An activist in European rail freight

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A train that Hupac runs for the ocean shipping company Samskip in Basel Badischer station in Switzerland on 8 May 2023. Photo © George Raymond.

In recent years, the Swiss transport operator Hupac has emerged as an activist in European rail freight. The initiatives of the company's management comprise new lines and terminals; industry-wide data interoperability to foster digitalisation: a consolidated trimodal terminal at the head of the navigable Rhine in Basel; denunciation of the deteriorating capacity, reliability and flexibility of the European and particularly German rail network; easier train driving in a foreign country; and political action to develop a north-south line on the Rhine's French left bank to relieve – and at times replace – the chronically congested rail route on the Rhine's German right bank.

In all these areas, activism requires a management that is energetic but also patient.

Road-rail combined transport

Hupac's headquarters is in Chiasso, at the southern tip of Italian-speaking Switzerland. Founded in 1967, the company transports containers and truck trailers[1] on trains. These are collectively known as *loading units*. The trains shuttle between purpose-built terminals. Typically, once a sending customer has loaded its truck trailer or container, a truck brings the loading unit by road to an origin terminal. The origin terminal then places the loading unit on a train, which then typically travels hundreds of kilometres to a destination terminal. From

[1] Hupac also carries swap bodies, which are non-stackable truck trailers without wheels.

there, another truck brings the loading unit to its receiving customer, who unloads the goods. Such transport is called *intermodal* or *road-rail combined transport*. Some such trains connect with ships at ports. Hupac's trains run mainly on north-south routes through western Europe, and especially on the Swiss routes through the Alps. But in recent years Hupac has begun to run more east-west trains. One reason for this is the economic rise of Poland and other eastern European countries; another is the rail shipment of containers between China and Europe.[2]

Quiet wagons and new terminals

At the same time, Hupac has assumed a prominently activist role in European rail freight. The company had striven to build a wagon fleet that is as quiet as possible. It has steadily expanded of its own terminal network, including the Brwinów terminal near Warsaw that Hupac opened in September 2022 and the new Smistamento terminal next to Milan that will open in 2026.

But Hupac's activism extends beyond its daily business to embrace initiatives that benefit the whole combined-transport and rail-freight sector – and reflect the perception of Hupac's management of their own company's long-term interests.

Hupac's political activism in favour of rail infrastructure is visible in its role in a consortium aiming to build a consolidated Gateway Basel Nord terminal. GBN will handle loading units moving on both Rhine ships and the north-south rail corridors and facilitate the movement of these loading units by both road and rail within Switzerland. The consortium also includes Contargo, which runs ships on the Rhine and trains between Basel and the major northern ports, and SBB Cargo, the Swiss railway's freight division.

Problems in the north, opportunity in the south

At Hupac's May 4th presentation of its annual results in Zurich, management said that the worst rail infrastructure problems are now north and not south of Switzerland. An argument could therefore be made that Hupac should move its headquarters from Chiasso to Basel. But indeed because of the problems to the north, Hupac's management is now seeking to help attract ocean shipping companies' containers to southern European ports, as these allow goods from the Far East to reach the European market roughly a week earlier than do the traditionally dominant northern European ports.

A multi-port hinterland network for ocean shipping companies

Hupac is also intervening as an activist among its customers. Traditionally, when selecting which port to serve, an ocean shipping company has considered the quality of each port's hinterland rail network. At its May 4th presentation, Hupac's management said it was seeking to create a multi-port hinterland network to which ocean shipping companies can connect at any port the network serves. To strengthen this network, Hupac said it would better integrate continental and maritime services, which traditionally have been separate.

Digitalisation

A major focus of Hupac is digitalisation. Hupac's initiatives include major support for the efforts of combined-transport operators to standardise data-exchange processes as the basis for better digitalisation and especially better visibility for customers who use combined transport as part of their supply chain.

[2] This traffic, which mostly runs via Russia and Belarus, showed strong and steady growth in the decade preceding the Russian invasion of Ukraine, but has since declined by half.

At the Transport Logistic trade show in Munich on May 10th, the combined-transport association UIRR held a conference on EDICT, an ongoing initiative to foster digitalisation in combined transport. Along with their counterparts at the other combined transport companies, particularly Kombiverkehr and Mercitalia, Hupac's IT managers have assumed leading roles in this effort.

Multi-sector thinking

A central challenge for digitalisation in freight transport is the tendency of each category of actor to define their own standards for data exchange. Like other combined transport operators, Hupac works with the train operating companies that pull Hupac trains and the infrastructure managers[3] over whose tracks these trains run. Hupac also works with ports and with maritime and inland terminals that in many cases it helps operate.

About a decade ago, faced with the fragmentation of rail data exchange standards by country, the EU mandated by law that railways use the TAF TSI standards for data exchange. The EU's railway agency, the ERA, has since been pushing railway operators toward compliance, but also adapting the standards to the needs of the railways and their customers.

In parallel, combined transport has been implementing its own standards for data exchange. So have ports, terminals, logistic companies, trucking companies and the final customers who ultimately pay for freight services. EDIGES is the standard for data exchange in combined transport. The challenge is to progressively adapt the data exchange standards and processes of each category of freight actor so to make them interoperable. Within each category of freight actor, moreover, individual companies must continue to adapt their own systems and processes accordingly.

Transparency

Another challenge in the freight sector has been to bring actors to understand that data transparency is in everyone's interest because it brings predictability, shorter waits and better capacity use. Such waits include for example those of truck drivers that come to pick up a loading unit at a terminal to bring it to its final destination and those of employees at that final destination who need to process the goods the loading unit contains.

Agreed definitions and rigour

Data exchange interoperability requires standardisation of data formats, message formats and data exchange processes, including definitions of who is to send what kind of message when. In combined transport, transparency requires standard definitions of processing milestones in terminals and of codes specifying the reason for a delay or cancellation. A major challenge is bringing all actors to stop engaging in the "blame game" and to enter such reason codes on a timely, accurate and standardised way. This is especially important in the current context of worsening train tardiness and train cancellation rates.

Real-time visibility

Another focus of Hupac and the rest of combined transport is delivering to their partners and the final customer what they need most for the visibility of combined transport with their supply chain. For the customer, real-time visibility begins with knowing what train my loading unit is on and where that train is now. A persistent challenge in this context is keeping track of train numbers, particularly when trains cross national borders or are split or joined at

[3] In Europe, a company that maintains and operates rail infrastructure within a country (or part of it) is an *infrastructure manager*.

terminals. Another challenge is determining which stakeholders should have access to what data.

Forward-looking visibility

But even more important to the customer is forward-looking visibility. Important elements are the estimated times at which a loading unit is expected to arrive at the destination terminal, to be ready for pickup at that terminal (which requires knowing how fast the terminal can process the loading unit), and to arrive at the customer's receiving dock. The customer must be given the means to overcome the complexity and opacity of supply chains involving combined transport.

Quality management

Another dimension mentioned in Munich is the implementation of a quality management system for the whole data-exchange process in combined transport that encompasses all actors.

Denouncing the deteriorating performance of Europe's rail infrastructure

Political activism is also evident in Hupac's efforts to improve the performance of Europe's publicly funded rail infrastructure – or most recently, to stop this performance's steady decline. Hupac has joined with other actors in combined transport and rail freight in denouncing the increasing tardiness and cancellation rates of trains on the north-south Alpine corridor from which Hupac earns its bread and butter. These alliances have called on the EU and particularly Germany to spend money and take actions to reverse the downward trend of rail infrastructure performance.

A particular focus of Hupac's political activism for rail infrastructure is gaps in capacity, particularly on their native north-south route through Germany, whose rail system suffers from a maintenance backlog, chronic disruptions due to corrective infrastructure work and a paucity of usable detour routes. The rallying cry of these deficiencies is Rastatt, the infamous sudden seven-week interruption in 2017 of all traffic on the main north-south rail route through Germany following a tunnel collapse at a work site near the town of Rastaat. Ironically, the tunnel that collapsed under the two-track main line was for the one of the additional two tracks between Karlsruhe and Basel whose construction Germany promised in a 1996 treaty and that were supposed to open at the same time as the new north-south rail tunnels in Switzerland. The last of these new Swiss tunnels opened in 2021, but in Germany, laws protecting affected residents have forced redesigns of the new tracks that have often led to new tunnels for which new public money has had to be found. Completion of the third and fourth tracks between Karlesruhe and Basel is now foreseen in 2040 or 2045. Karlsruhe-Basel will thus remain a bottleneck for another two decades.

Inadequate detour routes

The Rastaat incident showed that the available detour routes for European trains were inadequate or useless because a lack of compatible locomotives[4] and qualified drivers. The detour routes often also suffered from hilliness or from tunnels, bridges and sometimes even station platforms that restrict the admissible size of trains. These restrictions often keep a line

[4] Like their drivers, locomotives must also deal with each country's signalling system, which typically slows or stops a train automatically if the driver fails to obey signals. Over past decades, different zones of Europe's rail network electrified their lines with different types of AC and DC power. Electric locomotives need overhead wires at a voltage they are built to handle. In recent years, builders have been increasingly offering locomotives that run on several countries' signalling and electric power systems. But like multilingual staff, multi-system locomotives multiply costs.

from accepting trains carrying truck trailers having the standard European corner height of 4 metres. This condemns customers using such trailers either to find an alternate, longer rail route or to use smaller trailers – or to simply stay on the road. Another problem is restrictions in train length below the 740 metres that is now the standard (objective) in Europe. Length may be restricted by the length of passing tracks along routes or by hilliness that forces operators to make the difficult choice between a shorter train or the expense of a second locomotive.

The difficulty of driving a train outside your country

Another area in which Hupac is active is the promotion of measures allowing train drivers to operate in countries other than their own. This is one inherent advantage of trucks, whose drivers use a largely standardised infrastructure that doesn't require knowledge of the local language. The relative simplicity of truck driving contrasts starkly with the complexity of train driving. This contrast is even greater when the train driver must drive in a foreign country. In addition to understanding the local country's signalling system[5] and operating rules, a train driver must be able to converse with the local control centre. Seeking to place multilingual employees in driver's cabs and control centres promises relief, but makes qualified personnel even harder to find, recruit and train. Multilingual apps may be a solution. But given all the railway's potential dangers, national authorities must be convinced such apps are a safe substitute for direct human conversation. Here again, political pressure may bring about less restrictive principals that still keep operations safe.

Infrastructure managers react

One result of the political activism of Hupac and other actors in rail freight may be new, more supportive policies on the part of the rail infrastructure managers. At the Transport Logistic trade show in Munich on May 11th, Yvonne Bounin, head of sales and communication at DB Netze, said that European infrastructure managers are discussing how they can support train operators that cannot use their trains' normal, electrified route because of an incident or a planned work project on the infrastructure and instead must use a non-electrified detour route. In such a case, the involved infrastructure manager(s) may offer free diesel traction over the detour. This could be a solution for the movement of trains via Lauterbourg during planned line closures for track work in 2024 between Karlsruhe and Basel, she said. To this subject we now turn.

Improvements on the left bank to compensate for the right-bank bottleneck

Along with another combined transport operator, SBB Cargo International, and rail freight sector associations in Germany and Switzerland, Hupac has also focussed its political activism on a specific line on the Rhine's left bank that promises to ease the Karlsruhe-Basel bottleneck on the river's right bank. These actors presented their efforts in Bern on 19 August 2022.

This activism has been so successful that in 2022, the Swiss parliament voted to instruct the Swiss federal government to negotiate with France for improvements to its rail freight routes north of Basel on the Rhine's left bank.

[5] Simply put, a railway signalling system provides instructions to drivers that keep trains from colliding or going too fast. Historically and still very much today, each European country has a fully different signalling system. Europe's efforts to develop and progressively implement the standard ERTMS signalling has been ongoing for decades.

An alternative to a weak traditional route

The traditional rail freight route on the French left bank runs via Metz and Strasbourg to Basel. This route has carried freight trains for many decades but is a bit hilly and above all suffers from a restrictive loading gauge in tunnels through the Vosges mountains. Hupac and its partners have therefore focused on an alternative existing rail route running 14 km northwest from Karlsruhe to Wörth in Germany, and from there 72 km southwest via Lauterbourg on the Franco-German border to Strasbourg.

The Strasbourg-Lauterbourg-Wörth line (SLW) is attractive for European combined-transport and other rail-freight operators because unlike the existing freight line through the Vosges, it is flat and lacks loading-gauge restrictions. Indeed, the SLW occasionally hosts detours today.

Making the alternative sustainable

In the longer term, however, efficient, safe and sustainable use of the SLW as a left-bank alternative to the ongoing two-track bottleneck on the German right bank requires extensive infrastructure work on the SLW. This work was documented in a September 2022 analysis by consultant Peider Trippi[6]. It includes electrifying and re-signalling the SLW, removing the line's 61 grade crossings and replacing the busiest ones with underpasses or overpasses. The single track on the Lauterbourg-Wörth section in Germany needs doubling. Avoiding a time-consuming reversal of each freight train Wörth requires a new connecting track that would let freight trains run non-stop between Lauterbourg and Karlsruhe.

In 2022, Swiss lawmakers cited estimates of 178 million Swiss francs to raise the SLW's capacity to 30 trains a day or a total investment of 516 million Swiss francs[7] for 60 trains.

Support must be financial but also political

But efficient use of the SLW for rail freight would above all require a sustained political effort to convince the people living along the line to accept the noise of freight trains, including at night[8], the loss of some crossings, and the erection of noise barriers. This political support must come from France because the SLW runs along the country's eastern edge. Here lies the problem. Electrifying and refurbishing of the SLW is of some interest to France's Grand Est region (and to the Karlsruhe-Wörth area in Germany) to the extent it would let the SLW offer better passenger services, but the SLW is of no interest to France as a freight route. This probably means a long negotiation with France to determine what (lion's) share of the cost of the SLW upgrade is to be borne by the EU and Switzerland.

Patience

At their May 4th annual presentation, Hupac's management acknowledged these obstacles but continued to express long-term commitment to the SLW project. Changing the course of events in European rail freight requires two qualities Hupac displays in abundance. Activism, yes, but also patience.

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[6] Peider Trippi, Portrait der geforderten Streckenertüchtigung Wörth – Lauterbourg – Strasbourg. Eine kritische Betrachtung zur möglichen Umsetzung, September 2022.
[7] Or 530 million euros as of 24 May 2023.
[8] Current rail traffic on the line consists of a short regional passenger train running every hour – at best – in each direction during the day.

Strasbourg–Lauterbourg–Wörth: a gallery from south to north

The author inspected and photographed the Strasbourg–Lauterbourg–Wörth line on 29-31 August 2022. The following pages present his discoveries.

Strasbourg

Two kilometres north of Strasbourg station, the non-electrified line that runs southwest from Lauterbourg joins the wired main line that runs southeast from Metz. Paris TGVs also pass here. Photo © George Raymond, 29 August 2022.

La Wantzenau

Containers already roll through the town of La Wantzenau – on the road. The concrete fence obscures the southbound main track. Photo © George Raymond, 30 August 2022.

La Wantzenau

It's 7:56 a.m. and these rush-hour drivers waiting in La Wantzenau may welcome a future overpass or underpass to safely accommodate more passenger and freight trains. The track is well-maintained. Photo © George Raymond, 30 August 2022.

Kilstett

Train time at Kilstett. Signal maintainers are at work on the crossing gates. Photo © George Raymond, 30 August 2022.

Kilstett

Car and truck drivers would be pleased to see a tunnel or bridge replace this level crossing in Kilstett. Other users less so. Photo © George Raymond, 30 August 2022.

Kilstett

These apartment dwellers presumably don't mind the short passenger trains that now stop at their doorstep every hour – at best – during the day, but may object to freight trains running throughout the night or to noise barriers that block their view. Photo © George Raymond, 30 August 2022.

Roeschwoog

As signs tell them to, passengers cross the tracks in Roeschwoog to catch the southbound train to Strasbourg. Photo © George Raymond, 30 August 2022.

Roeschwoog

To reach the southbound platform, train passengers in Roeschwoog cross the tracks here. The three stop signals (on either side of the path and on a post on the opposite platform) activate to warn of approaching trains. Risk analysis has presumably shown that this solution provides adequate safety given the current sparse train traffic. Upgrading this line into a freight corridor would require building an access bridge or tunnel here. So might more frequent passenger service. Photo © George Raymond, 30 August 2022.

Roeschwoog

Train time in Roeschwoog. Trains run on the left in most of France, but on the right in Alsace due to the territory's past as part of Germany. Photo © George Raymond, 30 August 2022.

Lauterbourg

The hourly local from Wörth, Germany, arrives in Lauterbourg, France. The countries' border is just around the bend behind the train. Employees of the French rail infrastructure operator SNCF Réseau work levers in the signal box that control the signals and points. During the author's visit, one of the signallers leaned out a window and warned passengers walking toward the station that the next departure to Wörth was cancelled. Photo © George Raymond, 29 August 2022.

Lauterbourg

Today, passengers on the Strasbourg-Wörth line must change between German and French trains here in Lauterbourg. A project to electrify the line and modernise its signalling for freight trains would presumably also entail the introduction of passenger trains able to run in both countries and thus offer a one-seat ride from Strasbourg to Wörth and, one would hope, Karlsruhe. Photo © George Raymond, 29 August 2022.

Lauterbourg

The two-coach German train has just arrived in Lauterbourg and will soon return to Wörth. Photo © George Raymond, 30 August 2022.

Lauterbourg

Lest we forget. On the Lauterbourg station building. Photo © George Raymond, 30 August 2022.

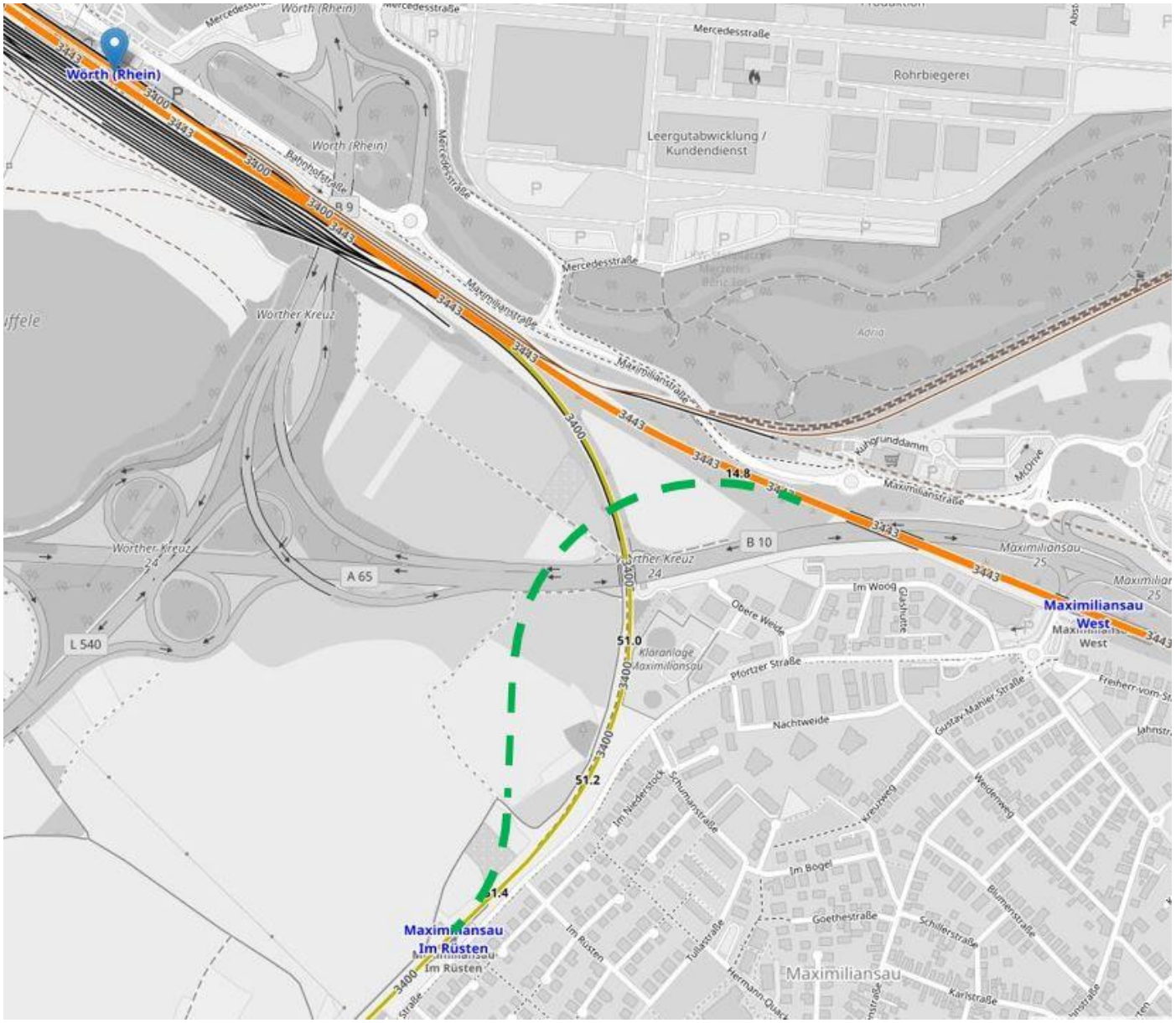
Hagenbach

Closely spaced level crossings just over the border from Lauterbourg in Hagenbach, Germany. Whereas the timetable for France's double-track Strasbourg-Lauterbourg line shows service gaps of three and four hours between the morning and evening peaks, trains run hourly throughout the day on Germany's single-track Lauterbourg-Wörth line. Unless of course the German trains are cancelled on short notice, as a number were on the days the author visited. This made him familiar with the local road infrastructure as he walked the 4.5 km from here to Wörth. Photo © George Raymond, 31 August 2022.

Maximilian Im Rüsten

The stop at Maximilian Im Rüsten, just south of Wörth. Like the signals in Lauterbourg, this one evokes another age. Another photographer may have twisted the station sign. It wasn't the author. Photo © George Raymond, 31 August 2022.

Wörth



The current layout in Wörth forces Karlsruhe-Strasbourg trains to reverse direction in Wörth station. Building a connector as the author has sketched above would eliminate this time-consuming manoeuvre. To avoid the built-up zone between Maximiliansau's West and Im Rüsten stations, the new line could ride a viaduct over both the existing rail line from Lauterbourg and the A 65 motorway. Map source: OpenRailwayMap.

Wörth

The view from the north end of the bridge over the A 65 / B 10 motorway. At left is the line from Lauterbourg and, beyond the signal, the last mast of the electrification that extends from Wörth station. At right, a Karlsruhe tram-train passes on the wired main line between Karlsruhe and Wörth. The connector whose route the author proposes could cross the field and the Lauterbourg line here on a viaduct. Photo © George Raymond, 31 August 2022.