Annual Report
2023

ScanMed RFC
STOCKHOLM/OSLO-COPENHAGEN-
HAMBURG-INNSBRUCK-PALERMO

Corridor Facts & Figures

7527 km
of Corridor lines

7 Infrastructure Managers

14 Ports

8 Terminals integrated in our capacity offer

3,9
Mio. PaP-km allocated for TT2024

1,8
Mio. PaP-km allocated as Reserve Capacity for TT2023

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Foreword

2023 represented yet another successful year for ScanMed RFC. The dedication, expertise, and hard work of the Corridor's Team and stakeholders truly made a significant impact. With a 92% customer satisfaction rate, our Corridor brings added value to its Infrastructure Managers (IMs), simplifying the planning and running of cross-border rail freight! Not only we fulfill the scope and tasks bestowed upon us by Regulation 913/2010, but go beyond it thanks to a markedly market-oriented focus and approach. We have the ambition to work towards specific targets to deliver ever better services, particularly in terms of increasing performance, through trust, innovation, and reliability.

Last year, we successfully established the Femern Belt Platform (FBP), a cooperation project aimed at preparing ourselves to the future opening of the undersea tunnel between Denmark and Germany and the great potential it will bring in terms of increasing freight volumes between Scandinavia and the rest of the continent. We also evaluated our Terminal Integrated Capacity Offer (TICO) and identified how to further elaborate on it, particularly in light of the new Capacity Management Regulation. Likewise, we strenghtened our focus on the implementation of ERTMS and ECTS, a crucial task which will continue in the upcoming years. In the field of International Contingency Management (ICM), we improved our preparedness levels in case of international disruptions though a simulation case and by further evaluating the Corridor's role in such instances.

Proving once more that our Corridor is the right platform to facilitate the modal shift from road to rail, we started important market projects such as Fresh Rail, which will operate starting in 2024, and H20 Train, which will operate starting in 2026. Last year also witnessed increased cooperation with RailNetEurope (RNE) through the signing of a Service Agreement, further intertwining the two organisations and leading the way for other Rail Freight Corridors (RFCs) to follow in our footsteps if they so desire. Moreover, we we restructured the Brenner Working Group (WG) and reactivated the Regional WG North. Through these groups as well as other forums, we managed to jointly tackle challenges such as the limitations for pocket wagons in Denmark, Temporary Capacity Restrictions (TCRs) along our routes, major traffic disruptions due to meteorological events, human errors, and union strikes, and new customs rules between Sweden and Norway.

In other areas, we started investigating the potential of increased railway-ferry connections between Sweden and Germany, analysing the impact of new EU regulatory developments, elaborating on new opportunities like the Timetable and Capacity Redesign (TTR) Capacity Needs Announcement (CNA) pilot project, and updating our Transport Market Study. Overall, we have tiredlessly been marketing and visualising the opportunities and advantages of rail transport in countless events, meetings, and forums and via our communication channels.

Through international coordination and cooperation, we keep improving the conditions for a prosperous European market. At a time of tectonic geopolitical shifts, ScanMed RFC is looking forward to contributing further to the continent's green transition efforts as well as economic growth and cohesion.

Linda Thulin
Chair of the Management Board

Management Summary

For European railways, 2023 has been a crucial year. The sector's future framework at European level started to be defined with the continuation of negotiations on the TEN-T regulation revision – which will, among other things, merge the RFCs into the newly established European Transport Corridors (ETCs) –, and publication by the European Commission of key proposals covering capacity management and combined transport. Moreover, the European Railway Agency (ERA) updated the TAF-TSI directives, while SERAF, the main Commission advisory body for the Single European Rail Area, was established and started its activities.

On the other hand, the fragility of the existing rail network, caused by the effects of climate change on a territory densely populated in cities and flat districts but with many natural barriers in less and less inhabited areas, was made evident by the closure of the Gotthard tunnel due to a rail accident and of the Fréjus tunnel due to a major mountain landslide on the line of the one which had already happened in 2019. Both events will have a major impact on the European rail modal share in 2023 and in 2024, with a sharp decrease following a prolonged period of slow but permanent growth. Additionally, along ScanMed RFC the Brenner stretch was impacted by hydro-geological disease, resulting in three closed tracks at the Brenner station for most of the year.

In this context, ScanMed RFC – as emphasized in the Foreword by our President – continued its growth in volume and performance, supporting customer needs and actively contributing to the simplification and performance of the freight rail transport. After many years, the structure of our Annual Report was changed to provide a clear and detailed vision to the reader of the main Corridor activities, split into well-defined thematic areas.

In the first section, dedicated to the Corridor's **Commercial Offer**, we detail the evolution of the capacity offer, including first and last mile, meaning the integration with terminals as provided by TICO, the dedicated product. For Pre-allocated Paths (PaPs) sales rate, after an extended period of decrease starting from TT2021 and reaching its peak in 2023 with -44%, for TT2024 the trend has inverted with a strong increase by 25%, with 3.9 Mio PaP km requested. If we add to this value multi-Corridor PaPs, feeder, and outflows, we reach an overall value of 5.46 Mio PaP km. The main reason behind this increase is due to the completion of many works in Denmark and Germany, particularly between Maschen and Malmö, which reduced the amount of TCRs and thus increased the amount of running days.

Furthermore, in the northern stretch of the Corridor we witnessed an increase in the sales rate, which reached 61% of the offered capacity, demonstrating market appreciation for our offer. As usual, in the southern stretch, we have no request for PaPs as the use of the so called "Brenner Catalogue" has taken the place of the PaP Catalogue. To this purpose, it should be underlined that the Brenner Catalogue paths are in any case harmonised among the three involved IMs (RFI, ÖBB-Infra and DB InfraGO) and can be seen analogue to PaPs.

Relating to TICO, in 2023 we conducted a substantial product review to provide more effectiveness and adherence to the market needs, involving Railway Undertakings (RUs) and terminals as well as the main stakeholders of the rail industry. The outcome of this review emphasized the need to involve transport organisers – MTOs, freight forwarders and end users –, as foreseen also within the Rail Cooperative Decision Making (R-CDM) project. For TT2024, eight terminals agreed to offer TICOs, just like for TT2023.

The second main section of the report covers the **Performance** trends along the Corridor and customer feedback. Punctuality, measured as percentage of trains with a delay within 30 minutes, has slightly worsened in 2023, maintaining a ratio of 62% at departure but slightly decreasing to 47% at arrival from 48%. When we look at the relevant causes, we see a decrease of RU- and IM-induced delays and a high increase of external delay minutes, due to weather conditions, accidents, and strikes.

When we consider separately the Corridor's northern and southern stretches, we see a better trend on the southern one, where the regular cooperation established within the Regional WG South is producing satisfactory results, with 2023 punctuality values better than in 2022. In the North, a similar WG was established, and we are confident that in 2024 it will contribute to improvement of punctuality also on the northern stretch. For 2024, the Management Board agreed to define punctuality standards for the RFC, set to 70% at departures and 60% at arrival, to be declined in relevant targets for the southern and northern stretches.

As for the customer response, ScanMed RFC prosecuted also in 2023 his market-oriented approach, organising many customer visits and workshops, taking part to fairs and conferences, providing support to projects aimed at improving the rail modal share and performance, and supporting customers interested in rail transport. Like in previous years, the User Satisfaction Survey (USS) was conducted in cooperation with RNE and the RFC Network, with an overall satisfaction rate of 92% (+3% compared to last year), the highest ever reached.

The ScanMed RFC Team is a lean structure, and to perform its activities it depends strongly on **Working Groups**. The main results and activities carried out by the WGs are described in the third section. In 2023, a redesign of the Regional WGs was performed, with the start-up of the Regional WG North and the reorganisation of the Regional WG South. Furthermore, under the Infrastructure WG, the set-up of an ERTMS subgroup was defined. During the year, the Team also welcomed a new Accessibility Manager and C-OSS Manager.

The added value of ScanMed RFC is strongly related to the many projects performed together with the Core Network Corridor (CNC) and involving key stakeholders, including the European Commission, the Ministries of Transport, IMs, RUs, Safety and Regulatory Agencies, and infrastructure construction companies. In the fourth section we thus provide the state of play of our main **Projects and Studies**.

In this area, 2023 represented an important year as, in addition to the Brenner Brenner Corridor Platform (BCP) a new Platform was established concerning the Femern Belt Fixed Link. Last year we also started a European Transport Market Study (E-TMS) performed together with the other RFCs under the umbrella of RNE and the R-CDM project. The latter, which is also performed under the coordination of RNE, is following the approach of a similar project in the air transport field (A-CDM) and is finalized to involve all the stakeholders of the rail supply chain in a proactive cooperation for information sharing and decision making.

Looking at market needs and requirements and properly supporting the development of new rail flows should represent key RFC activities. For ScanMed RFC, this is one of the crucial tasks assigned to the Team, as one can read in the fifth section dedicated to **Marketing and Communication**. For 2023, the two key events were represented by the Transport Logistic fair in Munich, one of the world's largest events of its kind, where we had a booth together with the RFC Network and RNE, and the European Rail Transport Day in Stockholm, an event co-organized by the European Commission, the Swedish Presidency of the Council, RNE, EU Rail, and Trafikverket.

Finally, right before providing an overview of the Corridor's Key Performance Indicators for 2023, the last section delves into relevant **European policy developments** and their impact on both the European rail sector at large and the Corridor's operation and activities.

Enjoy the reading!

Figure 1 - ScanMed RFC map

RFC 3 in a nutshell

EU rail transport policy and the RFCs

Over the last thirty years, the European Union (EU) and its Member States have worked together to develop a common railway policy with the aim of creating a Single European Railway Area – an EU-wide system of railway networks which will allow for the expansion of the railway sector based on competition, technical harmonisation, and the joint development of cross-border connections. To this end, the EU aims to open and restructure the rail market; increase competitiveness by creating a level playing field for businesses; develop infrastructure to ensure interoperability; improve efficiency in the use of infrastructure and safety; and ensure fair prices.

In this context, EU regulation no. 913/2010 asked Member States to establish RFCs oriented to the international market and located along Europe's main commercial axes. This legislation, which represents the legal basis for the existence and work of ScanMed RFC, intends to respond to three challenges:

1) Strengthening cooperation between IMs on key aspects such as path allocation, installation of interoperable systems and infrastructure development.
2) Finding the right balance between freight and passenger traffic along the RFCs, giving adequate capacity for freight in line with market needs and ensuring that common punctuality targets for freight trains are met.
3) Promoting intermodality between rail and other transport modes by integrating terminals into the Corridors' management process.

ScanMed RFC

The eleven RFCs which exist today can be considered Europe's arteries. ScanMed RFC is at the heart of this system, spanning the continent from north to south as a backbone of more than 7.500 kilometres (see figure 1). Its location, impressive length, and the fact that it passes through some of Europe's economic "locomotive" regions are all key factors underlining the Corridor's importance. In its northern section, it connects Scandinavia with Germany and the rest of the continent. In its southern section, it unites two of Europe's most important economies, namely Germany and Italy. The total area of these countries is around 1.6 million km^2. Considering that in 2023 the EU's population (including Norway's) counted almost 454 million people and in 2022 the European GDP (including Norway's) amounted to almost 16.500 billion euros, ScanMed RFC participating countries represent 38,4% of the EU (+ Norway) population and produce 47,2% of this area's GDP.

Mission and Strategy

The Corridor's seven IMs – Bane NOR, Trafikverket, Øresundsbron, Banedanmark, DB InfraGO (DB Netz until the end of 2023), ÖBB-Infra, and RFI – join efforts to improve the offer to customers across the continent, thus strengthening the competitiveness of rail freight transport. Together with RUs, transport organisers (freight forwarders, multimodal transport operators, and intermodal operators) and end customers, as well as terminals and ports, and in cooperation with the European Commission and the transport ministries of the countries concerned, ScanMed RFC works with an approach built on trust, innovation, reliability, and simplicity to deliver better rail services and attract more freight on rail (see figure 2).

It does so by performing activities in three core areas: customer and market management; capacity management; and performance, accessibility, and operations management. To begin with, the Corridor delivers Transport Market Studies (TMS) to delimitate, quantify, and qualify its business environment. Through an annual USS, it highlights areas of improvement to better meet customers' expectations and needs. With the involvement of the Railway Advisory Group (RAG) and the Terminal and Port Advisory Group (TAG), ScanMed RFC plays a key role in providing the market's perspective. Eventually, the Corridor aims at being the backbone of a logistic service chain, better connecting rail to other transport modes.

Moreover, ScanMed RFC delivers international capacity in the form of a yearly catalogue of PaPs as well as reserve capacity. Both are coordinated to reduce waiting times at border crossings. A Corridor One-Stop-Shop (C-OSS) Manager supervises the planning and construction of PaPs and reserve capacity, as well as the TICO, including their booking, allocation, and delivery. ScanMed RFC is also involved in the TTR project, which aims to redesign the actual timetabling and capacity allocation process starting in 2025. Additionally, the Corridor focuses on improving the coordination of TCRs, ensuring that necessary periodical closures caused by construction and maintenance work on the tracks only have a limited impact on the traffic flows.

Finally, ScanMed RFC facilitates cross-border operations and monitors cross-border punctuality. Several dedicated WGs analyse causes of disturbance and suggest improvement ideas and solutions. Within the operational field of traffic management, ScanMed RFC has a strong supporting role in ICM, implementing processes and routines for incident management and communication which are continuously optimized, both through simulations and real cases. Nowadays, ScanMed RFC has a structure in place that allows ICM procedures to be activated 24/7, whenever an international disruption is declared along the Corridor.

EU Coordination and Funding

ScanMed RFC is part of a broader picture, as the EU has also set up nine CNCs, which broadly follow the rail freight axes, but also include passenger traffic and consider all transport modes. The resulting Trans-European Transport Network (TEN-T) aims to create a network of railway lines, roads, inland waterways, sea lanes, ports, and airports to connect Member States and facilitate the cross-border transport of goods and people. The CNCs help to increase the share of the railway sector in freight transport by closing infrastructure gaps, removing bottlenecks, and overcoming technical barriers. In 2014, an EU Coordinator was assigned to each Corridor with the task of supervising and promoting its implementation. Pat Cox, former European Parliament President, is the current ScanMed Coordinator.

Figure 2 - The rail sector: Key actors

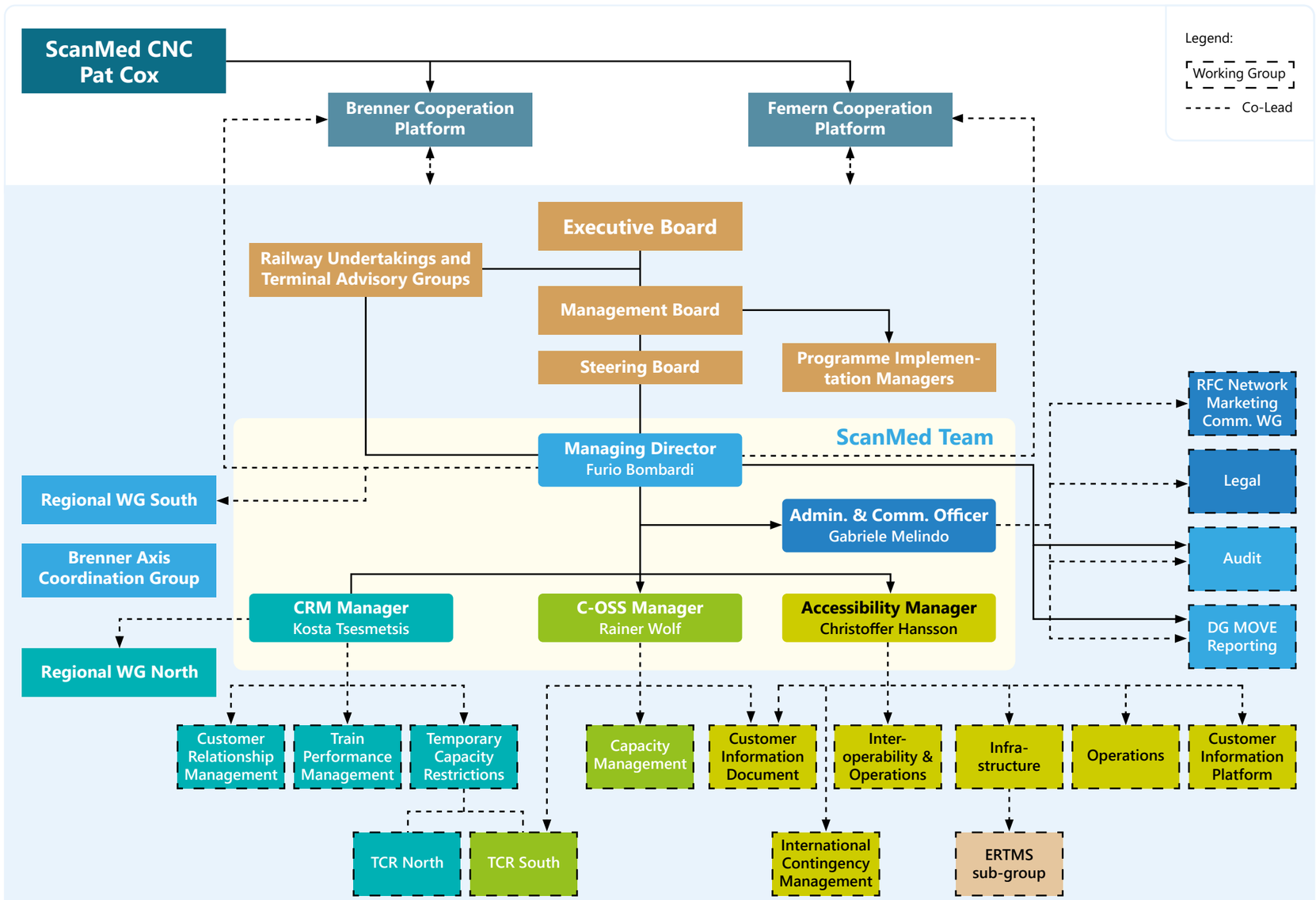


Figure 3 - ScanMed RFC organisation

Over the years, the Corridor has been co-financed through the Connecting Europe Facility (CEF), a key funding instrument in delivering the European Green Deal and an important enabler toward Europe's decarbonisation objectives for 2030 and 2050. Indeed, in addition to making Europe more cohesive and prosperous by facilitating cross-border trade, ScanMed RFC contributes every day to pursuing the EU's climate objectives by promoting environmentally friendly freight transport. Most CEF transport programs concern the railway sector, with two crucial infrastructural projects located along our Corridor: the Brenner Base Tunnel between Austria and Italy and the Fehmarn Belt Fixed Link between Denmark and Germany. While the Brenner Base Tunnel will remove a major bottleneck across the Alps, the Fehmarn Belt Fixed Link will complete a missing link between Scandinavia and continental Europe, better integrating Norway with the European market. In both cases, ScanMed RFC plays an important coordinating role with the goal of increasing cooperation and coordination among all railway stakeholders.

Organisation

The organisation of ScanMed RFC is relatively ramified (see figure 3). The Executive Board (ExBo) consists of representatives from the Ministries of Transport of the Corridor´s Member States. The Management Board (MaBo) consists of IM high-level officials. Finally, the MaBo has set up a Corridor Team as the permanent joint office of the association and nominated Programme Implementation Managers (PIMs) who act as liaison between management and the team. Apart from representing the RFC's operational heart, the team monitors the activities and objectives of the Corridor's WGs, whose members are IM employees working hands-on on several topics to improve and support cross-border rail freight services along the Corridor. Within the team, the C-OSS Manager facilitates train path management and is the single point of contact allowing applicants to request and receive answers regarding infrastructure capacity for international freight trains. Finally, the RAG and TAG are advisory groups to the MaBo. They serve as exchange platforms to involve RUs, terminals, and ports as well as other stakeholders of the intermodal transport chain to discuss customer opinions and requirements for the development of ScanMed RFC from an external point of view.

Commercial Offer

Capacity developments

ScanMed RFC continues to offer its Corridor products to all Applicants. These consist of PaPs for the annual request for rail freight capacity (see figure 4). For recurrent business needs we offer so-called Reserve Capacity (RC). Capacity is freely available to all interested parties, be them RU or non-RU applicants. PaPs were published via the online tool Path Coordination System (PCS) on the second Monday of January. Between mid-January (X-11) until mid-April (X-8), the Corridor team, particularly the C-OSS Manager, promoted the PaPs. Reserve Capacity was published at X-2.

Due to the substantial number of TCRs, in 2023 the number of non-available days – i.e., days which cannot be offered as PaP days – increased. These days were cut out on the stretch Maschen – Malmö. Therefore, we also witnessed a decrease in capacity requests by our Applicants. Moreover, on that same stretch the conflict rates – i.e., those cases where one Applicant applies for the same PaP – remained high. In such cases, we offered our Applicants market-oriented and tailormade capacity which was constructed as close as possible to the original PaP requests. In figures, the conflict rate between Maschen and Padborg corresponded to 129%.

For TT2024, the decreasing trend of recent timetable years was reversed. Thanks to fewer TCRs on the Corridor, we were able to offer more traffic days again. The greater offer is also reflected in increased requests. The requested capacity has increased by 25% compared to TT2023. As in previous timetable periods, the applicants used PaPs to secure attractive pre-planned capacity between Maschen and Malmö. This line was requested as so-called feeder/outflow paths. In addition, the connecting PaP, alternatively called Harmonised Path Offer (HaP), was requested between ScanMed RFC and RFC North Sea-Baltic. This connection allows seamless capacity requests between Sweden and the Benelux countries.

Capacity Portfolio at C-OSS and National Level

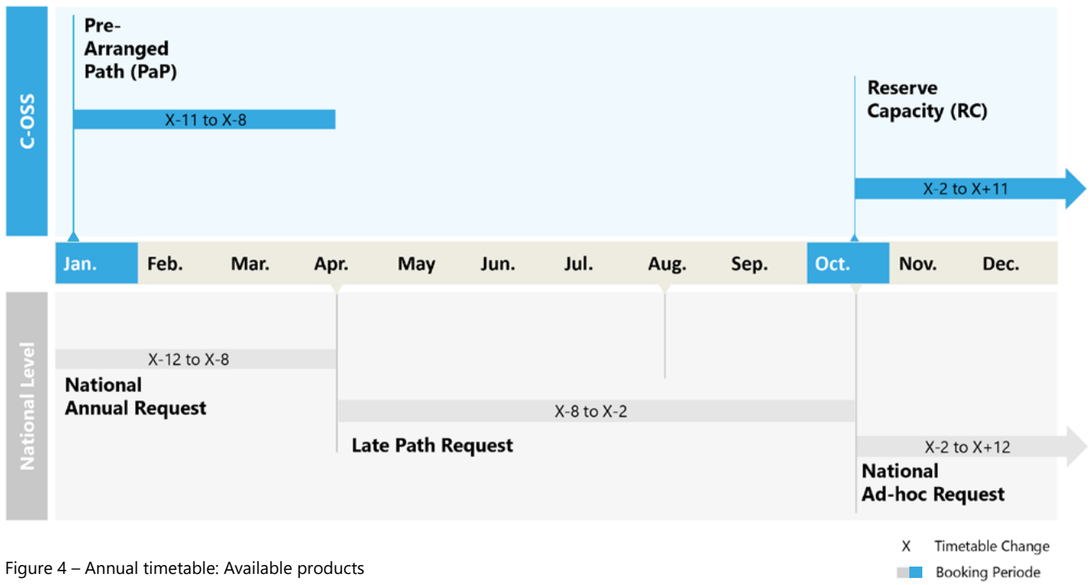


Figure 4 – Annual timetable: Available products

PaP Offer

Pre-arranged Paths (PaPs)

For the timetabling period 2024, PaP sales rates increased by 25% (see figure 5 and 6), mostly due to the fewer TCRs between Maschen and Malmö. In practice, we were able to offer more PaP running days on this stretch than in TT2023, and we expect this upward trend to continue also for TT2025.

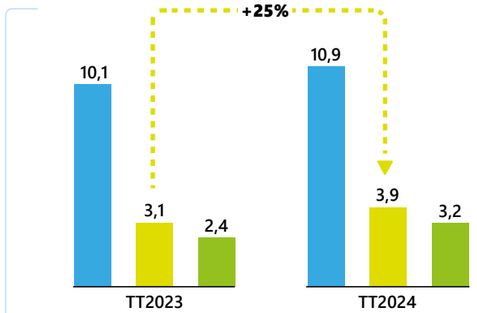


Figure 5 – Offered, requested, and reserved capacity for TT2023 and TT2024 (in Mio. PaP km)

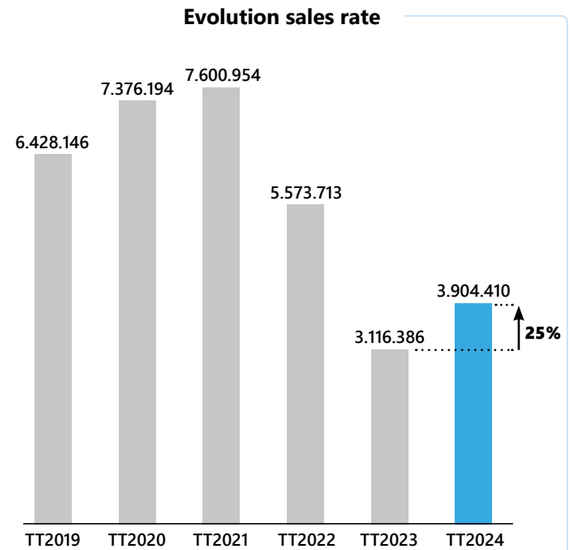


Figure 6 – Change in requested PaP capacity in Mio. PaP km from TT2019 to TT2024

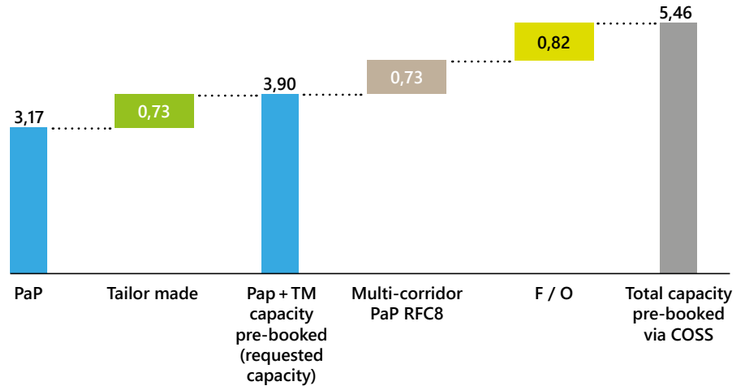


Figure 7 – Total composition of the requested capacity for TT2024 (in Mio. PaP km)

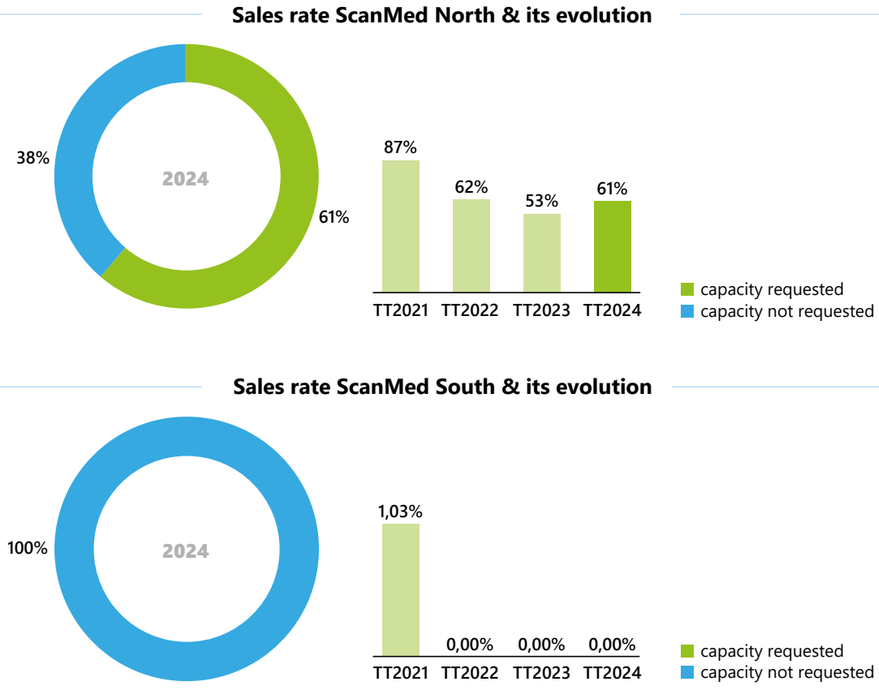


Figure 8 – Comparing requests between North and South for TT2024 (% of capacity requested)

The Framework of Capacity Allocation (FCA) describes the rules for allocating capacity. These rules are also written in our Customer Information Document (CID). 81% of the requested capacity was allocated as a PaP, while the remaining 19% was allocated as tailormade (see figure 7). This means that even with numerous TCRs, we could offer and allocate market-oriented capacity. 33 dossiers were requested, 8 of which had a conflict, the other 25 could be allocated without conflict. In addition, almost 15% of the total capacity pre-booked via the C-OSS was requested as feeders and outflows.

ScanMed RFC provides the international market for rail freight capacity with attractive products. The results of the Pre-Allocation Phase must be read considering the whole requested capacity. In 2023, the C-OSS allocated approximately 47% of international freight traffic capacity via Peberholm and around 37% of the capacity via Padborg. Capacity was not requested via the C-OSS at the border stations Kufstein, Brenner and Kornsjö (see figure 9).

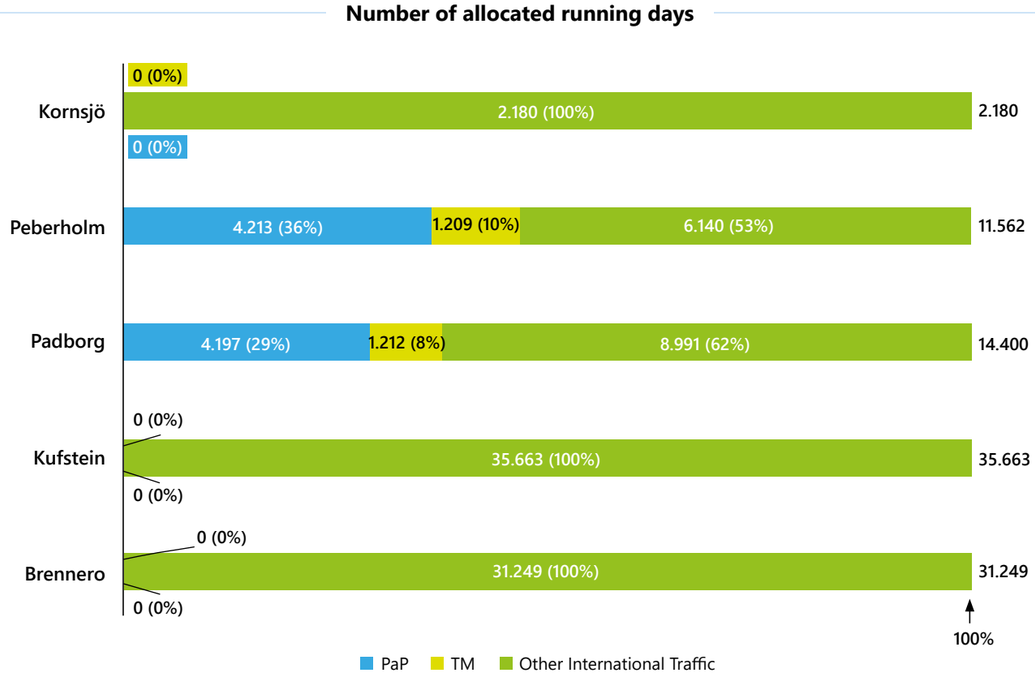


Figure 9 – Ratio of the C-OSS-allocated capacity and the total allocated capacity for TT2024

Reserve Capacity (RC) for recurrent business needs

Reserve Capacity is a product that can be requested during the running timetable period and presents specific advantages (see figure 10). Compared to PaPs, RC is offered as empty slots without fixed timetables. Instead, Applicants may request it according to their needs for international freight paths. This product is offered on the lines north of Domegliara. With the slots' publication, we also indicate standard running times for each section. In 2023, ScanMed RFC continued to offer one slot per day and direction. The allocation method for RC is different from PaP allocation, as the former follows the principle "first come, first served."

RC, in general, was only requested a very few times in the past (see figure 11). The Corridor is ambitiously communicating with RUs the advantages of this product and the benefits because the request in PCS can be tracked by all IMs for all requested sections. The C-OSS tracks the progress of the timetable construction in PCS. In TT2022, there were two RC requests successfully constructed with all parties involved, resulting in a satisfied applicant.

Figure 10 – Features of Reserve Capacity

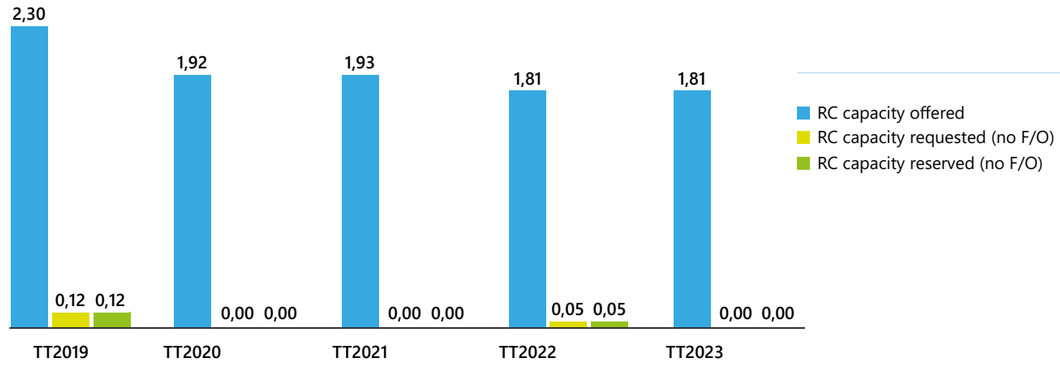


Figure 11 – Overview of the development of offered, requested, and reserved RC (in Mio. RC km)

TICO

TICO is an official Corridor product. It exclusively applies to PaP requests which are linked to terminal slots as part of an integrated offer. This offer consists of at least one PaP and a coordinated terminal slot via the C-OSS. In 2023, eight terminals and ports located participated in it (see figure 12). The four TICO levels show the different degrees of commitment of terminals and PaPs, with TICO level 4 having the highest integration level.

Flex PaPs and HaPs

PaPs have shown a potential to be adapted to the Applicants' needs thanks to the Flex PaP approach. Only the border times of PaPs are fixed, whereas the running times can be adopted if it stays in certain frames. Applicants consult the C-OSS asking how to adopt PaPs, for instance stop patterns and bandwidths, which allows for a higher degree of flexibility. In addition, in cooperation with RFC North-Sea Baltic, ScanMed RFC offered HaPs that make smooth connections between the two Corridors possible while minimizing transport times, as the PaPs are harmonised also in the Netherlands and Belgium – effectively extending our Corridor's offer to the Benelux countries. For RFC North Sea-Baltic, the handover point is in Maschen – Osnabrück, while the HaP with Corridor Rhine-Alpine has its transition point at Bologna-Piacenza. Finally, Reserve Capacity has the highest flexibility, because the Applicants determine the timetables according to its needs and the construction via the IMs is followed by a bandwidth approach.

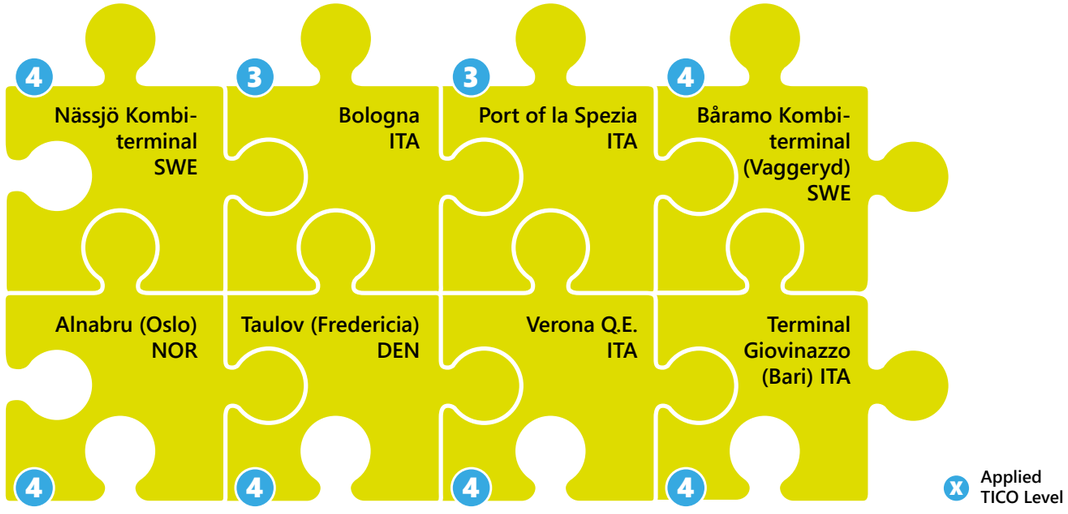


Figure 12 – Status of TICO Pilot with participating terminals for TT2023

Performance report

Punctuality

Punctuality slightly declined in 2023 compared to 2022. The punctuality within the threshold of 30 minutes decreased from 48% to 47% at destination, while the punctuality at the origin/entry point of the Corridor was 62% like in the year before. The decreases mostly occurred in the Corridor's northern section. The trains already started with a lower punctuality at Malmö and Maschen (-6%/-7%). Consequently, the punctuality at destination was much lower too compared to the previous year.

Outstanding events that have affected the quality were, among others:

- Several construction sites along the Corridor during the year.
- Heavy snowfall, ice, and wind in the Brenner region in January.
- Capacity restrictions at the Brenner station (3 tracks closed) since March 22nd due to problems with a sustaining wall. Problems occurred especially for longer trains. Many trains had to be held back by the IM or shortened by the RU. RFI adapted the timetables, which was in general not the case for ÖBB-Infra and DB InfraGO. Such restrictions are still ongoing.
- Several strike waves in Germany between March and June.
- Thunderstorms in southern Germany, a catenary failure in Munich, and heavy rainfall and small landslides at Brenner station in August.
- Construction works between München Süd and München Ost in September. Most trains had to be rerouted.
- Storm in Austria causing fallen trees in October.
- Strikes of the engine drivers in Germany between November and December.
- Snow in southern Germany in December.
- Several suicides and other dangerous incidents year long.

Departure figures at Munich and Maschen were negatively influenced by trains arriving from other parts of Germany, the Netherlands, and Belgium. The punctuality of these trains was significantly lower than the average.

Considering the specific delay reasons, especially the following codes showed an increase to the year before:

- Construction works
- Train preparation and formation
- Change of drivers
- Track occupation (in Italy and Austria due to the capacity restriction at the Brenner station, but also in Scandinavia)

The most important aspect for improving quality is analysing representative samples of "critical trains" in collaboration with the customers. In 2023, on the Brenner axis several trains were analysed together with RUs. This process will be continued in 2024, with similar activities being advisable for the northern part of the Corridor.

Customer response

In 2023, ScanMed RFC conducted together with the RFC Network a USS to collect feedback regarding its work on the Corridor. Customer visits were also made and events such as the Transport & Logistic fair in Munich were attended to present the Corridor and its work and obtain direct feedback.

Feedback collected during customer visits

2023 started with the annual publication of the PaP catalogue. Afterward, the C-OSS promoted the new PaPs and conducted customer visits. For that a special presentation was prepared and individualised for each customer. These promotional activities were used to highlight the new features of the newly published capacity offer and all linked ongoing projects, initiatives, and pilots at the Corridor level. In addition, in February 2023, the Corridor and many of its customers were once again able to participate in a two-day PCS training course in person in Frankfurt together with RNE. After last year's training sessions could only take place online, this was the perfect opportunity to meet the customers in person again and to present the Capacity Offer for TT24.

RFC Network User Satisfaction Survey

For the fourth consecutive year, the RFC Network conducted the USS 2023 based on a relaunched version from 2022, which was optimized to better suit the needs of the invitees and the RFCs. The broad questions covered the same topics as previous years; however, the questionnaire was modified. In 2023, all the questions were open. This simplification was done hoping not only to gather more feedback but also more specific input concerning insights or issues that participants would like to highlight.

The study's field phase started on August 24th and ended on October 12th. Concerning ScanMed RFC, the number of invitations sent was forty. With twelve respondents, plus DB Cargo, which agreed to perform an interview for all RFCs bringing the total number of evaluations to thirteen (+30%), the response rate was similar to the previous year, stagnating at 33% (-3%).

The eight RUs/non-RUs and five terminals and ports which answered the survey expressed an overall satisfaction rate of 92% (+3%). This value still reflects the old methodology used to calculate it. Until 2022, we considered as satisfaction all answers ranging from slightly to very satisfied.

Figure 13 – RFC Network USS 2023

However, starting from 2023 we decided to remove the "slightly satisfied" answers from the final tally and focused only on satisfied and very satisfied values. As this is the first year following the new methodology, here we communicate both the value calculated through the old methodology, so to make it comparable to last year's, as well as the value obtained with the new system (i.e., 77%, an increase of 10%), which will serve as the sole basis for future comparisons (see figure 14). In both cases, we were pleased to see that customer satisfaction has further improved.

Nevertheless, the users still expressed their wishes for improvement in a few areas, particularly concerning the commercial offer and Traffic Performance Management (TPM) (see figure 16). On the commercial offer, the answers show that ScanMed RFC needs to work on the PaPs' timetable and speed to avoid making the product less valuable over the years. Concerning TPM, some RUs lamented that either the Corridor has too much data to derive concrete measures for improvement or simply there is no sufficient energy left to put forward such measures. Customers noticed that while performance data is known, the reasons behind it are not investigated enough.

On the bright side, capacity requests made through the C-OSS increased to 75% (+9%). Moreover, respondents agreed that the handling of TCRs was starkly enhanced compared to 2022, especially thanks to the work performed by the two TCR WGs. Furthermore, the opinions on the RFC's information and communication outreach, already positive, improved further (see figure 15).

As in 2022, the USS also included some RFC-specific questions. Concerning TICO, respondents are aware of this product, but there is a lot of scepticism about how it could work in practice. However, customers are positively impressed with all the Corridor's regional cooperation forums and WGs, including the newly established FBP. They consider them valuable connection points between IMs, on the one hand, and RUs, terminals, and ports on the other, as they keep the information exchange flowing and cooperation going.

Overall Satisfaction with the RFC

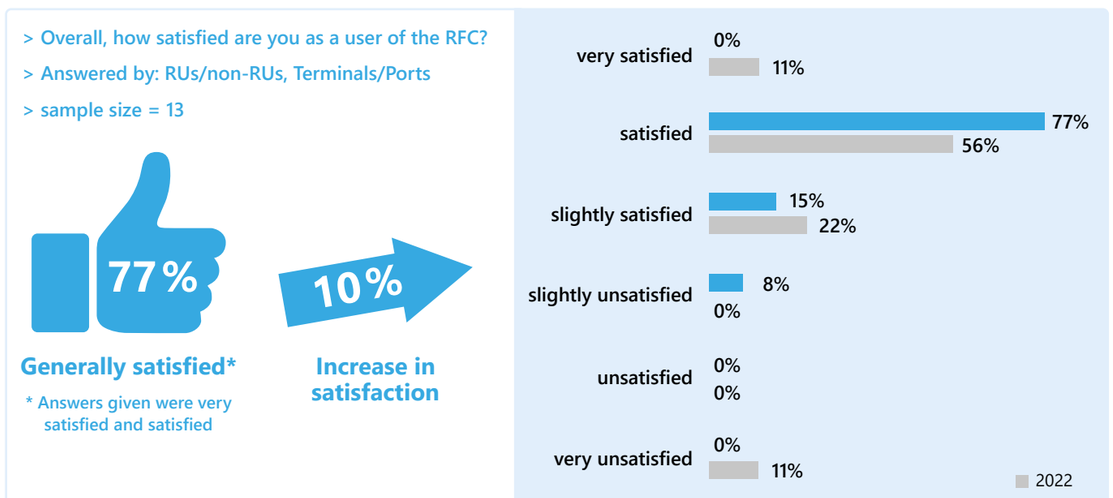


Figure 14 – RFC USS 2023: Satisfaction & participation

Summary – Satisfaction Rating | All respondents

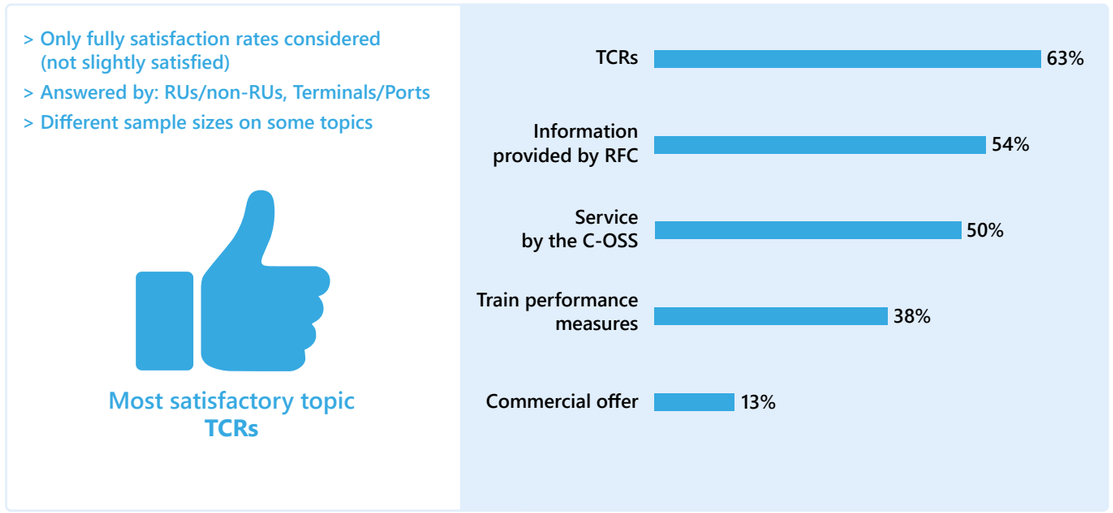


Figure 15 – Summary: Satisfaction rating

Summary – Dissatisfaction Rating | All respondents

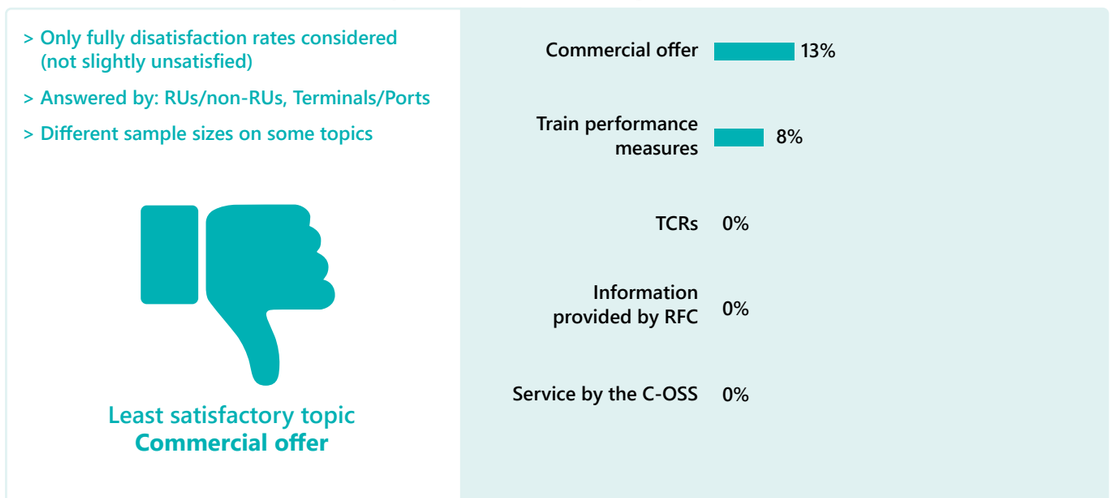


Figure 16 – Summary: Dissatisfaction rating

Working Group activities

TCR Working Groups

TCR South

In 2023, intensive construction works were carried out again on the Brenner line and on the rerouting lines via Tauern to maintain and improve the infrastructure. More than 200 relevant TCRs were discussed and coordinated between the IMs. Experts met three times during the year and subsequently presented the TCRs to customers, giving them the opportunity to give feedback on the TCRs and put forward their own proposals.

The biggest restriction on the Brenner line was its total closure from the 6th to the 23rd of August due to works on switches between Innsbruck and Brenner and simultaneous works along the network of RFI between Brenner and Bolzano. Up to 60 train paths were diverted via Salzburg, Villach, and Tarvisio on busy days. On the diversion route via Tauern, the biggest restriction was its total closure between Schwarzach-St. Veit and Mallnitz-Obervellach (Tauern tunnel) from the 12th of April to the 17th of May with simultaneous works on the whole line.

In autumn 2023, the TCR coordination process for 2026 started with major problems because of total closures along the network of DB InfraGO ("Hochleistungskorridore"). Discussions between the IMs are undergoing to foster a positive resolution of such issues.

TCR North

TCR coordination on the northern stretch of the Corridor has witnessed steady improvements over the last years and 2023 was no exception. The RFC fully integrated a "second day" the day after our coordination meeting, where we invited RUs to present all TCRs. The event gave participants the opportunity to provide their input and feedback. Additionally, in case of requests for specific TCRs, we tried to accommodate them. In 2023, the WG was positively impressed by the level of RU participation and looks forward to building on it in 2024.

TPM Working Group

The TPM working group continued to focus on analysing punctuality. Further effort was made to improve the reliability of data especially to allow to deliver the new KPIs:

- Under KPIs for Capacity Management:
  - Ratio of pre-booked capacity (PaPs)
- Under KPIs for Operations:
  - Train kilometres of trains crossing a border along the RFC
  - Dwell times in border sections – planned dwell
  - Dwell times in border sections – real dwell
- Under KPIs for Market Development:
  - Train kilometres of trains per border

OPE Working Group

ICM Simulation

In 2022, the foreseen scenario for an ICM simulation consisted of a derailment by a local train during a shunting in Odense, Denmark. In 2023, instead, the WG worked on the scenario of a collapsed bridge near Fulda, Germany. With parts of the bridge falling on the tracks and destroying the catenary, the lines Fulda-Bebra and Fulda-Kassel were interrupted, and all trains delayed or cancelled (see figure 17).

The objective of this simulation, which focused on traffic managers, was to evaluate several functions within the Corridor. It was the second simulation performed according to the updated ICM Handbook 2.0 and the second time that the Train Information System (TIS) was tested. DB InfraGO acted as the meetings' moderator and the ICM coordinator. To work around the issues with the backup service, the invitation to the simulation meeting was send out by DB InfraGO directly rather than the Accessibility Manager. As always, English language skills were tested on all participating functions. The most important finding was that ScanMed RFC needs to review the function and documentation around the backup service. It is also clear that the IMs participating in more than one Corridor handle ICM cases in a more effective way.

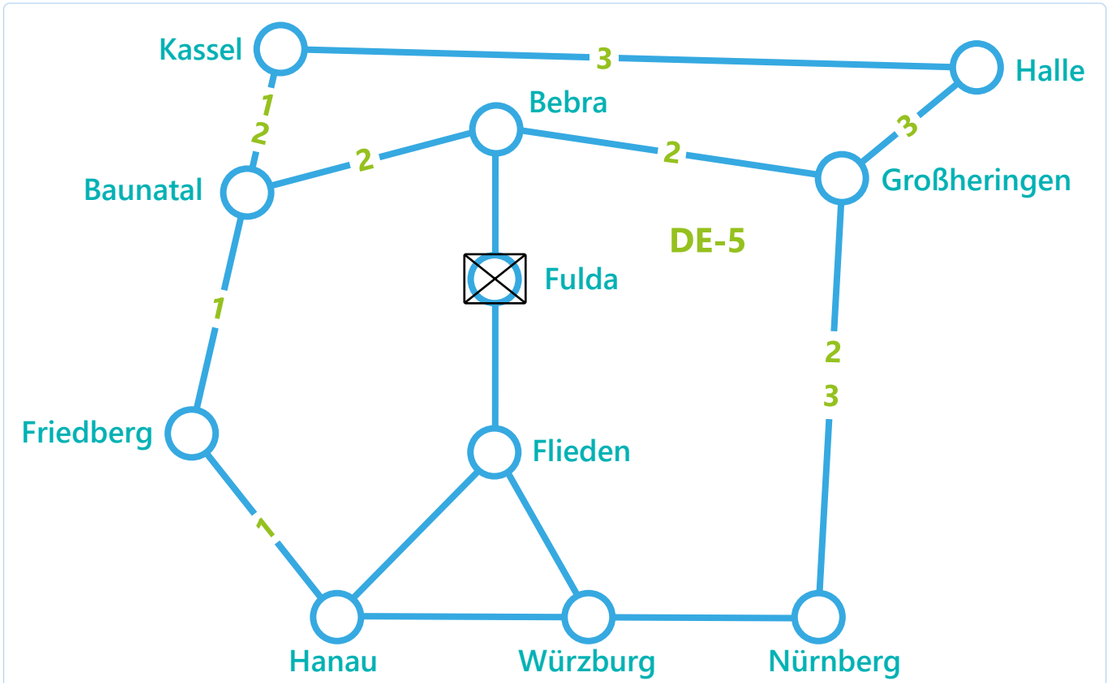


Figure 17 - ICM simulation case at Fulda, Germany

ICM Case

During 2023, one ICM case was declared along our Corridor – also affecting RFC Rhine-Danube – due to a heavy snowfall in Bavaria. In practice, the poor weather conditions caused overhead line damage on the Munich – Rosenheim line near Aßling, which needed to be closed for repairs (see figure 18). DB InfraGO declared the ICM on the evening of December 4th, a few days after the snowfall, and summoned the first online meeting on December 5th with the coordination of ScanMed RFC. During the meeting, it proved difficult to forecast the ICM's end as the weather conditions were constantly changing. Moreover, re-routing demanded various kinds of locomotives, making it complicated for RUs to choose this temporary solution. In the afternoon of that day, single-track operation was introduced, with the operating programme foreseeing one train path in each direction for local passenger service, long-distance passenger traffic, and freight traffic – for a total of six train journeys per hour possible. Finally, in the morning of December 6th, the ICM was formally declared over as the main lines were open again and double-track operation was reinstated.

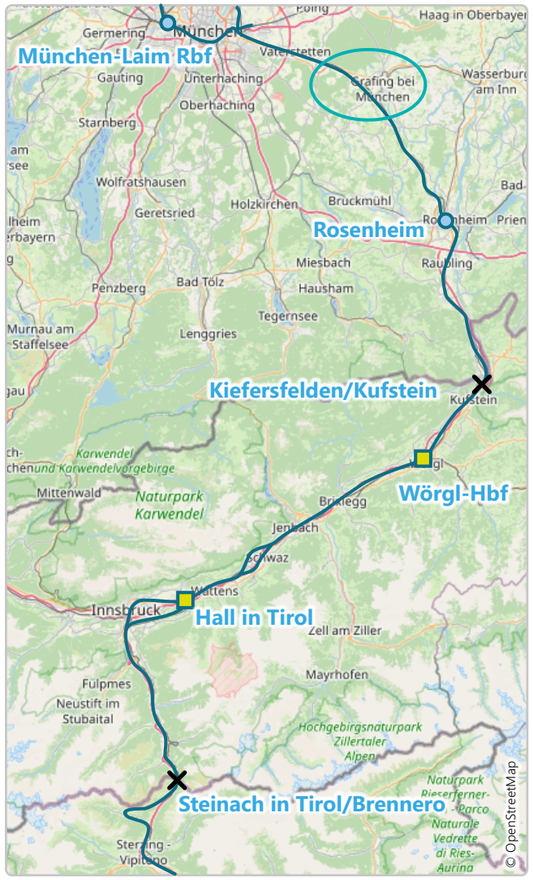


Figure 18 - ICM case along the Munich-Rosenheim line

Other activities

During 2023, OPE WG meetings were performed in combination with visits inside traffic control centres equipped with distinct levels of advanced technologies. Some IMs had come a longer way in introducing digital graphics as well as implementing ERTMS along their lines. Such visits also included a tour of the crisis control rooms, from where every major disruption is handled with every involved party present – leading to wider and greater cooperation and coordination as well shorter decision-making processes.

Finally, last year the WG completed its review of the recruitment procedures for traffic controllers – the rationale behind it being that it is quite difficult to find qualified workers for such position. Overall, the analysis showed that recruitment processes are remarkably similar, as they figure a net-based test, interview, medical exam, and further logical tests. The review also focused on the educational set-up provided by the IMs to newly hired traffic controllers and the length of the educational process.

The Regional Working Groups

The WG Brenner – Regional WG South

Established in 2022, the new format for regional cooperation on the southern stretch of ScanMed RFC (see figure 19) was applied in 2023, leading to positive results and widespread satisfaction among stakeholders.

The regular exchange among the three IMs continued to be performed during the weekly performance meetings, allowing for good cooperation and a coordinated approach in cases of critical situations, such as heavy snowstorms at the beginning of December. Special attention was dedicated to the analysis of so-called critical trains, involving the relevant RUs in Quality Dialogues, where the question of how to improve train performance was tackled in depth with the involvement of all the parties. This activity turned out to be effective for the overall performance of the stretch, which improved compared to 2022, and was deeply appreciated by all participants.

In 2023, the Regional WG South held two regular meetings. Among other things, during those meetings TCR experts informed customers on TCRs for the upcoming years – in accordance with Annex VII regulations – including information on re-routings, train cancellations, and longer running times that RUs can thereby consider for their planning. The TCR discussions also served as a platform for a critical review of TCR planning and for agreeing on alternative concepts together with RUs to prepare end customers for the necessary traffic adjustments. In 2023 it was decided to also involve the terminals in TCR Dialog meetings.

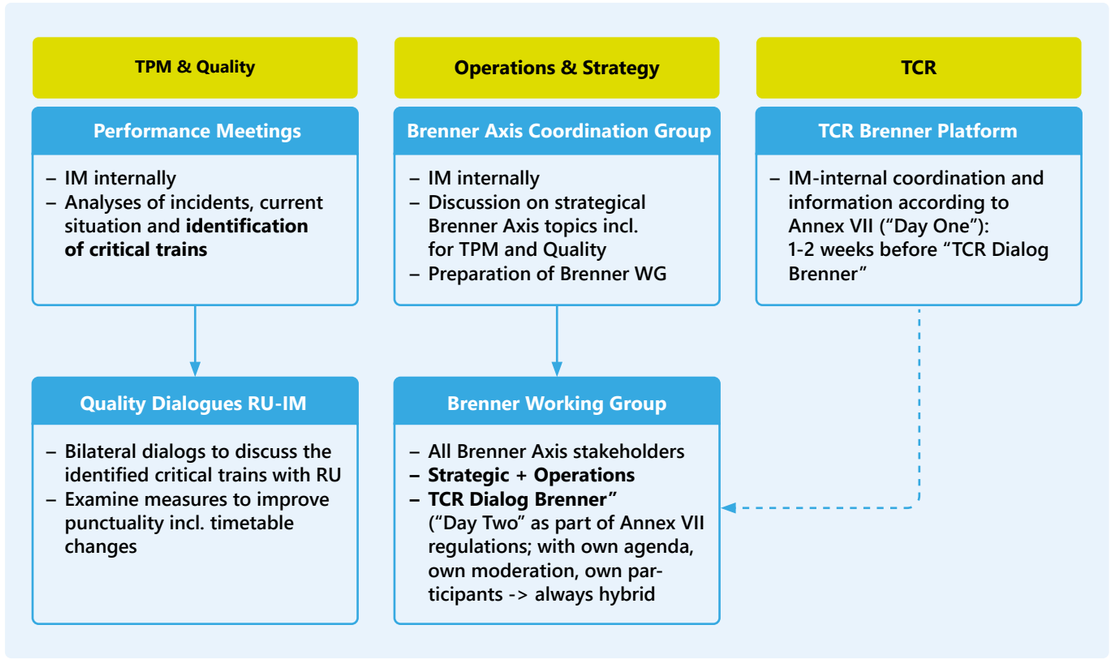


Figure 19 - ScanMed Regional Groups South

The Regional WG North

In April 2023, the Regional WG North restarted its work after being dormient for a period. During the kick-off meeting in Hamburg the participants, including five RUs, defined several so-called “action items” to jointly tackle as a WG. The items that the sub-groups work on address re-routing options in case of line closures between Germany and Denmark, a benchmark analysis of operational border processes, and an analysis of delay reasons along the Northern stretch of the Corridor. The sub-group teams consist of experts from both RUs and IMs and meet regularly both online and in person. This wide participation guarantees a comprehensive approach to tackling the identified challenges, which is incredibly important to find the best solutions. The Regional WG North meets twice a year (once online and once in person) with all interested stakeholders to review the work that has been done in the sub-groups and to agree on new action items to focus on.

ERTMS sub-group

In 2023, the MaBo decided to establish within the Infrastructure WG an ERTMS sub-group, to tackle this technical area at Corridor level. The goal of the sub-group is to collect and regularly publish the state of play and future developments of ERTMS implementation along ScanMed RFC through the involvement of IM colleagues who have a good knowledge of these issues in their own country. The first goal will be the development of the ERTMS Implementation Plan, which is part of the overall ScanMed Implementation Plan – one of the key deliverables required for receiving EU Technical Assistance. The ERTMS sub-group will be led by Stefano Marcoccio, leader of the ERTMS WG of the BCP, whose expertise will be extended to the whole Corridor. The kick-off meeting of the ERTMS sub-group is planned for January 31st, 2024, in Vienna.

ScanMed Team

Handover between the Accessibility Managers

After one year in his role as Accessibility Manager, at the end of 2022 Gabriel Bustad left the Corridor to start working at RNE. In mid-December, Gabriel started the handover process with his successor and current Accessibility Manager Christoffer Hansson. The first in-person meeting with the rest of the team occurred in January 2023 in Copenhagen during the second Femern Belt Forum.

Handover between the C-OSS Managers

In January 2023, the C-OSS Manager, Paul Dippmann, left his position after three years, to take on a new role at DB InfraGO, namely the international coordination of TCRs at Germany’s eastern border crossings. Henning Holtermann (DB InfraGO) took over the tasks of the C-OSS on an interim basis. On April 1st, Rainer Wolf (DB InfraGO) was introduced to the team as the new – and current – C-OSS Manager. The onboarding phase overlapped with one of the most important tasks in the C-OSS calendar, i.e., the pre-allocation phase. In this two-week period, all calculations needed for taking decisions on the allocation of PaPs for the upcoming timetable period are made. Thanks to the fact that both of his predecessors are based in the same office in Frankfurt, a smooth handover of all tasks and responsibilities was possible.

Visualisation of portal and ramp to tunnel © Femern AS

Corridor Projects and Studies

Femern Belt Platform

Following a first meeting of interested rail stakeholders in September 2022, in January 2023 ScanMed RFC organized, together with Femern AS, a meeting in Copenhagen to launch the FBP. The participant list included representatives from IMs, RUs, terminals, ports, national administrations, and the European Commission, including EU Coordinator Pat Cox. Considering the relevance of the Fehmarn Belt Fixed Link for rail freight traffic between Scandinavia and the rest of the continent, ScanMed RFC succeeded in bringing together all rail actors impacted by this crucial infrastructure project to discuss how to best cooperate to make the future opening of the undersea tunnel a commercial success.

Throughout the spring, representatives from ScanMed RFC, Femern AS, and the European Commission held a series of virtual meetings to discuss more in detail the purpose and structure of this new cooperation platform. These trilateral meetings also helped in preparing the terms of references for the drafting of a Memorandum of Understanding (MoU) to be signed by all key stakeholders, namely the RFC, the four IMs directly involved (DB InfraGO, Banedanmark, Trafikverket, and Bane NOR), Femern AS, and the European Commission.

In terms of organisation, it was agreed that the Platform would have three layers (see figure 20). The Plenary would be open to all stakeholders interested in the project. Then, there would be a Steering Committee made up of representatives from the Commission, the RFC, the IMs, the RUs, the Ministries of Transport, and the WGs. The latter ones, five in total, would represent the Platform's third and operational level.

In May, the Steering Committee gathered for the first time. Thanks to the work of ScanMed's Legal WG, the Committee was able to discuss a draft MoU and agree on the way forward, namely beginning to connect and integrate the Platform's forming WGs with the existing workstreams between Femern AS, DB InfraGO, and Banedanmark to avoid work duplication. During the summer and early autumn, the MoU was finalized and workshops between WGs and workstreams were held. At the MaBo meeting in October, ScanMed RFC formally approved the MoU, mandating the team to start collecting signatures. The process is underway and will be completed in the first half of 2024. Meanwhile, work at the WG level will continue, particularly in terms of performing a traffic flow analysis that will feed from and complement the results and insights of the ongoing E-TMS.

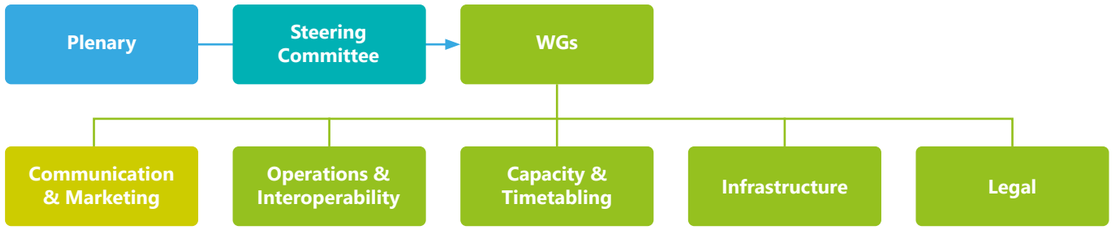


Figure 20 - Femern Belt Platform organisation

Figure 21 - Freight train along the Brenner line

Brenner Corridor Platform

The BCP, established in 2018 with a MoU signed by key rail stakeholders including the Transport Ministries of Italy, Austria, and Germany, continued the consolidation of important results in the process of harmonisation of rules, technologies, and processes along the Brenner Corridor.

After publishing the common traffic forecasts, performing an analysis of the residual capacity on the line, and setting-up the BCP technical parameters table in 2022, in 2023 the Infrastructure WG carried out the monitoring of infrastructure projects implementation, completed the cross-corridor capacity analysis for 2040, and included maintenance aspects in the operational analysis.

The Interoperability and Operations WG continued supporting the implementation of the Brenner Pilot Project, a CEF funded project performed in cooperation with KombiConsult, with the Case Teams made of BCP members. During 2023, five activities were carried on:

- The Common Route Book.
- Pilot 1: Harmonisation of Operational Rules.
- Pilot 2: Brake Calculations.
- Pilot 3: Check at the borders.
- Pilot 4: Second person in cabin.

All activities reached a satisfactory level of completion. The end of the Brenner Pilot Project has been postponed to June 30th, 2024. Finally, the BCP solution list, a common endeavour between the two WGs, was finalized with the identification of the top priorities and assignment of the issues to both WGs.

European TMS

Last year witnessed the prosecution of the process (see figure 22) aimed at updating the TMSs of the RFCs with the involvement of RNE and the four projects' sponsors – ScanMed RFC being one of them. In 2023, a key development was the performance of a survey involving the RAG/TAG. The survey, conducted between September and October 2023, aimed at collecting relevant inputs from the Advisory Groups to feed into the content of the E-TMS section dedicated to the major changes occurred since the establishment of the RFCs as well as the expected changes up to 2030. The latter information will also be used to corroborate the outcome of the future market analysis and could give an indication of market trends to be used in forecasting. The results of the survey will be submitted as part of the inception report.

The project is progressing at a programmed pace and intermediate deliverables are regularly distributed to the RFCs for validation. Looking into 2024, all Corridors will be involved in the study from spring onward up until the end of the project to finalise the individual TMSs. In mid-2024, consideration will also be given to the involvement of other stakeholders.

European TMS project – Overall timeline (update RFC HLG and RNE MB)

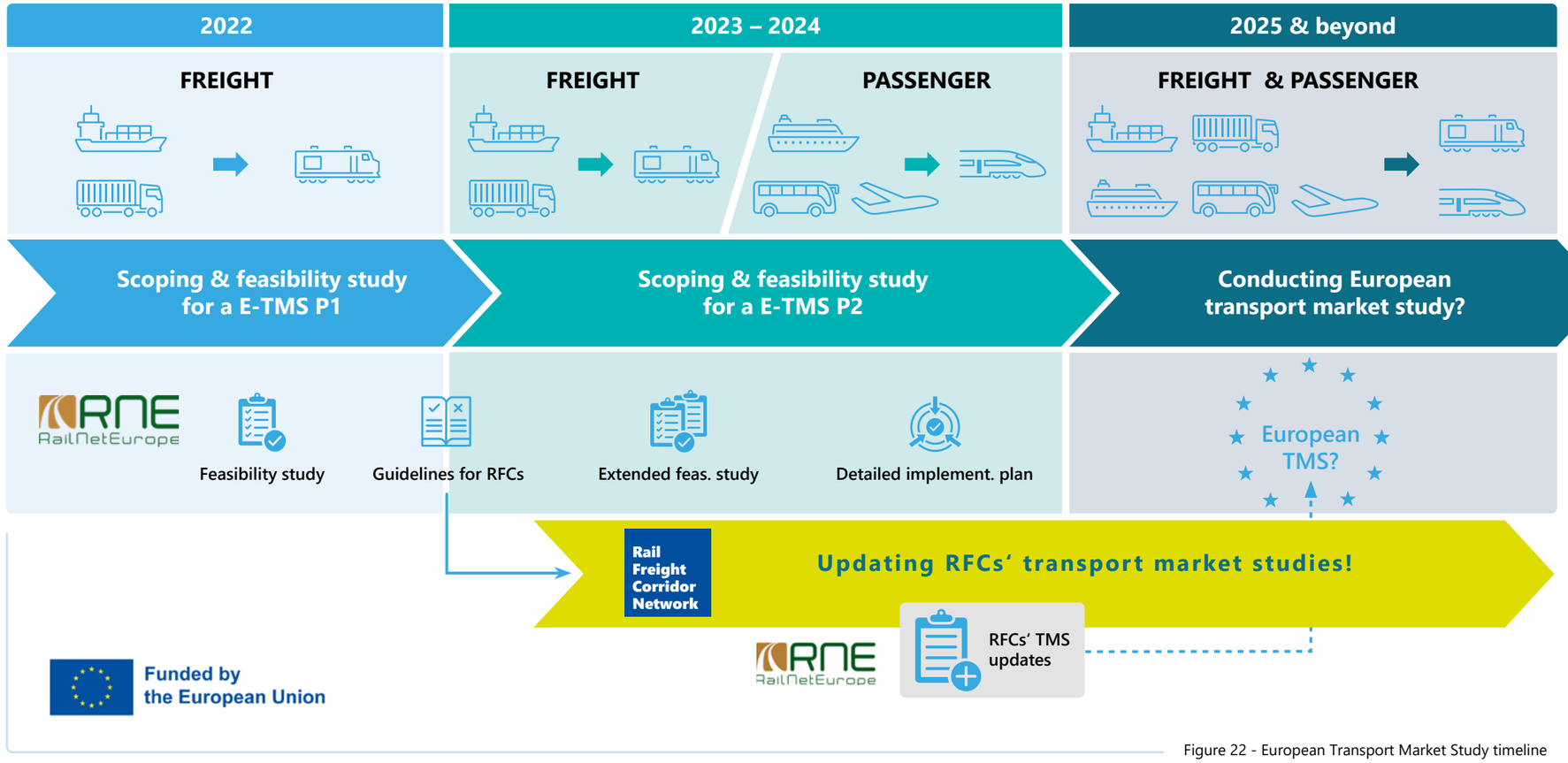


Figure 22 - European Transport Market Study timeline

R-CDM

R-CDM is a project leaded by RNE, whose concept was derived from Airport Collaborative Decision Making (A-CDM) and aims to improve the efficiency and resilience of railway operations by allowing individual stakeholders to optimize the use of their resources through the improvement of predictability. It achieves this by encouraging the stakeholders involved (RUs, terminals, ports, shunting yards, etc.) and the IMs to exchange relevant, accurate, and timely information (see figure 23).

A-CDM has shown significant benefits in the aviation sector, improving the efficiency of flight as well as ground processes. A study, performed in 2020 by Rail Freight Corridor Rhine – Alpine together with Hacon, To70, and RNE, confirmed the transferability of A-CDM to the railway sector with certain railway sector relevant adaptions. Furthermore, it showed that R-CDM and digital data sharing provide significant positive benefits by enabling rail stakeholders to plan, coordinate and synchronise activities more efficiently giving rise to enhanced and more efficient overall performance. Sharing data in all stages of the transport chain would be beneficial for the whole sector to increase efficiency and to be able to react quickly to disturbances.

As clearly underlined by the Corridor's TPM WG, rail transport performance depends strongly on a good integration with the terminals. Terminals represent the main departure and arrival points of a rail shipment and in the planning phase a proper harmonisation of the PaPs with terminal slots, as foreseen with TICOs, is needed to assure high performance. To achieve this harmonisation, however, the involvement of all stakeholders is required, including transport organisers (MTOs, freight forwarders, and end customers). For this reason, in 2023 ScanMed RFC decided to take part to the R-CDM project to involve all the main rail supply chain stakeholders, including those implicated in the planning phase, so to increase TICO's effectiveness and correspondently the overall performance of the Corridor. The R-CDM project is planned to be completed in 2026.

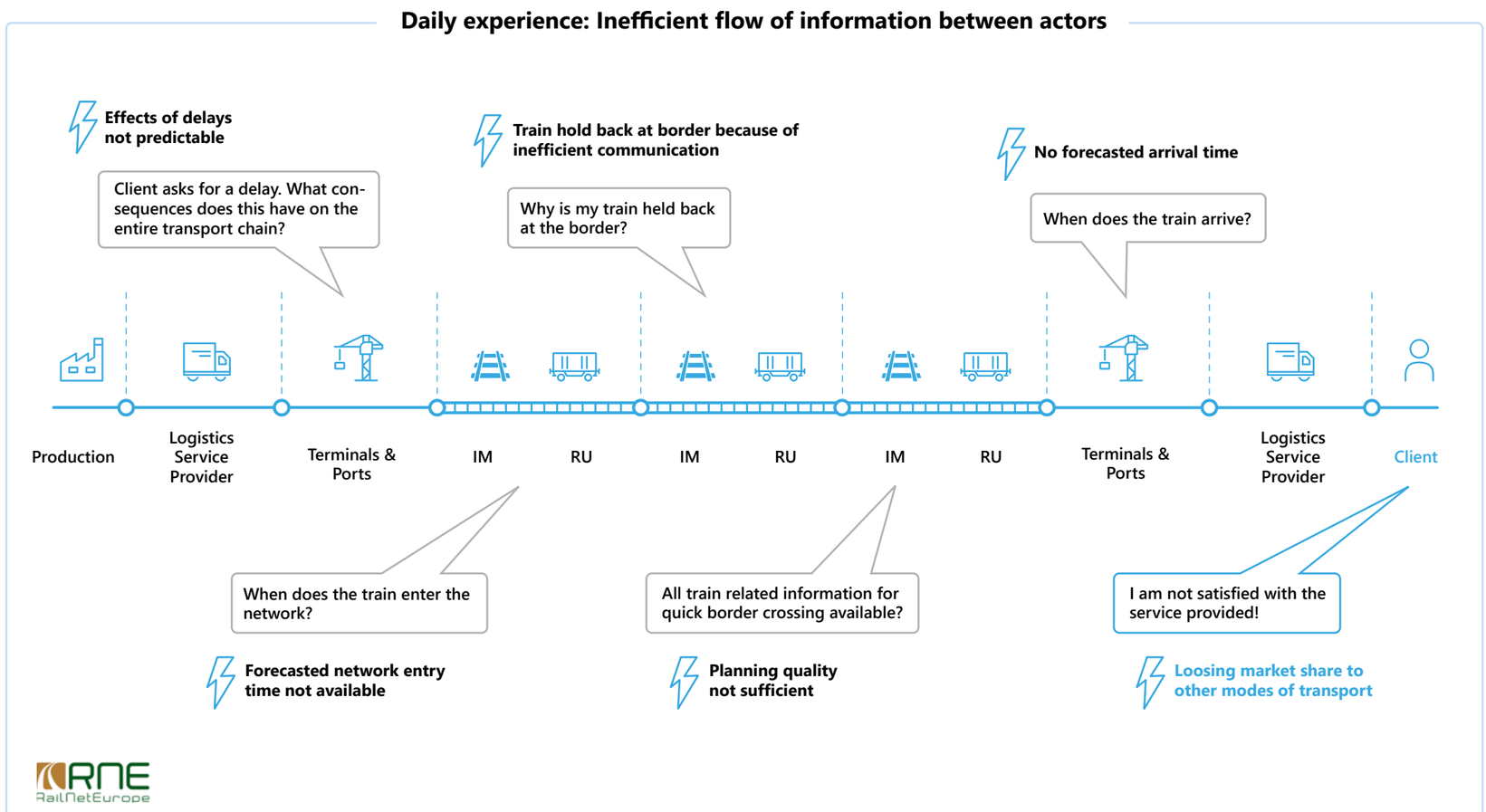


Figure 23 - Different actors of the transport chain and phases of R-CDM implementation.

Marketing and Communication

RAG/TAG involvement

In 2023 we continued with our in-person RAG/TAG meetings. The RAG/TAG Speakers' and customers' involvement remains critical for the Corridor, and it makes us investigate interesting topics both for us and for customers. Like in previous years, we arranged one spring and one autumn meeting.

The spring event was held in the port of Trelleborg, Sweden, in early May. Before the meeting, participants visited the port to witness the constant traffic flows passing through the docks on their way out to continental Europe or into Scandinavia. The meeting saw a high turnout and the Corridor received positive feedback. Such a success drew on the contributions from our speakers from DB Cargo Scandinavia, TX Logistik AG, Grønn Jyllandskorridor, and Transwaggon Group, as well as those of our RAG/TAG Speakers.

For the autumn event we travelled to Verona, where we combined the RAG/TAG, MaBo and ExBo meetings. Hosted by Terminali Italia – Interporto Quadrante Europa, which also offered participants a tour of the terminal, we shared several insightful presentations and held good discussions on the current and future situation within and around ScanMed RFC. Topics included recent EU regulatory developments, the railway ferry connection Trelleborg – Rostock, the FBP, and several Corridor projects such as the E-TMS and R-CDM.

Marketing and communication outreach

In 2023, the ScanMed Team was able to hold and participate in numerous physical meetings to enhance our marketing outreach, organising customer visits and stakeholder forums, participating in transport fairs and rail conferences, and increasing the involvement of all stakeholders and partners in the Corridor's activities. Moreover, we kept updating our website and LinkedIn account, making them front and centre of our communication strategy. The LinkedIn page continued to grow, with the number of likes and shares constantly increasing and the number of followers totalling well over 1250 – by far the highest value among RFCs and a considerable jump from the approximate 1000 followers it had at the end of 2022.

In terms of events, last year the CRM Manager participated to several ones where he presented the RFC's activities and products to a diverse range of audiences. In February, he attended the Railway Forum (Jernbaneforum) in Oslo – Norway's most important railway conference – together with the Norwegian PIM. As the Norwegian market has steadily transported more goods by rail out into the world since 2019, the ScanMed RFC representatives focused on border crossing trains and the relevance of European cooperation. Specifically, considering the regulatory developments at EU level, the PIM presented "What do new EU rules mean for border-crossing trains," illustrating how the EU's legislative initiatives will have a major impact on European transport of both freight and passengers in the coming years. Then, the CRM Manager zoomed in on "Cross-border cooperation," highlighting the work ScanMed RFC is doing to connect Europe more closely together and facilitate international freight transport.

ScanMed RFC's visibility in Scandinavia was then reaffirmed on June 30th, when the Corridor made an appearance on Norwegian TV (NRK) as the daily news reported on the electrification of trucks transporting salmon to the terminal in Mo i Rana, where the fish is loaded on freight trains and sent southward. When interviewed, the CRM Manager underlined the importance of having companies such as Meyership AS and Nova Sea AS setting the example on how to move forward with the green transition. After intensive work to shift goods from road to rail, an effort to which ScanMed RFC has been contributing, the number of freight trains on Nordland's railway has increased exponentially from one

to four each day. Consequently, there are now 30,000 fewer trucks on the E6, Norway's backbone highway – with all the environmental benefits this development entails in terms of reduced transport emissions.

In early August, the CRM Manager joined a seminar on multimodal solutions organised by the Green Jutland Corridor and the Port of Hirtshals in Hirtshals, Denmark. During the event, Railsupport AS and New Thinking presented the preliminary results of the freight traffic analysis currently under preparation for the Jutland Corridor. Moreover, several other stakeholders, including Stena Line, Color Line Cargo, and DB Cargo Scandinavia, shared their insights on the Corridor's development. From the ScanMed RFC side, the CRM Manager introduced the Corridor's general role and activities as well as its involvement in the region. Furthermore, he informed participants about the state of play of the upcoming European TMS, whose results could be of great significance for the Jutland Corridor, too.

Finally, another highlight came on October 27th, when ScanMed RFC representatives were invited to the opening of DB Cargo Scandinavia's first maintenance workshop in Fredericia, Denmark. The event centred on the value of rail freight transport in Scandinavia and the variables currently shaping the sector's increasingly strategic salience. During that day, guests from all over the region listened carefully to a panel debate featuring our Corridor's TAG Deputy Speaker who presented the Corridor's perspective on the current and future challenges and opportunities for rail freight in Scandinavia. Particularly, he shared his thoughts on the soon-to-be-unlocked potential of the Fehmarn Belt, the benefits of a Corridor approach for freight customers, and plans to increase rail's competitive advantage.

Major events 2023

- **January**
  - Christoffer Hansson new Accessibility Manager
- **March**
  - Norwegian Rail Forum in Oslo
- **April**
  - Rainer Wolf new C-OSS Manager
  - Swedish Railway Conference in Stockholm
- **May**
  - RAG/TAG meeting in Trelleborg
  - Transport Logistic fair in Munich
  - BCP plenary in Innsbruck
  - European Rail Transport Day in Stockholm
- **September**
  - Visit to the Monteceneri tunnel
- **October**
  - RAG/TAG meeting in Verona
- **November**
  - 19° ScanMed CNC Forum in Brussels

Major events scheduled for 2024

- **January**
  - Kick-off meeting ERTMS sub-group
- **February**
  - Green Jutland Conference in Larvik
- **April**
  - Connecting Europe Days 2024
- **May**
  - RAG/TAG meeting in La Spezia
- **October**
  - RAG/TAG meeting in Narvik

Figure 24 - RAG/TAG meeting in Trelleborg

Figure 25 - The RFC Network and RNE at the Transport Logistic fair in Munich

Figure 26 - The Corridor Team at the Transport Logistic fair in Munich

Figure 27 - ScanMed RFC at the Rail Transport Day in Stockholm

Figure 28 - RAG/TAG meeting in Verona, terminal tour

EU Policy Developments

As already mentioned in the premises, 2023 represented a crucial year for European railways, as the future framework of the European rail network started to take its final shape with the publication by the European Commission of a regulation proposal on Capacity Management, an implementing act of revised technical standards to improve rail interoperability across borders – the so-called "Technical Specifications for Interoperability" (TSIs) –, and the Combined Transport Directive proposal. Meanwhile, EU policymakers continued their work on the revision of the TEN-T regulation in trilogues between the EU institutions.

Figure 29 - EU flags in front of the European Commission's headquarters

The revised TEN-T Regulation, which foresees the launch of nine new ETCs, is a cornerstone of the European Green Deal, the EU's long-term growth strategy to make the continent climate-neutral by 2050. As underlined by Adina Vălean, Commissioner for Transport, "this is a landmark agreement for the EU. Europe needs a transport network that addresses the mobility concerns of our citizens and businesses, both sustainable and resilient, and that builds a bridge with our neighbours, in particular Ukraine, Moldova, and the Western Balkans."

The final agreement includes strong incentives to increase the use of more sustainable forms of transport and improvement of multimodality within the European transport system. The revised TEN-T will set mandatory targets in terms of expected performance of the rail connections and establish the ERTMS as the single European signalling system in Europe, in parallel with the progressive decommissioning of national legacy 'class B' systems. In addition, the number and the handling capacity of freight terminals must develop in line with the current and expected traffic flows and the needs of the sector. This, as well as allowing the circulation of 740 m trains across the network, will help shift more freight to more sustainable transport modes and give a push to Europe's combined transport sector. In addition, Ukraine, Moldova, and the Western Balkans will be fully integrated into the TEN-T. For ScanMed, the revision envisages the connections from Stockholm to Narvik and Oulu and between Stockholm and Oslo, the inclusion of the Jutland Corridor and the Fehmarn Belt Fixed Link, extensions to Bremen and Frankfurt, the connection between Rostock and Munich going through Berlin, Leipzig, and Regensburg, and the connections between Napoli and Bari and between Palermo and Catania (see figure 30).

Figure 30 - Potential future Scandinavian - Mediterranean Corridor

TENtec

To assure the timely completion of the network – by 2030 for the core network, 2040 for the extended core network, and 2050 for the comprehensive network – the agreement also includes better governance, for instance by including the possibility of implementing acts for the main cross-border sections and other specific national sections along the ETCs. This development, together with greater alignment between national transport plans and TEN-T objectives, aims to ensure coherence when priorities are set for infrastructure and investment.

On July 11th, the Commission put forward its proposal for a Regulation on the use of railway infrastructure capacity in the single European railway area. The package complemented the TEN-T policy update through incentives and requirements for infrastructure development, and by better integrating the different modes within a multimodal transport system. Digital technologies are also helping to increase efficiency, including ERTMS and the Digital Automatic Coupling (DAC) for rail.

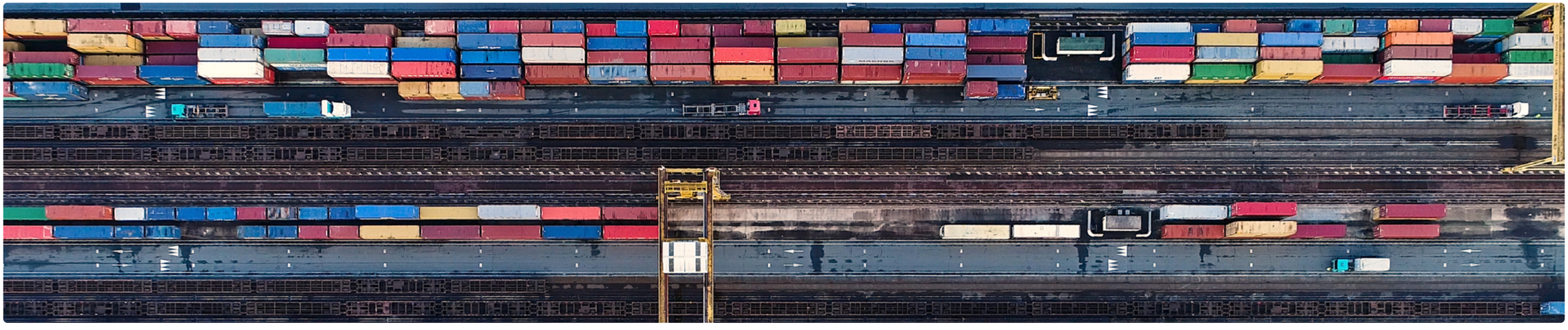
The regulatory proposal foresees measures to make freight transport more efficient and more sustainable by improving rail infrastructure management through a more efficient use of rail capacity. Rail tracks are expensive to build and increasingly congested. The regulation aims to optimise their use, improve cross-border coordination, increase punctuality and reliability, and attract more freight companies to the railway. Current rules on capacity management are decided annually, nationally, and manually. On the contrary, the new proposals are built on the industry-led TTR. The aim is to better respond to the unique needs of the rail sector: stable timetables and early booking of tickets for passenger services, and flexible train runs adapted to just-in-time supply chains for freight shippers.

In addition, on September 8th the Commission published the latest version of the TSI OPE, defining a final schedule for the entry into place of these important bricks of the European rail network. The 2023 TSI package is a key milestone along the path to making smooth cross-border train trips across the EU a reality, but also clears the way for new innovative technologies. TSIs applied across the Union make the rail sector more efficient because they eliminate 25 different sets of national rules. Reducing complexity and parallel rules helps to improve affordability and lower the basic cost of rail operations. The revised standards also align with TEN-T requirements and introduce a common framework for technical and operating conditions for ERTMS and combined transport, granting more flexibility for operators in intermodal transport.

On November 7th, finally, the Commission adopted the new proposal on combining transport modes for more sustainable freight, the so-called Combined Transport Directive. This proposal aims to make freight transport more sustainable by improving the competitiveness of intermodal freight vis-à-vis road-only transport. The text updates the current Combined Transport Directive and completes the Greening Freight Package, which will help the freight sector do its part for the EU to achieve its Green Deal objectives.

The Combined Transport Directive will make intermodal transport more efficient and competitive. It refocuses support on operations that reduce by at least 40% the negative externalities compared to road-only operations between the same starting and end points. Digital platforms established under the electronic freight transport information Regulation (eFTI) will provide a calculation tool allowing transport organisers to prove whether their operation is eligible for support. They will make the necessary information accessible, while accredited digital systems will do the rest. The proposal sets Member States a competitiveness target to reduce by at least 10% the average door-to-door cost of combined transport operations within 7 years and requires them to put in place the policies needed to achieve this target.

As a final note, in 2023 the Commission established SERAF, the main advisory body for the Single European Rail Area whose task is to support the EU executive by providing expertise in this field. Importantly, ScanMed RFC is also taking part in this body through its Managing Director.



Annexes (KPI Tables)

In this paragraph we report and compare our 2023 and 2022 figures regarding:
- Capacity KPIs.
- Operation KPIs with punctuality at origin and destination and delay causes.
- Market KPIs describing the traffic volume in terms of number of trains crossing Corridor borders.
- Punctuality at border stations and at relevant points.

Capacity KPIs

			2023 (TT2024)	2022 (TT2023)
Offered capacity	Volume of offered capacity (PaPs) at X-11 (in Mio. km* days)		10.9	10.1
	Volume of offered capacity (RC) at X-2 (in train km)		1.8	1.8
Requested capacity	Volume of requested capacity (PaPs) at X-8 (in Mio. km* days)		3.9	3.8
	Volume of requested capacity (RC) at X+12 (in Mio. mk* days)		AR2024	0
	Volume of requested (PaPs) at X-8		33	44
	Volume of requested (RC) at X+12		AR2024	0
Pre-booked capacity	Volume of pre-booked capacity (PaPs) at X-7,5 (in Mio. mk* days)		3.2	2.4
Conflicting requests	Number of conflicts (PaPs)		8	22
TCR-affected capacity	Share of pre-booked PaPs affected by TCRs (in PaP days)		0%	0%
Response time for a corridor offer (RC)	Number of days needed by the C-OSS to deliver an RC-offer to a customer		AR2024	no request
Integration of the product	Number of PaP-requests including Terminal slots (TICO)		0	0
Cross-corridor PaP-requests	Number of PaP-requests including at least one PaP-segment on another RFC (in %)		30%	18%
Cancellation/Modification rate	Cancellations/modification rate of PaPs before TT change (share of not cancelled days)		45%	73%
Planned speed	Average planned speed of PaPs at X-11 (in km/h)	Alnabru-Göteborg	60	58
		Göteborg-Malmö	56	60
		Katrineholm-Malmö	59	65
		Hallsberg-Malmö	62	67
		Malmö-Maschen	63	65
		Maschen-München	57	59
		München-Verona	53	52
Ratio of capacity	Ratio of capacity allocated by the C-OSS and the total allocated capacity at TT change	Kornsjö	0%	0%
		Peberholm	47%	50%
		Padborg	37%	39%
		Kufstein	0%	0%
		Brennero	0%	0%

Figure 31 – Capacity KPIs

Operations KPIs

Punctuality

KPI	Definition	Source	2022	2023
Punctuality at origin	Percentage of trains on time (30') at origin / (RFC Entry)	TIS / OBI	62%	62%
Punctuality at destination	Percentage of trains on time (30') at destination / (RFC Exit)	TIS / OBI	48%	47%

Figure 32 – Punctuality (30')

KPI	Definition	Source	2022	2023
Punctuality at origin	Percentage of trains on time (15') at origin / (RFC Entry)	TIS / OBI	53%	52%
Punctuality at destination	Percentage of trains on time (15') at destination / (RFC Exit)	TIS / OBI	41%	40%

Figure 33 – Punctuality (15')

Delay causes

Share of delay minutes in respective group of delay causes
- Source: TIS / OBI
- Content: all international trains on the Corridor which cross at least one Corridor border

	2022		2023	
Delay Group	**North – South**	**South – North**	**North – South**	**South – North**
Infrastructure Manager	15%	13%	15%	12%
Railway Undertaking	53%	49%	47%	48%
Secondary	30%	36%	34%	36%
External	2%	2%	4%	4%

Figure 34 – Delay causes

Observations:
- High increase of external delay minutes
- Decrease of IM and RU delays
- Highest increase for secondary delays

Market KPIs

Number of trains runs at border crossings

Border point(s)	North – South	South – North	Data source
Kornsjö	670	768	TRV
Peberholm	3313	3215	TIS
Padborg / Flensburg	4542	4512	TIS
Kiefersfelden / Kufstein	10960	11301	ÖBB
Brennero / Brenner	9312	9239	ÖBB

Figure 35 – Number of train runs crossing the defined border points

Punctuality at Border Stations and Important Points

Punctuality 0–30 minutes (%)
- Source: TIS / OBI
- Content: all international trains on the Corridor which cross at least one Corridor border

Point	Punctuality N-S	+/- 2022	Remarks
Malmö departure	77	-6	
Peberholm (run through)	72	-11	
Flensburg (run through)	49	-9	
Maschen Rbf arrival	35	-6	
Munich departure	58	-2	Aggregated from different stations; incl. trains starting in other parts of Germany or NL
Kufstein arrival	58	-1	
Kufstein departure	57	-1	Incl. trains starting in other parts of Germany, NL or B
Brennero / Brenner arrival	54	0	*
Brennero / Brenner departure	46	-2	*
Verona QE arrival	49	+1	*

* Differences between Germany and Scandinavia possibly in connection with data issues

Figure 36 – Punctuality at border stations and important points (traffic flows from North to South)

Point	Punctuality N-S	+/- 2022	Remarks
Verona QE departure	68	+7	
Brennero / Brenner arrival	58	+4	
Brennero / Brenner departure	47	+4	
Kufstein arrival	49	+1	
Kufstein departure	48	0	
Munich arrival	43	0	Aggregated from different stations
Maschen Rbf departure	52	-7	Incl. trains starting in other parts of Germany, NL or B
Flensburg (run through)	41	-6	*
Peberholm (run through)	44	-15	*
Malmö arrival	47	-13	*

* Differences between Germany and Scandinavia possibly in connection with data issues

Figure 37 – Punctuality at border stations and important points (traffic flows from South to North)

Observations:
- The main traffic is on the stretches Malmö – Maschen and Munich – Verona.
- There is only a small share of the trains run both on the northern and southern sections of the Corridor, therefore there is barely a direct connection between punctuality at Maschen and Munich (and vice versa).
- The departures figures at Maschen and Munich are especially negatively influenced by trains arriving from other parts of Germany as well as from the Benelux countries. The punctuality of these trains is significantly lower than the average.

Comments on the comparability of the data and on data quality:
- Punctuality is calculated based on delta-t (delay) for defined points in TIS.
- This delta-t is delivered by the national system based on the timetable there.
- Different national processes (i.e., for train numbering, timetabling, or ad hoc trains) can lead to deviations.
- If the different train parts have different numbers, the connection gets lost in many cases. In other words, the trains result not linked.
- This problem can influence punctuality figures and the number of trains at certain points.

ScanMed RFC
STOCKHOLM/OSLO–COPENHAGEN–
HAMBURG–INNSBRUCK–PALERMO

A cooperation between the Infrastructure Managers on the longest European Rail Freight Corridor

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BANE NOR

Sweden

TRAFIKVERKET

Denmark – Sweden

ØRESUNDSBRON

Denmark

BANEDANMARK

Germany

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