

OPENRAIL ASSOCIATION

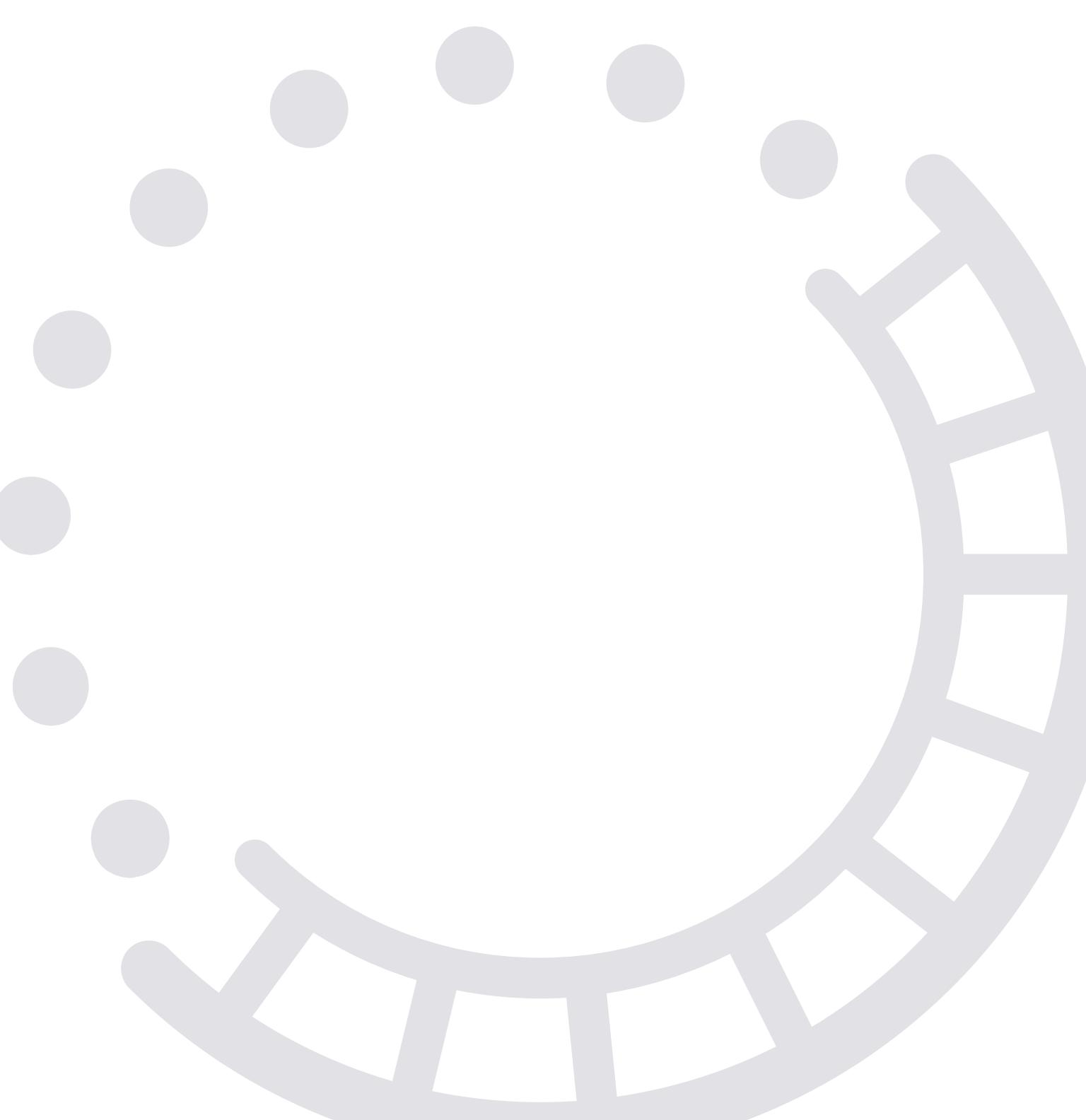
Annual Report
of the OpenRail Association

2024



Table of contents

Message from the Chair of the Board	3
The Board of the OpenRail Association (1/2)	4
The Board of the OpenRail Association (2/2)	5
Executive Summary	6
Open Source for the Railway Sector	7
Projects Incubated by OpenRail	8
Open Source Railway Designer (OSRD)	9
Rail Condition Monitoring (RCM OSS)	10
Digital Automatic Coupling Migration Decision Support System (DAC Migration DSS)	11
Netzgrafik-Editor (NGE)	12
Library for Linear Reference Systems (libLRS)	13
Message of the Chairs of the Technical Committee	14
Our Members	15
How We Built the Organization	16
Connecting Through Events and Community	17
Join us	18
Endnotes	19



Message from the Chair of the Board

In January 2024, we proudly launched the OpenRail Association. As a founding member, I am privileged to reflect on a year of significant growth and the establishment of strong relationships. We've set the foundation for collaborative efforts worldwide and secured a robust financial base through contributions from our members.

Challenges and Solutions in Railways

Railways are essential for sustainable mobility, with digitalization driving our future. Country-specific developments have led to isolated software systems. Traditional cooperation methods are lengthy and cumbersome. The OpenRail Association aims to revolutionize this by promoting low barrier community based open source approach to enhance interoperability, efficiency, and innovation.

Achievements in Our First Year

- Community Growth:** We've welcomed four founding members and four early adopters from the railway sector.
- Project Initiatives:** We initiated five projects focusing on infrastructure simulation, condition monitoring, and network planning.
- Open Governance:** We've established an incubation process for projects, adhering to open source best practices and meeting sector-specific needs.
- Ecosystem Connections:** We've fostered connections between open source communities and railway professionals through conferences and partnerships.



Breaking Barriers, Creating Opportunities

Addressing a prevalent industry concern – “Railways are unique; open source won’t work” – we observe substantial successes in sectors like automotive, telecom, and energy, where open collaboration offers significant benefits by increasing flexibility, efficiency, and innovation. To unlock these benefits for the railway sector, we are focusing on the adoption of OpenRail projects and building strong partnerships within the sector in 2025.

I am excited for the year ahead. Together we will unlock substantial synergies that will benefit the entire railway sector.

Yours sincerely,

Jochen Decker

Chair of the Board of Directors, OpenRail Association, CIO at SBB

The Board of the OpenRail Association (1/2)



Nicole Göbel

Vice-Chair

CEO at **DB Systel GmbH**

“ Deutsche Bahn fully embraces OpenRail’s mission, as reflected in the principles of our DB Open Source Manifesto. OpenRail embodies this commitment by focusing on leveraging efficient collaboration. We are proud to have developed a solid working framework within the association and are excited about its potential to accelerate new initiatives and projects. Open source holds the transformative power to tackle the industry’s complex challenges, creating opportunities for scalable, future-proof technologies that benefit the broader ecosystem.



Frédéric Novello

Vice-Chair

Deputy Group CIO at **SNCF**

“ At SNCF Group, we believe that open source will continue to gain momentum and become a major part of our software portfolio. Beyond the open middleware that we increasingly integrate into our platforms, we still need to accelerate the adoption of open source for business software. Open Rail provides us with a fantastic opportunity to move in that direction within the railway community, and we are proud to lead the OSRD project, which was the first to be hosted by Open Rail!



Jean-Michel Evangelou

Vice-Chair

Director Telecom,
Signalling & Digital Applications,
Director Financial Controlling &
Project Operations at **UIC**

“ The open source model has demonstrated to be an accelerator for progress and innovation in several industries, with a true collaborative approach increasing both the relevance and the adoption of software solutions. It is essential that the railway market, with its digital transformation and its strong contribution to the multimodal and sustainable transport of tomorrow, builds on this promising domain. OpenRail has been set with this objective.



Peter Franken

Director

Deputy CIO,
Head of Real Time & End User
Solutions at **Infrabel**

“ Digitalization is a key enabler for Infrabel. When we joined the association and started exploring the list of open source projects that are hosted by OpenRail, we quickly realized that there is almost complete alignment with our own digital roadmap. On top of that, the OpenRail team is made up of highly professional and experienced subject matter experts, eager to help newcomers at any stage of the process.

The Board of the OpenRail Association (2/2)



Brede Dammen

Director

Product owner,
national journey planner at **Entur**

“ What excites me about OpenRail is how open source and a joint data model and standards let us tackle big challenges together. Entur has shown how powerful this approach can be – building scalable, future-proof, and truly interoperable national infrastructure. With the upcoming TSI Telematics, we have a chance to support railway undertakings in the best way possible. In the end, we’re all trying to solve the same problems – so why not join forces and do it the right way? ”



**Fatima Zohra
El Ouerkhaoui**

Director

Chief Information and Digital Officer,
Board member at **ONCF**

“ As we all know, almost all railway sector companies face challenges in developing complex specialized in house systems because of the lack of standard systems. That’s why the existence of an association as Open Rail Association was necessary, to create the right environment for building standardized solutions and leveraging all the advantages of open-source technologies. At ONCF, we strongly believe this is a golden opportunity to establish strong, standardized, and interoperable railway operations. We are proud to be part of it, and convinced that together by contributing and operating building blocks as OSRD for example, we will be reshaping, protecting, and reinforcing the ecosystem of Railway IT Operation Systems with open source standards. ”



Erik Nygren

Director

President at
Flatland Association

“ I believe that open research creates powerful opportunities for innovation across critical infrastructure domains. At the Flatland Association, we’ve observed valuable cross-pollination of ideas between railway operations and other sectors like energy and aviation through our open research initiatives. Our collaboration with the OpenRail Association strengthens this ecosystem through activities like open source project hosting and helps translate research results into practical applications that improve transportation systems for everyone. ”

Executive Summary

The OpenRail Association was founded in 2024 to bring open source to the railway sector, fostering collaboration and innovation across railway operators, infrastructure managers, and developers. This first annual report highlights the milestones of our founding year, the progress of our open source projects, and the momentum we are building for the future.

A Year of Progress

Since its launch in January 2024, OpenRail has established itself as a neutral, trusted space for railway stakeholders to collaborate on open software solutions. In its first year, it grew its community, launched five projects through a structured incubation process, and actively connected the ecosystem through key industry events.

OpenRail Projects

In 2024, OpenRail onboarded five open source projects that are shaping the future of railway software:

- **OSRD:** Open Source Railway Designer for infrastructure simulation, timetabling, and short-term capacity planning.
- **RCM OSS:** Rail Condition Monitoring software based on the open RCM-DX data format.
- **DAC Migration DSS:** Decision Support System for managing the migration to Digital Automatic Coupling in freight rail.
- **Netzgrafik-Editor (NGE):** A graphical editor for designing and analyzing regular-interval timetables.
- **libLRS:** A library for linear reference systems, helping locate railway infrastructure elements along tracks.

Building the Organization

The OpenRail Association was formally incorporated as an international non-profit (AISBL) under Belgian law in 2024. With an expanding Board of Directors and the establishment of the Technical Committee, we have built a solid foundation to support governance, incubation, and collaboration.

Looking Ahead

In 2025, we aim to scale our projects, attract new initiatives, and strengthen collaboration between projects. Our focus will be on deepening collaboration between members and projects, ensuring that open source solutions gain broader adoption and long-term sustainability in the railway sector.

Join Us

We invite railway operators, infrastructure managers, and innovators to explore the benefits of open source. OpenRail provides a framework for sustainable collaboration, and we welcome new members, contributors, and projects into our ecosystem.

Learn more at:

↗ <https://openrailassociation.org>

Open Source for the Railway Sector

The OpenRail Association exists to bridge the world of railways and open source – two domains that can achieve far more together than apart. We believe that the power of open collaboration is key to tackling the challenges the railway sector faces in its digital transformation.

In many industries, open source has already proven to increase efficiency, accelerate innovation, and foster interoperability. We want to make these benefits accessible to the railway sector by helping projects and organizations apply open source principles in ways that fit the railway context. This means aligning culture, processes, and governance with the needs of railway professionals and their stakeholders. That's where OpenRail creates real value.

Shared, open foundations do not mean losing control – they mean gaining flexibility, reducing costs, and moving faster than any single organization could on its own.

To get there, it takes a bit of courage – to work in the open, to invite others in, and to share decision-making. That's what open governance is about: boosting collaboration to the next level by creating transparency, inclusiveness, and trust. OpenRail provides a well-defined and safe space for organizations to take that leap.

Our focus is on the practical work happening in the projects. Each project operates in an autonomous, hands-on way, while being connected through the shared framework and values of the OpenRail Association. This structure enables focus, reduces friction, and removes barriers that often slow down progress in traditional environments. It allows contributors to get things done – together, efficiently, and with lasting impact.

We are building an open house for the railway sector, where expertise is shared, technology evolves collectively, and companies can build upon reliable, transparent, and reusable solutions. As a neutral association, we provide the structure and space needed to connect stakeholders, incubate projects, and enable long-term collaboration.

In 2025, we are focused on supporting the growth of our existing projects, helping them mature in quality, governance, and adoption. At the same time, we are actively looking to welcome new projects and members that address real-world railway challenges. Our goal is to ensure that open source in railways is not a collection of isolated efforts, but a vibrant, connected ecosystem that benefits everyone involved.



Projects Incubated by OpenRail

In 2024 the OpenRail Association accepted the first five open source projects in its [↗ incubation process](#). Dive deeper on each of the projects on the following pages.

Open Source Railway Designer (OSRD)

OpenRail Sandbox

OSRD is an open source web application for railway infrastructure design, capacity analysis, timetabling and simulation and short term path request.

Rail Condition Monitoring (RCM OSS)

OpenRail Sandbox

RCM by SBB comprises a suite of products for rail condition monitoring. Based on the open source data format RCM-DX (RCM Data eXchange), RCM enables easy accessibility and visualization of railway diagnostic data.

Digital Automatic Coupling Migration Decision Support System (DAC Migration DSS)

OpenRail Sandbox

Within the next years around 500 K freight wagons all over Europe owned and operated by various corporations will be converted from screw couplers to digital automatic couplers (DAC). To facilitate the migration process, a decision support system (DSS) is planned under the project.

Netzgrafik-Editor (NGE)

OpenRail Sandbox

Netzgrafik-Editor is now a mature tool for creating and analyzing regular-interval timetables. It's versatile for logistics planning in various domains. Features include interactive editing, graphic timetables, trainrun editing, and logistics analysis.

Library for Linear Reference Systems (libLRS)

OpenRail Sandbox

The goal of the library is to have a flexible, high performance and easy to integrate linear referencing systems (LRS) library that can be used in any system to manipulate LRSs.

Open Source Railway Designer (OSRD)

Open Source Railway Designer (OSRD) is a web application designed to simulate and visualize train capacity on prospective infrastructures, supporting both operational studies and short-term capacity management. Operational studies assess the ability of infrastructures to meet demand and balance capacity with transportation needs, aiding in informed public infrastructure investment decisions. Short-term capacity management, driven by the growing demand for rail freight, requires quick responses to freight train path requests, necessitating an automated tool.

OSRD's core features include running time calculation, signaling and conflict simulation, infrastructure editing, and rolling stock editing. Its key strengths lie in simulation speed, with short-term dynamic capacity management (STDCM) results found in less than a minute and the ability to load large timetables with over 15,000 trains in a single scenario. The interface is designed to be simple and visually pleasing, enhancing user results. The technology stack for OSRD includes Kotlin and Java for the core backend, Rust (axum) for Editoast and Osrdyne components, Rust (Actix Web) for the gateway, RabbitMQ as the message broker, PostgreSQL and Valkey for databases, and React for the frontend.

OSRD is deployed at SNCF Réseau and used by four railway companies and approximately 25 railway study operators. The project collaborates closely with Netzgrafik-Editor, which has been integrated into the application. External contributions are handled, and frontend components are designed to be importable into other projects, with some already starting to use them.

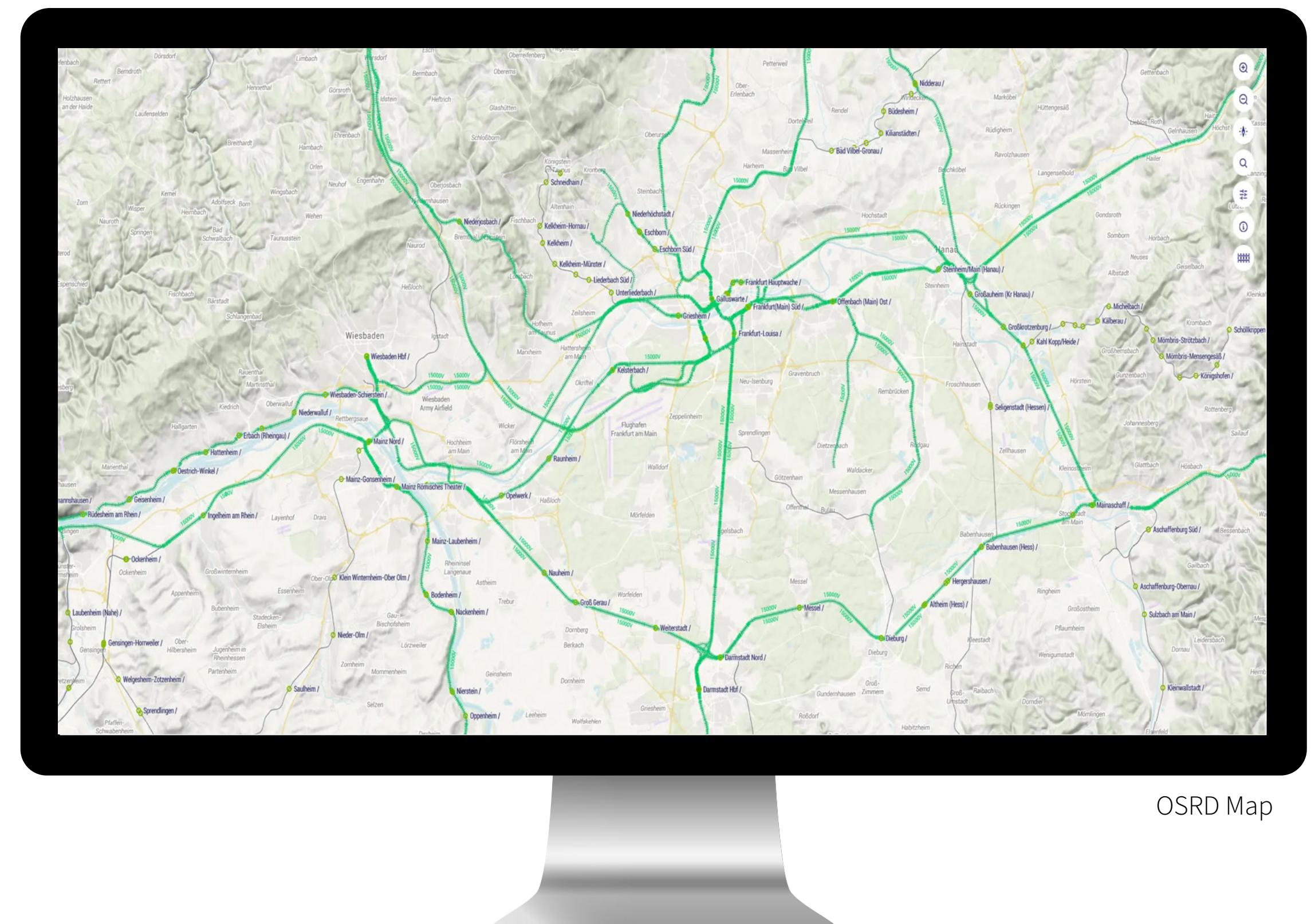
OSRD follows a frequent release cycle, averaging two releases per month. In 2024, these included several major milestones: a revamped user interface with brand-new components, streamlined timetable import and export, and significant stability improvements, enabling the first users to access the application. Looking ahead, OSRD aims to have 40 companies using it for STDCM by the end of March 2025, with more railway study operators at SNCF Réseau adopting the tool. There is also interest from several infrastructure

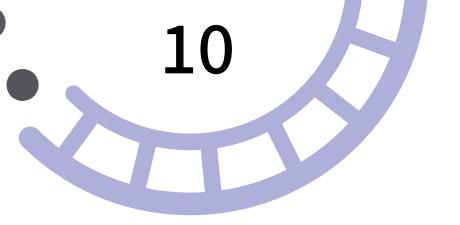
managers other than SNCF Réseau. Future enhancements include handling paced trains in timetables, adding signaling systems like European Train Control System (ETCS), and improving STDCM by managing overtakes. A key milestone for 2025 is having a public sandbox environment where anyone can try OSRD. This will provide visibility and contributions to the project.



Further information:

↗ [OSRD Github page](#) ↗ [OSRD website](#) ↗ [OSRD documentation](#)





Rail Condition Monitoring (RCM OSS)

RCM by SBB comprises a suite of products for Rail Condition Monitoring. Based on the data format RCM-DX (RCM Data eXchange), RCM enables easy accessibility and visualization of railway diagnostic data. The aim of RCM OSS (open source software) is to make rail condition data easy to access, store and visualize. Therefore, RCM OSS is beneficial to railway companies as well as suppliers of measurement system.

The RCM-DX file format is available open source. With RCM-DX we step away from proprietary data formats which require specialized software and know-how, towards a self-contained and open format. RCM-DX can be accessed through standard HDF5 tools. We recently added an open source MATLAB function to facilitate more specific reading of RCM-DX files. The accompanying visualization software, RCM-DX Viewer, is available as freeware.

RCM-DX is used by SBB to store, manage and exchange diagnostic data. SBB exchanges with and delivers diagnostic data to other Swiss railway companies and universities. Infrabel and SNCF réseau are in the process of establishing RCM-DX for storing diagnostic data in future. In the ERC project Europe's rail, RCM-DX is being evaluated as a candidate for a European data format to store and exchange railway diagnostic data. Its properties bear great potential for every railway company to be independent of proprietary software and therefore in full control of their data as well as to facilitate data exchange across companies and countries. The full potential of RCM OSS will be released with the publication of an open source Read/Write library and the open source RCM-DX Viewer in future.

RCM OSS has been accepted as a project at the OpenRail Association in 2024. RCM-DX, accompanied by a facilitating MATLAB function are available as open source. The RCM-DX Viewer including sample data are available as freeware. The publication of an RCM-DX R/W library is aimed for in 2027.

Further information:

- ↗ [RCM DX Viewer](#)
- ↗ [RCM OSS on GitHub](#)
- ↗ [RCM DX Examples](#)
- ↗ [Talk about RCM OSS at FOSDEM](#)



RCM DX Viewer

Digital Automatic Coupling Migration Decision Support System (DAC Migration DSS)

The Digital Automatic Coupling (DAC) will be the major move towards competitive and digital rail traffic. There is widespread consensus that the roll-out of the DAC should be supported. But how to migrate about 500,000 freight wagons as well as locomotives and maintenance vehicles from the current screw-coupler to the modern DAC? This is where the DAC Migration DSS comes into play. DSS stands for Decision Support System.

The goal is to develop a decision support system for planning stages of DAC Migration. Three stages have been identified:

- **Strategic Planning:** In this phase a pan-European rough-cut plan for migration is set up. At this point in time data available is not detailed and not reliable. There is a high degree of freedom and many properties of the migration process can still be formed. Therefore, many scenarios have to be computed. Only few people which are especially trained are working with the DSS, therefore the user interface can be low-level.
- **Detailed Planning:** In this phase rail undertakings and wagon keepers as well as other organizations have to conduct the planning. The plans on corporate level are detailed and accurate data is available. The corporate plans have to be put together on European level by an organization in charge e.g. the DAC Deployment Manager. Thus, the DSS has to provide a comfortable user-interface and support coordination and collaboration. In this phase corporations also apply for grants and funding for the DAC retrofit, therefore a direct interface from the DAC Migration DSS to the funding entities has to be set up.
- **Monitoring:** Once the migration has started, progress has to be monitored on corporate as well as on centralized level. Interfaces to legacy maintenance systems have to be set up and data has to be visualized for decision makers. If deviations from the original plan occur, alternative scenarios must be quickly set up.

In 2024 several milestones advanced the development of DAC Migration DSS. A white paper was published, outlining the system's functional and non-functional requirements. A mathematical model was formulated to define the [↗ linear model](#) for migration planning. The system was also part of the "Drei-Länderhack" hackathon, where a team worked on DAC migration challenges. A notable result was [↗ PopupSim](#), a prototype simulation tool for DAC Migration, which won third place. In parallel, the DACFIT project, funded by Europe's Rail under Call HORIZON-JU-ER-2023-01 (Project 101178150), was launched to support the initial implementation. The first minimum viable implementation of the DSS is expected in October 2025, with the first migration plan generated by October 2026.

Although the first step is funded by DACFIT, further implementation of the DAC Migration DSS requires additional funding. The signs for funding the overall DAC Migration are promising. It will be important to promote the DAC Migration DSS as a fundamental part of the roll-out.

Further information:

[↗ DAC Migration DSS on GitHub](#)

Netzgrafik-Editor (NGE)

Netzgrafik-Editor (NGE) is a mature tool used in long-term planning for creating and analyzing regular-interval timetables at a macroscopic level of detail. It's versatile for timetable planning in various modes of transport. Features include interactive editing, graphic timetables, train run editing, and analysis.

NGE is used daily by Swiss Federal Railways (SBB) planners for developing macroscopic long-term timetable concepts. It enables quick creation of new ideas as variants, their analysis, and decision-making on their feasibility. NGE offers the user functionality to enhance the efficiency and optimization of traffic in a network.

As a user-friendly and interactive graphical editor, the software allows for the creation and editing of regular-interval timetables through a visual interface. This interface makes it easy to visualize and adjust the network. Lines (train runs) in the Netzgrafik can be transferred into a graphical timetable (time-distance diagram) representation. Planners can manually draw and edit the train runs as if arranging pearls on a string. This feature enables them to define crucial aspects of the traffic network and tailor it to specific requirements and constraints. The software allows planners to extract important information, such as departure and destination stations, departure and arrival times, and train frequency.

Based on the network and the timetables, the software provides insights into connection and transfer times. This facilitates optimization and efficiency improvement in a transport system. Additionally, infrastructure requirements can be estimated, aiding in infrastructure planning and decision-making.

NGE is a web-based tool with a [frontend](#) developed using [SBB open source Angular components](#), providing an interactive graphical interface accessible through a web browser. Much of the logic is implemented in TypeScript on the frontend to ensure performance and interactivity with low latency and maximum responsiveness. The [backend](#), implemented with the Spring Framework and Spring Boot mainly persists the data.

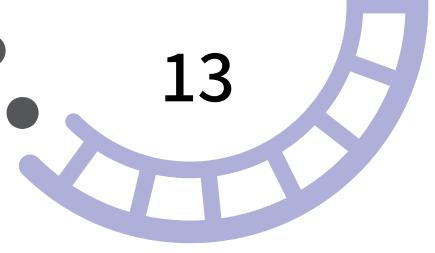
NGE, initially developed internally at SBB, became open source in 2024. Similarly, the SNCF's [Open Source Railway Designer \(OSRD\)](#) focuses on microscopic medium and short-term timetabling, capacity analysis, and simulation. In 2024, a productive collaboration began between the two development teams. This collaboration led to contributions from the OSRD team to the NGE project. In return, the OSRD team integrated NGE components into their software. Such a fruitful collaboration would have been unlikely without the OpenRail Association. In an independent project, an open source converter was developed to export data from NGE into timetables for the entire service day in different formats, such as GTFS static or [MATSim](#) transit schedules.

To build a broad community and develop its full potential, the Netzgrafik-Editor needs additional users within transport companies, public administrations, and educational institutions. For timetable planners or students in transport planning, opening the source code is insufficient. To bridge the gap between software developers and end-users, the application was made [freely accessible](#) online in 2024 to ensure that it reaches a broader audience. Open-source success relies not just on code availability but also on user engagement and accessibility.

In 2025, the focus is strengthening the community to attract more users and active developers on developing functionalities. The [roadmap](#) outlines the strategic goals to improve the Netzgrafik-Editor's business value.

Further information:

- [Netzgrafik-Editor Frontend on GitHub](#)
- [Netzgrafik-Editor Backend on GitHub](#)
- [Netzgrafik-Editor Converter on GitHub](#)
- [Online Demo Instance](#) operated in the cloud of the [Flatland Association](#)
- [Open SBB Design System on GitHub](#)
- [Netzgrafik-Editor at FOSDEM 2025](#)
- [Open Source Railway Designer \(OSRD\)](#)
- [MATSim for large-scale agent-based transport simulations](#)



Library for Linear Reference Systems (libLRS)

libLRS is a library to manipulate linear coordinates and convert them from and to geographical coordinates. It helps to localize objects along curves (e.g. signals on a train track).

The library started as a need for a clean sheet design and a library that focuses on those type of coordinates. There are multiple ad-hoc implementation at SNCF. However there are many little edge cases that those implementation handle differently, which made the integration painful.

The core is written in rust for soundness and performance reasons. Bindings in python and javascript allow to use the library in data processing pipelines and web applications.

So far the library is used on the [↗ OSRD project](#) in the data preparation pipeline (converting infrastructure elements such as switches, signals, reference points... from milestone+offset to geographical coordinates that will be displayed on a map), but also to hold the topology of the rail network for a display on a webpage.

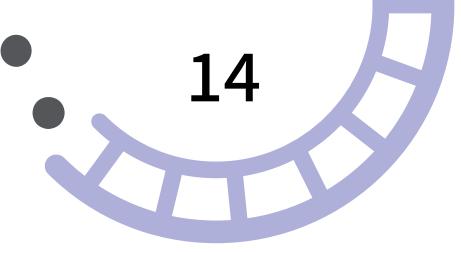
We had some initial discussions with other teams from the railway world (display the exact position of a train car on the platform, help emergency services to reach by car the spot where an intervention is required), but also outside of rail: libLRS could be used to localize amenities (camping sites, shops...) along cycle roads where a distance in kilometers is very relatable to cyclists. However, so far we didn't hear of an actual adoption of libLRS.

We expect that libLRS will continue to be used in OSRD for more tasks. We hope also to hear about an adoption by other business units of SNCF and groups from the OpenRail community. We would be very happy to learn about the integration of libLRS in non-railway related projects.

Further information:

- ↗ [libLRS on GitHub](#)
- ↗ [Documentation for Rust](#)
- ↗ [Documentation for Python](#)
- ↗ [Example how to build the LRS with Swiss rail open data](#)





Message of the Chairs of the Technical Committee

In 2024, we built the Technical Committee of the OpenRail Association. It represents the projects, provides open source governance, and serves as the bridge between the projects and the OpenRail Association as an organization. Our initial focus was to bring the first projects and people together and establish an effective working mode. The Charter of the Technical Committee has been validated by the board of directors at the inception of the OpenRail Association.

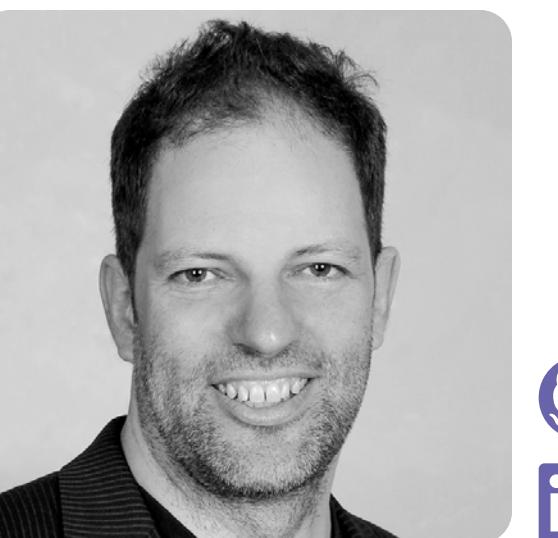
We are very happy with what we achieved in our first year. Because we didn't have projects at the beginning yet, the Technical Committee started with three members appointed by the board, Cornelius Schumacher, Loïc Hamelin and Peter Keller. With accepting the first projects, their representatives joined us and at the end of 2024 we are a healthy team of eight people.

At the Technical Committee, we strive to lead by example. We focus on getting things done, and our work is fully public on GitHub, staying true to the open source spirit. To maintain momentum and ensure quick decision-making, we hold weekly meetings. All this has proven to be a highly effective way of collaboration.

One of our biggest achievements this year was defining and refining the incubation process. Using the first incoming projects as practical examples, we solidified the criteria for incubation stages, streamlined the application process, and established best practices for onboarding projects. We are proud of the result: we now have a clear, structured approach to becoming an OpenRail project, and our first five projects already represent a diverse set of initiatives that embody this vision. We established a Code of Conduct to ensure that all projects within the Technical Committee uphold the values and spirit of the OpenRail Association. Additionally, we provide project candidates with all the necessary documentation templates to help them meet OpenRail's requirements.

We are especially proud to see collaboration between OpenRail projects delivering real impact. A great example is OSRD and Netzgrafik-Editor, which joined forces to integrate timetable functionality into OSRD. This collaboration accelerated OSRD's progress significantly, saving them an estimated two years in time-to-market. This is exactly the kind of synergy we aim to foster, and we look forward to seeing even more projects benefit from working together in the future.

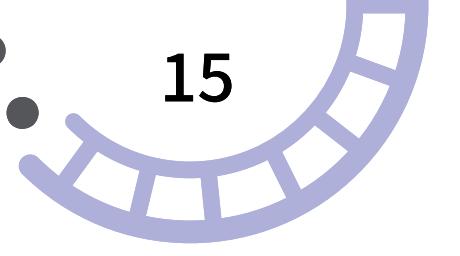
Chairs of the OpenRail Technical Committee 2024



Cornelius Schumacher
Open Source Steward
at **DB Systel GmbH**



Loïc Hamelin
OSRD Program Director
at **SNCF Réseau**



Our Members

We are grateful to our members for their commitment to open collaboration in the railway sector. Their engagement and support drive the success of the OpenRail Association, helping to build a strong, sustainable, and innovative open source ecosystem. The following organizations are part of this movement.

Platinum



Gold

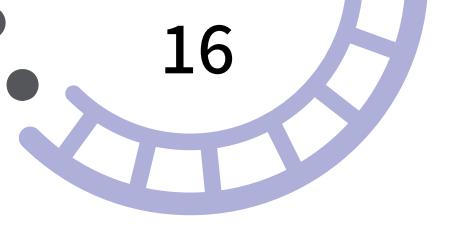


Silver



Associate





How We Built the Organization

The OpenRail Association was officially incorporated as an international non-profit organization (AISBL) under Belgian law by royal decree on January 7, 2024.

Operations formally began with the first meeting of the Board of Directors in Paris on January 29. The initial board consisted of the directors appointed by the founding members: SBB, DB, SNCF, and UIC. Over the course of the year, we established a rhythm of quarterly board meetings, held as hybrid or virtual sessions. A milestone was reached in September when we managed to bring everyone together in person for a board meeting at InnoTrans, the major railway trade show in Berlin. With new members joining throughout the year, participation expanded, and by the end of 2024, all membership categories were represented on the board.

In June, we held our first General Assembly, bringing together all members of the OpenRail Association. At this early stage, all members were also represented on the board, making this first assembly largely a formal step. However, as membership grows, the General Assembly will take on a more significant role as the ultimate decision-making body of the association.

To handle operational and administrative work, we established the OpenRail Team as a working body by board decision at the January meeting. This small group, currently composed of representatives from the founding members, manages the practical work necessary to run the association. Their responsibilities include preparing board and general assembly meetings, handling member applications, and discussing strategic direction and activities.

All of these structures serve a single purpose: to enable successful open source projects in the railway sector. A crucial role in this is played by the Technical Committee, which acts as the bridge between the association and the projects.

In its first year, OpenRail developed a productive and transparent working mode. Weekly meetings of the OpenRail Team and the Technical Committee serve as the heartbeat of the organization. We are committed to openness – our projects are publicly available on GitHub, and the Technical Committee publishes all meeting notes and works collaboratively on incubation processes, project support, and other deliverables.

Looking ahead to 2025, we will continue to scale and iteratively improve how we work. Our approach remains hands-on, driven by the active engagement of the individuals present in working groups and projects. True to the open source spirit, “Those who do the work decide.”



Board of Directors

Connecting Through Events and Community

Events play a crucial role in strengthening our community internally while also generating interest in railways and open source among a broader audience, further expanding our reach. In 2024, we extensively used existing events to promote the intersection of railways and open source to the world. Our FOSDEM Devroom demonstrated that open source software developers are enthusiastic about railways. A future challenge will be engaging the railway industry in the open source movement. Our visit to InnoTrans in 2024 highlighted that InnoTrans 2026 presents an excellent opportunity to draw attention to the OpenRail Association – a chance we cannot afford to miss.

FOSDEM is Europe's largest gathering of Free and Open Source Software developers and enthusiasts, attracting over 8,000 participants each year. The event took place on the weekend of February 3-4, 2024, at the ULB University in Brussels. For the second consecutive year, members of the OpenRail Association coordinated the [**↗ Railways and Open Transport devroom at FOSDEM**](#). From a large number of submissions, we selected ten presentations by experts from diverse backgrounds for this four-hour track. It was a perfect opportunity for the wider OpenRail community to connect, learn, and engage, with over 100 participants, many of whom were railway fans and active members of related communities. For 2025, the FOSDEM organizers have confirmed that we will hold the Railways and Open Transport devroom for a third consecutive year. The preparations, including the challenging selection process from numerous proposals, were completed in December 2024.

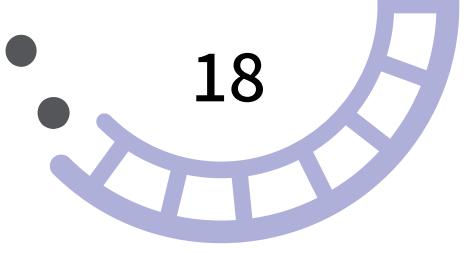
In May 2024, OpenRail was featured in a presentation by Max Mehl at [**↗ Open Source @ Siemens**](#), and it was also mentioned independently in two other talks.

In June, Cornelius Schumacher represented the OpenRail Association at the [**↗ Open Transport Meetup**](#), a community focused on open data and mobility, particularly in public transport. He discussed the organization's operations, the initial projects it has onboarded, and the OpenRail Association's future aspirations.

Between September 30 and October 2, 2024, approximately 150 creative minds from DB, ÖBB, and SBB, along with guests from SNCF, collaborated on improving cross-border rail travel and operation, utilizing open source solutions. The OpenRail projects DAC Migration DSS, OSRD, and Netzwerkgrafik-Editor introduced their own challenges, which mixed teams worked to address. Some teams, like the winning team [**↗ BUS'TED!**](#), used the public repositories provided by the OpenRail Association to develop their solution directly as open source software. This traditional event, known as "Dreiländerhack" in 2024, will return in 2025 under the new name "Hack 4 Rail", with even greater collaborative support from the OpenRail Association.

Our associated member, the Flatland Association, provided Cornelius Schumacher with the opportunity to speak at their November [**↗ Flatland Symposium**](#) on "Open Source in Railways" and to participate in the workshop. This event clearly demonstrated how open source software and open innovation support each other.

Finally, on December 13, 2024, Jochen Decker, our Chair, presented the topic of open source and the activities of the OpenRail Association at the General Assembly of the UIC (International union of railways). The questions asked demonstrated the great interest of the participants and allowed to establish further contacts.



Join us

The OpenRail Association is more than just an organization – it's a community of people and companies working together to bring open source to the railway sector.

Railways across Europe face shared challenges that require shared solutions. Open source enables us to collaborate, innovate, and break down silos, ensuring that essential software is interoperable, efficient, and sustainable.

Bring Your Project to OpenRail

OpenRail actively welcomes new projects into its incubation process. If you have a project that could benefit from structured governance, a wider community, and long-term sustainability, our Technical Committee provides guidance, best practices, and a neutral home for open source railway software.

Ways to Get Involved



Join as a Contributor – Explore our projects and start contributing:
[↗ github.com/OpenRailAssociation](https://github.com/OpenRailAssociation)



Propose a New Project – Learn about our incubation process and bring your open source initiative to OpenRail:
[↗ github.com/OpenRailAssociation/technical-committee](https://github.com/OpenRailAssociation/technical-committee)



Become a Member – Organizations can support and shape the ecosystem by joining as members:
[↗ openrailassociation.org/about](https://openrailassociation.org/about)

Membership Levels & Engagement

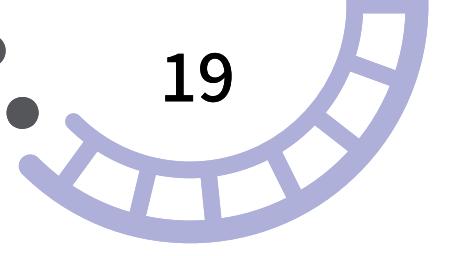
OpenRail offers four membership categories, providing different levels of engagement and governance representation:

Membership Category	Role & Influence	Annual Fee (2024)	Representation on Board
Platinum	Strategic leadership in OpenRail's direction	25,000 €	7 seats
Gold	Active participation in governance & decision-making	15,000 €	3 seats
Silver	Engaged collaboration in OpenRail's open source ecosystem	10,000 €	1 seat
Associate	NGOs, academic institutions supporting OpenRail's mission	Free	1 seat

Platinum, Gold, and Silver members directly shape OpenRail's governance, with seats on the Board of Directors, where key decisions about the association's strategy and operations are made.

Be Part of the Movement

Our work is transparent, community-driven, and open to all. If you're interested in being part of this movement, explore our projects, participate in discussions, and see how you or your organization can contribute.



Endnotes



Website

Find more information on the OpenRail Association at
<https://openrailassociation.org>.



Contact

To contact the OpenRail Association send us an email at
contact@openrailassociation.org.



License

The content of the [Annual Report 2024](#) of the
[OpenRail Association](#) is licensed under [CC-BY-SA 4.0](#).



Trademarks

Names and logos of the OpenRail Association, its members and its projects are trademarks of the respective organizations. They may not be used without permission from the trademark owners.



Photos

Jakub Nawrot – Unsplash (Page 1)
Ethan Cull – Unsplash (Page 7)
Antoine Schibler (Page 13)
cmophoto.net – Unsplash (Page 15)
Alexander Popov – Unsplash (Page 19)

