



Putting an end to regionalism

Rail freight transport can best capitalise on its strengths when transporting large quantities across long distances. Regrettably, however, rail transport in Europe has had repeated setbacks. While lorries travel from North Cape in Norway to Sicily in Italy, unhindered, rail freight companies regularly encounter national barriers that make it difficult for them to continue their journey. Fortunately, we know a better way.

By Dirk Flege, Managing Director of Allianz pro Schiene

Germany is Europe's main transit country. In absolute terms, no other EU country sees more tonnes moved on railways than Germany – roughly 60 percent of which travels across borders. However, when competing with other modes of freight transport, the railways' market share in the EU has remained far below its potential for decades. In Germany and in the EU's other major national economies, the share has seen a slight decline over each of the last 10 years, falling below the magical 25-per-

cent threshold in each year (see figure on the next page). It is termed "magical" because the German Government has been aiming for the 25-percent market share goal since the beginning of the decade – to no avail thus far. The current German Government has once again taken up the cause of the 25-percent goal in its coalition agreement, although it is expected that the 25-percent mark will not be achieved until the year 2030.

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Dear readers,

I can only agree with Dirk Flege: European rail transport needs to urgently overcome its national technical limits. Otherwise, there is no way to offset the efficiency drawbacks compared to road transport.

As you may already know, however, I always look on the bright side. The unbeatable environmental benefits of rail over road transport alone make it all the more worthwhile continuing the fight to bring down the barriers as soon as possible for the good of all. InRoll's calculations once again underscore the magnitude of the benefits of rail (starting on page 14).

We already know what the key factor is: Innovation thanks to digitalisation. The Europe-wide ERTMS and DAK initiatives have managed to untie the Gordian knot – it's about time that implementation gained some momentum. I have nothing but support for the positive outlook (cf. page 16) of Gilles Peterhans, UIP.

By becoming Europe's fourth-largest wagon lessor, we have proven that growth limits can be overcome with innovation and customer focus. And with the financial strength of Vauban Infrastructure and Swiss Life Asset Managers, the new owners of Wascosa Holding (cf. page 10), Wascosa now has what it needs to continue writing the next chapter of its success story now and in the future.

Overcoming borders and entering new markets is part of the process, which is why Wascosa has, to our great satisfaction, recently opened three new subsidiaries in Italy, Spain, and Great Britain. For instance, it was our advanced freight wagon systems and our infrastructure know-how that enabled us to enter the market in Great Britain to meet that market's needs (starting on page 6).

And so now that the season of golden leaves is upon us, I hope that you'll enjoy savouring all the delights that Autumn brings as well as, of course, reading all the very informative articles in this Wascosa infoletter.

Philipp Müller

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It is worth noting that the market shares of rail freight companies in the world's other major economic regions are far greater than in Europe. For instance, rail freight companies in the U.S., Australia and China have a market share of over 30 and in some cases even 40 percent. In Europe, only the Baltic states, Switzerland, and Slovenia are above the 30-percent threshold.

The obstacles posed by regionalism

Railway regionalism is a significant reason why rail freight companies in Europe are unable to leverage their growth potential. Control-command and signalling technology as well as power systems still differ across the individual nation states. Furthermore, there are different operating rules and, in some cases, different track widths. And as if these difficulties weren't enough, locomotive drivers also need to be proficient in the individual country's language when undertaking international transport.

On top of it all, missing overhead cables at many border crossings are yet another barrier that needs to be removed as soon as possible in the age of an escalating climate crisis. Of the 57 border crossings that connect Germany to its neighbours via rail, only 28 are electrified (see figure 2). More than 30 years after the fall of the Berlin Wall, Germany and Eastern Europe are still separated by an iron curtain – at least in terms of electric locomotives. But rail freight companies need the power supply if they want to be competitive in price with lorries and also take full advantage of their environmental benefits. After all, changing locomotives is time-consuming, expensive and bad for the environment.

We need two things: Electrification and digitalisation

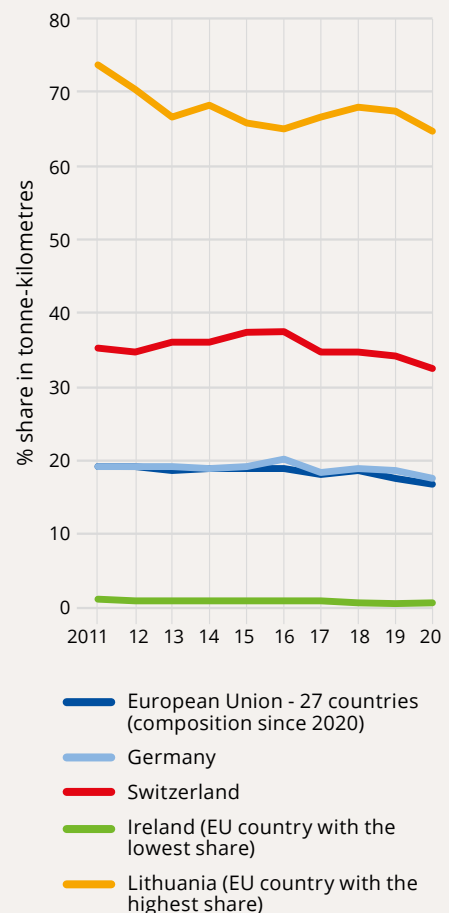
Both railway infrastructure as well as wagon technology need to be electrified so that international rail freight transport can leverage its growth potential. Unfortunately, the EU still lacks an electrification goal for railway infrastructure. By the end of the decade, however, 75 percent of the railway network in Germany is expected to be equipped with an overhead line – an increase of 13 percentage points over the current status quo.

In order to provide electricity to the freight wagons, Wascosa has made inroads with E-car innovation for refrigerated transport and received the Clara Jaschke innovation prize for its efforts. EU-wide approval is still pending – just like with Digital Automatic Coupling (DAC), which provides electricity to all freight wagons.

In particular, there are calls for the EU to electrify the border crossings and to implement the DAC across Europe. Targets set via regulatory law coupled with financial assistance (the "carrot and stick" approach) are seen as the best way of making this possible. As a result, rail freight companies should no longer have to deal with iron curtains and screw couplings by 2030.

The implementation of the European Train Control System (ETCS), which has been talked about for decades, must go hand-in-hand with the digitalisation of the entire railway infrastructure, including the railway interlockings. By 2035, the "digital railway" is expected to be fully deployed in

Decline in rail freight transport share for inland rail freight transport in European countries



Source: Eurostat (online data code: tran_hv_frmod)

For an overview of the ETCS deployment, see page 20.

Germany. There are currently initial pilot applications that work without any problems, but even in this case, the EU has not specified any targets.

The DAC is another innovation that is crucial for the success of rail freight companies. This spring, the DAC passed the first practical test in a European test drive. The industry wishes to have all the outstanding issues resolved by the beginning of 2023. Afterwards, it will be up to the EU and the

nation states – which are expected to provide significant financial assistance – to help the DAC achieve success. The goal must be to equip all freight wagons across Europe with the DAC system by the year 2030.

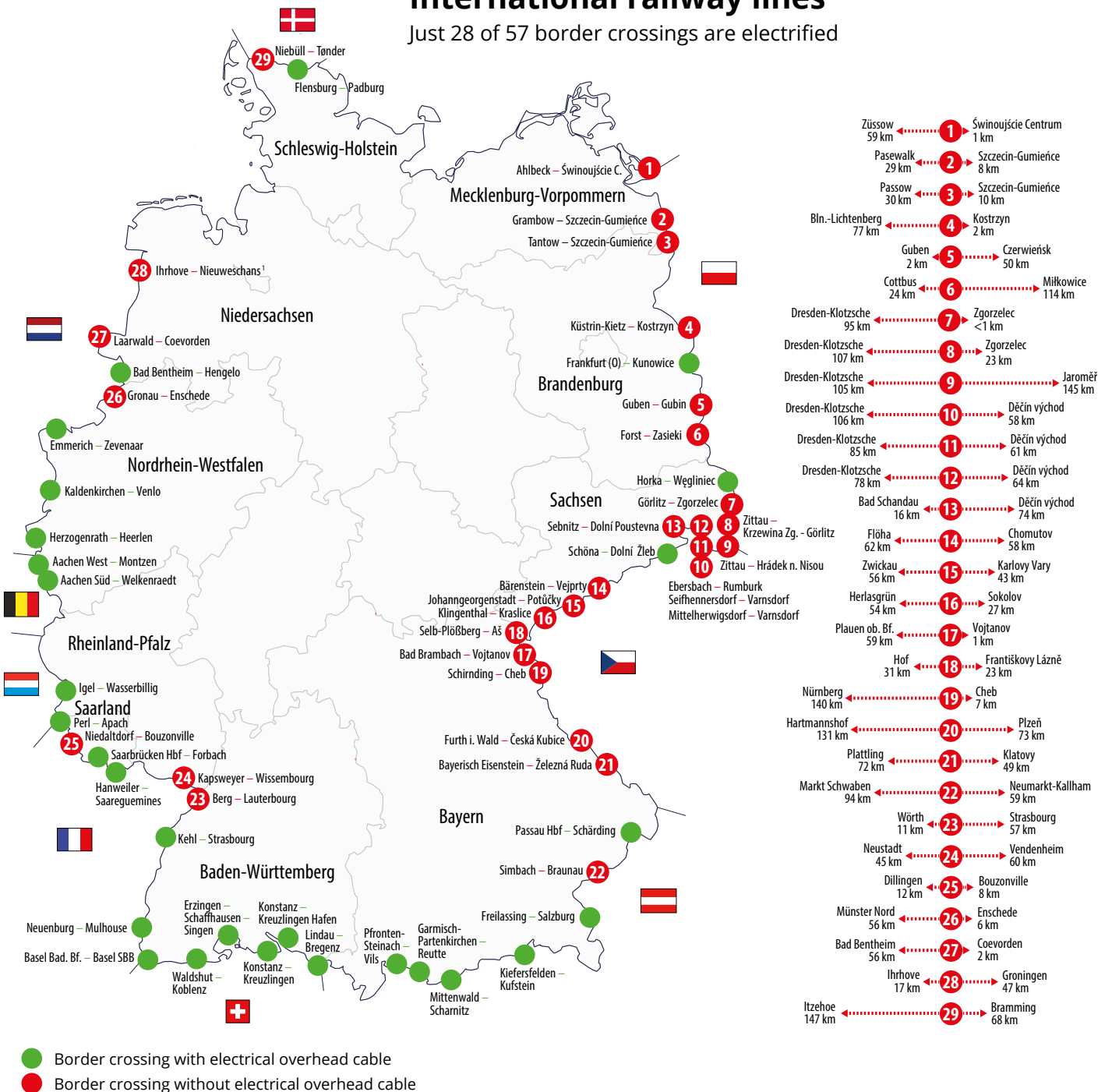
The railway advantage: five times more energy efficient

Energy-efficient rail freight transport is the future. The rolling resistance of steel on steel is three times lower than rubber on

asphalt, which is a significant reason why rail freight companies can transport their freight five times more efficiently than lorries. From a political and practical standpoint, we already know how to massively increase the market share of (international) rail freight transport. The technology also exists and is tried and tested. People – and not technology – are the reason why the transport revolution has failed thus far. It is time to take action – and to act now.

International railway lines

Just 28 of 57 border crossings are electrified



Source: Allianz pro Schiene | 12/2021

After Brexit – new UK-Swiss opportunities in rail transport

By Sir Stephen Timms, Prime Minister's Trade Envoy for Switzerland and Liechtenstein, UK and Northern Ireland

The Prime Minister appointed me Trade Envoy to Switzerland and Liechtenstein last year. One of the first people to get in touch was Mick Tinsley, Wascosa's energetic UK agent. I was delighted to be able to join Peter Balzer, Wascosa's CEO, Mick and his colleagues at Victoria Station on 28 June 2022, to celebrate the arrival of the new rolling stock for GB Railfreight.

The UK and Switzerland have long been close European partners. Over the last two decades, trade between us has grown sharply. It hit over £38 billion last year, in the face of dual challenges from the global pandemic and UK departure from the EU. Much of this was thanks to the UK-Swiss Trade Agreement, or "Mind the Gap" as the Swiss Government called it, which broadly maintained existing trade rules between the UK and Switzerland after the UK left the EU.

As a result, UK border changes were for the most part manageable for Swiss companies, already used to checks at the EU border given their position outside the Customs Union. Swiss firms have also benefitted from grace periods in areas like safety certification, with the move from the EU CE mark to the UKCA mark to be fully implemented across all sectors by 1st January 2023.

Brexit may pose challenges elsewhere. UK departure from the EU is, however, presenting new UK-Swiss opportunities, including the potential for even greater collaboration in rail.

UK rail freight market is ripe for development

With the drive towards decarbonisation and net zero, the UK intermodal and rail freight market is ripe for development.

Less than 40 percent of the rail network is currently electrified. This, combined with an acute shortage of freight rolling stock and a need for alternative traction modes such as battery or hydrogen, means there are many opportunities for firms with expertise in this sector, including those from Switzerland.

Many firms, big and small, in both countries are already (pardon the pun) making tracks in this area, thanks in part to initiatives like Great British Railways and the possibility of longer rolling stock leases this brings. A number of stakeholders in the UK and Swiss rail sectors, including Wascosa, have identified huge benefits for both sides of closer relations in rail. I look forward to this partnership continuing to blossom.

Of course, there are challenges to address. The rail sector is fragmented, with different standards, sizes and systems, causing complications for exporters and importers



The arrival of Wascosa's new rolling stock for GB Railfreight is celebrated at Victoria Station in London.



Decarbonisation and net zero: The UK intermodal and rail freight market is ripe for further development.

with technical approvals as well as international cargo and passenger services. But closer ties between the UK and Switzerland can help.

Commitment for enhancing our Trade agreement

Earlier this year, during talks between the UK Prime Minister and the President of

Switzerland in London in April, both sides committed to enhancing our current Trade Agreement. Expected to begin in 2023, negotiations present a once in a generation opportunity to build on our already strong ties and negotiate an ambitious, unprecedented deal that works for the modern world. Such an agreement also has the potential to boost both our economies and show the world what is possible between two like-minded and innovative European nations.

Swiss business leaders have voiced enthusiasm for deepening our economic partnership through an upgraded FTA, which could allow for new models for regulatory cooperation, as well as opportunities across the whole services sector.

In areas like rail – a key export sector for both countries in goods and services – an enhanced FTA could bring benefits including greater support for SMEs to smoother cross border trade rules. There are also plenty of opportunities for collaboration on rail research and development, helping unlock new partnerships.



Sir Stephen Timms is delighted to be partnering with Wascosa.

A picture-perfect market launch: British railway infrastructure operator banks on Wascosa

To make their construction sites more efficient, Network Rail is banking on Wascosa as its proficient, progressive, and well-connected partner. 570 new freight wagons leased by Wascosa will now be deployed over the next 10 years, including: 50 JNA box wagons, 260 MLA box wagons as well as 260 Wascosa flex freight system® 60' container wagons. On 28 June 2022, more than 140 high-ranking industry representatives joined Wascosa to celebrate the successful market launch as well as the rollout of the delivered wagons at London's venerable Victoria Station.

Currently, Great Britain invests about 27 billion pounds annually in its infrastructure. A major portion of this is allocated to Network Rail, the owner and operator of Britain's railway infrastructure, which is currently undertaking various projects worth billions as part of the Railway Upgrade Plan.

A compelling, tailor-made new development

Wascosa developed a Falcon MLA wagon with a 43 m³ storage capacity that was specifically developed for use on Network Rail's construction sites. At one tonne per running metre, its tonne capacity precisely

meets the requirements of the construction sites. The freight wagons have the same additional structural reinforcement as the JNA box wagons that are typically used in Great Britain for transporting gravel. However, the MLA's low side walls allow for loading and unloading below the overhead cables on the construction sites.

Wascosa's modular freight wagons are becoming the standard – even in the U.K.

With its market launch in Great Britain, Wascosa continues the success story of its modular freight wagons that were introduced more than 10 years ago. Network

“The fact that Network Rail, having high standards, has chosen Wascosa as a partner underscores that we, too, can win over major new customers in a new market like Great Britain with our premium services. I am immensely happy and proud that the added value of our versatile wagons will be helping to develop Britain's railway infrastructure.”

Philipp Müller,
Chairman of the Wascosa
Board of Directors



In the foreground: The Wascosa flex freight system® 60' container wagon with extended front ends and lateral flaps for transporting short rails and loose components.

Rail were impressed by the efficiency benefits that can be achieved with the modular system when using the tried-and-tested Wascosa flex freight system® to transport various infrastructure materials needed for rail construction.

Network Rail will deploy a total of 260 container wagons with three different superstructures: a flat “Salmon” module for transporting railway sleepers, a second “Tench” version with extended front ends and lateral flaps for transporting short rails and loose components, as well as a third “Mullet” module with bolts and stanchions for transporting switches and rails.

To provide maximum flexibility during use, both the “Tench” and the “Mullet” module use the “Salmon” module as a basis. The extended front ends and lateral flaps and/or the bolts and stanchions can be easily removed. The large number of “Salmon”



Pulled by a newly named Wascosa Class 66 locomotive from GB Railfreight with Peter Balzer in the cab, the new Wascosa wagons for Network Rail arrived at Victoria Station.

modules which Network Rail wanted, fits in perfectly with its work programme. This completely flexible system solution is thus perfectly tailored to the needs of rail infrastructure construction and offers the added benefit of requiring fewer freight wagons during operation, occupying less storage space on construction site premises and thereby reducing costs.

The Wascosa flex freight system® can carry virtually any assembly module that the customer wants as long as the modules have been designed according to ISO standards and fit the structure gauge of the rail network on which they are intended to be used.

Each of the Wascosa flex freight system® container wagon's assembly modules are built out of three parts and can be flexibly loaded and unloaded from any of the container wagons using a forklift. If the superstructures are not in use, they are simply stored in stacks.



Celebrating Wascosa's successful market entry in the UK (from left to right): John Smith, Managing Director GB Railfreight, Peter Balzer, CEO Wascosa, and Philipp Müller, Chairman Wascosa.

Victoria Station – a unique event location

More than 140 high-ranking industry guests enjoyed Wascosa's rollout event on the platform of the historic Victoria Station in the centre of London. As well as providing plenty of formal information, the very interesting programme got everyone talking together in what was an enjoyably informal atmosphere. This video provides

a brief insight into the complete rollout event including the after-show party and VIP dinner: <https://youtu.be/sC0kr4qgEis>

to the video



Greater flexibility and more efficient building-materials trains

In the Schwenk Building Materials Group, BELog is responsible for transporting pourable and granulated bulk commodities such as sand, gravel (sometimes from in-house mining activities) as well as spoil, rocks, and cement/clinker. After leasing a Eurodual locomotive in 2021, they have added 42 state-of-the-art Eamnos open-bulk freight wagons from Wascosa to their fleet. As a result, not only can BELog transport its bulk commodities more efficiently and flexibly but also in a more environmentally friendly manner whilst simultaneously entering new markets and thereby improving its own competitiveness.

BELog has been using a Eurodual locomotive on the Saxony-Anhalt route in the north and south direction for one year already. Seeing as the new locomotive can switch effortlessly between electric and diesel operation, BELog has been able to considerably reduce its transit times from north to south and connect additional gravel and cement plants to the railway, which previously were only serviced by lorry due to the non-electrified sections of the route.

As of this year, BELog has an additional 42 new ultra-modern bulk freight wagons in its fleet which – together with the dual-locomotive – bring the company a significant step closer towards its objective of “shifting from road to rail”. BELog obtained the new Eamnos wagons from Wascosa, which leases the new wagons to the logistics

company, which was founded in 2017 and which since 2019 has been a full part of the Schwenk Building Materials Group – the oldest family-run company in the German building materials industry and also one of the most modern and innovative manufacturers in the sector.

Efficiency gains and route expansion

Thanks to the diesel engine of the dual locomotive and the greater load capacity of the new Eamnos wagons (71.1 t instead of 65.5 t), not only can far greater speeds be achieved for the first and last mile but significantly heavier trains overall can also be formed, which means at the same time, the net loading weight to gross total travel mass ratio is improved. This results in significant gains in efficiency as well as reduced shunting explains Timo Pape, Managing Director of BELog GmbH & Co. KG:

“Since the Eamnos wagons are roughly 4 metres shorter than our previous wagons in spite of their greater maximum load capacity (11.30 m instead of 15.74 m), they offer extensive flexibility when transporting heavy bulk commodities and allow us to travel economically on shorter track systems without having to shunt too often.”

What’s more, thanks to its greater traction capacity, the six-axle locomotive also consumes less energy per tonne-km and as a result, heavier trains can not only be transported more efficiently and with greater flexibility but also in a more eco-friendly way with the new train composition. And, last but not least, “the synergy of the new locomotive technology with the new bulk freight wagons now allows us to travel from Central Germany to train stations in Southern Germany”, continues Pape.



Wascosa's new Eamnos wagons (right) are used to transport sand to the south and bring back spoil.

Well-equipped for the future

Another advantage of Wascosa's bulk freight wagons is that all the wagons are equipped with state-of-the-art telematics. "As such, we can now record and verify the mileage of every single wagon using GPS", explains Matthias Zilke, who has been in charge of locomotive and wagon management at BElOG since it was founded. "As a result, we have far fewer administrative costs than a year ago." BElOG is also well-equipped for the increasing digitalisation in freight transport thanks to the new Eamnos wagon. This is also confirmed by Zilke: "The Eamnos wagons provide everything we need so that we can incorporate a modern telematics system in the future."

About BElOG

Since 2019, BElOG has been responsible for railway logistics at the SCHWENK Building Materials Group and thus for ensuring the smooth transportation of construction materials and spoil. With a fleet consisting of a dozen G1000, G2000 and 189 line locomotives as well as a modern Eurodual locomotive from ELP, and several hundred Ea, Fa and Ua type wagons, the company can reliably supply various affiliated companies. Furthermore, as of this year, 42 new Eamnos wagons from Wascosa have now become part of the fleet.



Wascosa Eamnos wagon profile

General information

Tare weight	19.2 tonnes
Maximum axle load	22.5 tonnes
Maximum gross weight	90.0 tonnes
Maximum speed	100 km/h laden, 120 km/h unladen
Field of application	Europe in G1 profile (GE = Go Everywhere)
Smallest track radius	35 metres as a single wagon, 150 connected as a train

Chassis

Overall length	11,300 mm
Max. axle base	8,300 mm
Buffers	Category A, 105 mm stroke
Bogies	Y25Lsd-KP1
Brake	KE-GP-A(K)
Brake pads	1 x Bgu, C810

Loading area

Loading volume	57 m ³
Loading area	26.2 m ²
Loading length	9.9 m
Loading width	2.65 m
Loading height over rail	1,198 mm



Torsten Wagner, General Manager of Wascosa GmbH, Timo Pape, Managing Director of BElOG, and Matthias Zilke, Locomotion and Wagon Management at BElOG Building Materials, inspect the recently delivered Eamnos wagons.

New owners and new financial strength for the continuation of the growth strategy

Backed by its new owners, Swiss Life Asset Managers and Vauban Infrastructure Partners, Wascosa remains innovation and customer focussed. It is Wascosa’s aim to become Europe’s third-largest wagon leasing company in the next few years.

The sale took place at the end of June 2022, and the once family owned company Wascosa changed ownership. Swiss Life Asset Managers and France-based Vauban Infrastructure Partners have acquired 100% of Wascosa Holding AG with their companies

(see: figure). Wascosa’s head office will remain in Lucerne, and the holding company will have its office in Luxembourg in the future. Not much will change at Wascosa from an operational standpoint either: Philipp Müller, the owning family’s former representative on the Executive Board, will now become chairman of the Executive Board, and Peter Balzer, the current CEO of Wascosa, will join the Executive Board.

Environmentally friendly railways has benefited the market. Wascosa will continue its growth strategy with the support of the new owners’ added financial strength. In terms of scale, Wascosa aims to take over the number three position in European rail freight transport, and it also wishes to maintain its current market leadership position in terms of customer focus and innovative strength.

“We look forward to beginning the next era in Wascosa’s history with Philipp and his highly skilled and experienced team alongside our partner Swiss Life Asset Managers. We will do so based on long-term investments, continuous innovation, a customer-focussed approach, and best-in-class ESG standards.”

Christoph Bruguier,
Senior Investment Director
& Partner at Vauban
Infrastructure Partners

Financial strength – a crucial factor for sustainability

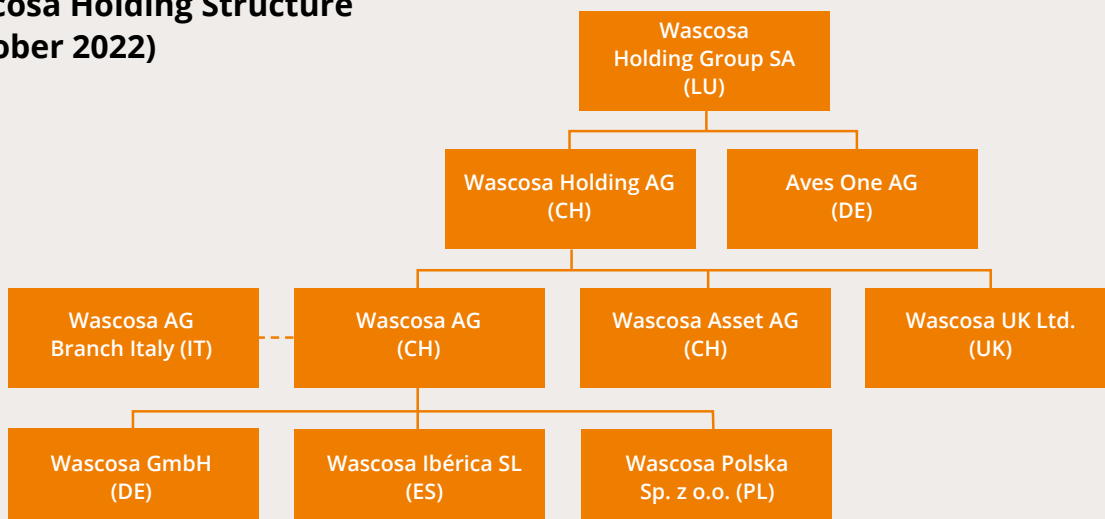
The European freight transport market is undergoing progressive consolidation. Capital requirements for major investments and financial risks are increasing as a result of the push for scale, which is why financial strength is becoming a crucial competitive factor.

In the future, Wascosa also wishes to take advantage of the strong momentum and favourable market outlook for European freight wagons and continue to expand its investments. The structural momentum brought about by the politically motivated shift of freight transport from road to en-

“We are excited about the value-creation opportunities that Wascosa offers and look forward to working together with all the stakeholders alongside Vauban Infrastructure Partners and to continuing this success story.”

Christoph Manser,
Head of Infrastructure
Equity International of
Swiss Life Asset Managers

Wascosa Holding Structure (October 2022)



Chairman Philipp Müller on the change of ownership: “We continue to be innovative and customer-focussed”



Mr Müller, what will change at Wascosa following the change in ownership?

Philipp Müller: Not as much as one may have thought at first glance. We have safeguarded Wascosa's future as part of the sale, and there will of course be a transition from a family-run to an investment-driven company – but the spirit of Wascosa will remain intact. From now on we also want to be able to act faster and to be better than our competitors, to succeed as a team, and put our customers above our own interests. These goals are ambitious but feasible.

Wascosa has seen rapid growth. How does Wascosa differentiate itself as a freight wagon lessor?

Thanks to innovation, customer proximity, and agility, Wascosa has grown from

a small, little-known leasing company to a freight wagon system provider that has seen success across all of Europe, and we wish this to continue to be the case. One example of our innovative force: There is currently a strong trend towards modular freight wagon concepts, which we already introduced 15 years ago. Now that the trend is catching on, we are ready for the market. Over the last 60 years of our company's history, a no-compromise focus on the customer has made the difference in day-to-day business, and we intend to preserve this as well. It is in the new owners' interest for Wascosa to essentially remain what it has always been: an innovative and customer-focussed company.

But the change from a family-run to an investment-driven company means

changes. How did you get your team on board in this journey?

Swiss Life and Vauban's involvement as minority shareholders resulted from an intense strategic process with roughly 15 employees. Once the decision was made, we introduced the new shareholder base to the company during a one-day event. Throughout the entire strategic process, we wanted to prevent uncertainty, mistrust, and false assumptions on the part of management and employees. We managed to achieve this, and we want to do everything in our power for this to continue to be the case under the new ownership as well. CEO Peter Balzer and I will continue to be represented on the Executive Board, which sends a strong message regarding the continuity and future of Wascosa.

Wascosa to have a new Executive Board as of 1 January 2023

The New Year will see a new generation take charge of operational corporate management at Wascosa: As of 1 January 2023, Iris Hilb (54) will become the new CEO of the Wascosa Group. She will succeed Peter Balzer, who will be stepping down from operational management after 9 years. After his retirement at the end of 2022, he will take up the position of Chairman of the Board of Directors of Wascosa Holding AG, which has its head office in Switzerland.

Iris Hilb, who has a degree in business studies and is a proven expert and leader in her field, will take operational charge of the Wascosa Group in 2023. Before joining Wascosa at the beginning of October, Iris worked for DB Cargo AG where she spent more than 25 years. Her last position was Senior Vice President of Customer Service. She has extensive experience in sales, strategy, marketing, customer service, IT, wagon management, as well as service contracting. Iris Hilb will also continue to work on achieving the effective sustainability of the railways. After all, as she recently stated in an interview, the environmental advantages of the railways were one of the major reasons behind her choice to work in this industry.

Important know-how stays intact

Peter Balzer will remain CEO until the beginning of next year when he will replace Philipp Müller as Chairman of the Board of Directors of Wascosa Holding AG, headquartered in Switzerland. Philipp Müller will remain as Chairman of the Board of Directors of Wascosa Holding Group SA, which is headquartered in Luxembourg and was recently founded after the change in ownership. This will ensure that the know-how built-up over many years and that has made Wascosa into a leading provider of freight wagon systems known throughout Europe, will be kept within the company so that it can be used whenever needed.

The goal is to drive forward the digital transformation

The Executive Board, under the leadership of Iris Hilb, will continue to focus on uncompromising customer focus and innovations with the clear goal of consistently

“I am incredibly happy that we have managed to appoint Iris Hilb as the new CEO. She has tremendous experience in our business as a proven leader. She is a great asset for our company and will use her energy and foresight to capitalise and build on the success that Peter Balzer and his team have achieved for Wascosa.”

Philipp Müller,
Chairman of the Board of
Directors, Wascosa



Iris Hilb (left) will take over as CEO of Wascosa from Peter Balzer (right) as of 1 January 2023.

advancing digital transformation. Irmhild Saabel (CSO and CBDO), Markus Vaerst (CDQO), Dominic Felice (COO) and Stephan Kellmann will remain on the Executive Board as of 1 January 2023. Irmhild Saabel will continue to manage the Sales and Business Development departments as before. To accelerate digitalisation, Markus Vaerst will take over the newly created “Automation-Digitalisation-Total Quality Management” division (CDQO). Dominic Felice, who was previously responsible for technical customer consulting at Wascosa, will succeed him as Chief Operations Officer (COO) while Stephan Kellmann will continue to be responsible for the Finances and Organisation area as CFO.

The Wascosa Footprint Module: Environmentally friendly logistics

When it comes to environmentally friendly logistics, there are many challenges – including on the railways. We particularly need to reduce preventable CO₂ emissions and minimise noise pollution in residential areas. Wascosa uses the Footprint Module to assist its customers with comprehensive consulting and targeted innovations.



Wascosa e-car® is also a good example of how the company can make greener logistics possible with the Footprint Module.

From fruits to medicines or other perishable products, 84 million tonnes of goods were imported to Western Europe in refrigerated containers in 2018. The overwhelming majority of these goods reach Europe by sea. Afterwards, they continue their transport by road. In addition to the emissions produced by transportation, the diesel engines used for cooling cause significant, additional emissions.

Fortunately, this is where the Wascosa e-car® comes in – a promising, emissions-free transportation innovation. Container-carrying wagons are supplied with electricity via the locomotives using components that are already in widespread use in rail passenger transport today. To cool the transported goods, the containers use

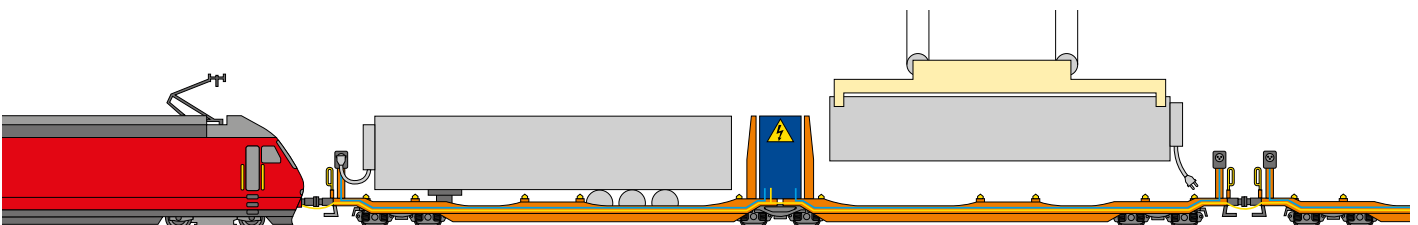
electric motors which substantially reduce CO₂ emissions as well as noise pollution.

Potential: By a factor of 3 for CO₂ emissions, factor of 2 for noise

Comparative calculations during long-distance, domestic European transport of 40 reefer containers from Rotterdam (NL) to Koper (SI) yielded the following results: 37.7 tonnes of CO₂ were reduced by roughly 60 percent by using the Wascosa e-car® during the main rail haul. The savings increased to 66 percent when electrified lorries were also used in pre-rail and post-rail hauls. In addition: The diesel generator-powered cooling unit is twice as loud as a unit powered by electric motors.



Even if this innovation still has its hurdles to overcome with approval still pending across Europe, Wascosa is convinced of the huge benefits on offer, which is why the Wascosa e-car® is also a good example of how the company can make greener logistics possible with the Footprint Module.



Wascosa e-car®: perishable goods are cooled with power generators and transported by rail.

The CO₂ footprint shows that: Rail is and will remain more environmentally friendly than road

In addition to other factors, investors who invest in infrastructure such as rail transport also do so because of its environmental friendliness. To show them the effect of their investments, the investment firm InRoll AG has used telematics data and other information sources to calculate the CO₂ footprint of their freight wagons for the first time.

By Anil Mahawattage, Managing Director of InRoll AG

Steel, in particular, is used in manufacturing freight wagons, and processing it entails substantial energy consumption. Furthermore, there is considerable water consumption and waste production. However, freight wagon manufacturers currently do not publish any public information on their CO₂ footprint.

To give an approximation, InRoll has taken the initial step of calculating the material-related footprint, i.e. the resource

consumption of steel and all other materials per freight wagon converted into CO₂ equivalents using lifecycle data for a reference wagon with a particular unladen weight.

tonnes was 175 t CO₂ on average. As you will see below, these production-related emissions for a freight wagon are nonetheless negligible when compared to the emissions resulting from using and maintaining them.

Greater environmental efficiency of intermodal wagons

Wagons that can be/are used as frequently and as long as possible by the lessee are particularly environmentally efficient. This

helps to spread out the manufacturing-related emissions across as many tonne-kilometres as possible. However, the differing maintenance requirements of the wagons must also be taken into account. For instance, intermodal wagons far outclass special freight wagons in both aspects: On average, the mileage of a standardised container wagon ranges from 150,000 to 200,000 kilometres, whilst for special freight wagons it is only 30,000 to 50,000 kilometres. Energy and water consumption when servicing the intermodal wagons is also far lower than with special freight wagons.

powered by electricity, and diesel locomotives are used whenever there are no overhead power lines, such as on factory premises. The greenhouse gas emissions associated with power production differ significantly depending on the European country in which freight trains travel: Due to the reduction in coal power generation, the specific CO₂ intensity in the EU27's energy sector did indeed decrease to 226 g CO₂ per kWh by 2020 (source: World Energy Council Germany). In comparison, the consumer electricity mix in Switzerland in 2018 was at a mere 128 g CO₂eq per kWh due to the high proportion of renewable energies used (source: Federal Office for the Environment).

In their calculations on downstream, usage-based emissions data, InRoll has used various recognised data sources to obtain the relevant emissions factors in kg CO₂ per tonne of freight per route km (tonne



Photo: © InRoll AG

consumption of steel and all other materials per freight wagon converted into CO₂ equivalents using lifecycle data for a reference wagon with a particular unladen weight.

The second step involved calculating the production-related footprint, i.e. the resources that the freight wagon manufacturers consumed for an average wagon. In this case, it was possible to use the manufacturer's primary data: On the one hand, the total consumption of the factory's electricity and gas; on the other hand, the number of wagons produced in the factory using the said amount of electricity and gas.

The aggregated, upstream CO₂ emissions calculated in that manner for the production of an average new wagon weighing 65

tonne-kilometres as possible. However, the differing maintenance requirements of the wagons must also be taken into account. For instance, intermodal wagons far outclass special freight wagons in both aspects: On average, the mileage of a standardised container wagon ranges from 150,000 to 200,000 kilometres, whilst for special freight wagons it is only 30,000 to 50,000 kilometres. Energy and water consumption when servicing the intermodal wagons is also far lower than with special freight wagons.

Calculation of CO₂ emissions via wagon usage

Freight train trips can only be made with locomotives or railcars. They are general-

kilometre, tkm). However, the calculated emissions factor of 0.016 kg CO₂ per tkm does not yet include any country-specific differences due to the lack of appropriate data.

Movement data is available thanks to telematics, but payload data is not yet available

Since a majority of their wagons are equipped with telematics, InRoll were able to use effective motion data in their calculations. However, in spite of the telematics, two important pieces of information are missing: Firstly, too few InRoll wagons have sensors that can effectively log the payload. As such, the maximum payload was calculated in terms of a "worst case" observation. Secondly, there is still no information on which locomotive and which en-

gine type (electric or diesel) will be used to haul the wagons due to the fact that there are still no digital automatic couplings. So, a calculation for the entire route was carried out using the aforementioned average value (also a “worst-case” scenario).

In addition, maintenance-related emissions were also calculated using lifecycle data and reconciled using effective data on the frequency and requirements of the maintenance.

Usage dominates environmental effect; manufacturing is negligible in comparison

The graph below for the CO₂ emissions produced in 2021 shows the following: In terms of scope, usage is clearly the most significant source of emissions from freight wagons, with wagon maintenance coming in second place. According to current calculations, the written-off CO₂ emissions from the manufacturing of wagons are insignificant in comparison.

An unequivocal affirmation of rail’s environmental friendliness

The hypothetical comparison value of the estimated, saved CO₂ emissions – also included in the figure – that would have been produced during the hypothetical transport of the same freight quantity by road once again shows that: rail is far superior to road when it comes to emissions, even if a “worst-case scenario” is used for railways for lack of better data.

Downstream CO₂ emissions from the use and maintenance of the freight wagons in the InRoll portfolio by the tenants (compared with upstream emissions as well as the saving compared to road transport) in tonnes of CO₂ in 2021

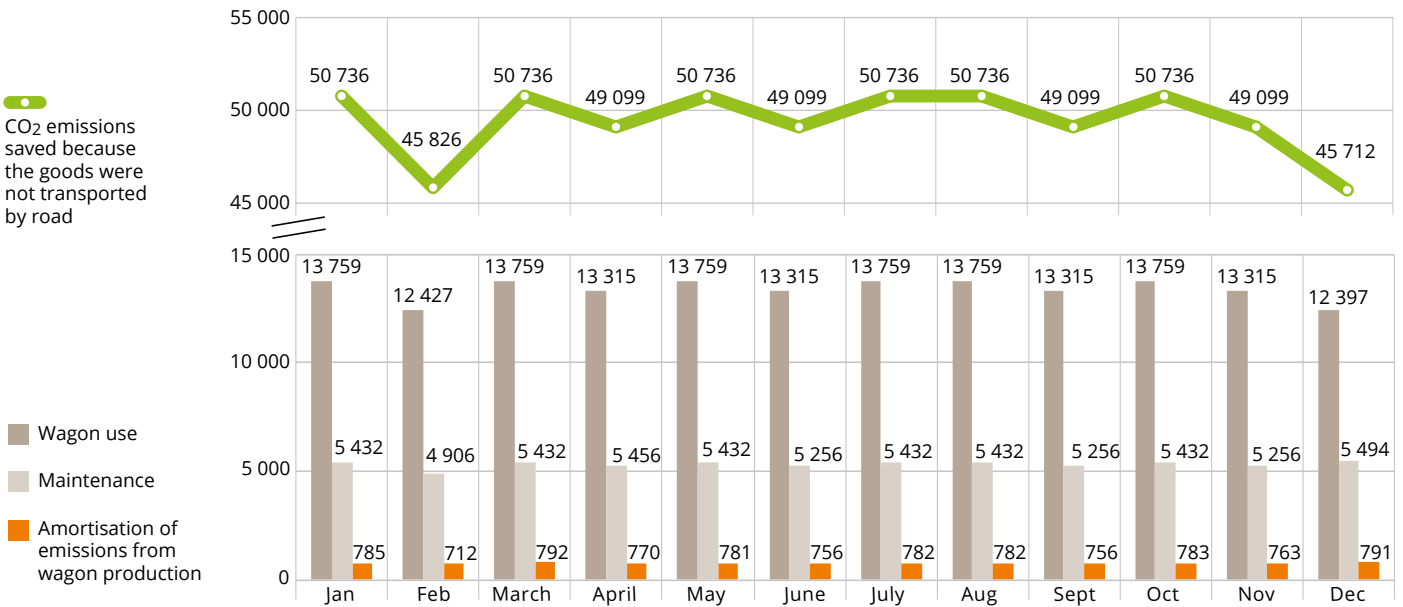


Photo and graphic: © InRoll AG

Digital disruption in rail freight: against the background of a big bang?

Trains have always been a symbol of industrial development and a national pride for almost all European countries. One would then think that this would have led railways to embrace the 4th industrial revolution and digitalisation. It took decades for the rail stakeholders to discover the benefits and necessity of a digital disruption that affects business models, the company's current value proposition and the resulting market position.

By Gilles Peterhans, Secretary General, UIP - International Union of Wagon Keepers

Europe has had for decades big aspirations to reverse the decline of its rail freight industry. The ambition to double rail freight's modal share by 2050 is part of the strategy towards a green and sustainable mobility¹ published by the end of 2019. But modal shift requires a major transformation of the rail system, and this implies embracing the digital transformation with significant efforts, substantial investments

and smart thinking. Digitalisation encompasses the processes by which digital technologies and information are used to modify organisational models, improve performance and create new value-producing opportunities. The disruption began in the late 1990s, in the first instance affecting industries based on the provision of information, such as encyclopaedia or business directory publishers.

Slow start:

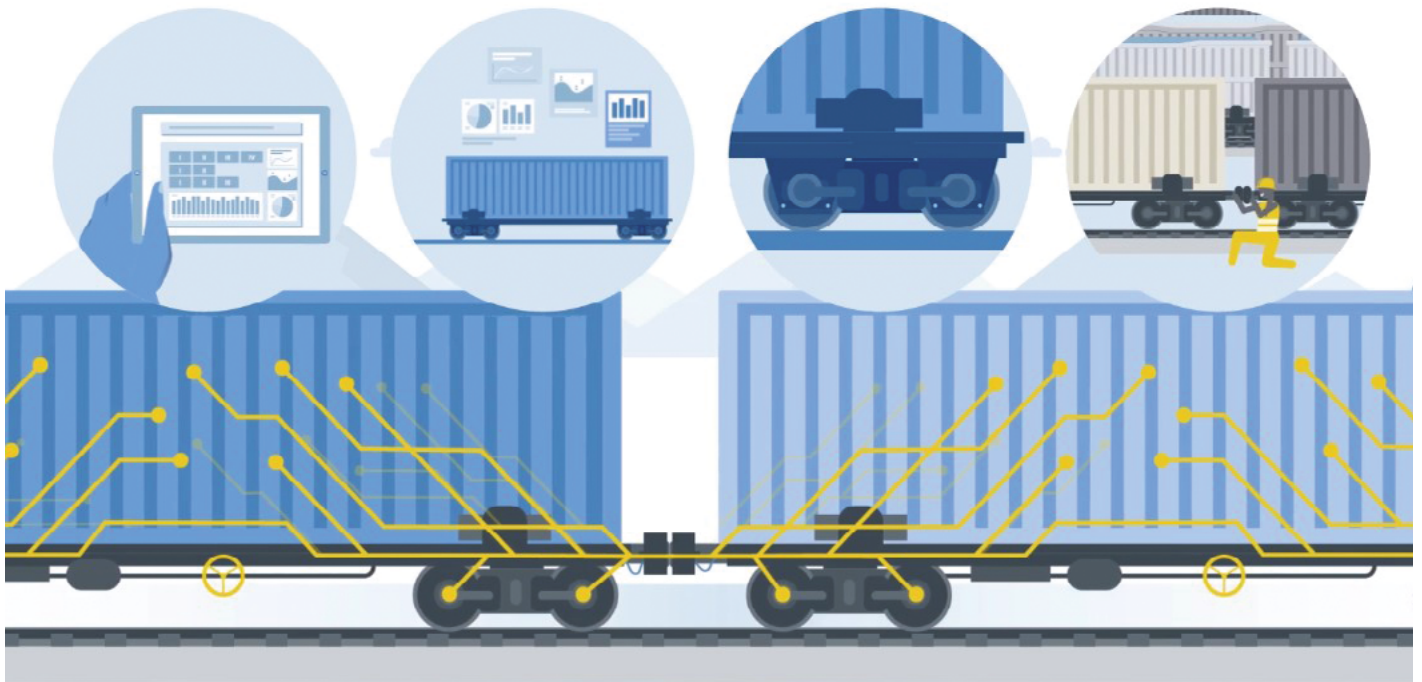
First steps not until early 2006

However, the first step of a digital transformation, the paramount importance of efficient electronic data exchange between railway actors was only established early in 2006 in the Commission Regulation Nr 62/2006 of 23 December 2005, also known as the Telematic Applications for Freight (TAF) TSI. It took years for the sector stake-

RSRD² enables a centralized data exchange for wagon keepers



¹ Source: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>



Graphic: © S2R EDDP

holders to deliver a strategic deployment plan (SEDP) on how to implement the TAF TSI concept on a European scale. Various industry developments and legislation changes have since then enhanced the need for solutions that can interlink the contents of existing or planned sector databases and public registers in order to generate higher value information in response to complex operational, safety related, environmental or supervisory challenges in rail freight.

“The RSRD² initiative was the first step of UIP’s keeper community to solve jointly a common technical challenge.”

The rail freight industry has been the king of providing huge amount of data with all sorts of Excel files and PDFs but we soon recognized that using digitalisation to improve and streamline operational processes was probably more than exchanging emails. With this in mind and driven by the legal obligation embedded in the TAF TSI, UIP initiated the development of an efficient Data Exchange Software back in 2007 (RSRD²) which is already available in a first release version. While the original impetus to develop RSRD² was the delay of the sector to implement the TAF TSI tools,

the joint efforts of private wagon keepers have made RSRD² a front running solution today.

RSRD² as the first community initiative

The RSRD² initiative was the first step of UIP’s keeper community to solve jointly a common technical challenge at optimum cost/performance ratios. Freight wagon keepers see their initiative for open data exchange as serving the whole market and fully support sharing meaningful tools and putting them to service for other market participants such as Railway Undertakings (RUs), National Safety Authorities, Infrastructure Managers, workshops, shippers/ freight forwarders and more generally customers.

“A real breakthrough in digitalisation will only happen once the whole rail ecosystem will get interlinked.”

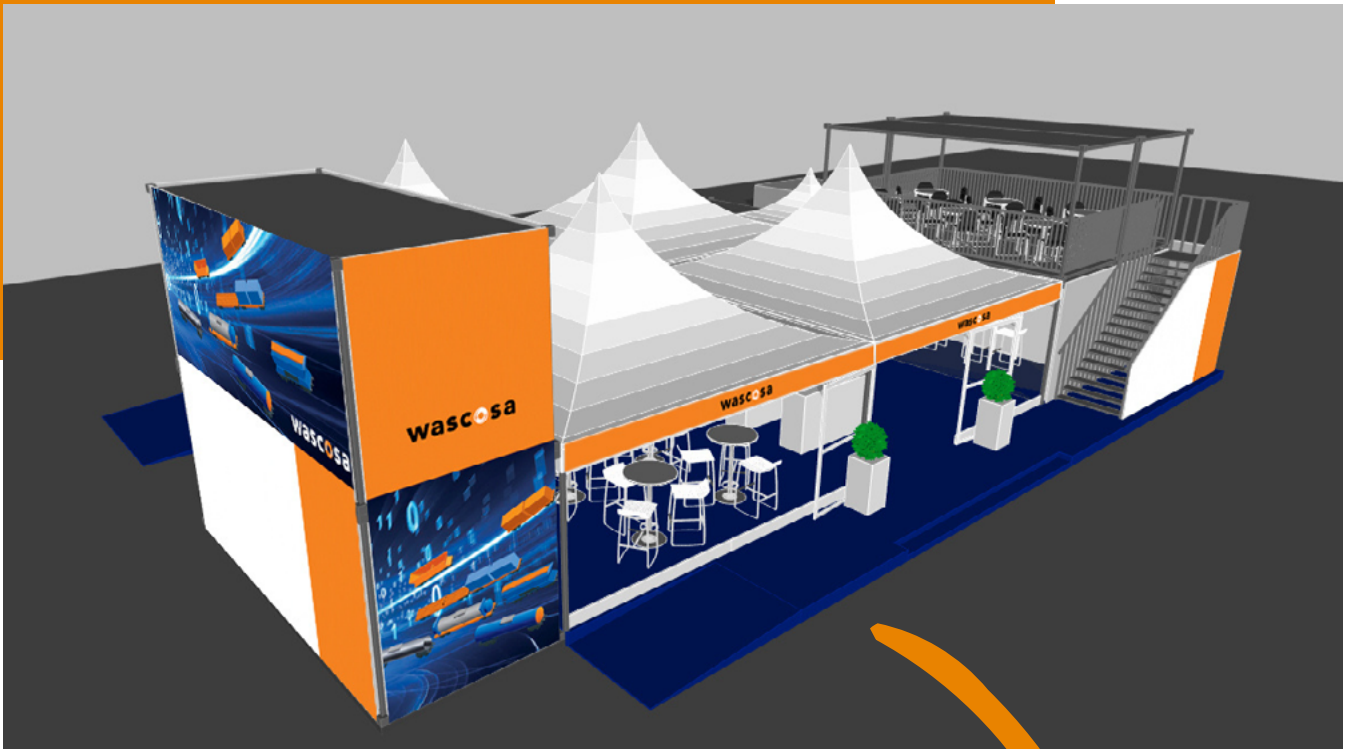
The digital disruption in other industries has been unprecedented and characterized by the deployment of new technologies blurring the lines between the physical and digital spheres. It took us 10 years to establish RSRD² as a pragmatic business tool and a sector platform. Digitalisation is an important condition for economies

to perform well and is slowly but surely becoming a central and strategic element of competitiveness as well for rail companies. The key lever to pull is still a change of mindset.

ERTMS and DAC, current pan-European initiatives as possible enablers of a big bang

The big bang of the digital disruption has not happened yet in rail but the breadth and depth of changes linked to the introduction of new technologies will transform the entire rail freight systems of production, management, and governance. With the help of fundings and governance of instruments like the new Europe’s Rail Joint Undertaking, ERTMS shall become the backbone of digital trains and DAC the enabler for fully digital freight train operation. A real breakthrough in digitalisation will only happen when a growing number of systems will get interlinked not only within a single vehicle, but also with the infrastructure, the operational processes and as such the whole rail ecosystem.

transport logistic Messe München 9-12 May 2023



Invitation to the Wascosa booth

Wascosa is pleased to be back in 2023 at the transport logistic trade fair. We kindly invite you to visit us on site! Around the Wascosa booth, we will present latest innovations like the world novelty Wascosa flex freight system® 2.0. Come by and enjoy our exquisite Swiss catering service. More information will follow at www.wascosa.com. We are looking forward to seeing you soon in Munich!

**WASCOSA BOOTH 704 - 6
OUTDOOR AREA**



Find more info:
transportlogistic.de/en

SCAN ME

Calendar of events

Due to the uncertain world situation, changes in dates are still possible at short notice.
It is recommended to consult the individual websites of the organisers for the definitive dates.

Date	Event	Location	Website
2022			
29.11.-01.12.2022	Rail Live	Málaga, ES	www.terrapinn.com/conference/rail-live
30.11.-02.12.2022	UIC world congress on rail training, talent and development	Paris, FR	https://wcr.t.uic.org
06.12.2022	RNE General Assembly	Vienna, AT	http://rne.eu/calendars
07.12.2022	RFG Xmas Lunch	London, UK	www.rfg.org.uk
07.-08.12.2022	European Silk Road Summit	Duisburg, DE	www.silkroadsummit.eu
08.12.2022	101st UIC General Assembly	Paris, FR	https://uic.org/events
2023			
09.-10.01.2023	New Year's reception and 13th VPI Symposium	Hamburg, DE	https://vpihamburg.de/en
07.02.2023	RFG Member's Party	London, UK	www.rfg.org.uk
21.-23.02.2023	12th International Railway Summit	Rome, IT	www.irits.org
15.-16.03.2023	Rail Infra Forum 2023	Berlin, DE	https://events.railtech.com
15.-16.03.2023	Siegburg exchange of experience on freight wagon maintenance	Siegburg, DE	www.bahnverband.ch
28.-30.03.2023	Transport & Logistics Innovation Week (SITL)	Paris, FR	www.sitl.eu/en-gb.html
12.04.2023	VPI Austria General Assembly	Vienna, AT	www.vp rail.at
April/May 2023	VAP Freight Transport Forum	Zurich, CH	https://cargorail.ch/en
09.-11.05.2023	Railtex 2023	Birmingham, UK	www.railtex.co.uk
09.-12.05.2023	Transport Logistic	Munich, DE	https://transportlogistic.de/en
24.05.2023	RFG Spring Group Meeting	London, UK	www.rfg.org.uk
24.-26.05.2023	ITF Summit 2023	Leipzig, DE	www.itf-oecd.org
May 2023	RNE General Assembly	not yet confirmed	http://rne.eu/calendars
May/June 2023	F&L Meeting	Netherlands, NL	www.europeanfreightleaders.eu
01.06.2023	UIRR General Assembly	Brussels, BE	www.uirr.com
06.-07.06.2023	RailTech Belgium	Brussels, BE	https://events.railtech.com
14.-16.06.2023	Intertraffic 2023	Istanbul, TR	www.intertraffic.com
15.-16.06.2023	UIP / AFWP General Assembly and Keepers' Summit	Nice, FR	https://uiprail.org
21.-22.06.2023	VPI Get Together and 23rd Technical information day	Germany	www.vpihamburg.de
21.-23.06.2023	VDV Annual Meeting 2023	Leipzig, DE	https://www.vdv.de
June 2023	Technical Meeting	not yet confirmed	http://rne.eu/calendars
14.09.2023	Basel Day of Damage Regulation	Basel, CH	www.bahnverband.ch

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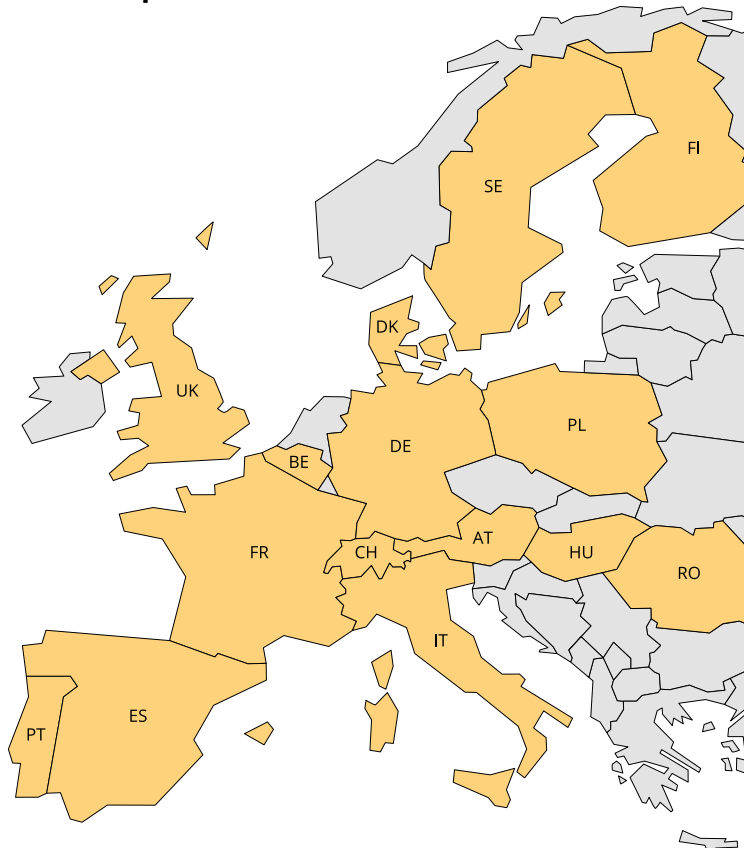
ETCS: Replacing the different train control systems in Europe

The more than 20 incompatible train control systems in Europe are making life difficult for international rail traffic. As a result, modern traction units require a number of different systems. Otherwise, the traction unit has to be changed at the border, which means wasted time and extra expenses.

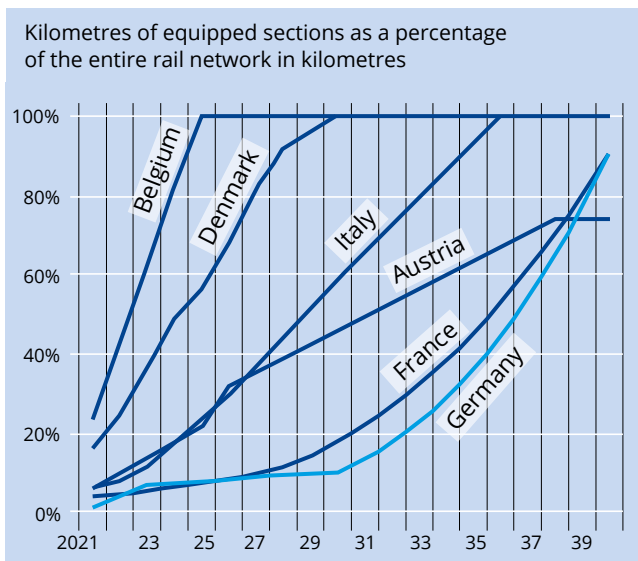
A current overview of the train control systems in Europe

Countries	Previous systems	Countries	Previous systems
BE	TBL	ES	ASFA / LZB
DK	ZUB123	PT	EBICAB 700
CH	SIGNUM / ZUB	UK	AWS
IT	BACC / SCMT	SE	EBICAB 700/1000
FR	TVM / KVB	FI	EBICAP 900
DE	INDUSI / LZB	HU	EVM120
AT	INDUSI / LZB	RO	INDUSI
		PL	KHP

Source: SBB CFF FFS



ETCS equipment level in the sections by 2040



Source: SCI Verkehr GmbH

Reasons to replace it with the standardised European Train Control System (ETCS)

Value preservation and safety:	Simplified access to the network:	Interoperability:	Travel time, network capacity, and safety:
The previous national systems have reached the ends of their life-cycles and need to be replaced.	In future, railway companies are expected to be guaranteed network access "using a single piece of ETCS equipment".	Simplification and unification of international rail traffic.	Faster speeds and shorter train headway times require cab signalling.

Source: SBB CFF FFS

In Europe, the standard-gauge network has already been largely equipped with ETCS since 2018. The previous national Swiss systems SIGNUM and ZUB have been replaced. Whereas the conventional sections operated with outdoor signals are equipped with ETCS Level 1 Limited Supervision, ETCS Level 2 cab signalling is used on ten track sections: between Bern and Olten, between Lausanne and Siders, and on the baselines that run through Lötschberg, Gotthard, and Ceneri. According to the Federal Office of Transport's (BAV) ERTMS strategy, expansion of the ETCS Level 2 is expected to continue as needed in the short and medium terms. The long-term goal is to provide comprehensive cab signalling for the standard-gauge network.