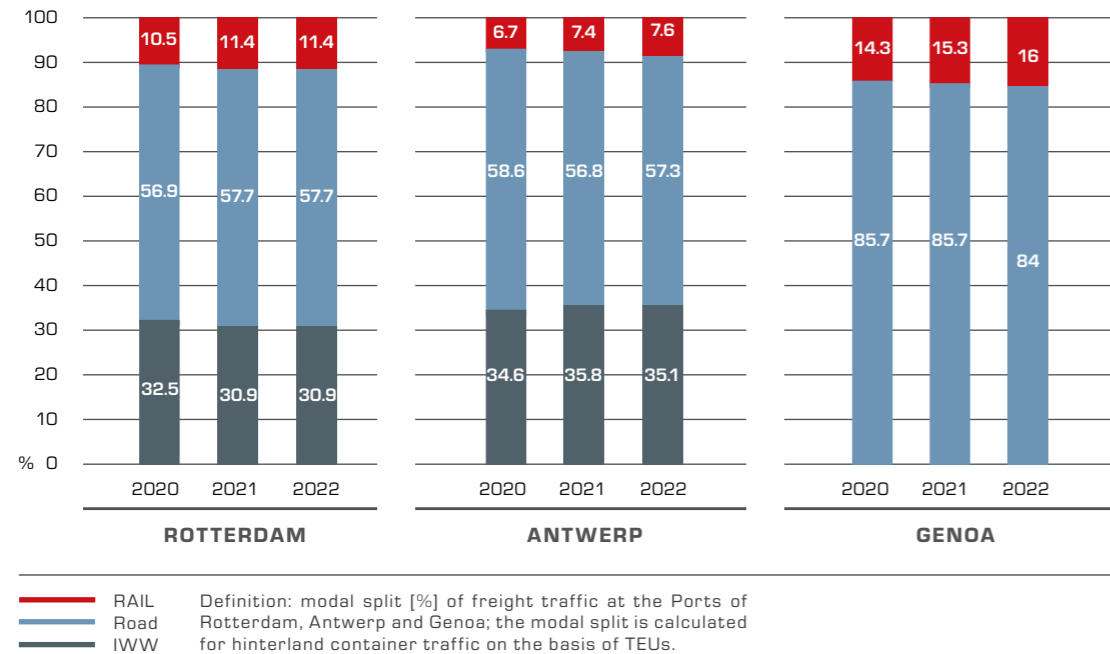
the merger of the ports of Antwerp and Zeebrugge into the unified port company, Port of Antwerp – Bruges in April 2022, the figures relate only to the Port of Antwerp.

**PORT OF GENOA**

In 2022, traffic by rail to and from the port of Genoa registered the fourth consecutive annual increase, precisely by 6.7% compared to 2021, reaching more than 9,230 trains

moved in a year, once again growing more than the gateway volumes which increased by 2.4%. In general, the port's overall throughput is still below the pre-pandemic level, but rail volumes (TEUs) continue to perform very well with an increase of 17.7% compared to 2019. In total, more than 362,000 TEUs were shipped by rail in Genoa during 2022, with the modal split reaching 16% representing an increase compared to previous years.

**MODAL SPLIT IN PORTS 2020-2022**



**OPERATIONS KPIs**

This chapter gives information on the general development of punctuality of freight traffic on RFC Rhine-Alpine, the number of trains crossing a border along the RFC as well as the planned and actual dwell time in border sections.

**PUNCTUALITY REPORT 2023**

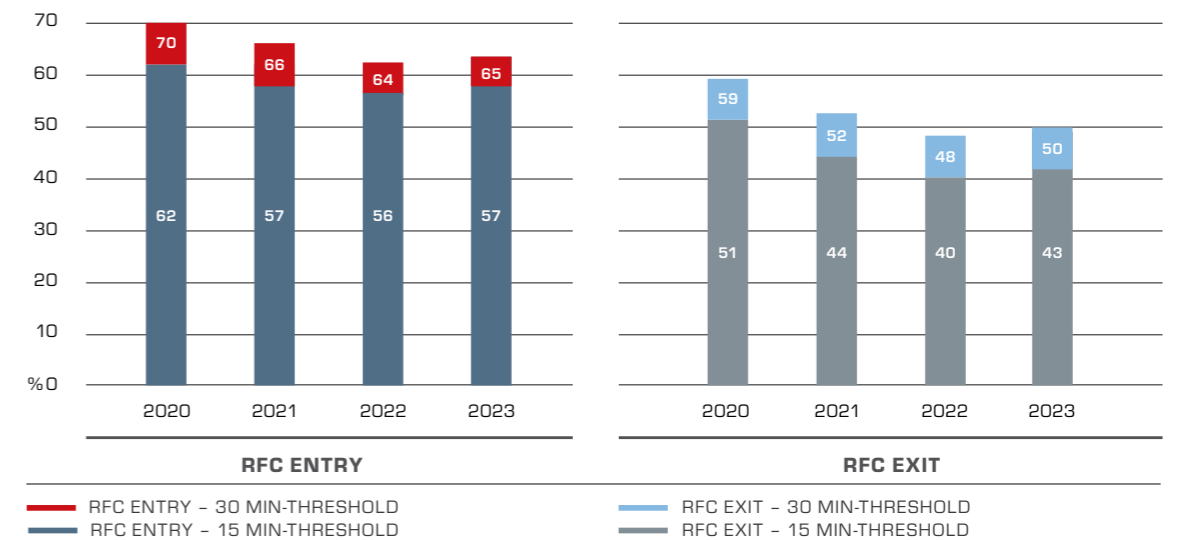
Punctuality calculation is performed using the Train Information System (TIS) data by comparing the timetable delivered to TIS and the running time in operations at defined measuring points. On the Customer Information Platform (CIP), RFC Rhine-Alpine publishes three reports on a monthly basis:

- 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.

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 of the train run belonging to the RFC). RFC Exit indicates the location where the train exits the RFC line (last point of the train run belonging to the RFC).

**PUNCTUALITY DEVELOPMENT**



In 2023, the overall RFC punctuality slightly improved compared to 2022, but is still on a low level. The exit punctuality (30 min threshold) increased from 48 % to 50 % in 2023, but a significant decline in the second half of the year was noticed. The slight decrease of freight traffic volumes and the increase of passengers in most parts of the Corridor led to almost similar operational challenges as the year before:

scarce capacity, operational bottlenecks and a huge amount of temporary capacity restrictions due to high construction activities all along the Corridor. The need to catch up maintenance, especially in Germany and on the section Brig-Domodossola-Milan/Novara, caused several TCRs and long-lasting speed reductions. Delays, instable timetables and even train cancellations were the consequence.

**CORE OBJECTIVE 2: DELTA RFC ENTRY AND EXIT PUNCTUALITY 2023**

	2019	2020	2021	2022	2023	2025
ENTRY PUNCTUALITY	66	70	66	64	65	
EXIT PUNCTUALITY	55	59	52	48	50	
DELTA ENTRY PUNCTUALITY VS EXIT PUNCTUALITY	-11	-11	-14	-16	-15	-16

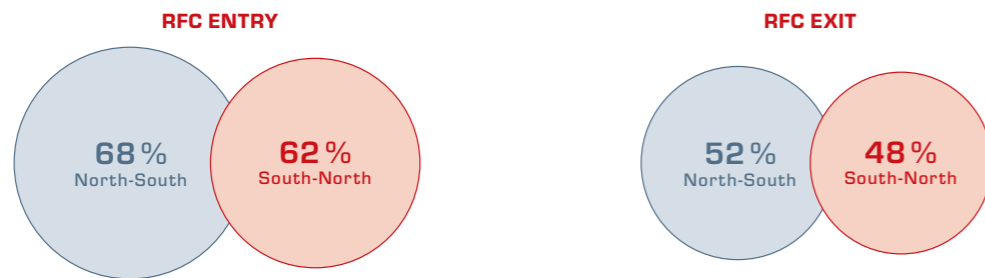
It is the goal of RFC Rhine-Alpine to improve performance, mainly punctuality and reliability on the Corridor. Thus, the delta between Entry and Exit Punctuality was chosen in the implementation plan 2023 to show the performance on the Corridor lines.

Taking the development from 2018 to 2022 into consideration, the target is to keep the delta of Entry and Exit Punctuality (30 min

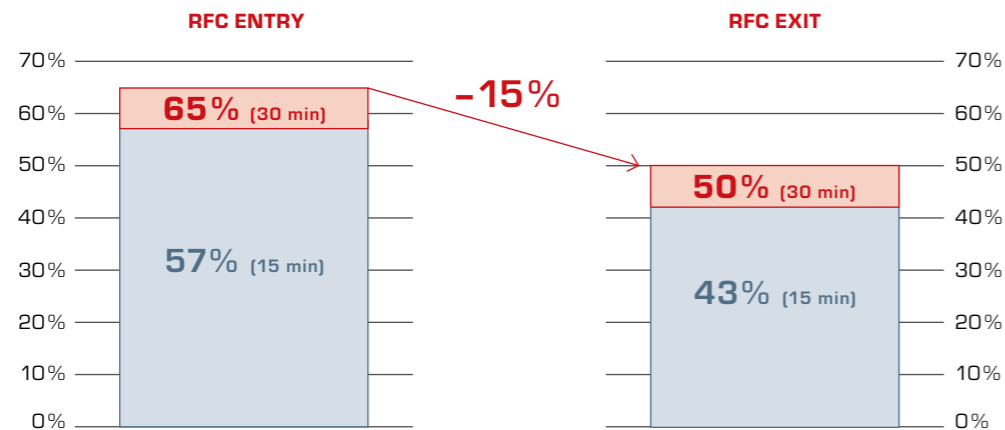
threshold) stable at 16% in 2025. This takes into account the current and expected capacity limits on the Corridor lines due to major construction works in the upcoming years.

In 2023, the delta between Entry and Exit punctuality on Corridor lines was -15%, hence the target level defined for 2025 in the core objective was already met in 2023.

**RFC ENTRY AND EXIT PUNCTUALITY PER DIRECTION IN 2023 (30' THRESHOLD):**



**KPI RFC ENTRY AND EXIT PUNCTUALITY IN 2023**

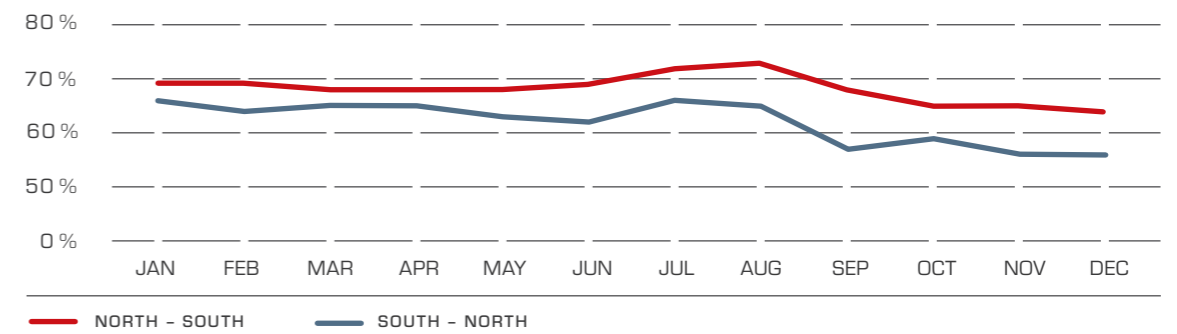


The impact of climate change is also affecting railway operations more and more. Strong rainfalls and storms caused complete closures of important lines or even whole parts of the railway network several times. Heavy snowfall became less common, but with staff shortage and withdrawal of operation from the regions, handling of such events is a real challenge nowadays – the heavy snowfall resulting in cancellations in the Munich region in December 2023 showed this drastically. Another topic impacting quality and reliability are strikes – on our Corridor at the moment mostly occurring in Germany.

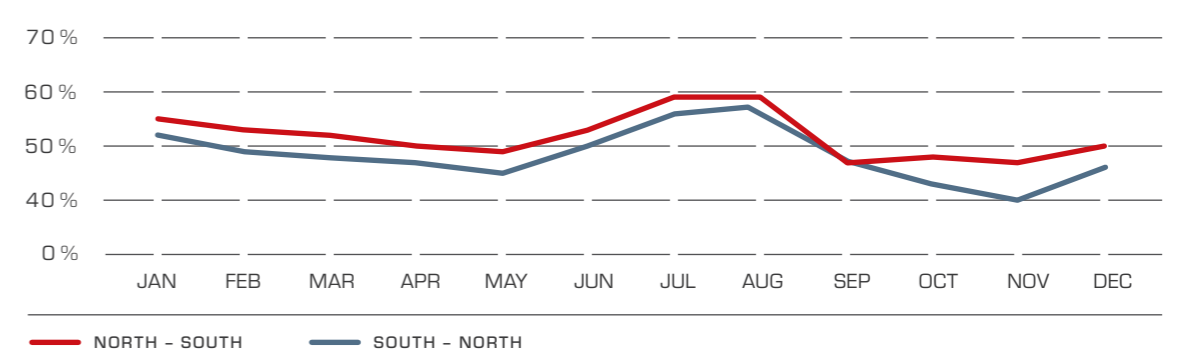
The derailment of a freight train in the Gotthard Base Tunnel in August showed the importance to have good rerouting options in case of incidents. For two weeks, both tubes were completely blocked and all the traffic had to be rerouted. As the old

mountain line is no longer usable for most freight trains, due to gauge limitations and infrastructure simplifications after the completion of the new line, freight trains had to take detours - mainly via the Lötschberg line. As the incident happened during “Ferragosto” and the planned volumes were reduced, a considerable part of the trains could run on alternative routes. End of August single track operation with priority for freight traffic has been resumed. The challenge to run the whole traffic volumes on this highly important transit axis persisted, leading to a significant drop in punctuality in Switzerland and at the borders in the second half of the year. The punctuality on the Corridor through Switzerland decreased by around 10 % during this period. For 2024, timetables have been adjusted as the restrictions are expected to remain until autumn due to comprehensive restoration works.

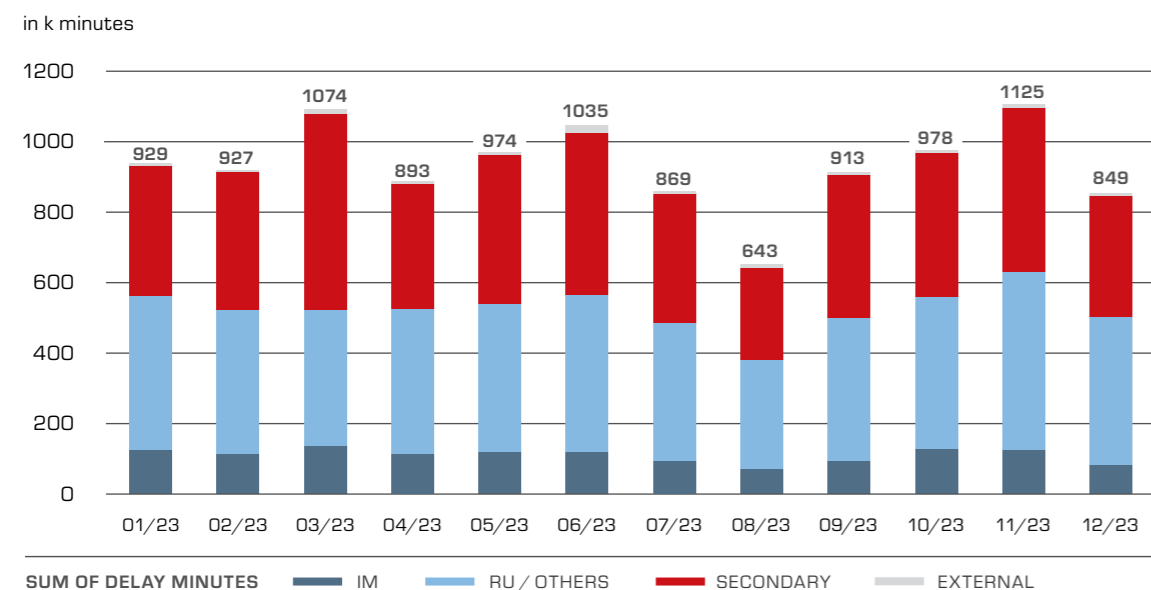
**MONTHLY RFC ENTRY PUNCTUALITY PER DIRECTION**



**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.

**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.

For 2023, also the dwell time at borders is published for the first time on RFC Rhine-Alpine. Planned dwell is calculated for each border on a predefined section of about 20 km in which the border procedures take place. If a train is not stopping, the dwell time consists only of the runtime for these 20km. In this way measurements are also comparable if procedures don't take place always in the same points or are executed in more than one location. The real dwell is calculated on real runtimes be-

tween starting and ending point of the section. The average KPI values are calculated based on all international freight trains passing the whole section.

Generally, the figures substantiate the known bottlenecks within the Corridor, where planned dwell times are not sufficient to buffer operational restrictions and missing capacity in neighbouring networks and nodes.

**KPI DWELL TIME AT BORDERS PER DIRECTION (PLANNED AND ACTUAL)**

The calculation of this KPI is based on the data in RNE's TIS. International freight trains crossing a border of an RFC are considered in the calculation. The presented data might differ from the data gathered in the national systems due to data quality differences between individual IMs.

BORDER	BORDER DIRECTION	AVG. PLANNED DWELL (MIN.)	AVG. REAL DWELL (MIN.)
AACHEN-WEST – MONTZEN	DE – BE	71	95
AACHEN-WEST – MONTZEN	BE – DE	68	85
BASEL BADISCHER BF. – BASEL SBB PB/RB	DB – CH	54	52
BASEL BADISCHER BF. – BASEL SBB PB/RB	CH – DB	56	69
BRIG – DOMO II	CH – IT	146	133
BRIG – DOMO II	IT – CH	223	238
BRIG – DOMODOSSOLA	CH – IT	36	36
BRIG – DOMODOSSOLA	IT – CH	170	191
CHIASO SM – BIVIO PC ROSALES	CH – IT	54	51
CHIASO SM – BIVIO PC ROSALES	IT – CH	48	43
EMMERICH – ZEVENAAR OOST	DE – NL	11	16
EMMERICH – ZEVENAAR OOST	NL-DE	7	5
KALDENKIRCHEN – VENLO	DE – NL	40	42
KALDENKIRCHEN – VENLO	NL – DE	32	47
RANZO – S. ABBONDIO – LUINO	CH – IT	1	16
RANZO – S. ABBONDI – LUINO	IT – CH	2	24

Remark: Planned dwell figures for Luino border are displayed too low due to inconsistencies between national systems and TIS concerning Timetable delivery. Disclaimer: The border Sas van Gent - Zelzate is currently not measured.

## FACTORS AFFECTING OVERALL CORRIDOR PUNCTUALITY IN 2023



### THE NETHERLANDS

Also during 2023, there were some longer periods of total closure of the German railway line between Emmerich and Oberhausen. During these periods, freight trains from and to Germany had to run via the border stations Oldenzaal (Bentheimroute) and Venlo (Brantroute). These are both routes with not only freight but also with heavy passenger traffic. Punctuality of the freight trains running via these routes is always lower as on the dedicated freight line "Betuweroute". During these rerouting periods there were regular problems with the capacity of the yard Venlo and the German yard Viersen where trains in the direction Ruhr area have to turn direction.

Besides that, some infrastructural problems occurred during the year. The main issues were track instability problems. Some were caused by badgers building their settlements in the railway track, others were caused by heavy rainfall and saturation of the embankments. Both situations caused temporary speed restrictions for all trains and delays. Then the tracks needed to be rebuilt during a total closure of the lines for some weeks resulting in re-routings and cancellations.



### BELGIUM

Most delays on the Infrabel network were caused by single incidents: delays from the neighbouring IMs, exceptional weather (storm Ciarán) and incidents involving persons. Despite multiple measures being implemented to prevent the last one, these incidents still cause a lot of delays.

Other causes with a big impact on the punctuality figures were breakdown of rolling stock and mistakes by staff.

On 13th of October, the discovery of two suspicious packages led to the, to the closure of Antwerp Central station and partial closure of lines surrounding Antwerp, causing delays for freight traffic.

Miscommunication regarding the rules of exceptional transport in combination with the breakdown of a train on the other track resulted in the closure of the Aachen / Montzen border point for several hours. Measures were taken to avoid this in the future.



### GERMANY

The following occurrences were impacting the traffic on RFC Rhine-Alpine during 2023 the most:

#### Collective bargaining / EVG strike (March - June)

The Railway and Transport Union (EVG) called four strikes between March and June. Two strikes took place, bringing rail traffic in Germany to a virtual standstill. The signal boxes and control centres of DB Netz AG were affected by the strike. The strike days were 27 March 2023 and 21 April 2023.

#### Several storms throughout Germany (July)

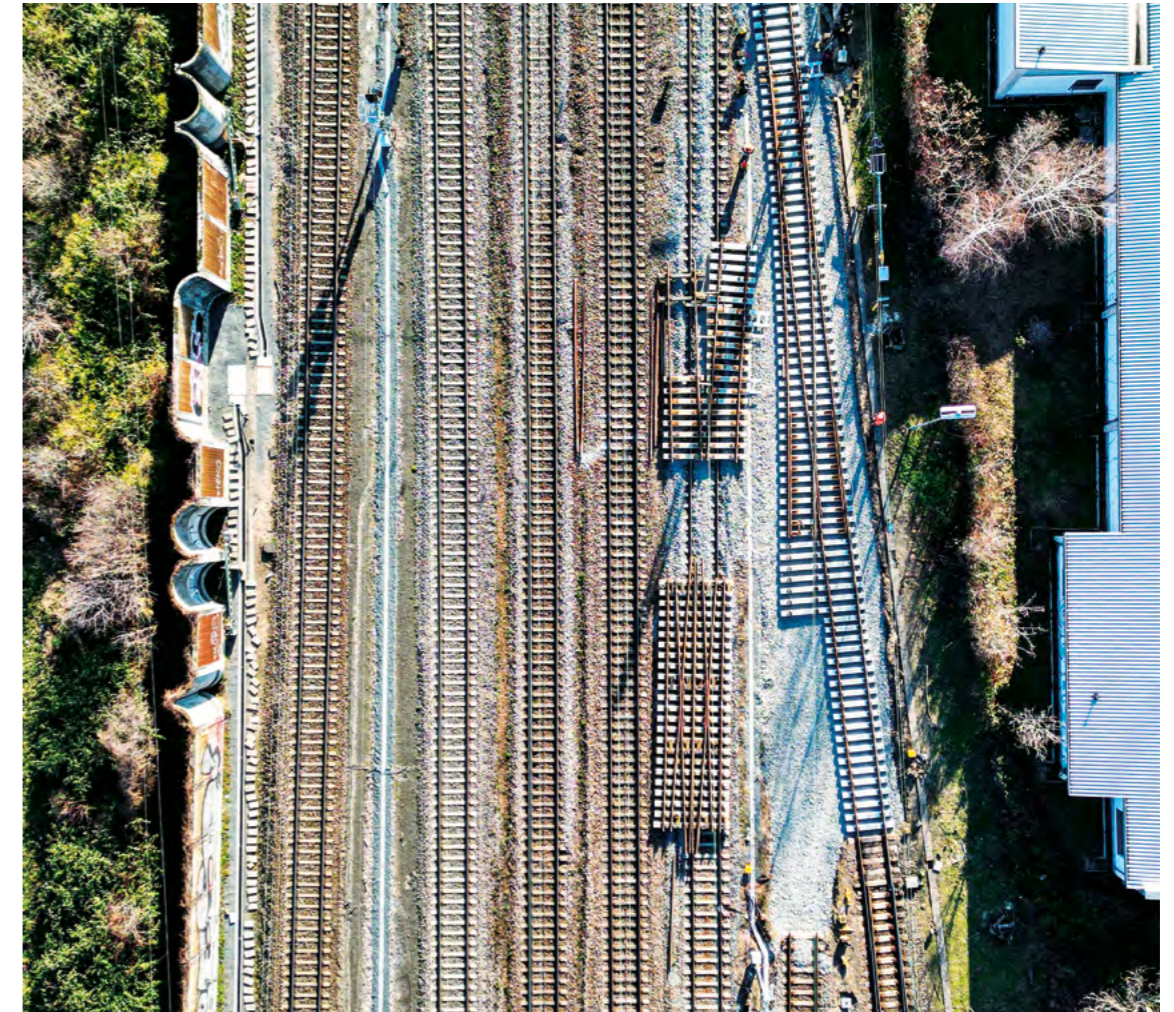
In July, there were extreme weather conditions due to heat and thunderstorms with gales. At the beginning of July, western Germany around Cologne was particularly affected. In mid-July, storm Ronson hit the South of Germany. There were closures in the Rhine Valley due to trees on the tracks and damage to the overhead line equipment.

#### Collective bargaining / GDL strike (November - December)

The German train drivers' trade union GDL called two strikes in November and December. Most of the train drivers in Germany participated in the strike, as did individual DB Netz AG signal staff. Traffic largely came to a standstill. The strike days were 16 November 2023 and 8 December 2023.

#### Snow / storm (December)

On 1 December 2023, there was heavy snowfall, mainly in the south and west of Germany. This



Track works on the Riedbahn line between Frankfurt and Mannheim.

caused delays or closures in some large yards (e.g., Neuss and Aachen West). The clean-up work proved to be difficult and protracted. In addition, there was a storm on 23 December 2023 which led to trees on overhead lines and other restrictions, mainly in the south/south-west of Germany.

Furthermore, major construction works have reduced the quality of transport in Germany, a few of which are listed below:

- Several total closures as well as single-track closures for the three-track extension of the Emmerich - Oberhausen line throughout the year.

- Several closures and single-track closures on the right side of the Rhine between Wiesbaden Ost and Rüdeshheim due to track works between 06/01/2023 and 04/06/2023. In connection with works on the left side of the Rhine, there were occasionally over-regional backlogs of freight traffic.

- Overhead line works with total closures between Rastatt Süd and Baden-Baden from 01/04/2023 to 10/06/2023.

- Track renewal with total closures between Brunnenstück and Karlsruhe Gbf from 14/03/2023 to 04/05/2023.



**SWITZERLAND**

The most drastic disturbance, not only in Switzerland but for the whole Corridor, was, as already mentioned, the derailment of a freight train on the 10th of August in the Gotthard Base Tunnel (GBT). More information is provided under the chapter [International Contingency Management](#).

On the 14th of December, also the Lötschberg axis was affected by a major event. After persistent rain and snowfall, the Karst spring located above the Lötschberg tunnel began to grow significantly. As a result, an immense amount of water and sand penetrated the tunnel tubes at the same location as in February and March 2020 within a short timeframe. Alerted by the installed warning systems the tunnel was closed immediately, and bigger damage could be avoided. The cavern with the sediment setting basin, which was created to be prepared for such events, worked as foreseen. But the amount of water and sand reached within three days its capacity of 2500m<sup>3</sup> (calculated for the maximum quantity within half a year) – luckily the basins had been emptied just the week before. As a consequence, part of the material remained on the tracks and the tunnel had to be closed completely for two days and the east tube another week to empty the basins and restore the installations. Trains were rerouted as far as needed via the fully operative mountain line.



Cavern with sediment basins to collect and filter sand out of the karst-breakthrough in the Lötschberg Base Tunnel.



**ITALY**

Additionally, the southern part of RFC Rhine-Alpine was also affected by weather-related incidents during 2023.

**Heavy rain and landslide on 6th June**

Following heavy rains which affected the area during the night between the 6th and 7th of June, landslide material reached the railway site at the entrance to the Laveno tunnel situated close to the locality of Porto Valtravaglia. Entering through some side windows of the tunnel, debris covered the railway track and caused the derailment of a freight train on its way between Luino and Sesto Calende. The train deviated and continued its journey inside the tunnel for approximately 470m before stopping. The 19th waggon of the train came to a stop at one of the windows and was partially covered by debris that continued to fill up the tunnel. The important line along the east shore of the Lago Maggiore remained therefore closed for a day and half.



Freight train derailed inside the Laveno tunnel

**Storm in Lombardy on the 24th of July**

The heavy storm on Monday, the 24th of July, caused serious damage to the entire Milan - Chiasso line, as well as at the station of Monza, where the gusts of wind caused some roofing and materials to come off and end up between the tracks.



Top view of the landslide

**Cloudburst on 31st of October in Milan province**

On the 31st of October, a heavy cloudburst hit the entire province of Milan, causing severe disruptions to rail traffic. Many passenger trains were cancelled due to the impracticability of some railway lines and stations. Freight traffic was also affected for the departure/arrival of trains, especially in the Milano Smistamento freight yard and for all routes to Milan.



Broken canopies in Monza station

**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.

**CORE OBJECTIVE 3: RATIO OF PAP CAPACITY OFFERED AND FINAL TIMETABLE OFFER**

	TT 2019	TT 2020	TT 2021	TT 2022	TT 2023	TT 2024	TT 2026
VOLUME OF OFFERED PRE-ARRANGED PATHS (X-11) IN MILLION PATH-KM	17.6	17.2	17.6	18.2	18.1	16.7	
FINAL TIMETABLE OFFER (X-3) IN MILLION PATH-KM	6.4	5.6	4.1	5.0	6.9	8.3	
RATIO	36.36%	32.56%	23.30%	27.47%	38.12%	49.70%	35%

It is the objective of RFC Rhine-Alpine to publish a PaP offer (at X-11) on all principal Corridor lines crossing a border that fits the needs of the customers in the best possible way. The quality of the initial PaP offer (at X-11) can best be derived through comparison to the Final timetable offer (at X-3), which is closest to the actual train run. The aim is to stabilize the ratio at 35% until TT2026.

For TT2024, the volume of offered PaPs (X-11) was 16.7 million path-km and the final timetable offer (at X-3) was 8.3 in million path-km, resulting in a ratio of 49.7%. Compared to the previous timetable year, this is an increase of 11.6% and already above the target of 35% for TT2026.

**KPI Volume of offered, requested and pre-booked capacity**

This KPI shows the development of offered, requested and pre-booked PaPs for the 2019 – 2024 (TT) (see page 30). 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 TCRs.

These cut out days led to a decrease in the volume of offered PaP-km. For TT2024, 16.7million PaP km were offered. The volume of requested capacity (PaPs) was 9.6million PaP km and, despite a lower offer, increased by 23% compared to the previous year. 58% of the offered capacity was requested for TT2024. Due to conflicts between some requests, it was only possible to allocate 87% of the requested capacity as PaPs. This led to a volume of pre-booked capacity of 8.3million PaP-km. The remaining 13% were answered with tailor-made paths. In addition to the requests for PaPs, a high amount of connect-

ed feeder and outflow paths was requested and allocated (see graph on page 31).

A reserve capacity of 1.8million path-km was offered for TT2023. As in previous years, no requests were received. For TT2024, the offer remains on the same level at 1.8 million path-km.

**KPI Ratio of pre-booked capacity**

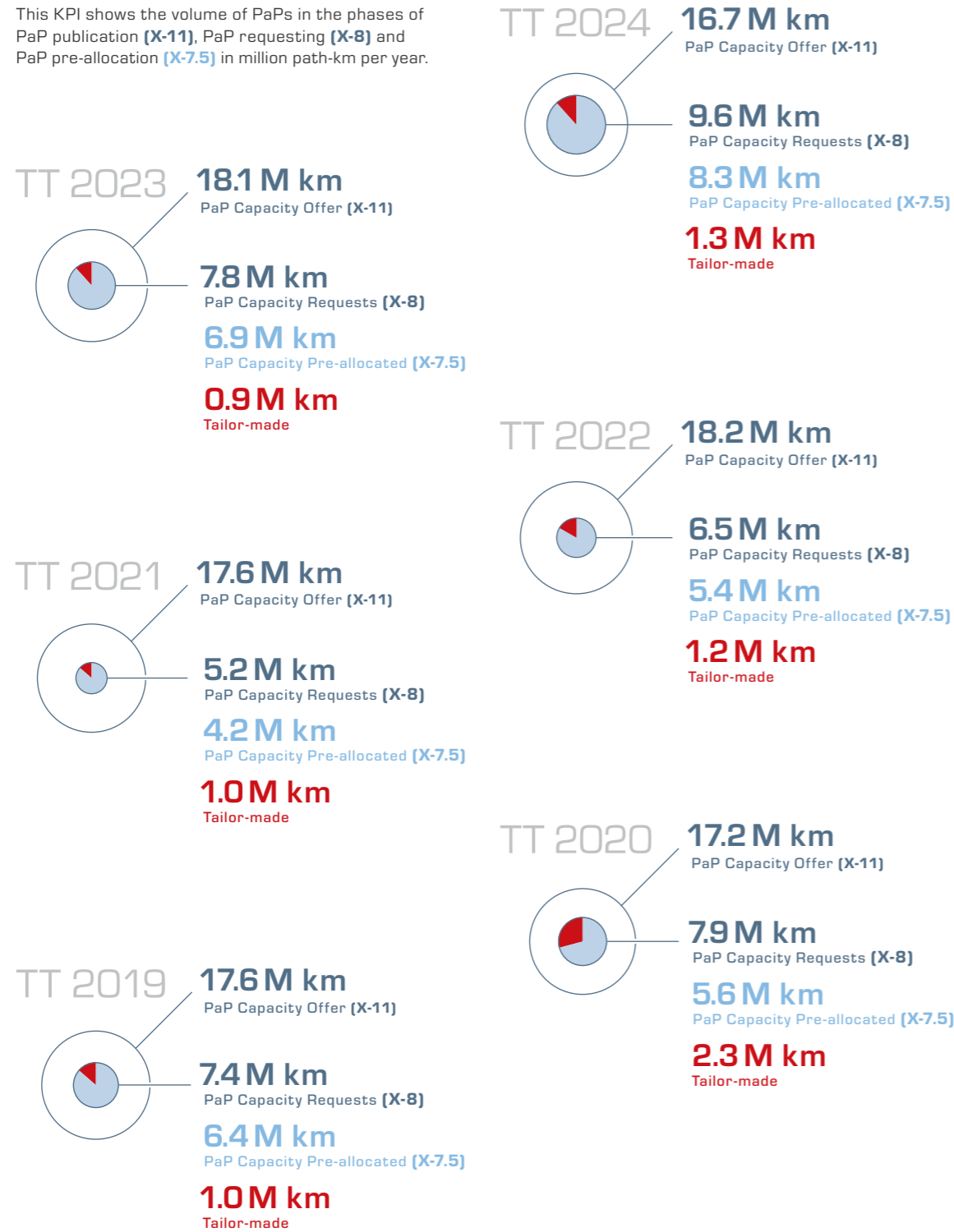
This KPI shows the ratio of the volume of pre-booked capacity (at X-7.5) to the volume of offered capacity (PaPs). For TT2024 the ratio is 50% compared to 38.1% for TT2023.

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

This KPI shows 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 TT2024 increased by 45% compared to the previous year. The amount of conflicting PaP requests increased by 19. All applicants that couldn't receive a PaP after the conflict solving process were answered with an path offer (see graph page 31).

**KPI VOLUME OF OFFERED, REQUESTED AND PRE-BOOKED CAPACITY**

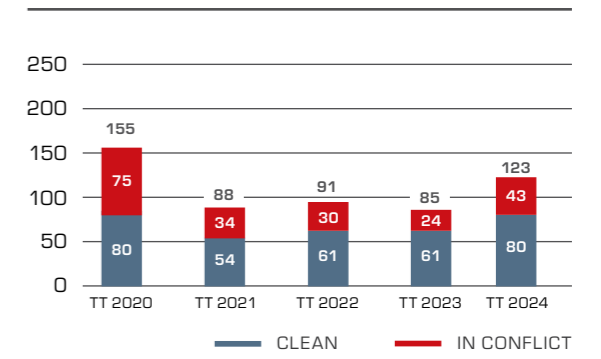
This KPI shows the volume of PaPs in the phases of PaP publication (X-11), PaP requesting (X-8) and PaP pre-allocation (X-7.5) in million path-km per year.



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

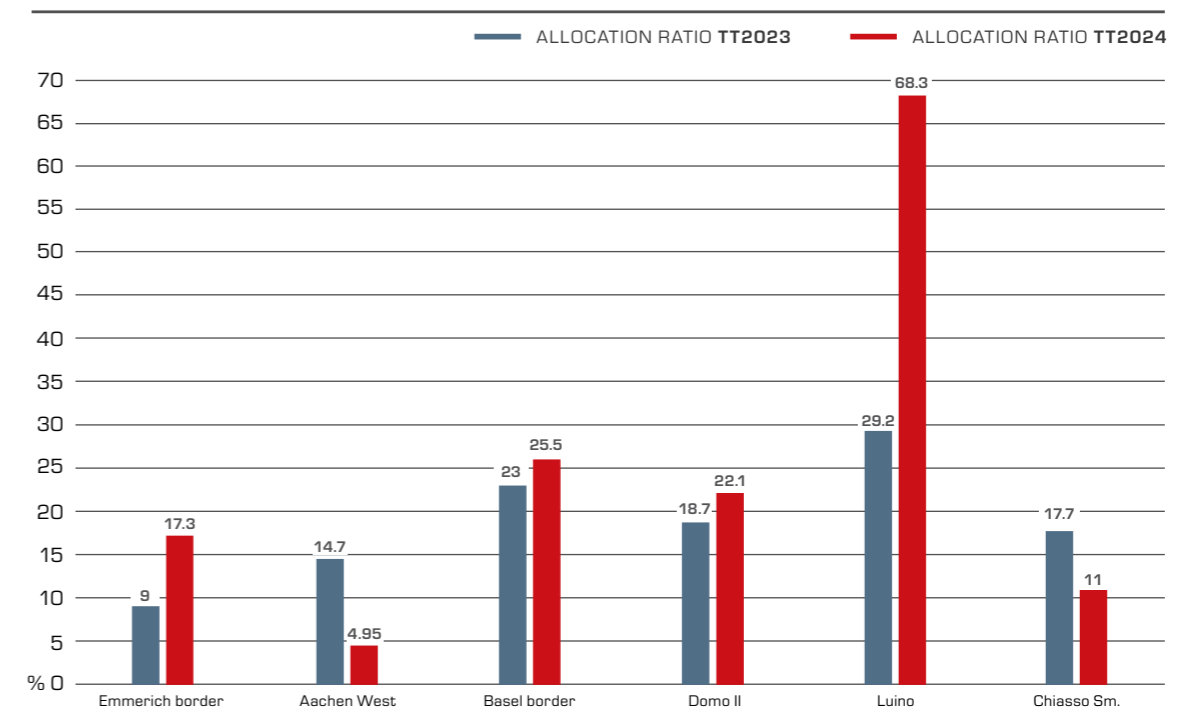
The KPI Ratio of the capacity allocated by the C-OSS and the total allocated capacity is calculated with data provided by the IMs and the C-OSS of RFC Rhine-Alpine, both after the finalisation of the allocation process. At every border where PaP capacity is offered by the C-OSS, the number of crossing 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. For TT2024 the allocation process for the second half of the TT-year was not finished yet at the editorial deadline of this Annual Report for the border Luino and Chiasso Sm. We have extrapolated the numbers from Dec 10th 2023 – June 8th 2024. For the Luino border the request increased compared to the previous year, combined which the later reduced amount of running trains through the Gotthard Base Tunnel, the high ratio will not be representative for the coming years.

**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).

**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**

The KPI Average Planned Speed of PaPs shows the average of the planned commercial speed of the PaPs in km/h for selected connections. The KPI is calculated by dividing the length of the PaP by the planned travel time. Thus, the average planned speed of PaPs also includes necessary stops on the route, as well as parts with restricted speed (e.g., cities). On RFC Rhine-Alpine, it is constantly adjusted from year-to-year to better fit the needs of IMs and applicants respectively, for instance taking into account necessary stops for train drivers or

necessary waiting times at borders on that O/D relation. Thus, increasing the speed of a PaP does not directly lead to better quality. 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).

**CORE OBJECTIVE 4: KPI AVERAGE PLANNED SPEED OF PAPS FOR TT2025**

AVERAGE PLANNED SPEED OF PAPS ON RFC RHINE-ALPINE IN KM/H	LENGTH OF THE STRETCH IN KM	TT 2022	TT 2023	TT 2024	TT 2025	GOAL TT 2026
MAASVLAKTE – OBERHAUSEN STERKRADE	228.1 KM	70.8	70.8	71.5	<b>71.3</b>	71.5
Y. SCHIJN – DORSFELD	211.3 KM	44.7	46.1	45.7	<b>46.6</b>	45.7
BASEL SBB RB – NOVARA B. TO	339.5 KM	40.4	39.6	42.1	<b>37.3</b>	42.1
TROISDORF – BASEL SBB RB	509.0 KM	61.5	61.3	62.7	<b>62.3</b>	62.7
KARLSRUHE GBF – GALLARATE	519.4 KM	52.2	51	50.8	<b>50.7</b>	50.8
MAASVLAKTE – MILANO SM	1,148.3 KM	55.2	53.9	56.2	<b>56.2</b>	56.2
Y. SCHIJN – MILANO SM	1,092.9 KM	50.1	50.5	52.5	<b>51.0</b>	52.5
BASEL SBB RB – MILANO SM	330.3 KM	49.2	47.8	49.0	<b>47.1</b>	49
BASEL SBB RB – CHIASSO SM	274.0 KM	58.5	58.6	57.9	<b>58.1</b>	57.9

The goal is to keep the average planned speed of PaPs per selected O/D on the level of TT2024 until TT2026, as the current values reflect years of adapting to enable smooth running of trains on the Corridor lines. Overall, the average planned

speed of PaPs was stable for TT2025. The biggest deviation from the previous timetable year was the speed between Basel-SBB-RB and Novara B.TO, which is mainly due to TCRs planned in 2025.



Freight train in the port of Gent (North Sea Port).

# INFRASTRUCTURE PROJECTS

## PROJECTS

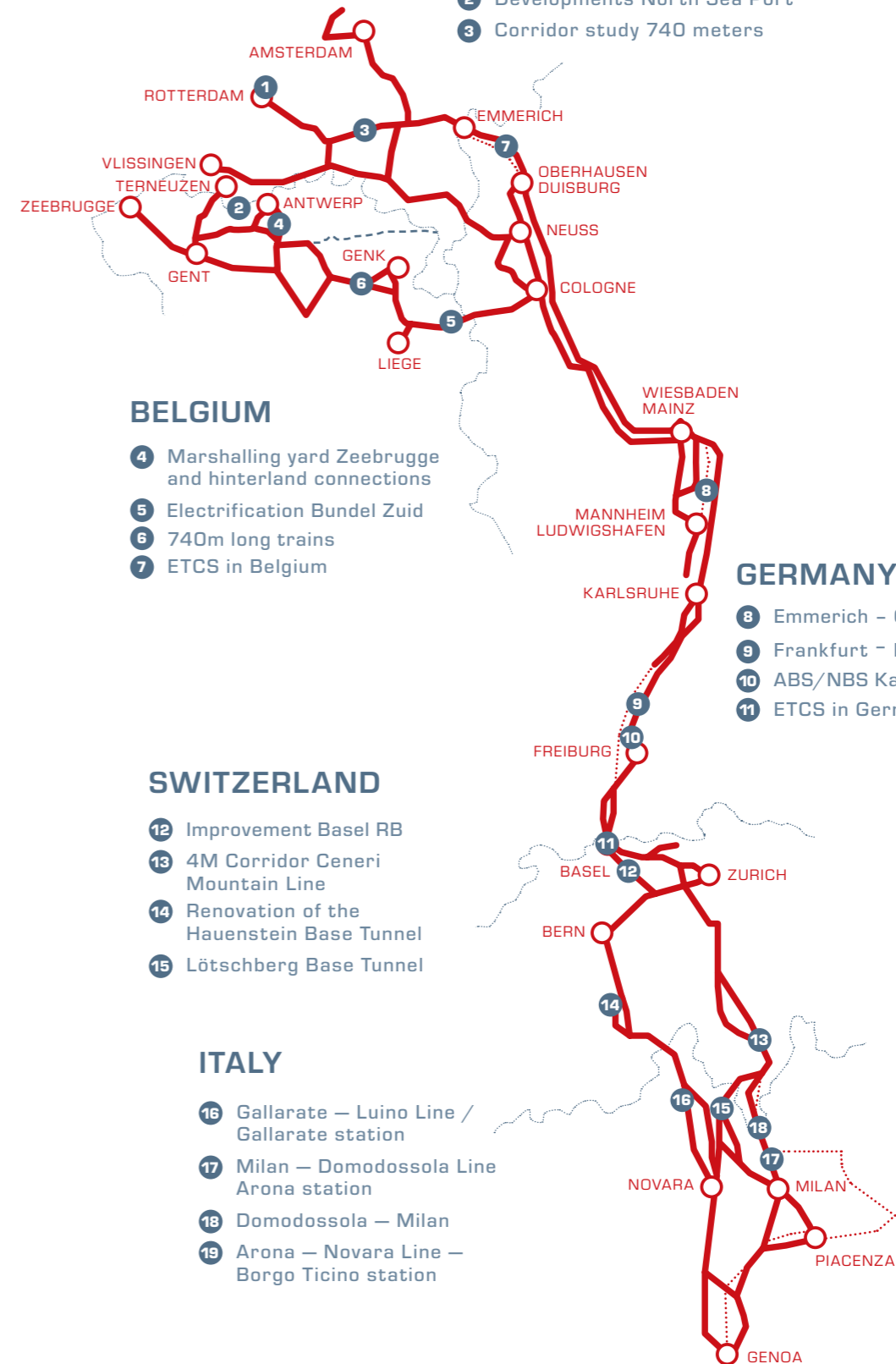
This chapter reports on projects that made significant progress or were completed during 2023. These projects are part of the Implementation Plan of RFC Rhine-Alpine.

## OVERVIEW MAP

### PROJECTS ON RFC RHINE-ALPINE

#### THE NETHERLANDS

- 1 Maasvlakte Zuid 1st phase
- 2 Developments North Sea Port
- 3 Corridor study 740 meters



#### BELGIUM

- 4 Marshalling yard Zeebrugge and hinterland connections
- 5 Electrification Bundel Zuid
- 6 740m long trains
- 7 ETCS in Belgium

#### SWITZERLAND

- 12 Improvement Basel RB
- 13 4M Corridor Ceneri Mountain Line
- 14 Renovation of the Hauenstein Base Tunnel
- 15 Lötschberg Base Tunnel

#### ITALY

- 16 Gallarate – Luino Line / Gallarate station
- 17 Milan – Domodossola Line Arona station
- 18 Domodossola – Milan
- 19 Arona – Novara Line – Borgo Ticino station

#### GERMANY

- 8 Emmerich – Oberhausen
- 9 Frankfurt – Mannheim
- 10 ABS/NBS Karlsruhe – Basel
- 11 ETCS in Germany



DB Cargo freight train in a chemical plant in the Netherlands.

## PROJECTS IN THE NETHERLANDS

### 1 START OF CONSTRUCTION OF MAASVLAKTE ZUID RAIL YARD

In collaboration with ProRail, the Port of Rotterdam Authority has started the tender for the first phase of the Maasvlakte Zuid rail yard. The first phase consists of the construction of 1 bundle of 6 tracks and will be operational by mid-2027. The yard will be constructed in phases and the realization of the other bundles is directly related to the actual growth in rail freight transport on the Maasvlakte.

### 2 DEVELOPMENTS NORTH SEA PORT

**Electrification of the Sloe railway yard**  
The electrification of the 2nd track bundle at the Sloe yard was completed at the end of 2023. This increases the shunting capacity for E-Locs at the yard, in line with the objective of using electric trains as far as possible.

### Improvement of the Gent-Terneuzen rail connection

North Sea Port, in collaboration with the railway infrastructure managers ProRail and Infrabel, has started a follow-up study into the cross-border rail development in and around the port area between Gent and Terneuzen. The study is supported by a CEF grant and budget has been made available by the Dutch and Belgian governments to further develop the previously identified measures.

### 3 CORRIDOR STUDY 740 METERS

ProRail completed the 740m corridor study in 2023. This consists of several location-specific (pre)studies, a Social Cost Benefit Analysis and a cost-effective phased rollout strategy for the running of 740m trains using:

- linking opportunities (joining already ongoing infrastructural projects in Rotterdam Noord Goederen, Lage Zwaluwe and Roosendaal)
- (interim) results of ongoing studies in Venlo and Eindhoven.

The results will be used by the Ministry of Infrastructure and Water Management to draw up an implementation plan (with associated financing) for the 740m train.

## PROJECTS IN BELGIUM

### 4 MARSHALLING YARD ZEEBRUGGE AND HINTERLAND CONNECTIONS

In the beginning of January 2023, the fully modernised marshalling yard in Zeebrugge was officially taken into service. The yard consists of 2 sidings: Zwankendamme (10 tracks - finalised in 2018) and the shunting yard Zeebrugge with 8 tracks, 4 of which are electrified and 3 can accommodate 740m long trains. Apart from the 18 tracks there is also a smaller, separate siding with 4 tracks where customers can park their locomotives, freeing up space in the actual yard.

# OVERVIEW MAP

The works on the construction of a third and fourth track between Gent and Brugge also continued in 2023. The construction works between Landegem and Aalter were finished in June 2023. The works concerning Track, Catenary and Cabling continued all through 2023.

### 5 ELECTRIFICATION

In May 2023, 10 additional tracks in the "Bundel Zuid", the fan of sidings on the left bank of the river Scheldt in the Port of Antwerp-Bruges, were electrified, providing extra capacity for electric locomotives, smoothing the access and the procedures.

### 6 740M LONG TRAINS

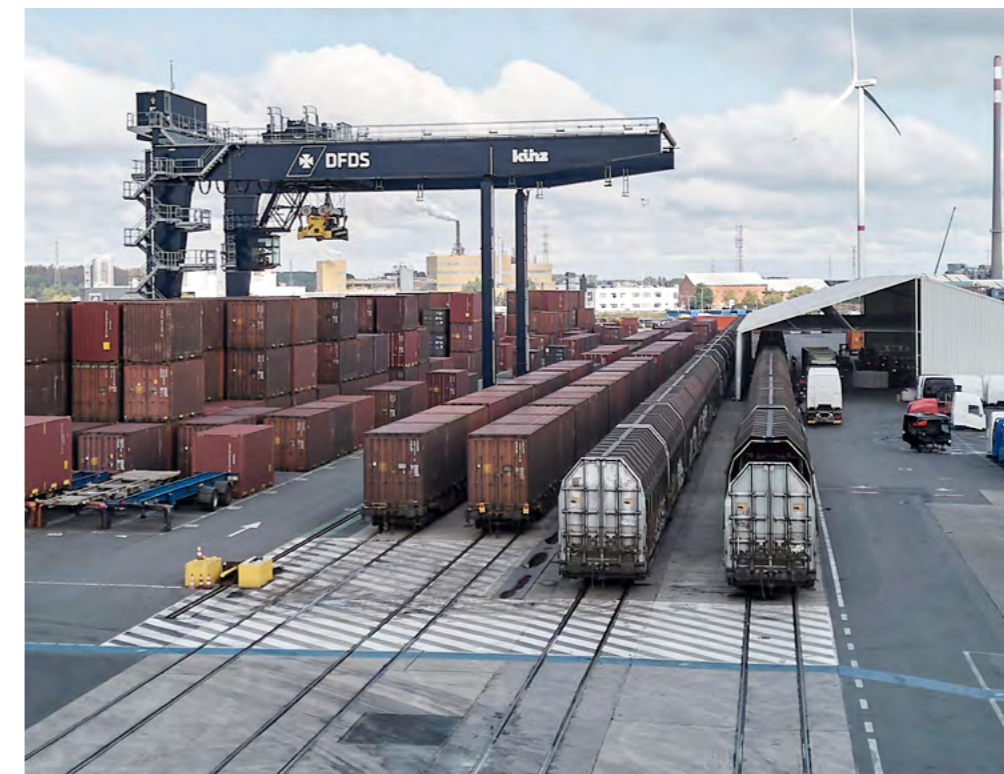
The works on the construction of 4 long tracks in the bundle of Montzen and a new access to the main railway line (L24), that started at the end of May 2022, continued in 2023. The track works were finalised and the tracks were taken into service in September 2023 with diesel locomotives. The electrification of the 4 tracks will be finalised in 2024. The works are being

realised with a grant of the European Commission under the CEF II Transport Call 2021 (Military Mobility envelope).

In May 2023, 4 additional long tracks in the fan of sidings "Zandeken" were put into service in the port of Gent (part of North Sea Port). On the right bank of the Canal Gent-Terneuzen, in the fan of sidings Mercator, works started to extend the capacity. 6 out of 9 tracks will be prolonged, switches will be renewed and the track configuration optimised. The first phase (side Gent) was finalised in September 2023. The works will last till 2025 and benefit from resources from the federal recovery plan and the European Recovery and Resilience Facility (RRF).

### 7 ETCS IN BELGIUM

ETCS deployment continued with the aim of the whole network to be equipped by 2025. By the end of 2023, 62% of the main tracks were equipped with ETCS. ETCS will become mandatory from TT 2026 (14.12.2025)



Multi-modal terminal at Mercatordok in the port of Gent (North Sea Port).

## PROJECTS IN GERMANY

### 8 EMMERICH – OBERHAUSEN

The design and approval planning for the third track has largely been completed. Tendering processes for additional construction works have started in the sections Voerde, Friedrichsfeld and Wesel in 2023.

Preliminary works have taken place in section 1.2 Oberhausen-Sterkrade and the construction of the 3rd track in the sections Dinslaken and Voerde has also started in 2023.

In Rees, Voerde and Dinslaken catenary and engineering construction works continued in 2023. A part of the bridge construction has already been completed. A new platform and a pedestrian underpass is under construction in Dinslaken. In the sections 2.1 Friedrichsfeld and 2.2 Wesel engineering construction works

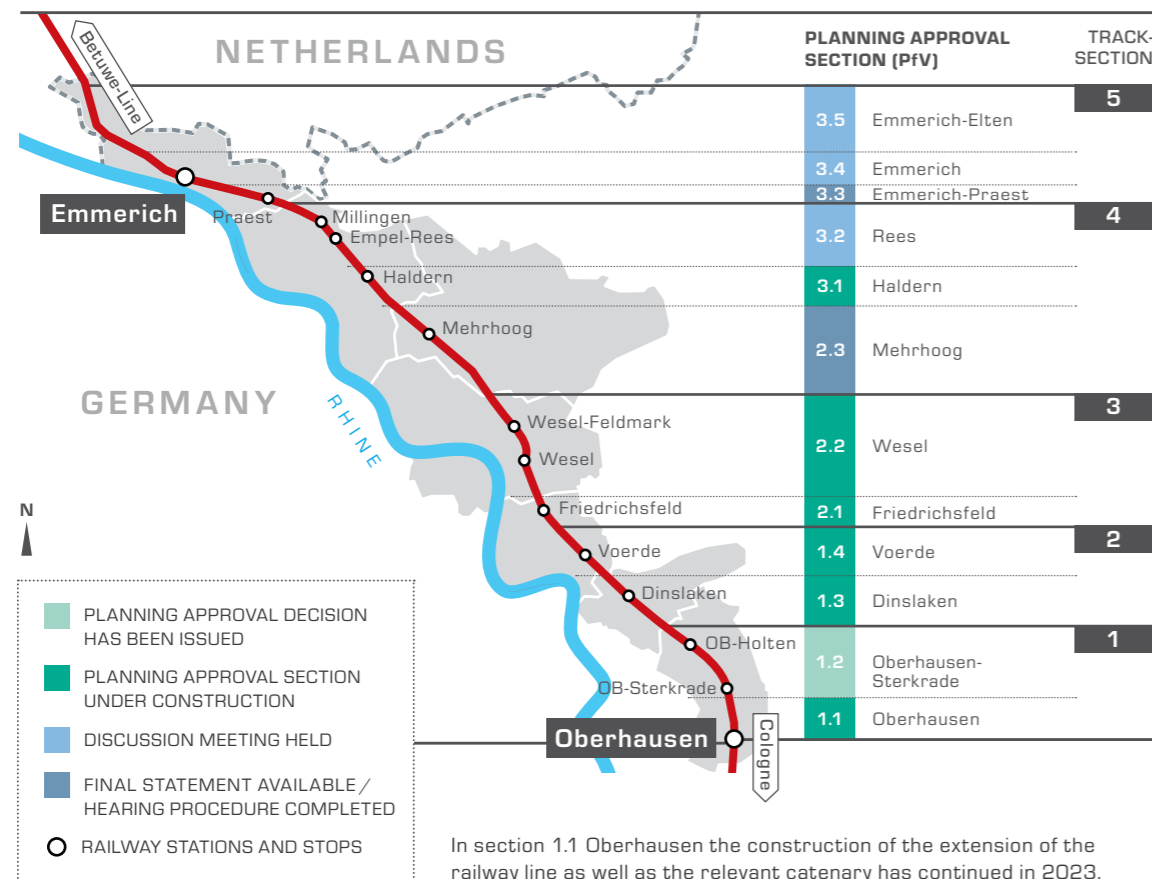
started in 2023. The construction of the bridge Willy-Brandt has been completed.

Meanwhile seven out of twelve planning approvals have been granted and they are final non-appealable. The planning approvals for the sections 2.3 Mehrhoog and 3.3 Emmerich-Praest are the next being expected in 2024.

### 9 NEW FRANKFURT – MANNHEIM LINE

The new line from Frankfurt to Mannheim is a central link in Deutsche Bahn's (DB) high-speed network. It closes the gap between the two ICE connections Cologne-Rhine/Main and Mannheim-Stuttgart. The two existing lines Riedbahn and Main-Neckar-Bahn will be relieved by the new line and the local and long-distance transport offer in the region will be significantly improved. At the end of 2020, the preferred

#### PROJECT EMMERICH – OBERHAUSEN



# OVERVIEW MAP

variant for the new Frankfurt-Mannheim line was determined. The identified route had proved to be the best in a comparison of more than 30 variants.

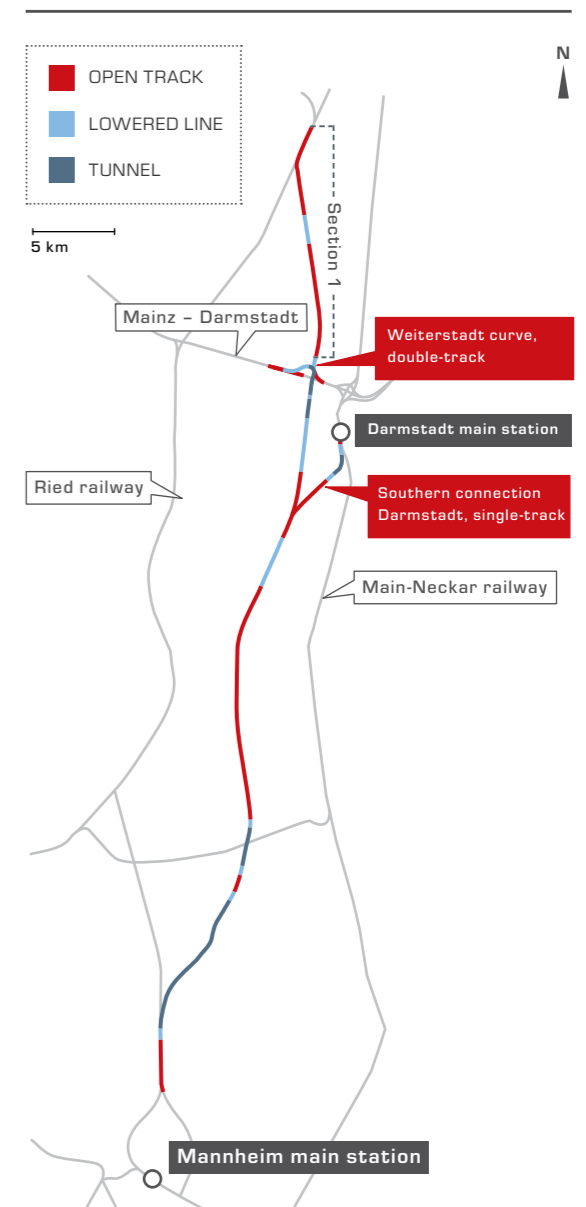
Since 2016, the Participation Forum, with around 100 representatives of all interest groups from politics, the environment and the public, has been involved in the planning of the new railway line. The Forum played a key role in the discussion and evaluation of the more than 30 variants of the route. 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.

In 2023, DB continued its technical planning for all sections of the new railway line. To this end, it carried out extensive subsoil investigations in several sections. DB completed the preliminary planning in PfA 5/6 (Lorsch to Mannheim-Waldhof) at the end of 2023.

In the Frankfurt-Mannheim Participation Forum, the members focused in particular on the expected noise impact of the new railway line in preparation for the parliamentary referral. To this end, the railway's noise experts presented the noise studies with the legally prescribed noise protection measures for the first sections.

In 2024, the Frankfurt-Mannheim Participation Forum will also deal with the regional demands regarding the new railway line. In the second half of the year, the preferred option together with the regional demands will be submitted to the German Bundestag for parliamentary consideration. For the planning approval section 1 from Zeppelinheim to the northern connection to Darmstadt, DB plans to resubmit the application for planning approval to the Federal Railway Authority in the first half of the year. The planning approval applications for the Weiterstadt to Einhausen sections are to be submitted to the Federal Railway Authority at the beginning of 2025.

#### NEW FRANKFURT – MANNHEIM LINE



**10 ABS/NBS KARLSRUHE – BASEL**

In 2023, the project Karlsruhe – Basel made further progress both in the planning approval process and in the construction works.

- In Track Section 1, the concrete works for the solid track and cable conduits in the tunnel were carried out. Preparations to dig out the wrecked (first) drilling machine were successfully finished. The investigation and arbitration process are still ongoing.
- In Track Section 7, “Early public participation” took place.
- In Track Section 8, DB received the first planning approval for PAS 8.1 in December. Also the financing agreement between DB and the Federal government has been concluded. Preparation for the construction works will start immediately. The approval

process for the other planning approval sections (PAS/PfA/ Planfeststellungsabschnitte) is still continuing.

- In Track Section 9, construction works continued. The preparations for new barrier-free platforms and for building the track will be continued in all sections.

**11 ETCS IN GERMANY**

In addition to managing the ongoing construction projects for electronic interlockings and ETCS, 2023 was strongly characterised by extensive planning changes after the decision to transform the sections previously planned L1 LS to L2 in accordance with the strategy Digitale Schiene Deutschland (DSD).

In addition, there was intensive coordination with the projects planned along the Corridor with the projects planned along the Corridor for the renewed planning as part of the High-

Loading a freight train in the Rotterdam harbour.



OVERVIEW MAP

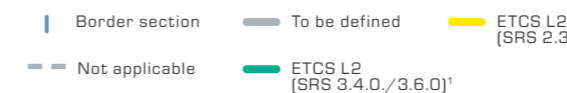
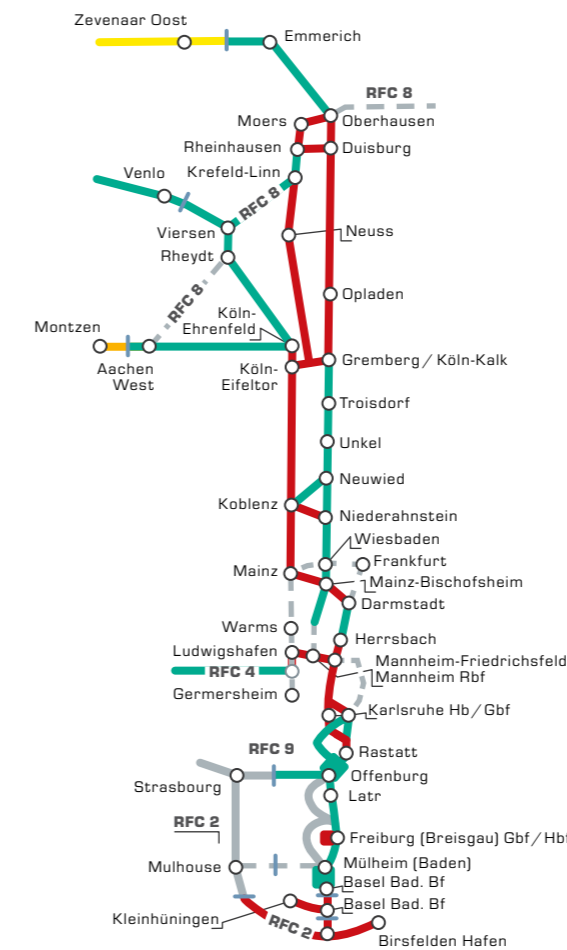
Performance Network in Germany. Focus topics were the synchronisation with the planning of ETCS equipment and agreeing on further measures under responsibility of the ETCS project to improve the control and safety technology.

Upgrades to “ETCS ready” have been completed in two electronic interlockings in Oberlahnstein and new ETCS-capable workstations have been installed in the corresponding control center (commissioning in spring 2024). The

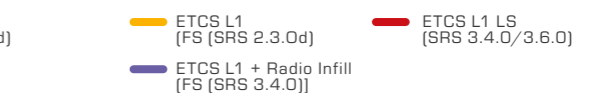
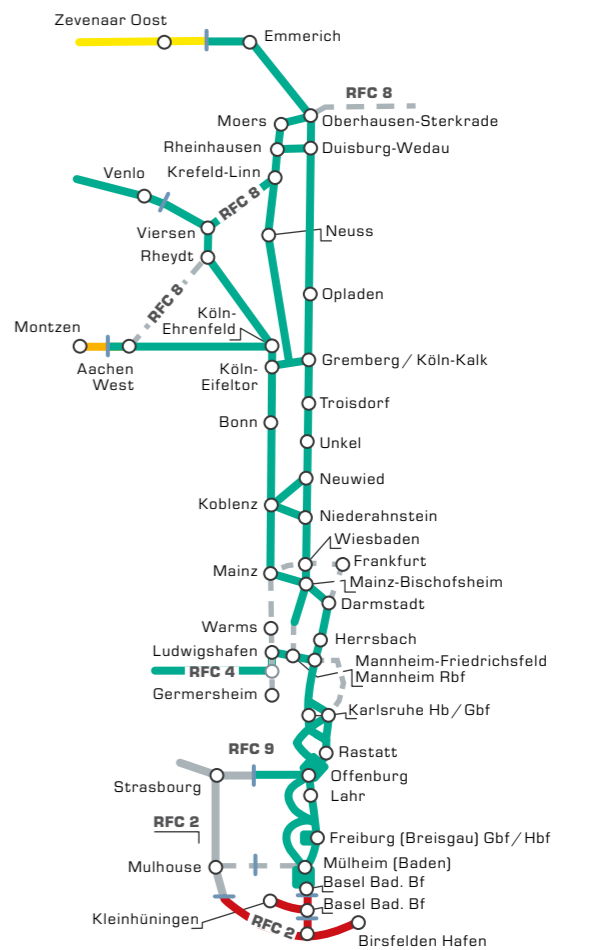
construction of a new central interlocking has been awarded for the Offenburg node.

As part of the transformation from L1 LS to L2 and DSD, ETCS L2 is embedded in new concepts of operational control and technology centres. The ETCS project “Corridor Rhine-Alpine” is an initial user in certain areas. In 2023, the first sites for the new buildings have been secured and tenders for construction have been prepared.

**ETCS LEVEL / DEPLOYMENT TYPE  
BASED ON INFORMATION FROM IMS 22.11.2021**



**ETCS LEVEL / DEPLOYMENT TYPE  
BASED ON INFORMATION FROM IMS 30.11.2023**



## PROJECTS IN SWITZERLAND

### 12 IMPROVEMENT BASEL RB

The Basel shunting yard is to be further expanded in order to accommodate the increase in rail freight transport volumes prognosed for the year 2040. To this end, additional tracks are being upgraded in the F group to accept 740m long trains (conversion of existing track systems). The entrances and exits to the Basel RB will be optimized and new capacity created for locomotive parking and 750m trains in the D-group. Commissioning of the long D-group tracks is planned by 2025, and the F-group tracks by 2030.

### 13 4M CORRIDOR CENERI MOUNTAIN LINE

Since the 2023 timetable change, the Ceneri mountain line can be used with the P/C 80 clearance gauge (4m corner height). The route serves as a diversion during the weekly maintenance works.

### 14 RENOVATION OF THE HAUENSTEIN BASE TUNNEL

The Hauenstein Tunnel project commenced in September 2023. It involves the renovation of the tunnel vault, track drainage and safety-relevant systems as well as the renewal of the tracks. These works are expected to result in operational restrictions, with completion anticipated by 2028.

### 15 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 "partial extension" has been approved by the Swiss Federal Office of Transport (FOT) in June 2022. In a second step, the FOT commissioned also the project planning for the "full extension" of the Lötschberg Base Tunnel (2nd tube for the whole length of the tunnel). The partial extension would lead to an 8-month full closure of the tunnel during construction works which is politically very controversial because of the consequences caused.

The construction project of the version "full extension" has been finalized and submitted

to the FOT. Ongoing work relates to the final cost estimation. The Parliament will decide in 2024 whether the "partial" or the "full" extension of the Lötschberg Base Tunnel should be implemented.

The sub-project of the Engstlige Tunnel (double-track expansion) is independent of the Parliament's decision and is in submission. Most parts of the preparatory lots are in execution or in submission. The aim is to finish all preparatory lots by the end of 2025. The start of the main construction works is foreseen in 2027 and go live is planned for 2034.

## PROJECTS IN ITALY

### 16 GALLARATE – LUINO LINE / GALLARATE STATION

2 tracks to allow running trains up to 740m long (siding 750m) were upgraded at Gallarate station. This last upgrade is important because it has in fact completed the Plan of performance Adaptation on the line (with the exception of Ternate which was not foreseen at the beginning) and makes it possible to handle longer trains to/from the HUPAC terminal. At a later stage, additional tracks will be built at Gallarate for trains running on the Domodossola - Milan line.

### 17 MILAN – DOMODOSSOLA LINE – ARONA STATION

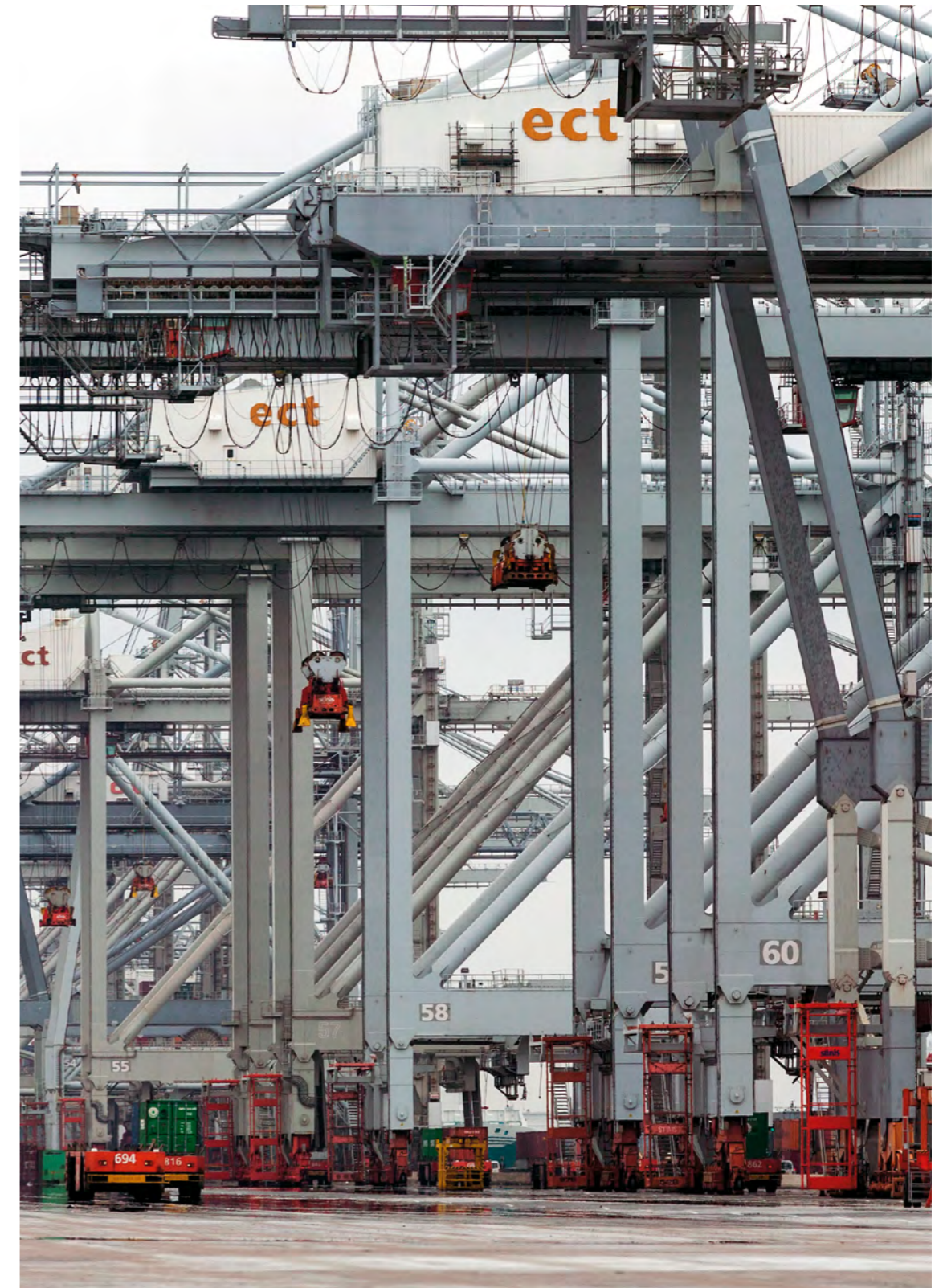
A passing track for trains up to 740m long (siding 750m) has been activated at Arona station for trains running on the Domodossola - Milan line. The works will be completed in 2024 with the activation of a track with the same characteristics as the Arona - Novara line. The works are part of the long-term project to overhaul and extent the node of Milan.

### 18 DOMODOSSOLA – MILAN

In December 2023, a call for tenders for upgrading the line Domodossola - Milan - between Arona and Verbania to the profile P/C 80-410 was published.

### 19 ARONA – NOVARA LINE – BORGIO TICINO STATION

The station has been adapted to handle the crossing of trains up to 740m long (siding 750m).



Sea cargo terminal in Maasvlakte.

# KEY TOPICS

## IN 2023

Despite the many challenges, 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 2023, with joint information from the Management Board and the Executive Board.

## POLICY DEVELOPMENTS

The year 2023 showed important policy developments at the EU level affecting RFC Rhine - Alpine.

First, the decision making on the TEN-T revision proposal from the European Commission has advanced in 2023. On 18 December an agreement between Council, European Parliament and Commission was reached in the last trilogue meeting under the Spanish EU presidency. The final adoption of the TEN-T revised regulation is expected in the first quarter of 2024.

The new TEN-T regulation will strengthen the EU requirements on infrastructure as regards deployment of ERTMS, 740m train length, axle load, train speed and the P400 profile. Also, 2040 is introduced as an intermediate deadline for the new extended core network. The TEN-T regulation will also integrate the structures of Rail Freight Corridors into the European Transport Corridors. In addition, the regulation includes provisions on performance of rail freight traffic concerning punctuality and dwell times at borders.

The agreed text also confirms the merger of Corridor Rhine-Alpine and North Sea - Mediterranean within 18 to 24 months after the date of entry into force of the regulation. The Executive Boards of the two RFCs strengthened their cooperation in 2023 and focused both on improved governance cooperation and preparing key objectives for the merged Corridor.

At the level of development of interoperability, the adoption of the new package of Technical Specifications for Interoperability in 2023 can be highlighted. The package includes provisions to facilitate the introduction of Digital Automatic Couplings for freight wagons, which is RFC Rhine-Alpine.

The publication of the proposed regulation on the use of railway infrastructure capacity in the single European railway area by the European Commission in July 2023 was a key milestone and was long awaited by the railway

sector. The proposal builds upon the sector innovation project, called Timetable Redesign (TTR). The proposal includes provisions to develop capacity strategies by the infrastructure managers, that should match with the neighbouring networks. The proposal also foresees a harmonization of capacity allocation procedures. The European Commission proposes to phase out the Rail Freight Corridors by 2029 and no continuation of the Corridor One Stop Shops. Also, a unified performance monitoring and an additional governance for the Single European Railway Area is part of the proposal. The Executive Board has exchanged opinions on this ambitious and far going proposal from the European Commission and will continue to do so in the context of the EU political decision-making procedure in 2024.

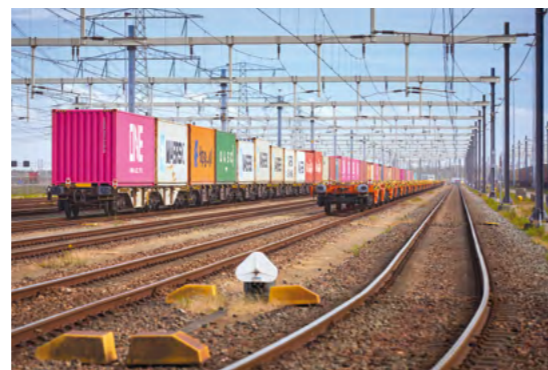
At the level of digitalization, RFC Rhine-Alpine was closely connected to relevant projects at EU level that can improve the reliability of the traffic. Therefore, the project of Railway Collaborative Decision Making was supported and followed up.

The Executive Board of RFC Rhine-Alpine visited the construction site of the Terzo Vallico project in March 2023.



## CAPACITY OFFER

In 2023, the WG Products and Processes focused on the preparation of the PaP offer for TT2025 with changes in the amount of offered PaPs for the lines crossing Switzerland, as well as the offered parameters, e.g., an increase of tons within the published PaPs in Belgium. Furthermore, the WG focused on the review of the processes for the TT2023 and TT2024. End of June 2023, the meeting with the respective heads of timetables of RFC Rhine-Alpine was held to ensure the exchange of all IMs on the deadlines of draft and final timetable.



Freight train on its way to the Rotterdam harbour.

The draft and final timetable was late in 2023, as re-planning took place to accommodate for the revised construction works schedule on

RFC lines., RFC lines, especially due to the High-Performance Network construction approach in Germany.

## TEMPORARY CAPACITY RESTRICTIONS

The focus of the TCR Working Group (WG) is to facilitate the early cooperation of the Infrastructure Managers (IMs) of the Corridor to coordinate Temporary Capacity Restrictions (TCRs) due to infrastructure works. The aim is to best coordinate relevant closures to reduce the impact for Railway Undertakings and keep freight trains running.

In the last years, RFC Rhine - Alpine supported the introduction of bi- and trilateral working groups in which experts from the TCR departments of the IMs coordinate TCRs. Now, four of those working groups exist on the Corridor and will typically meet twice a year or more often if required:

- BeNeDe (Belgium, Netherlands, Germany)
- RANS (France, Germany, Luxemburg, Belgium, Switzerland)
- Rheintalbahn (Germany, Switzerland)
- Coordination between Switzerland and Italy

RFC Rhine-Alpine collects the results of the bi- and trilateral working groups to summarize and publish the results.

Some of the achievements in 2023 were:

- finalization of the coordination of the Rhine Valley closure in summer 2024
- finalization of the coordination of the 80-weeks closure ABS 46 (Emmerich - Oberhausen) from 2024 to 2026
- SBB's coordination with RFI and DB Netz and involved applicants to find solutions for the restrictions in the Gotthard Base Tunnel
- coordination of all works with an impact on the neighbouring IM(s) to minimize the impact of restricted capacity.

Most of the coordination was and is done in the established bi- and trilateral working groups, that come together frequently and in which the applicants are consulted and informed.

The reactions of the applicants at these coordination meetings tell us that the appreciation is high.

## INTERNATIONAL CONTINGENCY MANAGEMENT

In 2023, there was one case where the International Contingency Management process was launched. On 10 August, a freight train derailed on its journey through the Gotthard Base Tunnel and severely damaged the tunnel infrastructure. No one was injured and no dangerous goods escaped. Following the accident, the International Contingency Management was launched by SBB Infra with the assistance of the Corridor to inform all Infrastructure Managers of the Corridor and other neighbouring countries and to evaluate possible effects on the along the Corridor at an early stage.

After two weeks of total closure, on the 23rd of August 2023, international freight traffic could be resumed in the Gotthard Base Tunnel

(East tube) with 5 train paths per hour in one direction and 5 train paths per hour in the other direction in the following hour. The ICM case was closed at the beginning of September 2023 due to the capacity being fully restored by SBB Infra, BLS Netz and TVS by offering additional paths via the Lötschberg and Gotthard mountain line and a stable timetable was re-established.

Nevertheless, the ICM influenced **punctuality** severely, not only in Switzerland but on the complete Corridor.

On the basis of the current planning, the second tunnel tube will be fully operational again in September 2024.



Clean-up work in the eastern tube of the Gotthard tunnel.



## TRAIN PERFORMANCE MANAGEMENT

The Train Performance Management Working Group TPM WG met four times in 2023 under the lead of Alexander Paulus, the BLS representative in the group. Regular telcos supported the coordination within the working group.

In the meantime, at all RFC borders, except for Zelzate / Sas van Gent, bilateral working groups are active to tackle specific operational issues together with the RUs in a structured way. The exchange with the Corridor TPM WG is a standing topic on the agenda and ensured through the representatives of the concerned IMs.

Whilst the main task during the past years was to carry out analysis of overall traffic and train figures based on the RNE TPM reports, the focus shifted this year more to the coordination with many other connected working groups and projects. On the one hand, this is due to the increase of activities at RNE level, on the other hand the fact that improvements are easier to be reached through the bilateral groups or within task forces which are closer to daily operations. As planned, in 2023 the missing working groups for some borders became operational. Also, the Quality Circle Operations (QCO) have been extended and the "Operative Verkehrssteuerung" (OVS - operational traffic steering) on RFC Rhine-Alpine was established by DB Netz.

On RNE side, the most important connections are the comprehensive TPM WG and the since 2023 fully operative Data Quality Working Group. Together with the IM- and RFC-representatives and RNE-specialists these groups form the basis for creating reliable reports and functioning processes related to Train Performance Management. Members of the TPM WG are also directly involved in the projects concerning "European Traffic Management" (ETM), "Railway Collaborative Decision Making" (R-CDM), the further development of the "TIS-Incident Management Tool" and the European Language Program.

On rail freight quality, the Executive Board established in 2023 the **Quality Core Group** with the aim to develop with the stakeholders realistic tools and instruments for improving the quality of services. In December 2023, three priorities were identified for follow up in 2024 (improved data sharing, standard re-routing, corridor capacity strategies). The objective is to agree on realistic projects to improve reliability with the support of all stakeholders. From the side of the Infrastructure Managers, Alexander Paulus as leader of the TPM WG is taking part in this group together with MB chairperson, Guus de Mol. During this year, first ideas have been developed in workshops. Concrete activities shall start at the beginning of 2024.



TPM Working Group visiting the Terzo Valico construction site on the occasion of its meeting in Genoa.

## IMPLEMENTATION PLAN UPDATE 2023

In accordance with the Regulation 913/2010, the Implementation Plan of RFC Rhine-Alpine was updated in 2023. The document and its annexes give a comprehensive picture of the developments in all fields of the Corridor since the last update in 2021.

The main focus of the update was on the introduction of quantifiable targets for some objectives. In total, four core objectives and their respective targets were defined for RFC Rhine-Alpine:

- Delta RFC Entry and Exit punctuality (30-min threshold)
- KPI Number of trains per border
- Ratio of PaP capacity offer at X-11 to Final Timetable Offer (X-3) and

- KPI Average planned speed of PaPs

The progress of these four core objectives is published in this Annual Report and factors that influenced target development, if available, are explained [Performance Chapter](#).

Other parts that were updated include the overall investment planning, the capacity bottlenecks analysis for the Corridor lines and further ERTMS implementation. The Implementation Plan was also consulted with RAG members and their input was published as Annex F to the document.

Following the approval of the updated Implementation Plan by the Executive Board in its December meeting, it was published in [CIP](#) and on the Corridor website together with the approval decision.

## ERTMS DEVELOPMENTS

The Executive Board continued its work on the coordination regarding ERTMS deployment along the Corridor in the **ERTMS Task Force**, which met four times in 2023. The Corridor rollout is monitored and horizontal issues affecting the roll out of ERTMS are discussed and opportunities are identified for cooperation on Corridor level, such as ERTMS track side approval by ERA, radio signalling and key management.

In 2023, the **ERTMS Experts Platform** continued the exchange in accordance with its work plan: In addition to supporting the ERTMS Task Force, the update of the ERTMS Deployment Overview should be mentioned.

Two meetings were held in presence, as well as numerous bilateral conference calls. The lower frequency of meetings was mainly due to the transformation from L1 LS to L2 in Germany and the need to first verify a new planning. Also, in the Netherlands and Italy

the planning was under review. During this phase, reporting to the Task Force and informing RUs and vehicle owners had to be postponed.

Preparations for an update of the ETCS Deployment Overview began after the summer and were completed by the end of October. The update was published in December 2023 as part of the updated Implementation Plan 2023, following the approval by the ERTMS Task Force and the ExB. The ETCS information in CIP was also adapted. The effects of the TSI CCS 2023, which came into force in September, could not yet be considered.

The pilot between DB Netz and Infrabel to develop a concept for the cross-border agreement required by the EDP has been finalized and has been approved by the Task Force. The introduction as a standard procedure and the adjustment of the requirement in the EDP is to be initiated in 2024.

In addition, exchanges and initiatives on other cross-cutting topics took place:

- Monitoring the discussion regarding the revision of the TEN-T regulation with ERTMS as one of the core topics
- Practice for the verification of ESC types (topic was included at the suggestion of RAG)
- Harmonisation of processes in off-/online Key Management
- On the initiative of the RFC Rhine-Alpine ERTMS Task Force, the ERTMS Users Group has set up an expert group, which completed a guideline on "Key Management System" to provide recommended solutions for Key Management Center (KMC) set up and inter-KMC arrangements.
- **Trackside Approval**  
Successful support for a sector initiative to set up a working group to assist ERA in simplifying the process.
- **Risk report**  
Relocation of the application to another SharePoint platform at DB Netz with ex-

tensive adjustments (new security guidelines) and tests. Next risk report to be prepared at the beginning of 2024.

The dialogue with Railway Undertakings, leasing companies and sector organisations was ensured through participation at regular meetings of the RU platform of the ERTMS Users Group. This format originally goes back to an initiative of RFC Rhine-Alpine, it was launched 10 years ago and has proven its worth to this day.

The ERTMS Experts Platform will continue its work in 2024 based on its work plan. Information meetings for RUs and vehicle owners will be held again. In the light of the TSI CCS 2023, the expected adoption of the revised TEN-T regulation and the mandatory releases of the updated National Implementation Plans, a 2024 version of the Deployment Overview will be prepared in the course of the year. Finally, it was decided, that the ERTMS Experts Platform will be expanded to include representatives from SNCF Réseau and CFL Infra in the run-up to the announced merger of RFC Rhine-Alpine and RFC North Sea - Mediterranean.

## INFRASTRUCTURE AND CAPACITY

In 2023, the Infrastructure & Terminal WG updated the overviews of certain infrastructure parameters. The parameters analysed were the intermodal gauge, the profile and the maximum train length. The information on the parameters of the RFC Rhine-Alpine lines in the Customer Information Platform (CIP) was kept up-to-date by the WG members.

Quarterly reports were produced on the volumes of trains at the border points of RFC Rhine-Alpine. The WG also published an update of the Capacity Bottleneck Analysis report from 2020, in the frame of the update 2023 of the Implementation Plan.



Railyard in the Netherlands.

## MARKETING AND CUSTOMER RELATIONS



The RFC Network and RNE booth at the Transport Logistics trade show in Munich in May 2023.

### EVENTS IN 2023

RFC Rhine-Alpine took part in the Transport Logistic trade show in Munich in May, together with the RFC Network and RNE. The joint stand attracted many visitors, including customers, stakeholders and colleagues. A good representation emphasising the role of rail freight corridors in the modal shift and many good discussions at our stand made the fair a successful networking event for RFC Rhine-Alpine and the RFC Network.

In May 2023, RFC Rhine-Alpine took part in the Rail Transport Day in Stockholm. Guus de Mol, MB chair of RFC Rhine-Alpine, RFC Rhine-Alpine, moderated a discussion on the optimisation of rail capacity.

In November, RFC Rhine-Alpine participated in an event hosted by the Port of Genoa, discuss-



Joint RAG meeting of RFCs Rhine-Alpine and North Sea - Mediterranean in Munich in October.

ing the future of rail transport in connection to projects for capacity management in the port.

### RAILWAY UNDERTAKING ADVISORY GROUP

In April 2023, Ulla Kempf (SBB Cargo International) stepped down as RAG speaker on RFC Rhine-Alpine. RFC Rhine-Alpine would like to thank her for her continuous support and the fruitful efforts to bring rail freight forward. As successors, Sandra Kuhlmann (DB Cargo) and Matthias Stoorvogel (Lineas) took over as co-speakers of the RAG.

The main discussions on the Corridor were also reflected in the RAG of RFC Rhine-Alpine in 2023.

A continuous topic of the RAG meetings in 2023 were the Temporary Capacity Restrictions, especially the newly introduced construction regime in Germany. For foreseen closures in the upcoming year, concrete actions were discussed, for instance the operational handling of the total closure of the Rhine valley line in Rastatt in August 2024.

Another topic that was discussed in RAG meetings, as well as in dedicated meetings between RAG, Management Board and Executive Board, were the expected changes in the proposed regulations on European level. Other topics discussed were the Language Tools, the R-CDM project of RNE in cooperation with RFCs Rhine-Alpine and North Sea - Mediterranean and information regarding ETCS/ERTMS build status on Corridor lines.

The initiative to improve the exchange of information between the two RAGs of RFC Rhine-Alpine and RFC North Sea-Mediterranean considering a foreseeable merger of both Corridors continued in 2023. For this, two Joint RAG sessions were held in 2023, with a focus on topics that affect both Corridors as well as projects being run on each Corridor. In addition, PCS trainings were held for interested RUs to inform about the steps of ordering capacity via the C-OSS.

**TERMINAL ADVISORY GROUP**

As in the previous years, the TAG was organised together with RFC North Sea-Mediterranean. During the meeting in Liège on the 21st of June 2023, updates on the development and performance of the corridor traffic were presented and discussed. Topics presented to the participants included the R-CDM project that is under development at RNE with the assistance of both RFCs, as well as the results of the User Satisfaction Survey. The TAG meeting also included a visit to the airport of Liège and different terminals in the port of Liège.

In addition to the TAG meeting, three webinars were held that informed about the EU Rail Facilities Portal jointly organised with the RFC Network.

**CUSTOMER INFORMATION PLATFORM**

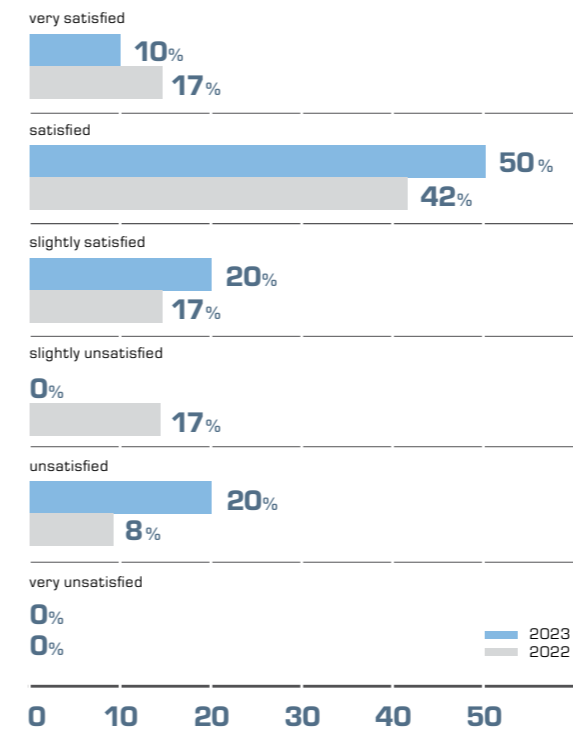
The Customer Information Platform (CIP) was further developed and improved in 2023. The main achievements were:

- Changes to the information display of ERTMS and ETCS build status to better show the concrete developments until 2032
- Update of information regarding infrastructure parameters
- Update and revision of information about infrastructure development, ERTMS and ongoing projects on the Corridor in regard to the Implementation Plan Update 2023
- Continuation of the work on a common database for RNE applications called Railway Infrastructure System (RIS) and work on the inclusion of data from the Rail Facilities Portal

The participants of the the joint TAG meeting at the Airport of Liège in June.



**OVERALL SATISFACTION WITH RFC RHINE-ALPINE IN 2023**



**USER SATISFACTION SURVEY**

The User Satisfaction Survey 2023 was conducted jointly with all eleven Rail Freight Corridors. The questionnaire was shortened compared to the previous year, with interviews being offered additionally to discuss points of improvement in more detail. The survey was conducted between August and October 2023. In total, 5 interviews were conducted by RFC Rhine-Alpine, compared to two in the previous year. The overall satisfaction of the users of RFC Rhine-Alpine slightly increased to 80% (compared to 76% in 2022). The efforts of the Corridor were recognized, particularly for enhancing the customer-friendliness of the offered PaPs, improving communication over the last year, and achieving the highest score in service by the C-OSS. Furthermore, also the good cooperation between IMs and stakeholders and the meeting organisation is highly valued. Need for improvements were the cross-border harmonisation of TCRs and performance measures.

**REPORT FROM THE REGULATORY BODIES**

The European Commission has proposed a regulation on the use of railway infrastructure capacity in the single European railway area, and the European Parliament and the European Council started their evaluation in the committees. In response, IRG Rail members have developed a **common position** on the European Commission's intentions for better capacity allocation and traffic management. The general remarks point out deficiencies in the rights and obligations of various stakeholders in the legislative proposal.



Dutch light signal along the Corridor.

## NSA WORKING GROUP REPORT

### THE NSA GROUPS OF THE NSA CORRIDOR ORGANISATION

The National Safety Authorities (NSAs) of the Rail Freight Corridor Rhine-Alpine (RALP) and RFC Scandinavian-Mediterranean (ScanMed) are organised as “NSA Corridor Group”, which deals with NSA related topics on both corridors in its respective NSA Working Groups.

Since their establishment the tasks of the NSA Working Groups have significantly changed. Originally, there was only a limited number of European legislation with regard to authorisations which changed in particular after the introduction of the 4th Railway Package. In the past, the task of the NSA Working Groups was to coordinate the authorisation of specific cross-border vehicles or cross-border infrastructure projects between the different NSAs on the Corridors. With today’s European legislation, mainly due to the 4th Railway Package and the new role of ERA as authorising entity for vehicles and for ERTMS trackside approval, the main task of the NSA Working Groups today is to coordinate national checks during the authorisation procedures conducted by ERA.

One of the two main NSA Working Groups is the Task Force Interoperability (TFI). It supports vehicle authorisation projects concerning vehicles operating on the Corridor, whose approval process is managed by ERA

The second NSA Working Group is the NSA RFC RALP + ScanMed Working Group abbreviated as “NSA WG”. This NSA WG is dealing with generic topics in relation to the European legislation and their application, especially with respect to the subsystems Control Command and Signalling (CCS) and Operation (OPE). TFI and NSA WG cooperate, exchange and support each other in concrete projects, if required.

At management level, above the Working Groups TFI and NSA WG there is the so called NSA Steering Committee which governs the whole NSA Corridor Group. The NSA Corridor Group is embedded into the structure of the RFC RALP organisation RFC RALP organisation (see p. 55).

The following sections report about the activities of the NSA Working Groups.

### NSA WG FOR THE RAIL FREIGHT CORRIDORS RHINE-ALPINE & SCANDINAVIAN-MEDITERRANEAN

The NSA WG develops a common understanding of ERTMS issues in relation to authorisation and implementation on the Corridors.

Besides generic topics such as errors, interpretation and handling of legislation, etc. also other topics like operational issues are dealt with and coordinated with the responsible stakeholders. Issues identified by the group, which cannot be solved on corridor level or might have a broader impact, are addressed to European bodies (often via the ERTMS NSA Network, or in the frame of the TSI CCS Working Party, both organised by ERA).

### NSA WG ACTIVITIES IN 2023

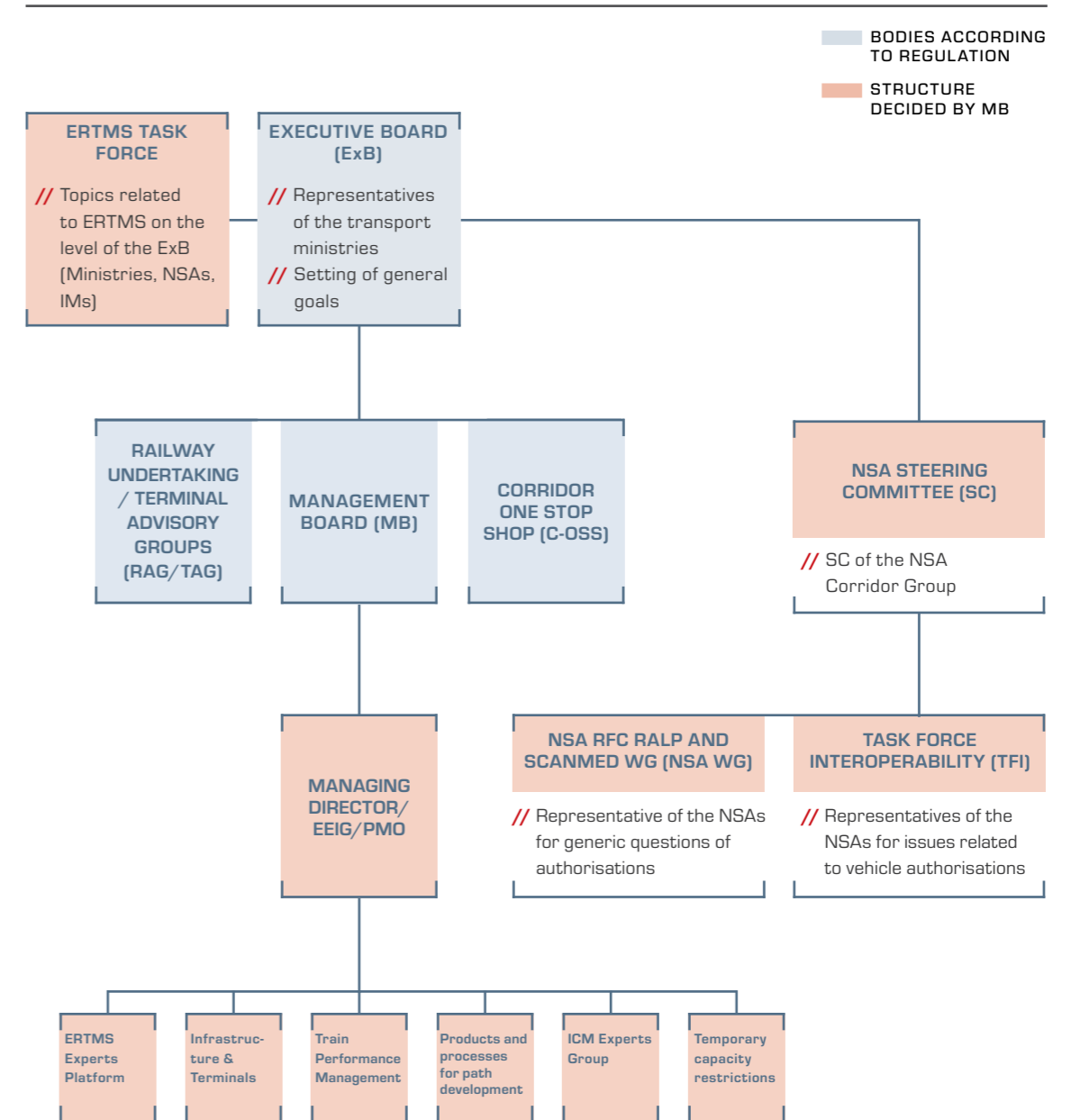
#### TSI CCS REVISION 2023

In 2023 the new TSI CCS ((EU) 2023/1695) was adopted by RISC in March. After publication in the Official Journal of the European Union, it entered into force on 28 September 2023. Currently, a new application guide is prepared by ERA. The NSA WG is continuously dealing with the CCS TSI application guide. The goal is to achieve a mutual understanding of the TSI CCS and to discuss issues with regard to the implementation of this TSI.

#### NATIONAL TECHNICAL RULES (NTRS) CCS

The NSAs are continuously discussing the NTRS related to 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, 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 summarized by and shared within the NSA WG. Each member

### ORGANISATIONAL STRUCTURE OF NSA WORKING GROUP



started to add their rules to the summary. Discussions on those will continue in 2024 encompassing changes within the NR's due to the new TSI CCS.

**HARMONISATION OF DRIVER MACHINE INTERFACE (DMI) TERMINOLOGY**

NSA WG (Germany, Austria, Switzerland) experts provided input 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 usually is 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 is to achieve a specific terminology in one language.

**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 rollout in passenger rail traffic regularly share updates on the 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, specifications outlined in the TSI CCS Revision 2023 as well as the procedures and responsibilities according to the 4th Railway Package.

**COORDINATION OF TSI REVISION**

During the performance of the primary Working Group tasks, coordination also takes place with the WG TSI OPE Operational Harmonisation (OH), due to the coherence of regulations. This allows rapid and effective tuning to take place and leads to more homogeneous, unambiguous and coherent wording of laws and provisions.

**CONTINUOUS UPDATE ON DIFFERENT EUROPEAN ERTMS RELATED WORKING GROUPS**

To ensure a wide knowledge of European developments in the field of CCS and ERTMS, we regularly provide input into the work of the following groups:

Task force Interoperability (TFI), Task Force ERTMS RALP, ERTMS Control Group, Topical Working Group Train Architecture, Operational Harmonization, RISC and also the Steering Committee of RFC RALP and ScanMed.



Track works along on the Betuwe route in the Netherlands.



Along the Betuwe route towards Rotterdam harbour.

This is either done by members of the WG who also participate in one of those groups or after invitation by a representative of these respective group. Thus, a broad perspective of CCS / ERTMS is achieved by the WG, helping e.g. in addressing and understanding issues, and in delivering input to the legislators to harmonise legal texts.

**OBJECTIVES OF THE NSA WG FOR 2024**

According to the annual work plan of the NSA WG for 2024, the group will in particular focus on the following main objectives:

**Discussions on application guides for the new TSI CCS**

- After the finalization of the CCS TSI revision, ERA focusses on the revision of the application guide for TSI CCS . Therefore, the NSA WG will address topics arising in the ERA working party on TSI CCS regarding the respective amendment of the application guide.

**Guidance for projects**

- The NSA WG intends to continue guiding CCS vehicle projects with regard to derogation aspects concerning NTRs 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.

- The NSAs will exchange views and experiences in notifying national rules for trackside CCS, as ERA is now asking for Member States to provide national rules on the trackside CCS subsystem, if necessary.

## (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.

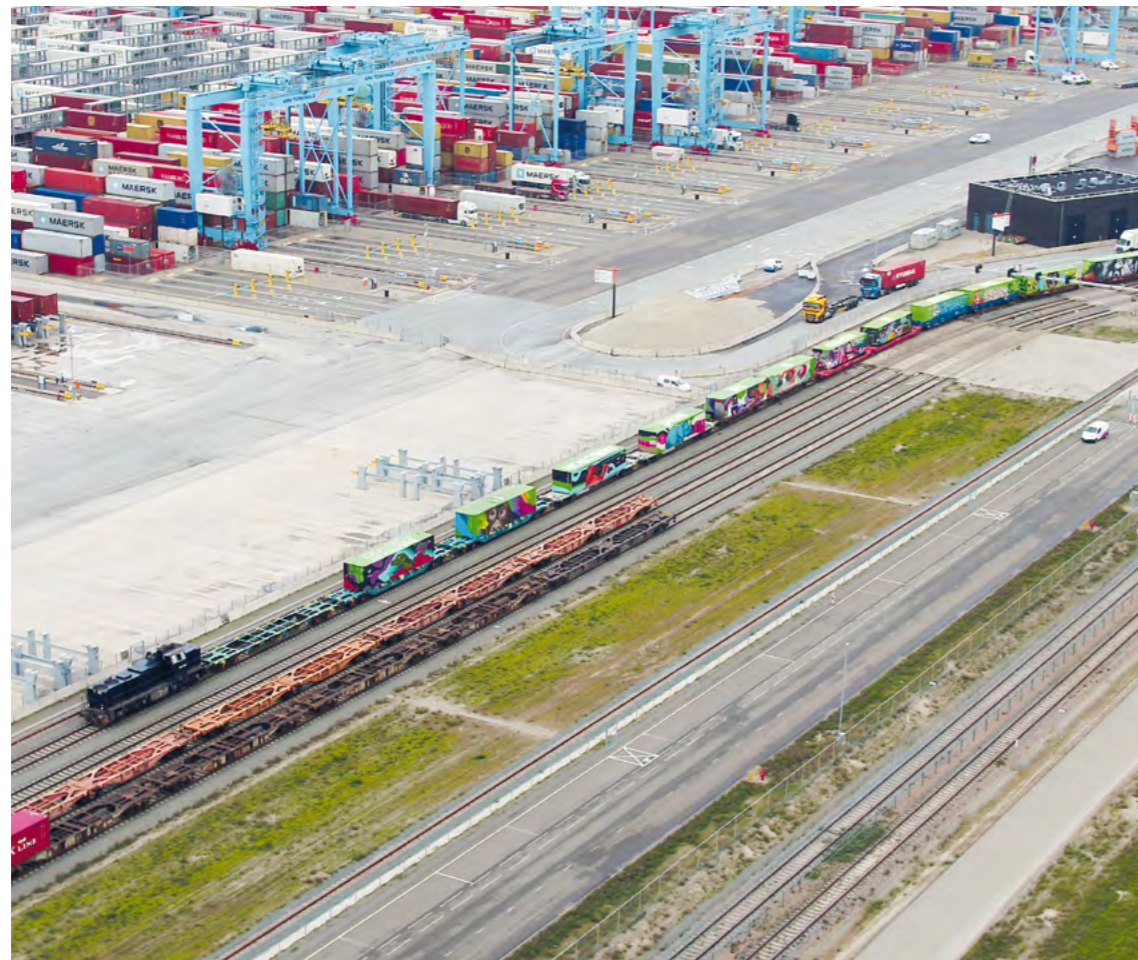
To reflect ERA's new role as authorising entity the TFI modified its composition and now includes experts from ERA and NSAs as well as Infra-

structure 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.

Besides 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.

Rail connection to a deep sea terminal in Rotterdam.



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 2023 have been as follows:

#### ERTMS retrofit

- Planning for retrofit of ERTMS is still ongoing in Germany and Italy, the rollout has already started in the Netherlands and Austria.

#### Notification according to Article 16 (4) of Reg. (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, the changes will be notified to the authorising entity.

#### Short cross border vehicle authorisation

- This task is ongoing between NSAs / Member States, currently on the 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.

#### Route Compatibility Check (RCC)

- The importance of ERA-TV was figured out and discussed.
- Different interpretation in RCC parameters on the basis of the TSI OPE could lead to "singularity" of each infrastructure (mixed circulation on lines with high speed and conventional vehicles, use of sand / wheel flange lubricants, ...)
- The conditions of use in case a RCC point is not fulfilled have to be considered.

#### 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 solutions and/or rules application and require a harmonized coordination with ERA for the vehicle authorisations.

#### Joint tasks / issues from TFI and NSA Working Group: 4th Railway package issues regarding (ERTMS-) vehicle authorisation

- Permanent dialogue between CCS experts from infrastructure managers and NSAs' experts in the NSA WG.

#### ESC / RSC check management in different Areas of Use (impact on service / test authorisations):

- Exchange on the ongoing processes to manage ESC / RSC checks required at vehicle's type authorisation level to allow services on lines where new ERTMS on track subsystem has been / will be implemented and activated, describing the describing the own approach of ERTMS national implementation plans, coordination with Infrastructure Managers, critical tasks solved / to be solved....

## (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

<b>AB</b> .....	Allocation Body	<b>PMO</b> .....	Programme Management Office
<b>ABS</b> .....	Ausbaustrecke (upgraded line)	<b>R-CDM</b> .....	Railway Collaborative Decision Making
<b>CEF</b> .....	Connecting Europe Facility	<b>RAG</b> .....	Railway undertaking Advisory Group
<b>CCS</b> .....	Control Command and Signalling (TSI)	<b>RB</b> .....	Rangierbahnhof (shunting yard)
<b>CIP</b> .....	Customer Information Platform	<b>RC</b> .....	Reserve Capacity
<b>C-OSS</b> .....	Corridor One-Stop-Shop	<b>RCC</b> .....	Route Compatibility Check
<b>DMI</b> .....	Driver Machine Interface	<b>RFC</b> .....	Rail Freight Corridor
<b>DSD</b> .....	Digitale Schiene Deutschland (Digital Rail for Germany)	<b>RISC</b> .....	Rail Interoperability and Safety Committee
<b>EC</b> .....	European Commission	<b>RNE</b> .....	RailNetEurope
<b>EDP</b> .....	European Deployment Plan (ERTMS)	<b>RU</b> .....	Railway Undertaking
<b>EEIG</b> .....	European Economic Interest Grouping	<b>SRS</b> .....	System Requirements Specification
<b>ETM</b> .....	European Traffic Management	<b>SV</b> .....	System Version
<b>ERA</b> .....	European Union Agency for Railways	<b>TAG</b> .....	Terminal Advisory Group
<b>ERA-TV</b> .....	European Register of Authorised Types	<b>TCR</b> .....	Temporary Capacity Restriction
<b>ERTMS</b> .....	European Rail Traffic Management System	<b>TEN-T</b> .....	Trans-European Network – Transport
<b>ESC / RSC</b> .....	ETCS System Compatibility / Radio System Compatibility	<b>TEU</b> .....	Twenty foot equivalent unit (standard container)
<b>ETCS</b> .....	European Train Control System	<b>TIS</b> .....	Train Information System
<b>EVG</b> .....	Eisenbahn- und Verkehrsgewerkschaft (German Railway and Transport Union)	<b>TPM</b> .....	Train Performance Management
<b>ExB</b> .....	Executive Board	<b>TSI</b> .....	Technical Specifications for Interoperability
<b>FOT</b> .....	Swiss Federal Office of Transport	<b>TT</b> .....	Timetable
<b>FRMCS</b> .....	Future Railway Mobile Communication System	<b>TVS</b> .....	Schweizerische Trassenvergabestelle (Swiss Allocation Body)
<b>GDL</b> .....	Gewerkschaft Deutscher Lokomotivführer (Union of German Train Drivers)	<b>QCO</b> .....	Quality Circle Operations
<b>ICM</b> .....	International Contingency Management	<b>WG</b> .....	Working Group
<b>IM</b> .....	Infrastructure Manager		
<b>IRG</b> .....	Rail Independent Regulators' Group-Rail		
<b>IWW</b> .....	Inland Waterways		
<b>L1 – LS</b> .....	Level 1 Limited Supervision (ETCS)		
<b>KMC</b> .....	Key Management Centre		
<b>MB</b> .....	Management Board		
<b>MoT</b> .....	Ministry of Transport		
<b>NBS</b> .....	Neubaustrecke (new line)		
<b>NNTR</b> .....	Notified National Technical Rule		
<b>NSA</b> .....	National Safety Authority		
<b>OVS</b> .....	Operative Verkehrssteuerung (operational traffic steering)		
<b>PaP</b> .....	Pre-arranged Path		
<b>PAS</b> .....	Planungsabschnitte (planning sections)		
<b>PCS</b> .....	Path Coordination System		
<b>PfA</b> .....	Planfeststellungsabschnitt (approval section)		
<b>PIM</b> .....	Programme Implementation Manager		

### IMPRINT

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**ProRail**

 **SBB CFF FFS**

**bls**

 **InfraGO**

**INFRABEL**

 **RFI**  
RETE FERROVIARIA ITALIANA  
GRUPPO FERROVIE DELLO STATO ITALIANE

 **TVS  
SAS  
SAT**