

InnoTrans 2022 Report



B2B-Magazine for the Railway Industry

No. 2 ■ 25th annual set ■ October 2021

FOCUS ON

RAILWAY INFRASTRUCTURE

A framework for more train traffic

Europe's climate protection objectives are strongly relying on rail transport. To meet them, reliable, low-disruption infrastructures are needed. The industry has come up with new solutions to meet this goal.



Timely construction

Tight schedules dominate the construction of rail infrastructure projects. Clear procedures and standardisations help to make things easier and more transparent for all project partners.



Protection against cyber attacks

Rail transport is characterised by its own technologies, protocols, methods and systems. This also requires an appropriate level of cyber security for digitalised systems.



Rebirth of a classic

Discover how a material developed more than a century ago and made from over 90 percent renewable raw materials will make train interiors more sustainable.

Conquering Europe by night train



The Snälltåget at its premiere in Berlin.

Photo: H. Schmidtendorf

After Deutsche Bahn withdrew from the supposedly unprofitable night train business back in 2016, other providers are sharing the market. Not only does the Austrian Federal Railway (ÖBB) offer connections to and from Germany; an increasing number of private railway companies are now also taking up the challenge.

From late June to early September, the so-called Snälltåget, which is part of the Transdev Group, has been operating daily between Stockholm via Lund, Malmö, the Danish Høje Taastrup near Copenhagen and Hamburg to Berlin and vice versa. The service will continue until early November, but will then no longer run daily. The Alpen-Sylt-Nachtexpress operated by RDC Autozug Sylt GmbH has been

running up to four times a week since mid-July from Westerland/Sylt via Hamburg, Hanover, Frankfurt/M., Ludwigsburg near Stuttgart and Munich to Austria (Salzburg) or Lake Constance (Konstanz). This connection will also be offered until the beginning of November.

Other night train connections, for example from Zurich via Cologne to Amsterdam, or the route Vienna –

Munich – Paris, are to start operation as early as in December. The cooperation of the Belgian start-up Moonlight Express and European Sleeper from the Netherlands intends to offer a night train on the Brussels – Amsterdam – Berlin – Prague route from April 2022, in cooperation with the Czech railway company Regiojet.

Under the name Midnight Trains, various night trains with the luxury of

an overnight hotel stay are to run from Paris from 2024 onwards; co-founder Adrien Aumont states that potential destinations are Madrid, Lisbon, Porto, Milan, Venice, Florence, Rome, Vienna, Prague, Budapest, Berlin, Hamburg, Copenhagen and Edinburgh.

This market segment will certainly see more movement in the years to come, and not just because of European climate policy. (jsh)

COMMENTARY

The Spanish railway industry, a benchmark in infrastructures



Pedro Fortea, General Director, Mafex - Spanish Railway Association

Photo: MAFEX

The Spanish industry offer covers all cycles of the project. This differentiating proposal is made possible by a complete value chain. The wide diversity of the companies that make up this industry is one of its most characteristic factors and it allows to create ideal synergies to adapt each proposal to the specific needs of the client. This competitive advantage makes it possible to have global solutions and for them to be present from the pre-consulting and planning phase of the project to the design, execution, and supervision stages of any infrastructure.

CONTINUED ON PAGE 2



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CONTINUED COMMENTARY

In these years of work, they have been able to overcome great challenges with a high level of complexity in the design, execution, and deployment of technology. With a complex orography they have faced mega-infrastructure, successfully solving the implementation of new lines in difficult terrain for the railway. They have also been able to respond to challenges of combining the operation of the different existing track gauges or technologies of different international manufacturers. This background has given them a unique knowledge when it comes to successfully implementing the entire cycle of a project, from the initial stage of planning and consultancy to the final delivery. Spanish companies have implemented many of the top-notch railway infrastructures in recent years. Their contribution to the implementation of a modern Spanish high-speed system, the second most important in the world with 3,200 kilometres, as well as the largest deployment of ERTMS in Europe or the country's numerous metro and tramway systems have earned them international recognition.

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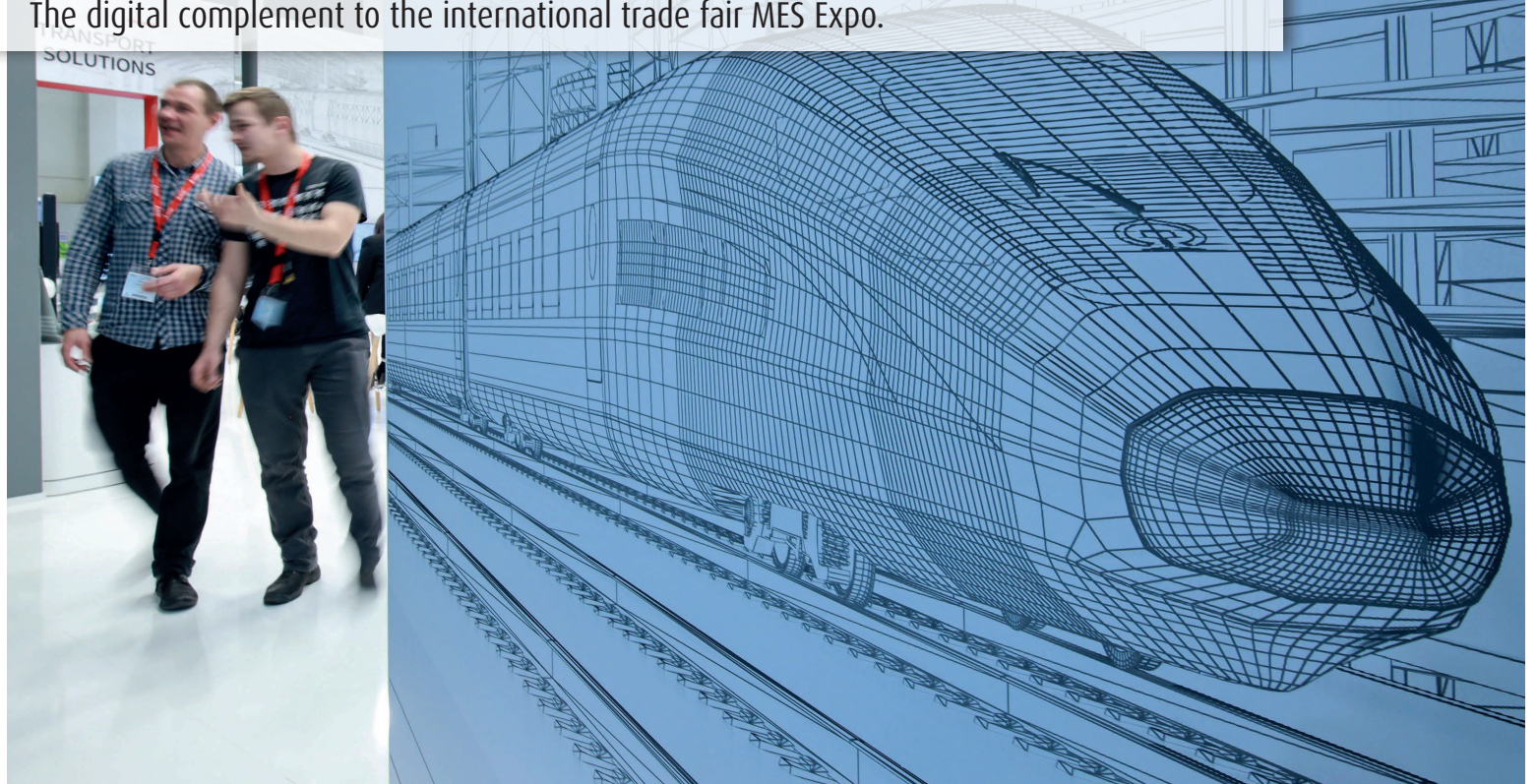
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#MES Insights: Platform for the electronics supplier industry of the mobility sector

The digital complement to the international trade fair MES Expo.



Innovations from the electronics supplier industry in the mobility sector

Photo: Messe Berlin GmbH

From 9 to 11 November 2021, #MES Insights will be all about current topics and trends in the electronics supplier industry of the mobility sector. #MES Insights is a digital complement to the classic B2B trade fair MES Expo and offers a high-class supporting programme and the opportunity for an exchange of expertise. As a platform spanning all transport systems, it is specifically aimed at the rail vehicle, commercial vehicle and automotive industries. "In consideration of the imponderables connected with the Corona pandemic, we decided at an early stage to focus on a digital offering this year and then have MES Expo take place live again in 2023, as scheduled," says project manager Lisa Höfer. "The desire for exchange is also great in pandemic times. In this regard, the

digital platform #MES Insights is an ideal way to network and inform each other at an international level."

Siemens Mobility Supplier Award selects its outstanding suppliers

As a special highlight and part of #MES Insights, Siemens Mobility will grant the company's own Siemens Mobility Supplier Award. The aim of this award is to recognise outstanding performance, to inspire suppliers and to share best practice examples. The award honours suppliers who have made a significant contribution to the success of Siemens Mobility in the current fiscal year – in the categories Technology & Innovation, Logistics Performance,

Competitiveness, Quality and Moving beyond.

Supporting programme with a wide range of topics

The high-profile supporting programme will be broadcast via live-stream. At the Dialogue Forum, international experts from the German Electrical and Electronic Manufacturers' Association (ZVEI), the German Railway Industry Association (VDB) and the German Transport Forum (DVF) will be highlighting current trends in the sector. In addition, partners from the rolling stock, commercial vehicle and automotive industries will present their innovations and mobility solutions at #MES Insights.

Networking and matchmaking at the #MES Insights platform

Making contacts and exchanging views on the latest topics from the industry - #MES Insights offers numerous networking opportunities. Anyone who is registered on the platform can use the business matching function to create a profile, network with interesting contacts or get straight into a professional exchange by chat. During three days of the event (9 to 11 November), Gold Partners will offer participants the opportunity to enter into direct exchange with them in the framework of the Gold Partner Events. Those who are looking for new professional challenges can, for example, get into contact with potential employers.

Numerous offers before and after #MES Insights

The preliminary programme will start as early as 25 October. The first thematic on-demand videos will be available as part of the Preview Hub and networking will also be activated. From 12 November to 15 December 2021, all of the contents will then be available on demand. There is no charge for participating in #MES Insights. However, an invitation and a prior registration are required.

The international trade fair MES Expo will then take place again in 2023 as a traditional on-site trade fair at the exhibition centre in Berlin.



Livestreams and on-demand videos

Photo: Messe Berlin GmbH

Egypt: Turnkey rail system worth 3 billion US dollars ordered



The first 660 of a total of 1,800 kilometres of track have now been contracted.

Photo: Siemens Mobility GmbH

In partnership with the National Authority for Tunnels (NAT) and in the presence of the Egyptian Prime Minister and Minister of Transport and the German Ambassador to Egypt, Siemens Mobility has signed a contract for the first 660 kilometres of an 1,800-kilometre high-speed rail network.

■ The 660-kilometre line will connect the port cities of Ain Sukhna on the Red Sea with Marsa Matruh and Alexandria on the Mediterranean Sea, creating a rail link comparable to the Suez Canal. Together with the partner companies Orascom Construction S.A.E. and The

Arab Contractors, Siemens Mobility will provide the turnkey development – including the design, installation and commissioning as well as maintenance services – over a period of 15 years. The contract is worth approximately 4.5 billion US dollars, of which

Siemens Mobility's share is about 3 billion US dollars.

Scope of the contract

As part of the project, Siemens Mobility will supply Velaro high-

speed trains, Desiro high capacity regional trains, and Vectron locomotives for freight transport. Moreover, the European Train Control System ETCS Level 2 and a signalling system will be installed. The order also includes the traction power system as well as the supply and integration of state-of-the-art communication and safety systems. Siemens Mobility's consortium partners will install the rails and the customer will take care of the civil engineering structures, such as bridges or track substructures.

Impact on society, environment and economy

By implementing the project, the consortium is directly creating more than 15,000 jobs in the country. An additional 3,800 jobs will be created by Egyptian suppliers and indirectly in the national economy.

The fully electrified system will reduce primary energy consumption and air pollution by cutting CO² emissions by 70 percent compared to current car and bus transport emissions.

More than 30 million people are expected to travel by this train line a year, saving up to 50 percent of the current travelling time. In this way, Cairo, the population of which has doubled since 1980 and now stands at around 20 million people, will be connected to the new metropolitan areas currently under development. In addition, the rail line will connect sea and dry ports for a more efficient domestic transport of goods, which will increase by 15 percent.

NEWS

■ New UIC presidency



Krzysztof Mamiński

Photo: PKP S.A.

At its 89th General Assembly, the UIC (Union Internationale des chemins de fer / International Union of Railways) elected a new presidency. The new President of the International Union of Railways (UIC) is **Krzysztof Mamiński**. He has been the CEO of the Polish PKP since 2017 and was co-responsible, among other tasks, for the expansion of the areas of innovation, digitalisation and research. At the same time, he is a member of the CER Management Committee and the European Regional Committee of the UIC as a representative of the East-Central European railways. Mamiński started his career 40 years ago in the IT department of PKP. Since then he has held numerous responsible positions in the Polish railway industry. Mamiński succeeds Gianluigi Castelli from the Italian FS Group.

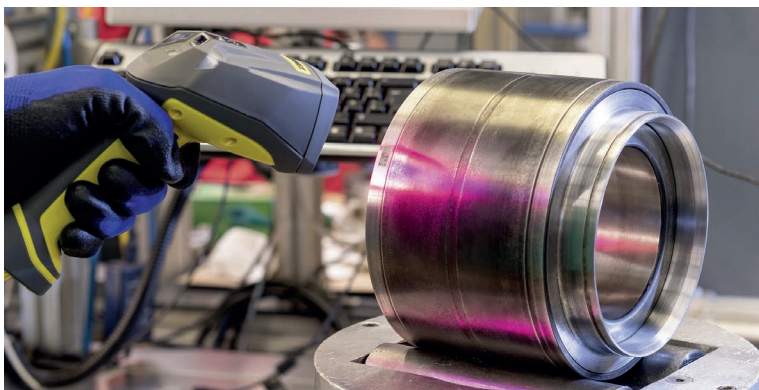


Mohamed Khlie

Photo: ONCF

Mohamed Khlie has been elected UIC Vice-President. He has worked for the Moroccan state railway ONCF since 1987 and was promoted to the position of Director General in 2004. The first milestone of his tenure was the successful sector reform through a comprehensive restructuring and reorganisation plan, which has helped to improve ONCF's economic situation and at the same time put it on track. The implementation of major projects which revamped Morocco's railway system was another milestone for Khlie. These included the first Arab-African high-speed train "Al Boraq" inaugurated in November 2018, which connects the economic capital Casablanca with Tangier, the gateway to Europe in the north. Khlie succeeds Ali Uygun, from the Turkish State Railway TCCD. The term of office of those elected will expire by rotation on 31 December 2023.

Railsponsible Supplier Award 2021



With the scan of the Data Matrix code of a refurbished wheelset bearing, information is available on demand.

Photo: Schaeffler Technologies AG & Co. KG

As part of the Railway Forum 2021, the leading European conference of the railway industry, which took place in Berlin in early September, the Railsponsible Supplier Award 2021 was conferred. Railsponsible is an industry initiative which is focused on sustainable procurement.

Supporting programme covering a wide range of topics

■ Schaeffler, a global automotive and industrial supplier, has been awarded the Railsponsible Supplier Award 2021 in the category "Sustainability and Climate Change Supplier Award" for its digitalised 100 percent return service for wheelset bearings.

The 100 percent return service for wheelset bearings enables railway undertakings to significantly improve the availability of trains, maximise their running performance and thus reduce carbon emissions. By providing a stock of exchange bearings at Schaeffler, the economic advantage of reconditioning and reusing wheelset bearings is combined with the immediate availability of replacement components. Compared to the production of new bearings, this saves over 90 percent water, energy and carbon emissions.

Data Matrix Code forming the basis for digitalised and condition-based maintenance

An important element of the return service is the individual Data Matrix Code (DMC) which is applied to each wheelset bearing during its manufacturing process. This allows continuous recording of manufacturing and operating data as well as maintenance information for each individual product. The result is a digital twin of the product with a comprehensive service life file.

Railsponsible initiative for the environment

Railsponsible members include major European railway undertakings, railway equipment manufacturers and suppliers of railway components, such as ÖBB, SBB, SNCF, DB, Siemens, Alstom or even Wabtec. They are working together to improve sustainability practices throughout the railway industry's supply chain. The initiative aims at improving the environmental and social practices as well as the supply chains of the rail sector by sharing proven practices and by developing capabilities. Railsponsible was founded in 2015 and now has 15 members.

FOCUS ON

RAILWAY
INFRASTRUCTURE

Infrastructure provides the basis

The capacity of rail transport is to be increased worldwide in the coming years. This means that highly automated processes for track construction and maintenance, but also technologies which simplify planning and construction or lead to an extended service life of individual components with at least the same level of safety, will become even more important in the future.

Agile project management for railway infrastructure



Simple and efficient: planning with the help of coloured overviews.

Photo: Drees & Sommer SE

Construction projects for railway infrastructure have traditionally been subject to time pressure. The overriding goal is to achieve the planned deadlines for commissioning. Two innovative management approaches provide relief. Infrastructure operators and clients always have the same common priorities. They need the planned construction tasks to be implemented within a tight and unalterable time window, and to achieve a transparent planning process for all project partners.

Drees & Sommer SE, an internationally active consulting, planning and project management company with headquarters in Stuttgart, provides a solution by means of two innovative management approaches: Agile Design Management (ADM) and Lean Site Management (LSM), as well as other tools. ADM aims at cross-disciplinary and cross-team cooperation and involves the planning specialists at an early stage of planning. At the same time, the creative solution process is obstructed by as few rules as possible. LSM transfers the principle of lean processes that is used in industrial production to the building process: standardisation, pre-production – but also building site logistics – are all important factors. Despite specific procedures in different projects, there are clear control processes for both approaches.

These two management methods are essentially based on an early and combined overall process analysis and process planning and their outcome is a transparent overall follow-up of the construction process on a weekly basis. The process is visualised to serve as a basis for tracking and controlling the work packages in a closely timed manner. It is often quite challenging to have the agile methods accepted at the start of a project. To this end, Drees & Sommer communicates with the teams at an early stage. The “LCM Digital”, developed by the experts in lean processes, allows the processes to be applied in a fully digital and interactive way.

Successful application in major railway projects

Drees & Sommer uses agile management methods in numerous major projects in the public transport sector, such as the railway station projects “B-Level Frankfurt Central Station” or the redevelopment of the “Zoologischer Garten Station” in Berlin. The company also successfully applies them in large-scale projects for the new construction and expansion of railway networks or in public transport, such as in the local transport system in Jena, Germany. The use of ADM and LSM achieves a high level of transparency and an early identification of problems. It focuses on critical processes for the success of a project. This allows projects to be carried out up to 30 per cent faster without additional costs. At the same time, the teamwork leads to a reduction in obstructions and stabilises the processes – ensuring that more than 90 percent of deadlines are respected. When infrastructure projects present very ambitious delivery schedules, agile management methods are therefore the most appropriate tool to reliably achieve the project targets.

Methods that also work in a digital and interactive way

in a larger number of inserts and thus in a significant increase of their life so that the need for time-consuming tool changes during a shift is eliminated. In addition, up to eight cutting edges can be used per insert before the entire insert has to be replaced.

New rail treatment system from ROBEL



ROMILL rail machining system with milling, grinding and measuring unit

Photo: ROBEL Baumaschinen GmbH

Precise rail milling eliminates defects at an early stage and prevents rails from expensive and time-consuming replacement. The company ROBEL Baumaschinen GmbH from Freilassing in Bavaria – in cooperation with Schweißbau International (SBI) – has developed the ROMILL System, a new product line for rail treatment. It is now launching the first milling machine from this product line.

This system carries out reprofiling with calculated material removal in just one single pass, without flying sparks or environmentally harmful residues while providing a standard-compliant quality of treated surfaces. At the same time it offers an increased process speed and thus a higher network availability: The treatment train moves quickly to the construction site to work with maximum output. Immediately after the maintenance operations have been carried out with automated support, it is ready to execute the next operation in the system.

No tool change needed

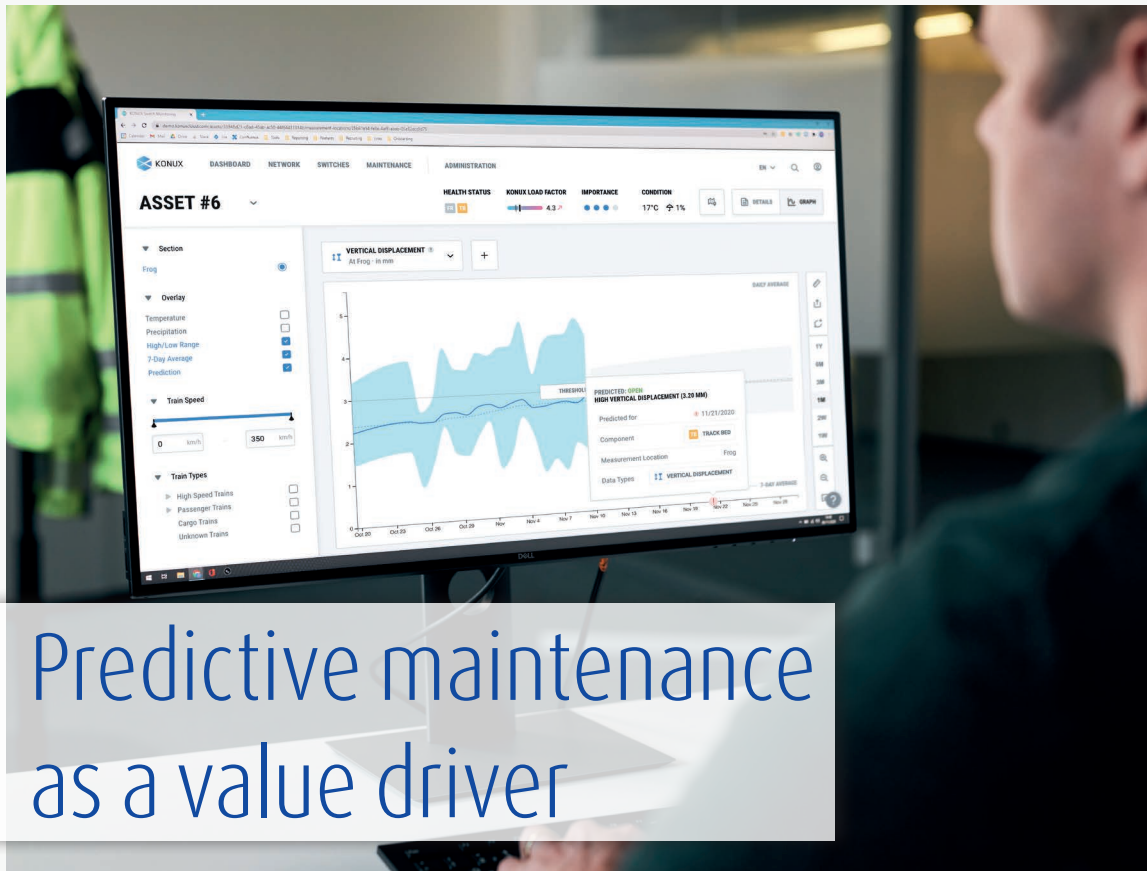
The core of the new vehicle concept is the SBI High Speed Milling technology. It differs from conventional milling processes by using a large diameter cutter head and a special vertical arrangement of the indexable inserts. This results

The cutter head is divided into multiple segments. This means that only one segment and not the entire cutter head has to be replaced when changing the indexable inserts. In addition, robot-supported plate and segment changes are carried out in the interior of the machine and therefore operating personnel must not access the track. The partial automation results in a significant increase of safety, ergonomics and quality of the changing process: the manual handling of heavy loads is no longer necessary, the need for an external workshop or workshop container is eliminated and the flexibility of the milling train with

regard to the place of use is significantly extended. For the first time, the new milling technology also allows the rails to be machined independently of the track alignment.

The workshop area is located in the first section of the vehicle. The second section of the machine houses, among other things, the chip bunker and the polishing unit. The combined milling and finishing technology produces a surface with the lowest possible roughness that meets all standards regarding surface undulations and noise generation. The integrated measurement technology from Vogel & Plötscher records the transverse and longitudinal profile and thus provides the proof of quality in order to deliver defined and documented rail conditions: This is the prerequisite for the successful implementation of a preventive maintenance strategy.

The first ROBEL rail processing system is already in test operation in Japan and will start work at the end of 2021. ROMILL 2 and 3 will be delivered in the second half of 2021.



Predictive maintenance as a value driver

Predictive maintenance at a glance

Photo: KONUX GmbH

All over the world, railway infrastructure managers are striving to maintain the highest possible availability of their tracks. When doing so, however, they are confronted with extreme challenges: ageing assets, a dwindling workforce or rising capital and operating costs.

One of the most critical assets of the railway infrastructure is the turnout. It is particularly relevant for ensuring network availability, causing around 20 to 30 percent of all infrastructure-related minutes of delay (KONUX Global Rail Market Analysis 2018). It is also one of the assets with the highest maintenance costs per metre. Around the world, they amount to 12 billion euros per year for maintenance and replacement.

That is why the operators of infrastructures are eager to gain more meaningful insights that will help them monitor, inspect, maintain and renew turnouts more efficiently and effectively. The challenge is that most of the methods currently in use only provide a mere snapshot of the condition of the assets and only capture their current state.

Single data points from just a few passing trains can result in misleading findings and, not least, in assets being over- or under-maintained.

SaaS solution

The Predictive Maintenance System for railway turnouts developed by KONUX GmbH from Munich is a software-as-a-service (SaaS) solution that uses IoT units and artificial intelligence to improve network capacity, reliability and cost efficiency. It con-

tinuously and autonomously monitors the condition of key turnout components such as the track bed and the frog. The KONUX system provides infrastructure managers with a forecast of how the condition of the turnouts will develop over time, enabling them to prevent failures and optimise their maintenance planning.

At the end of 2020, KONUX and Deutsche Bahn concluded the first long-term, cloud-based SaaS framework agreement for the digitalisation of turnouts as critical elements of the railway infrastructure.

Integrated future-oriented approaches

Assessing the value of digitalisation requires infrastructure managers to adapt their processes, not just by replacing each manual measurement with a digital equivalent, but also by holistically rethinking the insights required to monitor and maintain the turnout.

Ultimately, this means the integration of different approaches, for example measurement trains in combination with permanently installed autonomous IoT units, in order to realise an overall improvement in performance while saving costs, as with the system being outlined here.

Tracks from the conveyor belt: RUS 1000 S



The RUS 1000 S is the result of a development partnership.

Photo: Swietelsky AG

The huge machine, that has been completely modernised, offers even more working capacity without occupying the adjacent track. In addition to laying ten sleepers per minute and a low axle load of 22.5 tonnes, the large machine can realise a working radius of only 250 metres in a three-metre construction gap. Immediately after the work cycle, the RUS 1000 S leaves behind a new track that can be driven on at 60 kilometres per hour. This is made possible by the layer-by-layer compaction of the ballast bed. The first tamping operation takes place immediately after the new track has been laid and ballasted. In addition, the track renewal and ballast bed cleaning train impresses with countless details, the development of which has been based on more than ten years of operational experience.

High availability at lower costs

According to Peter Gal, member of the board of Swietelsky AG, it is thus possible to further reduce costs and, above all, the track possession time, that is so important for infrastructure operators, without sacrificing quality or the safety of railway operations.

According to Johannes Max-Theurer, CEO Plasser & Theurer, the large machine is the result of a development that required three partners: an infrastructure manager like ÖBB, a contractor like

Swietelsky, who invests in such technologies with a long-term visionary commitment, and finally Plasser & Theurer to design and build this complex machine. Being the result of a long chain of

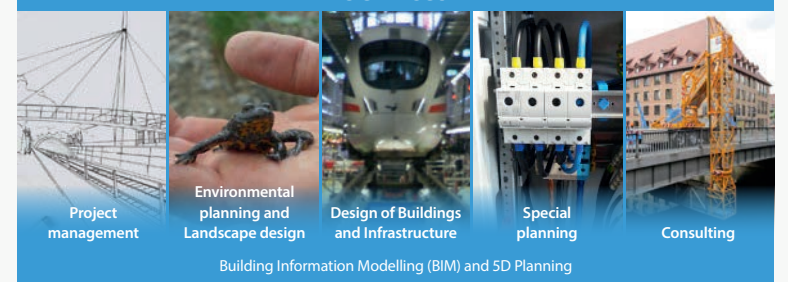
innovations, the RUS 1000 S is proving its value with its first customer orders. With each subsequent use, the specialists at Swietelsky are able to exploit the machine's potential even better.



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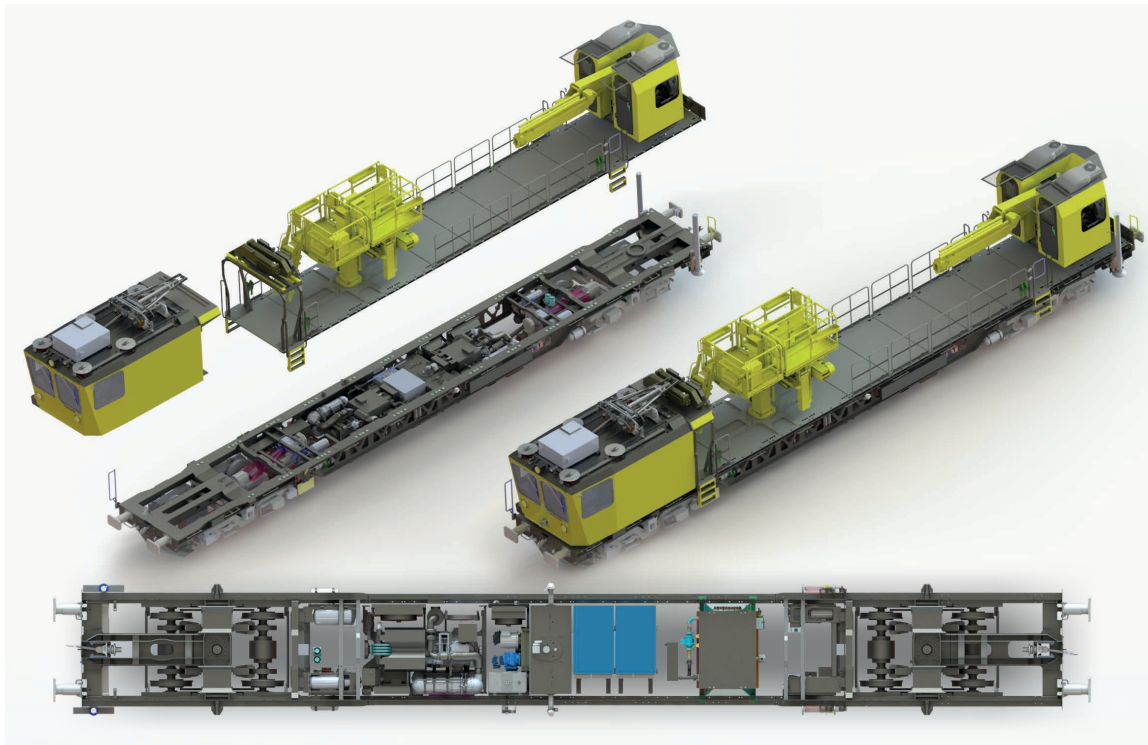
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Modular technology for a climate-friendly future

Rail vehicles from Windhoff incorporate a sophisticated technology which allows the exchange of components such as containers, cranes, working platforms and many more within the shortest possible time and with just a few simple manual operations. With the help of this modular technology, the flexibility requirements of customers are met and the range of possible operations of the vehicle is significantly expanded.



Modular principle in the multifunctional zone above the frame (yellow) and in the underframe (blue). Graphic: Windhoff Bahn- und Anlagentechnik GmbH

The rail vehicle technology product division of Windhoff Bahn- und Anlagentechnik GmbH from Rheine in Westphalia, Germany, comprises rail vehicles and equipment for main lines, branch lines, urban railways and metros. The rail vehicles are used all over the world for the construction and maintenance of track facilities and catenaries, for freight transport and as fire-fighting and rescue vehicles.

MPV® VentuS® with modular accessories

The most recent development is the continued evolution of the Multi-Purpose Vehicle (MPV®), which offers an almost infinite variety of configuration possibilities. The length over buffers is between approximately 16.5 and 22.7 metres, depending on the selected vehicle frame and intended use. Three different front modules and seven different centre modules are available which means that 21 frame lengths are possible. In addition, the customer can choose between three different bogies.

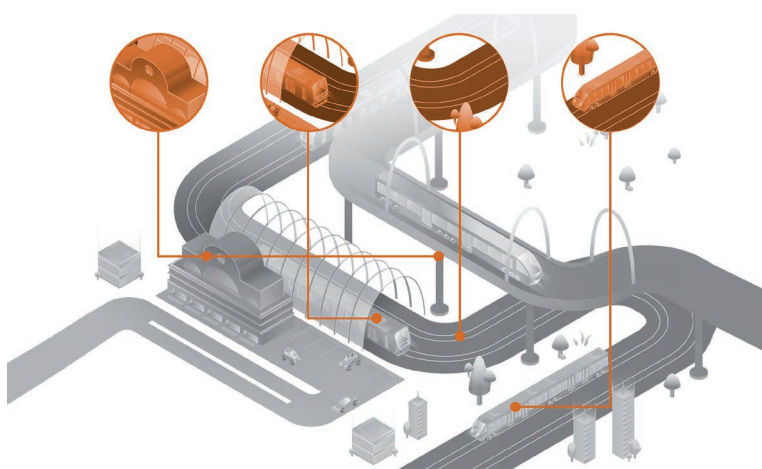
Provided with 5- or 10-foot modules, the multifunctional zone now offers freedom of configuration for the accessories. In addition to three

different cab lengths for up to seven persons with modular interior fittings, air-conditioned if desired, superstructures such as cranes, elevating work platforms, catenary pushers, containers, winter equipment and much more from various renowned manufacturers can be fitted. These can be exchanged with little effort if the purpose of the vehicle changes.

Future-proof propulsion concept

The real highlight with regard to the future viability of the MPV® VentuS®, however, can be found elsewhere: in the undercarriage. Modifications which make the vehicle fit for the future can also be made in the undercarriage, fully irrespective of the multifunctional zone. There is a choice of different traction units and their associated energy storage or traction components. In addition to the classic diesel engine, Windhoff offers a hydrogen motor and an electric engine, so that the drive unit can be easily replaced, making an MPV purchased today still operational in 20 years' time in compliance with the environmental protection regulations applicable in future.

Sensor systems for more efficiency on rail networks



The simulation of numerous operational processes in rail traffic with the help of smart sensor systems. Image: vectorpocket/AdobeStock

Digital twins offer great opportunities for many areas of rail traffic. The realistic simulation of operational processes enables railway undertakings to become more efficient and customer-friendly. Smart sensor systems with their enormous computing capacities create the basic conditions for the use of digital twins.

The sensor systems from ASC GmbH in Pfaffenhofen, Bavaria, have been specifically developed for intel-

ligent monitoring solutions such as condition monitoring and predictive maintenance in rail traffic. The main

feature of these smart sensor systems is their ability to evaluate the collected data and to extract predefined feature vectors from them. In this way, such systems can make decisions and predictions on their own.

Real-case simulations

For rail transport, digital twins of trains, track layouts or buildings harbour a huge potential. Among other things they can generate physically correct live simulations of a railway system. In this way, they can, for example, calculate an optimised timetable or an ideal diversion route in the event of a traffic disruption.

Moreover, digital twins can also be used to simulate the effects of changed routings. In this way, planners can anticipate any adverse effect on local residents and adjust routes accordingly.

High computing power allows for operational optimisation

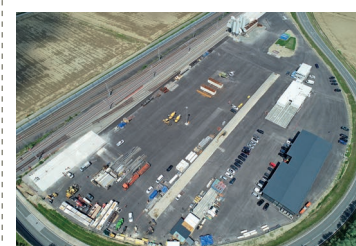
Digital twins can furthermore help to optimise the maintenance of railway infrastructure. The enormous computing capacity of ASC's smart sensor systems allows trains and tracks to be monitored in real time. As a result, any risk component can be detected and replaced before it is damaged – thus saving time and money. Simulation based on dig-

ital twins also has the advantage that different scenarios can be simulated in time-lapse and critical resources are thus saved in the process.

As they can be perfectly adapted to any application, smart sensor systems are extremely powerful and will therefore provide the basis for these and other future-oriented applications.

NEWS

ARGE wins Koralm tunnel follow-up contract



Construction site preparation area for railway equipment at the Koralm tunnel

Photo: Rhomberg Bahntechnik GmbH

With a planned length of 33 kilometres, the Koralm tunnel will become Austria's longest railway tunnel, strengthening the Baltic-Adriatic corridor. The award of the contract for the railway equipment is now another important milestone on its way to completion. A consortium consisting of Porr Bau GmbH and Rhomberg Bahntechnik GmbH will be responsible for the railway equipment of this large ÖBB Austrian Railways project that will connect Carinthia and Styria. The current railway equipment of the high-speed line through the Koralm

Tunnel will not be the only task for the consortium. The consortium partners Porr Bau GmbH and Rhomberg Bahntechnik GmbH have now also won the contract for the follow-up contract "GU2-TA". This means that after the construction and commissioning of the ballastless slab track, the two Austrian railway engineering specialists will also take care of all further construction measures through to the commissioning of the 33-kilometre long Koralm tunnel. Porr is responsible for the commercial management, while Rhomberg Bahntechnik is in charge of the technical lead. The consortium will be responsible for the complete railway equipment of the infrastructure project and will carry it out until the line is commissioned at the end of 2025. This includes all cable installations, telecommunications, energy and safety technology, mechanical equipment as well as construction work such as penetrations or metal constructions. The contract volume is around 110 million euros.

Platform solution for cyber security



Thanks to the clear presentation, threats can be easily identified.

Photo: Cervello Ltd.

To ensure safe and reliable transportation while avoiding operational disruptions, railway companies need cyber security solutions, that address the specific needs of railways. The Israeli company Cervello Ltd. has developed a special security solution to safeguard technologies, protocols, methods and systems of the railway sector from cyber-attacks.

■ The system can be passively integrated into the complex architecture and network environments of railways. It works using a patented non-intrusive zero-trust authentication technology and provides an unprecedented display technology, a real-time capability to detect cyber threats and efficient threat remedies to ensure uninterrupted operations. A non-trusting but fully passive and non-intrusive model assumes that every connection or command is potentially malicious and therefore delivers a tailored passive authentication that enables an early detection of threats. It alerts the relevant actors in real-time about potential cyber threats. Once a threat has been detected and isolated, a step-by-step manual provides a clear remedial

strategy developed by leading cyber security experts in order to achieve a fast resolution and to avoid further damage or delays.

Visualisation of the operating environment

By integrating Cervello's fully passive, non-intrusive, railway-specific solution with railway communications, signalling and control systems, rail operators and infrastructure managers can ensure security without risking disruption to business continuity or compromising passenger safety. The platform enables both a detailed and a comprehensive visualisation of the entire operational environment by dividing all connected assets and clusters

into security zones and providing an overall record of the operational dependencies, forensics, vulnerabilities and risk exposure of each asset.

Complex data for risk assessment

Cervello's deeply-engineered cyber security forensics and the isolation of threats provide a precise overview of the threat landscape, raw data, communication protocols, data flow and behavioural analysis. With this information, rail operators and infrastructure managers can accurately assess their operational and business risks and gain the necessary context to ensure uninterrupted operations.



A look into the interior of the 'IdeenzugCity'

Photo: O. Lang/DB AG

The 'IdeenzugCity' train project of Deutsche Bahn (DB) focuses on the careful use of resources, which is also reflected in its modular seating concept. Entire seating groups disappear at the push of a button, and more standing room is created. In this way, a fleet of S-Bahn rapid transit trains can meet the demand for passenger movements with fewer trains at peak times, while offering greater comfort at less busy times.

■ The resource-saving selection of materials is also of great importance, and this becomes apparent, for instance, in the choice of flooring for the 'IdeenzugCity'. By choosing Marmoleum FR² from Forbo, the 'IdeenzugCity' team found a solution which meets all the high technical requirements for floor coverings in rail vehicles, offers a refreshing range of designs and is a carbon-neutral flooring material.

Where does Marmoleum FR² come from?

With linoleum, Forbo Flooring GmbH has been producing a sustainable floor covering for more than a century. It is

made of up to 98 percent natural and rapidly renewable raw materials such as jute, linseed oil, wood and pulverised limestone as well as natural resins. As they grow, the vegetal components capture CO₂ through photosynthesis. This makes linoleum climate-neutral without the need for certificates and independent of fluctuations in the crude oil market. Marmoleum FR² is an environmentally friendly and extremely durable solution with the highest load-bearing capacity and an appealing variety of designs. In this way, the choice of flooring materials for the 'IdeenzugCity' is helping Deutsche Bahn to make short-distance passenger transport of the future much more environmentally friendly and appealing.

Anzeige

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InnoTrans on course – High demand from exhibitors from all over the world

Photo: Messe Berlin GmbH

■ With around a year to go until InnoTrans, the international trade fair for transport technology has already reached the level of the previous event. On 15 October, when the official registration deadline expires, the 103,000 m² of hall space as well as the track and outdoor areas are almost fully booked. Only a few remaining spaces are still available. With hub27, opening its doors for InnoTrans in

2022, InnoTrans will benefit from additional space next year. The multi-functional hall is located directly next to the track area and is already fully booked. International exhibitor numbers are also at the same level as at the previous event, with 64 per cent from 57 countries.

The 13th edition of the world's leading trade fair for transport technology will be held at the Berlin Exhi-

bition Grounds from 20 to 23 September 2022. Exhibitors will present their innovations in the segments Railway Technology, Railway Infrastructure, Public Transport, Interiors and Tunnel Construction. A new feature is the Mobility+ exhibition area within the Public Transport segment. This means that InnoTrans is aimed specifically at providers of complementary mobility services. Here everything

revolves around shared mobility, mobility apps and first / last mile. The Bus Display will also be present again, offering vehicle manufacturers the opportunity to present their products in the Static Display as well as rides on the directly connected Demonstration Course.

For a better overview a current site plan is available on the website innotrans.com.

Live on site and digitally on the web

To familiarise yourself with the topics covered by InnoTrans 2022, the InnoTrans Preview offers a virtual foretaste. Whether webinar, podcast or

product video – the InnoTrans Preview offers all exhibitors of InnoTrans 2022 the opportunity to present their highlights or innovations well in advance of the trade fair. As an example, the InnoTrans Podcast is all about the future of mobil-

ity. The Preview was recently expanded to include the two new components 'Campus' and 'Innovation'.

Digital add-on services will also be available at InnoTrans itself. In addition to live streaming of the supporting pro-

gramme and Speakers' Corner, as well as the offer for on-demand videos after the trade fair, exhibitors will be able to showcase themselves on the InnoTrans digital industry platform 365 days a year.



Smart Country Convention – Special Edition: 26-27 October 2021

Photo: Messe Berlin GmbH

Who is addressed by the Smart Country Convention?

SCCON is addressing everyone who wants to drive forward the digitalisation of the public sector – decision-makers and civil servants, companies providing services of general interest

and the digital economy, as well as representatives from science and research along with representatives from the political sector. The aim is to learn from best practice, to accelerate the digitalisation process and to implement it in a citizen-oriented way. This is why a comprehensive exchange of knowledge

and ideas is so important. In Germany, for example, we can benefit from experiences of our European neighbours like Denmark, Lithuania and Austria. But cross-sector exchange is also highly important. It is particularly in the fields of Smart City and Smart Region where we can see how strongly issues such as

mobility, energy and digitalisation are growing together.

What to expect from SCCON?

Participants can look forward to numerous highlights: the programme includes lectures, panel discussions, examples of best practice and digital trends. They can be followed by live streaming or viewed later on demand. The topics include questions of mobility in cities and rural areas, sustainability, GAIA-X in municipalities as well as IT security, digital platforms and open data. Furthermore, exhibitors from the digital economy will present their innovations and services. Of course, networking will have a priority as well: By this way the participants can exchange ideas and network with experts from politics, the digital economy and science via chats, private meetings or spontaneous video calls. The Smart Country Start Awards in the categories E-Government and Smart City will be an exciting event. It will encourage young companies, talented new business founders and visionary ideas around the digitalisation of the public space.

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